

07

Avaliação c/ Utilizadores

Interacção com
Computadores

© Ciências, ULisboa

9 - AVALIAÇÃO

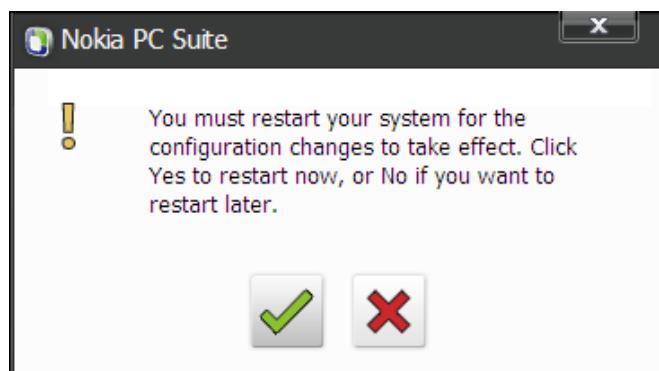
A avaliação tem como objetivos principais avaliar a usabilidade, funcionalidade e a experiência de interação dos utilizadores com o sistema, procurando garantir que este se comporta como esperado e que satisfaz os requisitos do utilizador. Adicionalmente, pretendemos identificar problemas específicos do *design*, quer de funcionalidade quer de usabilidade, para serem corrigidos no próximo ciclo de desenvolvimento.

Neste capítulo apresentamos os vários tipos de avaliação que podem ser utilizados para verificar a usabilidade de uma interface. Começaremos pelas avaliações analíticas, que não envolvem utilizadores, nomeadamente a avaliação heurística e a avaliação preditiva, passando depois para a avaliação com utilizadores.

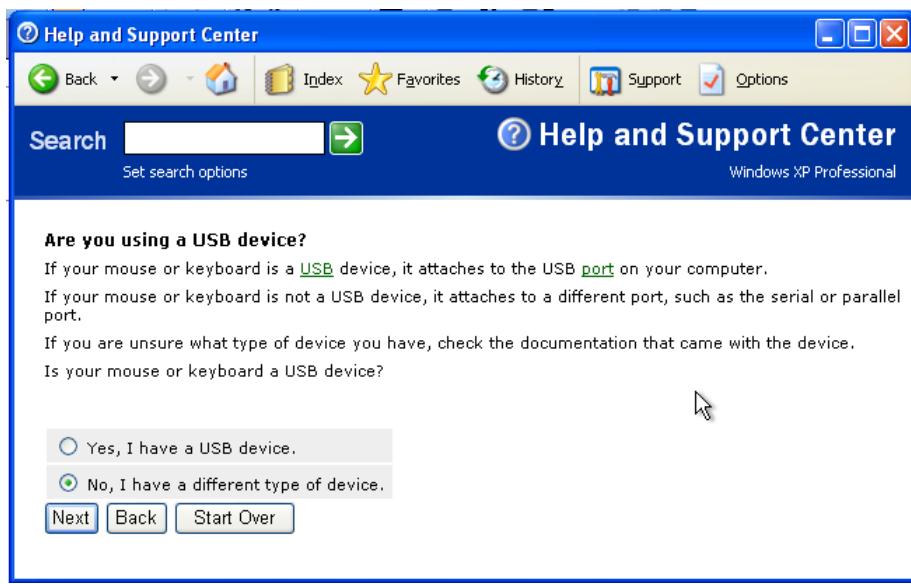
9.1 TIPOS DE AVALIAÇÃO

Quando avaliamos um sistema em termos de usabilidade procuramos saber junto do utilizador, por exemplo, qual é a facilidade de aprender, memorizar e usar o sistema, e perante o sistema, qual é a sua eficácia, eficiência e segurança. Em relação à funcionalidade do sistema, pretendemos saber se os requisitos do utilizador foram satisfeitos,

Melhor e Pior ?



