UX and Usability of Websites: A cultural perspective

Ather Nawaz, PhD.
Lecturer
Copenhagen Business School

www.athernawaz.com
• Denmark, CBS
• UCD, Usability and UX
• Website UX
• Cultural perspective
• Evaluation (Card sorting)
• Summary
Denmark
Denmark

caroline wozniacki

Carlsberg
Arla
MAERSK
| **Established** | 1917 |
| **Type** | Public University |
| **Budget** | Funding (million euro) 151.7 |
| **Academic staff** | 566: full time, 720: part time |
| **Admin. staff** | 1,065 |
| **Students** | 17,000 (1,903 foreign students) |
| **Exchange program** | 320+ universities and business schools around the world |
| **Programs’s langage** | 43% English |
RANKING:
Copenhagen Business School (CBS)

Eduniversal

Europe 2
World 3

Financial times MSc-ranking[1]

<table>
<thead>
<tr>
<th>Year</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>14</td>
</tr>
<tr>
<td>2006</td>
<td>18</td>
</tr>
<tr>
<td>2007</td>
<td>21</td>
</tr>
<tr>
<td>2008</td>
<td>22</td>
</tr>
<tr>
<td>2009</td>
<td>22</td>
</tr>
<tr>
<td>2010</td>
<td>22</td>
</tr>
</tbody>
</table>
User-Centred Design
Process and Tools
An approach to User Interface (UI) development and system development.

Focuses on understanding:

- Users, and
- Their goals and tasks, and
- The environment (physical, organizational, social)

Pay attention to these throughout development
The activities are carried out in an iterative fashion, with the cycle being repeated until the particular usability objectives have been attained.

Essential activities in UCD

(ISO 9241-210, 2010)

1. Understand and specify the context of use
2. Specify the user and organisational requirements
3. Produce prototypes
4. Carry out user based assessment
5. Meets requirement

Start
1. Analysis

- Surveys
- Interviews
- Focus groups
- Advanced observation techniques
  - Field studies
  - Contextual inquiries
  - Ethnography
2. Design

Wireframes
Detailed design
Paper prototypes
Online mockups
Functional prototypes
3. Evaluation

Guidelines reviews
Heuristic evaluation
Design walkthroughs ("cognitive walkthroughs")
Usability testing and UX evaluation
3. Implementation and deploy

Analysis  Design  Evaluation  Implementation  Deployment
UX and Usability of Websites: A cultural perspective
UX: A person’s perception and responses that result from the use or anticipated use of a product, system or service” ISO 9241- 210).
Evaluation

- USER EXPERIENCE QUESTIONNAIRE (UEQ)

- ATTRACTIVENESS, EFFICIENCY, PERSPICUITY, DEPENDABILITY, STIMULATION, NOVELTY

Western cultures group objects together based on **shared object attributes**.

Eastern cultures group objects together based on **shared relationships**.

Example of classification for sports goods

Thematic

- Football
  - Referee
  - Football player
  - Goals
  - Goal post
  - Football
  - shirt
- cricket
  - Umpire
  - ball
  - wicket
  - Goal post
  - cricket players
- swimming
  - Judge
  - swimming glasses
  - swim suit
  - swim time

Taxonomic

- Person
- Round
- Point types
- Multiplayer
- Single player
- Cloths
- Protection
- Umpire
- Referee
- Judge
- Ball
- Runs
- Goals
- wicket
- Football player
- Swimmimg
- Swim suit
- swim glasses
- shirt
- Helmet

- Holistic cognitive style: Users try to take holistic approach to see all the relevant information
- Analytical cognitive: Users are goal oriented and only look at what is required and not on related information.

