LFE Medieninformatik • Korbinian Huff

Evaluating Prototypes for Web Applications

Medieninformatik Hauptseminar

Wintersemester 2009/10

„Prototyping"
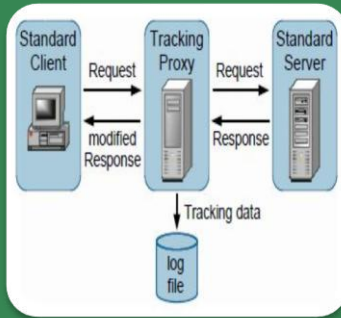
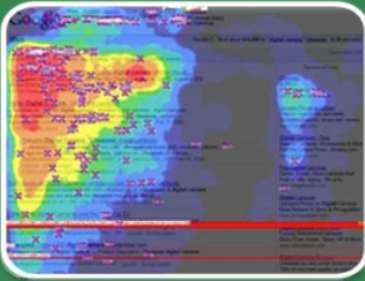# Methods to evaluate Prototypes of Web Applications

| Analyze web server log data | Deliver web pages through a proxy that adds a tracking script | Install software on testers computers to log user behavior | Observe users |

Methods to evaluate Prototypes of Web Applications

Use eye trackers	Question-naires	Face-to-Face interviews	Ask an expert panel to rate the application

Analysis of Web Server Logs

- Most web servers automatically save access logs

Contents of a logfile:

- IP address
- Exact request from client
- Date & time
- HTTP status
- Filesize
- Referring site
- User client information

What can be Evaluated using Server Logs?

 Broken links

 Most & least often used pages

 Time spent in the application

 The exit page

How can this be Evaluated from the Server Logs?

Webalizer

AWStats

Urchin Software (Google)

Add Tracking Scripts through a Proxy Server
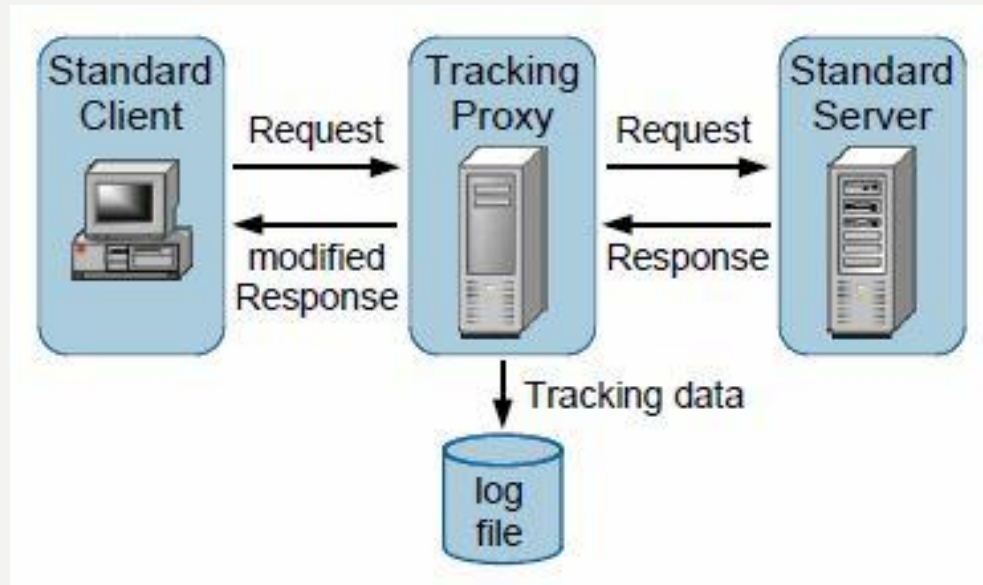
What can be Evaluated using Tracking Scripts that are added through a Proxy Server?