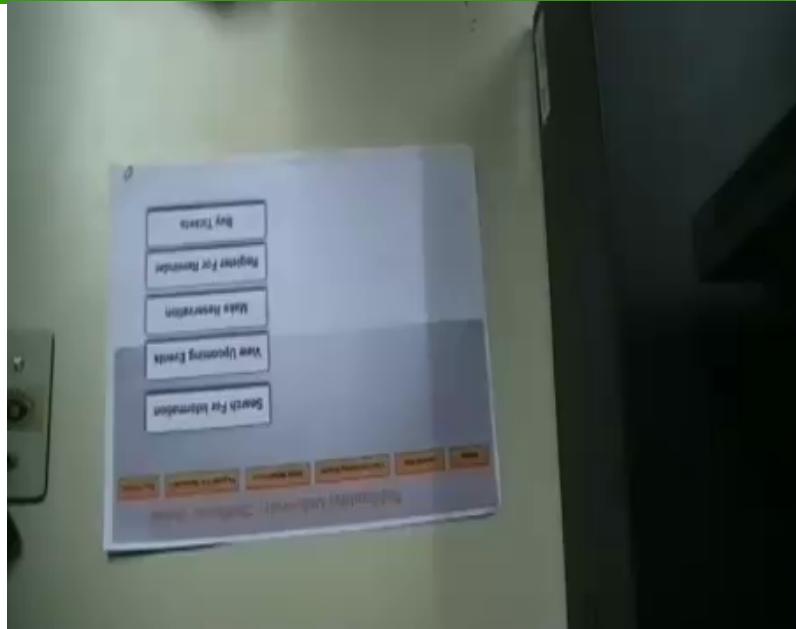
Melhor e Pior?



Fidelidade na Prototipagem



Avaliação de Protótipos



Perguntas

Qual a diferença entre um PAF e um PBF

O que é o Design Paralelo?

Resumo Aula Anterior

O que são protótipos?

Características

Abrangência e Profundidade
Fidelidade e Funcionalidade

Tipos de Protótipos

Cenários de Interação
Storyboards
Protótipos de Papel
Protótipos Funcionais
Wizard-of-Oz

Protótipos de Papel

Fazer e Avaliar

Sumário

Métodos e Tipos de Avaliação

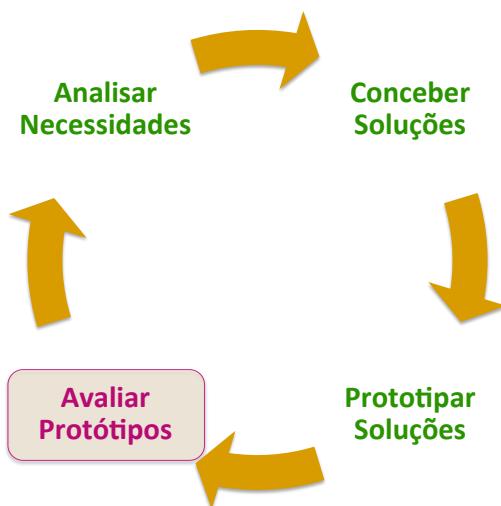
Avaliação com Utilizadores

Planeamento dos testes
Fases da sessão de testes
Participantes
Métodos de recolha de dados