Example: Information finding on Websites: Click Analysis

Optimal nr. Of clicks to find information

- **Goal A**: Home page → Click 1 → Privacy policy
- **Goal B**: Home page → Click 1 → Delivery time
- **Goal C**: Home page → Click 1 → Automobile Accessories → Click 2 → Smart travelling Mug
- **Goal D**: Home page → Click 1 → Electronics → Click 1 → Wireless DoorBell
Case studies: Comparing E-commerce websites in Pakistan and Malaysia
Overview of webpages
Focus in Iceberg

Surface
Visual design

Skelton
• Interaction Design
• Navigation Design
• Information Design

Structure
• Interaction Design
• Information Architecture

Scope
• Functional Space
• Content Requirement

Strategy
• User needs
• Site Objectives
Morville and Rosenfeld’s model for Information Architecture

- Context
- Content
- Users

Information Architecture
Claim

Cultural Context of Website Use

- Cognitive style
- Shared Knowledge
- Cultural context

Impact

Information Classification

Results

- Different website Structures
- Usability problems
“Classification of information in the structure of websites should adhere to local users’ cognitive style for website use and should comply with local users’ model of information classification on websites”

THERE ARE DIFFERENT WAYS TO SORT CONTENTS

{ AND BEST MAY NOT BE WHAT WE MIGHT THINK}
Pineapple, banana, peach, apple, grapes, carrot, tomato, eggplant, bell pepper

FRUITS?

VEGETABLES?
Research Question

What is a quality fit between the structure of a website and user’s model for information classification of the website?

• RQ 1: What is the nature of website usability in Asia?

• RQ 2: How comparative analysis of users’ classification with structure of university website in Pakistan and Denmark reveals elements of cultural context of users in the use of website?

• RQ 3: How is the match between the structure of websites and users’ classification of website contents explains the contextual elements of website structure in Pakistan and Malaysia?

• RQ 4: How the choice of analysis for card sorts study impacts on cross cultural and cultural website research?
Nature of Website Usability in Asia

Source: ACM, Science Direct, Scopus, Web of science

The distribution of website usability articles in Asia

Usability of Religious Websites

• Study 1,2: Exploratory Study (PK-DK)
• Study 3: Case Study (PK)
• Study 4: Case study (MY)
• Card sorting
• Card-based brainstorming
• Information retrieval Usability evaluation
• Retrospective interview
Research Question

CARD SORTING

- Knife Set
- BAR B Q Grill
- dish washer
- Rice cooker
- Citrus Juicer
- Slice Toaster
- Electric Kettle
- Coffee Makers
- Electrical oven
- Blender
- Coffee Grinders
- bed sheet
- Pillow
- cleaning cloth
- shower curtain
- laundry bag
- Swatter
- Sleeping bag
- Table lamp
- Rechargeable fan
- washing machine
- water cooler
- Vacuum Cleaner
- Fan heater
- digital Quran
- Water Purifier filter
- Hair trimmer
- Sewing Machine
- Hair dryer
- tooth brush
- Shaver
- body brush
- Mosquito-Hitting
- prayer watch
- Floor cleaner
- Steam iron
- study table
- Insect killer
- Ironing board
- Baby Carrier
- Cloth Hanger Set
Scenario

Cluster or group

User X

User Y

User Z
### Card sorting Analysis: Edit-Distance (Method)

#### Original Card Sort

<table>
<thead>
<tr>
<th>Sort A</th>
<th>Sort B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_1 = {1, 2, 3, 4}$</td>
<td>$B_1 = {1, 2, 3}$</td>
</tr>
<tr>
<td>$A_2 = {5, 6, 7}$</td>
<td>$B_2 = {4, 5, 6}$</td>
</tr>
<tr>
<td>$A_3 = {8, 9, 10}$</td>
<td>$B_3 = {7, 8, 9}$</td>
</tr>
<tr>
<td>$A_4 = {}$</td>
<td>$B_4 = {10}$</td>
</tr>
</tbody>
</table>

#### Step One

<table>
<thead>
<tr>
<th>Sort A</th>
<th>Sort B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_1 = {1, 2, 3}$</td>
<td>$B_1 = {1, 2, 3}$</td>
</tr>
<tr>
<td>$A_2 = {5, 6, 7}$</td>
<td>$B_2 = {4, 5, 6}$</td>
</tr>
<tr>
<td>$A_3 = {8, 9, 10}$</td>
<td>$B_3 = {7, 8, 9, 10}$</td>
</tr>
<tr>
<td>$A_4 = {}$</td>
<td>$B_4 = {10}$</td>
</tr>
</tbody>
</table>