Mouse movements
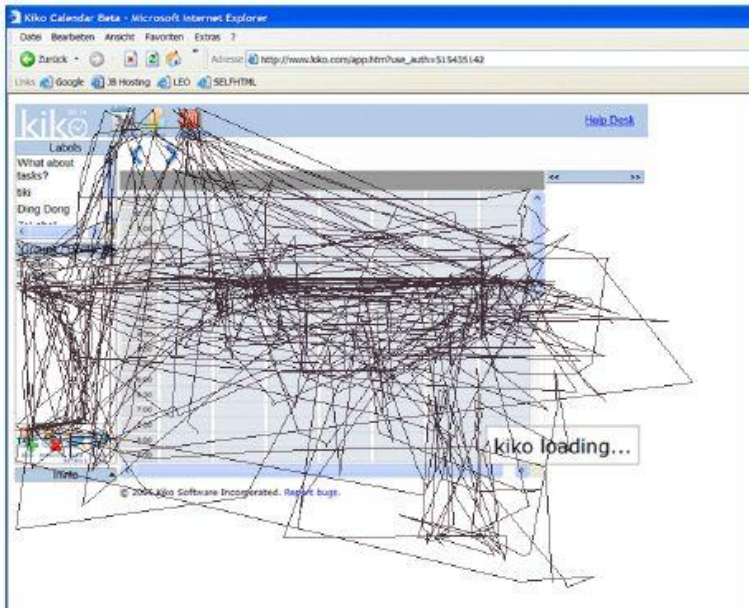
Mouse clicks and

key presses

Programs that can be used for this evaluation:

WebQuilt, UsaProxy

User Tracking Software

Tracking software

Tracking data

What can be Evaluated using User Tracking Software?

Mouse activity

Key presses

Virtually anything happening on the computer

Observe Users
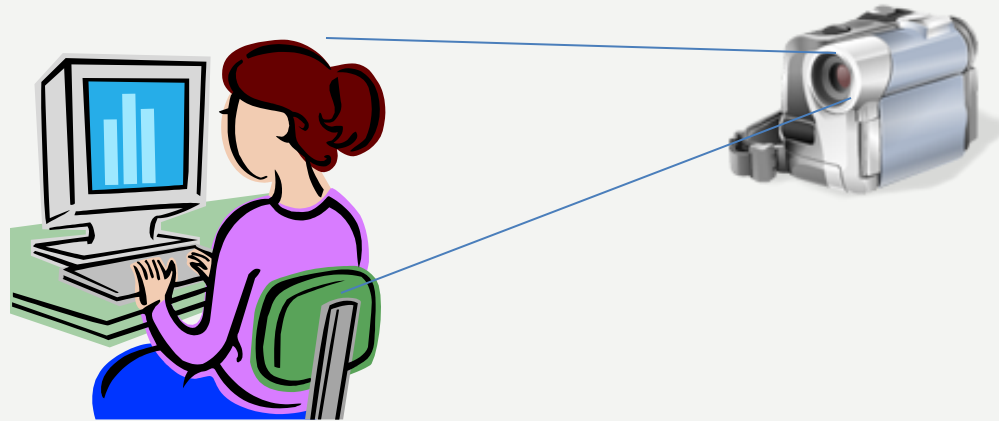
Use Eye-Tracking Devices
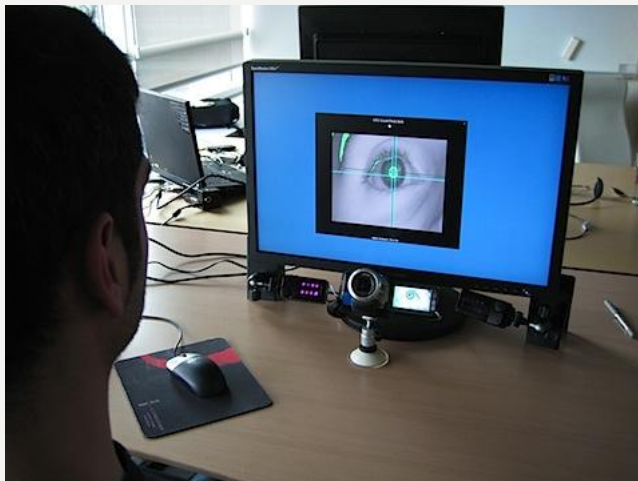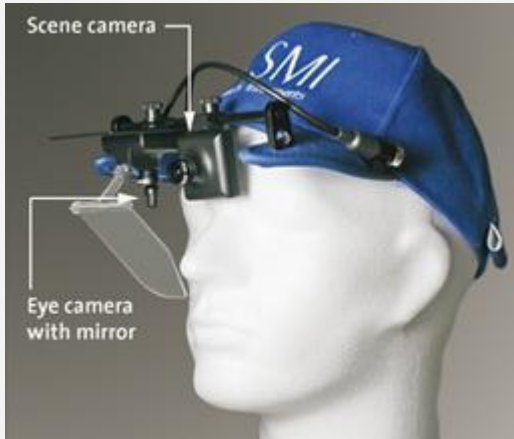
What can be Evaluated using these Techniques?