01

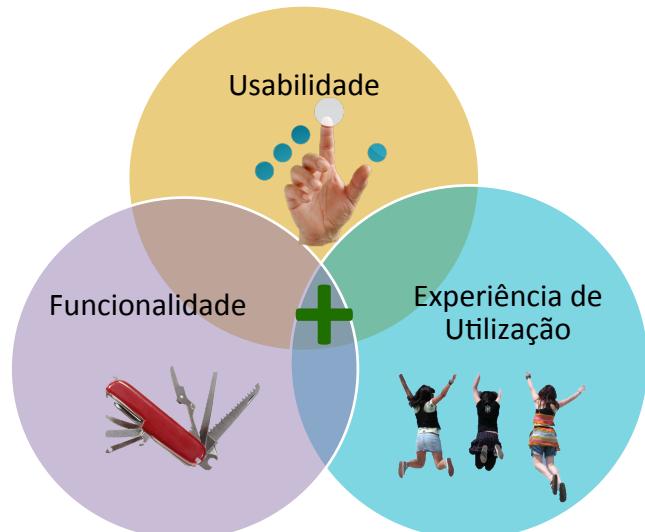
AVALIAÇÃO

Avaliação no Ciclo Iterativo



Objetivos da Avaliação

Avaliar + Identificar Problemas



Métodos de Avaliação



Analítico

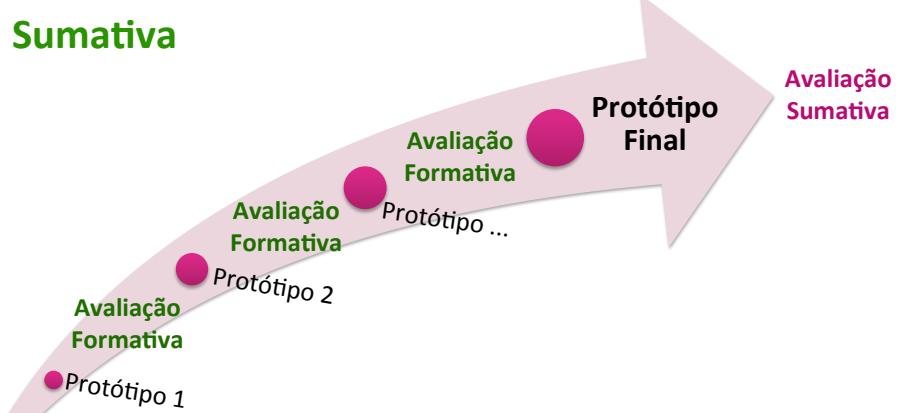


Empírico

Tipos de Avaliação

Formativa

Sumativa



Avaliação com Utilizadores



Avaliação com Utilizadores

**Obter
dados objetivos
de quanto usável
o sistema é**

Avaliação com Utilizadores

**Identificar
Problemas de Usabilidade**

02

PLANEAMENTO TESTES COM UTILIZADORES

Planejar os Testes



Objetivo

Planejar os Testes



Objetivo



Onde

Planejar os Testes



Objetivo



Onde



Quando

Planejar os Testes



Objetivo



Onde



Quando



Duração

Planejar os Testes



Objetivo



Onde



Quando



Duração



Equipamento

Planejar os Testes



Objetivo



Onde



Quando



Duração



Equipamento



Software

Antes dos Testes



Estado

Antes dos Testes



Estado



Tempo de Resposta

Antes dos Testes



Estado



Tempo de Resposta



Quem Conduz?

Antes dos Testes



Estado



Tempo de Resposta



Quem Conduz?



Angariar
Utilizadores

Antes dos Testes



Estado



Tempo de Resposta



Quem Conduz?



Angariar
Utilizadores



Quantos?

Antes dos Testes



Estado



Tempo de Resposta



Quem Conduz?



Angariar
Utilizadores



Quantos?



Tarefas

Cenários de Tarefas

Cenário de Utilização:

O José que aprendeu a compor recentemente, pretende compor uma nova música para exercitar o que aprendeu. Para isso, ele pega na pauta mágica e começa a compor uma nova música com o nome “A minha primeira música”.

Cenário de Tarefa:

Você aprendeu a compor recentemente, e pretende compor uma música nova com o título “A minha primeira música”. Use a pauta mágica para isso.

Cenários de Tarefas

Cenário de Utilização:

O João depois de terminar os seus estudos para IC, decidiu tocar uma música nova que ainda não tivesse tentado.

Pega na pauta mágica e procura no seu cancioneiro uma música que ainda não tivesse tocado. Depois de ver a lista de músicas não tocadas, o João escolhe uma delas e começa a ensaiar.

Cenário de Tarefa:

Você aprendeu recentemente a tocar viola e decide tocar uma música do seu cancioneiro que ainda não praticou. Use a pauta mágica para tocar a música “We will rock you” dos Queen.

Antes dos Testes



Fim Correto

Antes dos Testes



Fim Correto



Ajuda & Docs.

Antes dos Testes



Fim Correto



Ajuda & Docs.



Podemos Ajudar?

Antes dos Testes



Fim Correto



Ajuda & Docs.



Podemos Ajudar?