#### Step Two

<table>
<thead>
<tr>
<th>Sort A</th>
<th>Sort B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_1 = {1, 2, 3}$</td>
<td>$B_1 = {1, 2, 3}$</td>
</tr>
<tr>
<td>$A_2 = {4, 5, 6, 7}$</td>
<td>$B_2 = {4, 5, 6}$</td>
</tr>
<tr>
<td>$A_3 = {8, 9, 10}$</td>
<td>$B_3 = {7, 8, 9}$</td>
</tr>
<tr>
<td>$A_4 = {}$</td>
<td>$B_4 = {10}$</td>
</tr>
</tbody>
</table>

#### Step Three

<table>
<thead>
<tr>
<th>Sort A</th>
<th>Sort B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_1 = {1, 2, 3}$</td>
<td>$B_1 = {1, 2, 3}$</td>
</tr>
<tr>
<td>$A_2 = {4, 5, 6}$</td>
<td>$B_2 = {4, 5, 6}$</td>
</tr>
<tr>
<td>$A_3 = {7, 8, 9, 10}$</td>
<td>$B_3 = {7, 8, 9}$</td>
</tr>
<tr>
<td>$A_4 = {}$</td>
<td>$B_4 = {10}$</td>
</tr>
</tbody>
</table>
Pakistan:
Putting contents into groups

First level categories 6.31 ($SD \pm 2.80$)
second level categories 1.59 ($SD \pm 2.69$)
Malaysia:
Putting contents into groups

First level categories 6.03 (SD ± 2.40)
Second level categories 4.76 (SD ± 5.24)
a) Danish participants

b) Pakistani participants

Task completion time in seconds

Answer Depth

Task completion time in seconds

Answer Depth
Relationship between Success and Depth of answer

b) Danish participants

b) Pakistani participants
Comparison of Information acquisition results

Pakistan:
First level: \( p < 0.021 \)
From holistic to analytical: Change over time in website users’ cognitive style
Mental Model and Classification

• Maturity level of research on “website usability in Asia”
  Primary stage of Development.
• Focus on usability is not Universal

<table>
<thead>
<tr>
<th>Level</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognised</td>
<td>Problem recognition, performed processes</td>
</tr>
<tr>
<td>Considered</td>
<td>Quality in use awareness, user focus</td>
</tr>
<tr>
<td>Implemented</td>
<td>User involvement, human factors technology, human factors skills</td>
</tr>
<tr>
<td>Integrated</td>
<td>Integration, improvement, iteration</td>
</tr>
<tr>
<td>Institutionalized</td>
<td>Human-centred leadership, organizational human-centeredness</td>
</tr>
</tbody>
</table>
Information Classification on University Website

- Higher edit distance and lower success rate (PK)
- Higher Task retrieval time (PK)
- Edit-Distance of users

A Comparison of Card sorting Analysis

- Information structure of a website should not only come from the analysis of card sorting, but should be evaluated by subsequent usability testing.
Indication that users in **Pakistan** have a more **holistic approach** compared to **Malaysian** and **Danish** website users in their approach to information acquisition on websites

- Users’ analytical or holistic cognitive styles are tied to the things people do in a culture such as use of language, and the exposure to the technologies and internet use
- Subtle differences in users’ preferences for use of language need to be accommodated in websites
- People draw their conception of information structure from the social activities they perform
- Understanding the context of use for language choice in a cultural group
  - Using language for upward mobility
  - Using particular language to polish skills to understand a language
Reference Literature

Download: http://goo.gl/txfFB0

Download: http://goo.gl/uwDJ2P

Download: http://goo.gl/tVJpGr

Download: http://goo.gl/H2ubfd

Download: http://goo.gl/N6rauW

Download: http://goo.gl/HaUuA0