A Measure of Fun
Extending the scope of web usability

Charlotte Wiberg

Department of Informatics
Umeå University, Umeå, Sweden.
Title
A Measure of Fun. Extending the scope of web usability.

Abstract
Currently usability research and practice are facing a challenge. The focus of design concerns is expanding from predominantly functional aspects of IT systems to overall user experience, which has direct implications for the area of usability evaluation. When the focus is on experiences rather than on more functional aspects of systems, a revision of usability methods is required. The aim of the study reported in this thesis is to explore the potential of traditional usability evaluation approaches to deal with issues related to user experience, such as fun and entertainment.

The empirical study reported in the thesis deals with fun and entertainment, employs concepts and methods of web usability, and specifically focuses on the so-called entertainment web sites (EWSs). Existing studies in the area of usability evaluation are examined to determine to which extent these studies can shed light on evaluation of fun and usability. It is concluded that evaluation of fun and usability remains an open issue. Then apparently the most relevant theories of fun and usability are analyzed to establish if these theories can help operationalize fun and entertainment as aspects of web usability. Since the input from theories is judged as not specific enough to guide a revision of usability evaluation methodology, the study defines fun and entertainment relevant for usability evaluation as properties intentionally implemented by designers. In the study, traditional usability evaluation methods are applied on EWSs and based on these results the methods are revised. Finally, these revised methods are used in evaluations of EWSs once more.

The results of the study indicate that traditional usability evaluation methods can be applied to evaluation of entertainment and fun in the context of web usability. More specifically, existing empirical evaluation and heuristic evaluation methods are found to produce relevant and potentially useful evidence when applied to evaluation of entertainment web sites. Therefore, the main conclusion of the thesis can be formulated as follows; while the underlying concepts and principles of web usability can be employed in evaluation of entertainment and fun, specific evaluation methods need to be revised. The results reported from this study must be seen as a step towards development of appropriate methodology for assessing user experience.

Keywords: Usability, web usability, usability evaluation methods, inspection methods, empirical usability evaluation methods, funology, entertainment web sites, HCI.

Language
English

ISBN, ISSN and key title
ISBN 91-7305-555-7
ISSN 1401-4572, RR-03-03

Number of pages
296
Acknowledgements

When looking back on the process of writing a Ph.D Thesis one come to realize the true nature of collaborative work. Even if such a process sometimes is lonely, that it not how I will remember my writing process of this thesis. To all the people, mainly at the Department of Informatics, who have spent endless hours discussing topics related to usability and fun with me during these years – thank you!

Viktor Kaptelinin has been my supervisor, mentor and support throughout the whole process of writing the thesis. We sometimes had truly different opinions and strong arguments – often with constructive results though. You have had to handle so much – frustration, tears, anger, irony and tight time-schedules in reviewing of articles. At so many times you turned my blurry grey thoughts to clear black and white dichotomies. I will always remember your most commonly used phrasing whenever I came up with my ideas; ‘There are actually three issues here.. number one… number two.. and finally, and perhaps most important, number three…’ You were always there, whenever I needed you and I cannot thank you enough!

Erik Stolterman, my second supervisor, I would like to acknowledge for giving me support in the most difficult passages of the process of the thesis, and for broadening my horizons in my research. You are always a source of inspiration.

Kalle Jegers is another important person to acknowledge in this context. With a true interest in HCI and usability you have always been there for discussions. We have shared many hours in evaluations throughout our projects and you have never complained on high workload or tight schedules. Thank you also for your work with the formatting of the thesis. It is a true joy to work together with you.

Another person to acknowledge is Maria Nordmark – perhaps the most passionate person for usability related issues there is to be found. We met during my collaboration with Paregos at a project meeting in Skellefteå and we immediately connected. We have shared so many interesting discussions about all our collaboration projects throughout the years. Maria – you cannot fully understand how much your support meant to me in times of regrets and frustration. Your phone calls are always a source of inspiration.
So many people have been practically involved and contributed in so many ways. I have so many people to thank – now I am starting to feel like I am giving a speech at the Oscar's, which I am not – but there are so many people to mention. First of all, I would like to acknowledge the experts for their efforts in the expert evaluation. To protect your identity I do not mention you by name, but you all know who you are. Your contribution to the results of thesis was very important. Johan Tufberg, Claes Tojkander and Karin Danielsson, thank you for endless hours collaborating with me in the empirical usability evaluations. I would like to give special thanks to the panel at the pre-seminar for your efforts and valuable input – John Waterworth, Ulrika Westergren, Ulf Hedestig, Carl-Johan Orre and Kalle Jegers. If this would have been the Oscar's the time-limit guy would now wave furiously, but fortunately it isn’t.