Dados

Medidas de Usabilidade

Tempo para completar tarefa

Nº de erros cometidos

Nº tarefas concluídas

Nº de cliques

Nº de consultas à ajuda

Etc.

Satisfação do utilizador

Escalas de Likert

Escala diferencial semântica



Antes dos Testes



Fim Correto



Ajuda & Docs.



Podemos Ajudar?



Dados



Sucesso?

Resumo: Planeamento dos Testes



Objetivo



Onde



Quando



Duração



Equipamento



Software



Estado



Tempo de Resposta



Quem Conduz?



Angariar Utilizadores



Quantos?



Tarefas



Fim Correto



Ajuda & Docs.



Podemos Ajudar?



Dados



Sucesso?

Guião dos Testes

Introduction

This document presents the protocol specified for user evaluation tests to perform at CENTIMFE, to evaluate our Sketch-Based Retrieval prototype.

Our experimental tests will involve eight users from CENTIMFE and Hanibal Abrantes. We divide the experiment in three parts, as described in this protocol. First, we will give a brief description of the experiment, then users will perform a set of tasks and finally they will answer a questionnaire.

With this experimental evaluation we want to get some feedback from users about our second Sketch-Based Retrieval prototype, about returned results and about the overall retrieving process. We will videotape all experiments, measuring times and taking notes of users' comments or suggestions.

Measures

During the experiment we plan to collect the following information:

- Videotape the experiment
- Number of Undos
- Number of Deletes
- Number of Selects & Queries
- Number of News (new query) per query
- Number of queries per search until the final results
- Time spent before finding the desired result
- Number of strokes sketched per query

Testes-Piloto



Qualquer pessoa

2 a 3 pessoas

Testar procedimento

Duração

Instruções

Tarefas

Questionário

Etc.

Objetivo do Planeamento

**Mesmas condições
para
todos os participantes**

03

**FASES DA
SESSÃO DE TESTES**

1 - Preparação

Coordenador assegura condições

Sala
Sistema
Material
Formulários
Questionários
etc.



2 - Introdução

Boas vindas

Objetivos do teste

Procedimentos dos testes

Formulário consentimento



2 - Introdução

Objetivo avaliar o sistema não o utilizador

Resultados para melhorar sistema

Pode falar livremente

Pode abandonar os testes



2 - Introdução

Pode fazer perguntas

Não durante os testes

Explicar se vão gravar áudio e vídeo

Dar instruções específicas

Pensar em voz alta

Realizar rápido

Com ou sem ajuda

Etc.



3 – Realização do Teste

Coordenador

- Conduz os testes
- Explica objetivos
- Dá instruções claras e precisas (ex. Tarefas)
- Interage com utilizador

Observador

- Observa utilizadores
- Toma notas

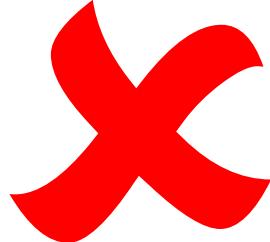
3 – Realização do Teste



Devem

- Anotar medidas de desempenho
- Anotar comentários e observações do utilizador
- Problemas sentidos pelo utilizador

3 – Realização do Teste



Não devem

- Interagir com o utilizador
- Fazer comentários
- Ajudar o utilizador

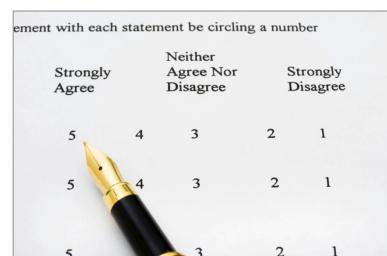
4 - Balanço

Questionário de Satisfação

Antes de discutir o sistema

Pedir comentários

Agradecer



4 - Balanço

- Garantir identificação da informação recolhida
- Escrever relatório da experiência