Feelings

Device specific problems

Layout problems

How can this be Evaluated?

Software: Nyan 2.0XT, WebEyeMapper, ITU Gaze Tracker (Open Source)

Questionnaires
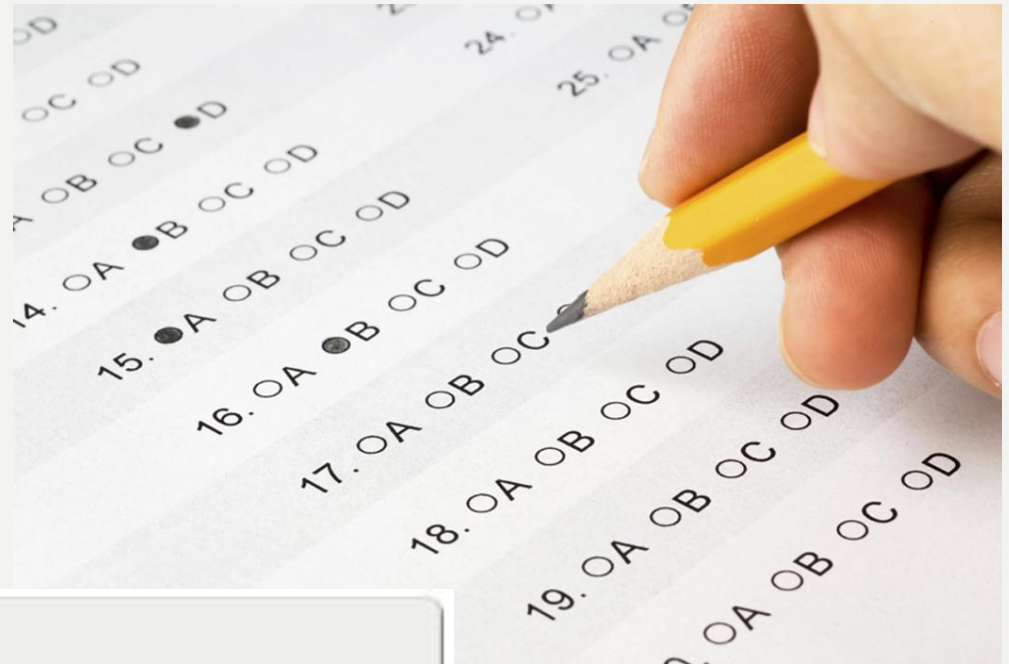
Face-to-Face Interviews

What can be Evaluated using these Methods?