People outside informatics to be acknowledged are the staff at Paregos Mediadesign AB. Throughout our collaboration we have had our share of disbelieves and different worldviews, but overall it has been a great trip! If I had a chance to choose I would do it all over again. Special thanks to Maria Bergmark, Eva Ringström, Niklas Forslund, David Eriksson, Marlene Eriksson and Henrik Aspén. I would like to give special thanks to Ellenor Lindgren for design of the layout of the thesis.

Marie Wiberg, Ph. D. student in Statistics at Umeå University, gave valuable input and help in everything related to statistics in the thesis. I have a slight feeling I am repeating myself when saying this, but I know you believe me when I say it – I could NOT have done it without you.

Pat Shrimpton, Department of Modern Languages, who did the proofreading of the thesis – thank you for spending endless hours reading and sharing your knowledge.

On a personal level I would like to thank my parents. You have always supported me, whatever I have come up with in life – and this was no exception. You are truly the best parents one could wish for!

Finally, Mikael – without you, what is the point?

Charlotte Wiberg
Umeå, November, 2003
Introduction
Aim, research questions, and intended outcomes of the study
Cooperation with software industry
Publications
Structure of the thesis
How to read the thesis

Part I- Methods and theories in usability and fun

Chapter 1 Usability
The usability concept
Evaluating usability
Methods in usability evaluation
Choice of methods in relation to usability aspects
Methodological considerations
Web Usability
Usability and user satisfaction in HCI research
Usability and user satisfaction in other research fields
Usability and fun: An overview of relevant research in Human Factors and HCI

Chapter 2 Entertainment and fun as aspects of web usability
Entertainment and fun: Definitions
Related theories and frameworks
The four pleasures
Emotion and design
The four experience realms
The concept of flow
Categorizing web sites in general
Categorizing entertainment web sites
Operationalization of entertainment and fun
Features of entertainment web sites
Discussion
Chapter 3 Usability evaluation methods as objects of study

Methods defined

Usability Engineering methods in research and practice

Process- vs. product-oriented methods

Related work

Summary

Discussion

Part II- Evaluation of entertainment web sites using traditional methods

Chapter 4 Strategy and structure

Strategy

Structure

Materials used in the study

Understanding and generalization of qualitative results

Chapter 5 Using traditional empirical usability evaluation methods

Background

Methodology

Results

Discussion

Chapter 6 Using traditional inspection methods – experts

Background

Method

Results

Discussion

Chapter 7 Using traditional Inspection Methods – novices

Background

Method

Results

Discussion
### Part III- Re-Design of Traditional Evaluation Methods for Entertainment web sites

**Chapter 8 Revision and re-design of empirical evaluation methods**

153

- Results from the first phase of Empirical Evaluation Methods
  154
- Sources of empirical evidence for revisions of empirical evaluation methods
  155
- Re-Designing and revising methods
  156
- Discussion
  157

**Chapter 9 Revision and re-design of inspection methods**

159

- The process of designing new heuristics for evaluating entertainment
  160
- Discussion
  167

### Part IV- Evaluation of refined usability evaluation methods for entertainment web sites

**Chapter 10 Applying revised empirical usability evaluation methods to entertainment web sites**

171

- Background
  171
- Method
  172
- Results
  176
- Discussion
  178

**Chapter 11 Applying revised inspection methods to entertainment web sites**

179

- Background
  179
- Method
  179
- Results
  182
- Discussion
  188

**Chapter 12 Applying revised inspection methods to entertainment web sites– second iteration**

189

- Background
  189
- Method
  190
- Results
  195
- Discussion
  200
Part V- Conclusions

Chapter 13 Summary of empirical findings
Empirical usability evaluation of entertainment web sites
Evaluation of entertainment web sites using inspection methods
Discussion

Chapter 14 Discussion
Methods as tools vs. methods as ‘objects of study’
Process-oriented vs. product-oriented usability evaluation methods
Judgments on the basis of heuristics for methods
Division of entertainment web sites into form vs. content
Other possible approaches to evaluate fun and entertainment.
General issues in relation to evaluating entertainment and fun
Concluding remarks

References

Appendix I- Material in the studies
Empirical usability evaluations
Expert tests – HCI experts and novices
Expert tests – revised heuristics
Empirical usability evaluations – revised methodology
Expert evaluations – further revised heuristics and methodology

Appendix II- Selected data material
Part 2 – empirical usability evaluation
Part 2 – Inspection method evaluation – experts
Part 2 – Inspection method evaluation – novices
Part 4 – Empirical usability evaluation – revised methodology
Part 4 – Inspection method evaluation – revised methodology
Part 4 – Inspection method evaluation – further developed methodology

Appendix III- The web sites evaluated in the study