	FAMILY & COMMUNITY HISTORICAL RESEARCH SOCIETY QUESTIONNAIRE
<p>Your Committee is anxious to obtain feedback from the Membership with regard to the Newsletter, the Journal, Conference and Projects, so that we can provide you with a Society granted to your tools and requirements. We would be happy to hear from you at any time on comments and suggestions regarding anything mentioned in this questionnaire. Please complete and return it to us by e-mail or post, or if you prefer, you may drop it off at our office. If you prefer to remain anonymous, please do so. Alternatively, you can complete and submit your questionnaire online at www.FCHRS.com in the "Member Community". Results of the survey will be used to improve our services to our Members and Committees.</p>	
Please remember to complete by July 31, 2004	
<p>YES COMMITTEE will be given a YES NO NEUTRAL NOT APPLICABLE NOT ANSWERED REASON</p>	
<p>Please indicate your agreement or disagreement with the following statements. Circle the yes or no responses.</p>	
<p>A. CONFERENCE AND PROJECTS</p>	
<p>ADMISSIONS</p>	
<p>1. I think an annual conference is a good idea <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>2. I would attend at the conference <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>3. I would prefer to be at a different venue each year <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>4. I would like to be a speaker at my home <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>5. I think the cost is very reasonable <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>6. I would be prepared to pay more <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>7. I would enjoy helping <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>B. PUBLICATIONS</p>	
<p>1. I think the subjects chosen are very interesting <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>C. MEMBERSHIP</p>	
<p>1. I think the services offered are very valuable <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>D. JOURNAL</p>	
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<p>E. NEWSLETTER</p>	
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<p>F. WEBSITE</p>	
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<p>G. MEMBERSHIP COMMITTEE</p>	
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<p>H. CONFERENCE COMMITTEE</p>	
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<p>I. PROJECTS COMMITTEE</p>	
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<p>J. JOURNAL COMMITTEE</p>	
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<p>K. PUBLICATIONS COMMITTEE</p>	
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<p>L. MEMBERSHIP SERVICES COMMITTEE</p>	
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<p>M. CONFERENCE PLANNING COMMITTEE</p>	
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<p>N. PROJECTS PLANNING COMMITTEE</p>	
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<p>O. JOURNAL PLANNING COMMITTEE</p>	
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<p>Q. MEMBERSHIP COMMITTEE</p>	
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<p>DD. JOURNAL COMMITTEE</p>	
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<p>EE. PUBLICATIONS COMMITTEE</p>	
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<p>FF. CONFERENCE PLANNING COMMITTEE</p>	
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<p>GG. PROJECTS PLANNING COMMITTEE</p>	
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<p>HH. JOURNAL PLANNING COMMITTEE</p>	
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<p>II. PUBLICATIONS PLANNING COMMITTEE</p>	
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<p>KK. CONFERENCE COMMITTEE</p>	
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<p>MM. JOURNAL COMMITTEE</p>	
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<p>OO. CONFERENCE PLANNING COMMITTEE</p>	
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<p>QQ. JOURNAL PLANNING COMMITTEE</p>	
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<p>II. JOURNAL PLANNING COMMITTEE</p>	
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<p>MM. JOURNAL PLANNING COMMITTEE</p>	
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<p>NN. PUBLICATIONS PLANNING COMMITTEE</p>	
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<p>OO. CONFERENCE PLANNING COMMITTEE</p>	
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<p>PP. PROJECTS PLANNING COMMITTEE</p>	
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<p>QQ. JOURNAL PLANNING COMMITTEE</p>	
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<p>RR. PUBLICATIONS PLANNING COMMITTEE</p>	
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<p>ZZ. JOURNAL PLANNING COMMITTEE</p>	
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<p>AA. PUBLICATIONS PLANNING COMMITTEE</p>	
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<p>BB. CONFERENCE PLANNING COMMITTEE</p>	
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<p>CC. PROJECTS PLANNING COMMITTEE</p>	
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<p>DD. JOURNAL PLANNING COMMITTEE</p>	
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<p>FF. CONFERENCE PLANNING COMMITTEE</p>	
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<p>GG. PROJECTS PLANNING COMMITTEE</p>	
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<p>HH. JOURNAL PLANNING COMMITTEE</p>	
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<p>II. PUBLICATIONS PLANNING COMMITTEE</p>	
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<p>KK. PROJECTS PLANNING COMMITTEE</p>	
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<p>LL. JOURNAL PLANNING COMMITTEE</p>	
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Relatório da Avaliação

Objectivos

Descrição do sistema testado

Ambiente onde se fizeram as tarefas

Descrição dos participantes

Metodología

Tarefas

Medidas recolhidas

Questionários usados

Análise dos dados reco

Problemas de usabilidade em



04

PARTICIPANTES

Participantes

Considerações Éticas

Que Utilizadores?