Feelings

Suggestions

Problems that were not part of the initial question

Evaluation by an Expert Panel

Links	Eigene Seite		Wettbewerber	
Sind Links immer als solche zu erkennen?	gut	▼	Sehr gut	▼
Folgen Links einem seiteninternen Standard (Unterstreichung, Farbgebung, Icons)?	Sehr gut	▼	Sehr gut	▼
Sind besuchte Links gekennzeichnet (z. B. durch Farbwechsel)?	Sehr gut	▼	Sehr gut	▼
Sind Informationen vorhanden, die anzeigen, wohin ein Link führt (z. B. Texte, Mouseover)?	Sehr gut	▼	Sehr gut	▼
Ist eine größere Anzahl von Links durch Überschriften gegliedert?	Sehr gut	▼	Sehr gut	▼
Gibt es auf jeder Seite mindestens einen weiterführenden Link?	Sehr gut	▼	Sehr gut	▼
Gibt es Hinweise auf die Größe der Datei, bevor man sie herunterlädt?	befriedigend	▼	Sehr gut	▼
Gibt es Hinweise auf das Format der Datei, bevor man sie herunterlädt?	befriedigend	▼	Sehr gut	▼
Sind die Thumbnail-Bilder groß genug für eine Vorschau?	gut	▼	Sehr gut	▼

What can be Evaluated Using the Expert Panel Approach?

Navigation

Interaction

Quality

Up-to-dateness

Accessibility

Design

Methods of Classification

Complexity	Remote or on-site deployment	Number of users	Cost	Theoretical/practical approach

Technical complexity

Required manpower
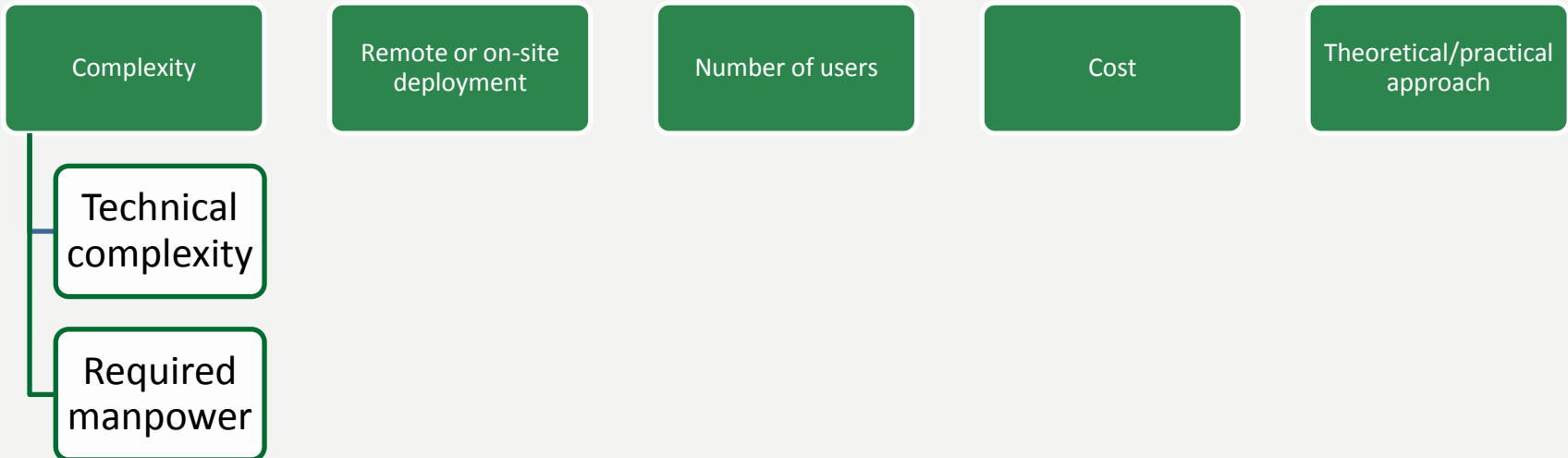
Technical complexity

	Method	Technical complexity
	Analysis of web server logs	●
	Tracking scripts	●●
	User tracking software	●●
	Observation of users	●
	Eye tracker	●●●
	Questionnaires	●
	Face-to-face interviews	●
	Evaluation by an expert panel	●

● low
●● medium
●●● high
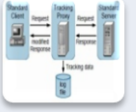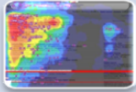
Required manpower

	Method	Required manpower
	Analysis of web server logs	🟢
	Tracking scripts	🟢
	User tracking software	🟢
	Observation of users	🔴🔴🔴
	Eye tracker	🔴🔴🔴
	Questionnaires	🟢/🟡🟡
	Face-to-face interviews	🔴🔴🔴
	Evaluation by an expert panel	🟢

🟢 low

🟡🟡 medium

🔴🔴🔴 high

Remote /
On-Site Deployment

	Method	Remote	On-site
	Analysis of web server logs	●	
	Tracking scripts	●	
	User tracking software	●	
	Observation of users		●
	Eye tracker		●
	Questionnaires	●	●
	Face-to-face interviews		●
	Evaluation by an expert panel	●	●

Number of Users

	Method	Number of users
	Analysis of web server logs	🔴🔴🔴
	Tracking scripts	🟡🟡
	User tracking software	🟡🟡
	Observation of users	🟢
	Eye tracker	🟢
	Questionnaires	🟡🟡/🔴🔴🔴
	Face-to-face interviews	🟢
	Evaluation by an expert panel	none

🟢 low

🟡🟡 medium

🔴🔴🔴 high
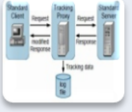
Cost

	Method	Cost
	Analysis of web server logs	🟢
	Tracking scripts	🟡🟡
	User tracking software	🟡🟡
	Observation of users	🔴🔴🔴
	Eye tracker	🔴🔴🔴
	Questionnaires	🟡🟡
	Face-to-face interviews	🔴🔴🔴
	Evaluation by an expert panel	🟢

🟢 low
🟡🟡 medium
🔴🔴🔴 high

Type of Approach

	Method	Theoretical	Practical
	Analysis of web server logs		●
	Tracking scripts		●
	User tracking software		●
	Observation of users		●
	Eye tracker		●
	Questionnaires	●	
	Face-to-face interviews	●	
	Evaluation by an expert panel	●	

Conclusion

Only with a combination of methods all problems can be found.

Use cheap methods first, then more expensive methods
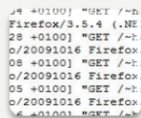
Analysis of web server logs

User tracking software

Evaluation by an expert panel

Eye tracker

Picture Sources

Slide 2:   Server logs: own screenshot

                 Proxy server: R. Atterer, M. Wnuk, and A. Schmidt. Knowing the user's every move: user activity tracking for website usability evaluation and implicit interaction. In WWW '06: Proceedings of the 15th international conference on World Wide Web, pages 203–212, New York, NY, USA, 2006. ACM.

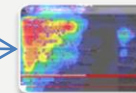Slide 3:   Heatmap: http://inspiredimpressions.wordpress.com/2006/04/18/eye-tracking-with-heat-maps/

Slide 4:   own screenshot

Slide 5:   own screenshots of Google Analytics http://www.google.com/analytics/

Slide 6:   AWStats: http://awstats.sourceforge.net/

                 Webalizer: http://www.mrunix.net/webalizer/

                 Urchin Software: http://de.wikipedia.org/w/index.php?title=Datei:Urchin2.jpg&filetimestamp=20091030105204

Slide 7:   see Slide 2

Slide 8:   Mouse Movements: as slide 2 proxy server

                 hide graphic: own screenshot of Google Mail http://www.gmail.com/

Slide 12:   line-by-line, left to right: http://www.ied.ethz.ch/newsletter/newsletter4/researchnight/index

                 http://www.mangold-international.com/de/ueber-uns/news/artikel//2.html

                 http://www.i-cherubini.it/mauro/blog/2009/04/30/open-source-eye-tracker/

                 http://www.tobii.com/market_research_usability/products_services/eye_tracking_hardware/tobii_t60_xl_eye_tracker.aspx

Slide 14:   Heatmap: http://www.interactive-minds.com/en/eye-tracking-usability/

                 Scanpath: http://www.researchpartnership.com/products-and-services/eye-tracker

Slide 15:   Likert: http://survey.cvent.com/blog/likert-survey

Slide 18:   Web Usability Index: own screenshot

All other graphics: Microsoft Office 2007 ClipArt Gallery