Quantos utilizadores?

Considerações Éticas



Considerações Éticas



Tempo

Considerações Éticas



Tempo



Conforto

Considerações Éticas



Tempo



Conforto



Informação

Considerações Éticas



Tempo



Conforto



Informação



Privacidade

Considerações Éticas



Tempo



Conforto



Informação



Privacidade



Controlo

Quem?



Quem?



Quem?

50%
50%

Quem?



Quantos?



Formativa

1 utilizador -> 33% dos problemas

5 utilizadores -> 85% dos problemas

15 utilizadores -> 99% dos problemas

Formativa

1 x 15 utilizadores -> 99% dos problemas

Formativa

1 x 15 utilizadores -> 99% dos problemas

3 x 5 utilizadores -> 3 x 85%

Sumativa

10 a 20 utilizadores

05

**MÉTODOS DE RECOLHA
AVAL. C/ UTILIZADORES**

Observação Direta



Local trabalho



Laboratório

Questionários / Entrevistas



System Usability Scale (SUS)

Medida de Usabilidade do sistema

Escala de Usabilidade do Sistema (System Usability Scale)

	Discordo bastante					Concordo bastante				
1. Penso que gostaria de usar este sistema frequentemente.	<input type="checkbox"/>									
2. Achei o sistema desnecessariamente complexo.	<input type="checkbox"/>									
3. Achei que o sistema foi fácil de utilizar.	<input type="checkbox"/>									
4. Penso que iria precisar do suporte de alguém especializado para poder usar este sistema.	<input type="checkbox"/>									
5. Achei que as várias funcionalidades do sistema estavam bem integradas.	<input type="checkbox"/>									

<http://www.measuringusability.com/sus.php>

Single Ease Question (SEQ)

Colocada depois de realizar a tarefa

No geral, quanto difícil ou fácil foi completar a tarefa?

Muito Difícil	1	2	3	4	5	6	7	Muito Fácil
<input checked="" type="radio"/>								

<http://www.measuringusability.com/blog/seq10.php>

Pensar em voz alta



Excerpts from

Amazon's iPhone App Test

Mais Métodos

Observação indireta

Registos de interação (logs)

Recolha automática

Monitorização Fisiológica

EyeTracking

Medidas fisiológicas

Batimento cardíaco

Respiração

Condutividade da pele (suor)

Eye Tracking



Eye Tracking



Medidas Fisiológicas



Atividade elétrica
nos músculos



Galvanic
Skin Response Sensor

Escolha do Método

Avaliação Formativa (problemas de usabilidade)

- Observação direta no laboratório
- Pensar em voz alta
- Entrevistas
- Observação indireta

Avaliação Sumativa (medidas de desempenho)

- Observação direta
- Questionários / Entrevistas
- Observação indireta

Sumário

Métodos e Tipos de Avaliação

Planeamento dos testes

Condições iguais para todos

Fases da sessão de testes

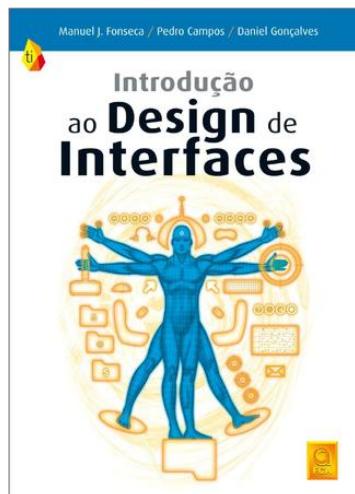
Preparação, Introdução, Testes, Balanço

Participantes

Ética, Quem, Quantos

Métodos de avaliação

TPC – Desenho de Ecrãs



Ler Cap. 8 do Livro