

Noldus

Information Technology

An abstract graphic featuring several overlapping, hand-drawn circles in various colors (orange, yellow, green, purple, blue) scattered across a horizontal band. The band has a blurred, multi-colored background transitioning from orange to green to purple to blue. Below the band is a solid dark green area.

Tools for Usability Testing and HCI Research

INFORM Workshop, Athens, 20 March 2003

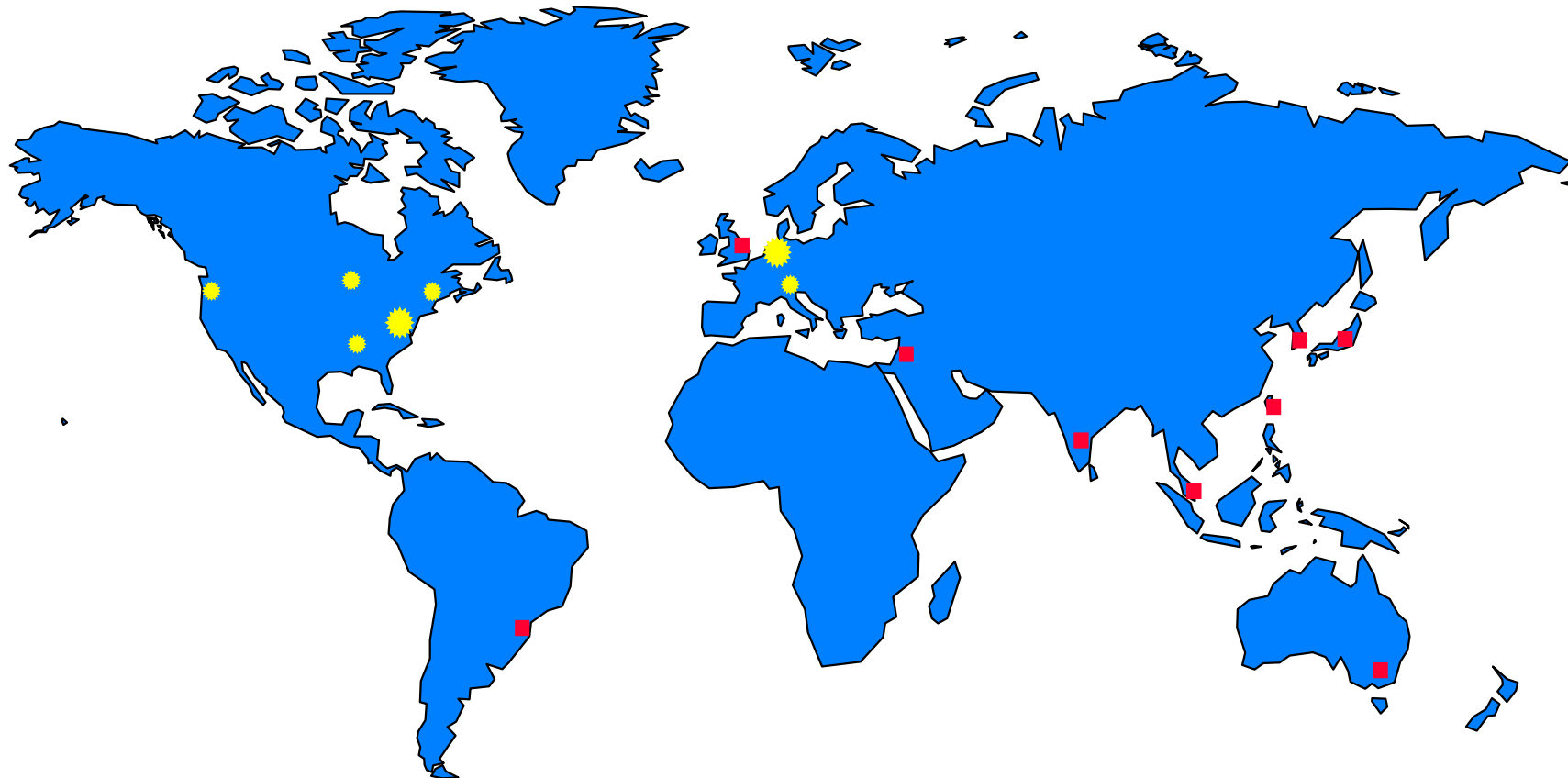
Overview



- Company profile
- Observing human behavior: tools for evaluating (mobile) applications
 - Focus groups
 - Usability testing
- Software demonstration

Company Profile

- Developer of professional software and instrumentation for behavioral research
- Founded in 1989
- Approx. 60 employees
- Customers in 75 countries

International Offices



 = Noldus office
 = Distributor

Corporate Clients

Electronics

Hewlett-Packard
Intel
Philips
Siemens

Software

Ariba
Microsoft
Oracle
PeopleSoft
SAP

Telecom

Ameritech
AT&T
Bell Atlantic
Deutsche Telekom
Ericsson
Telenor

Automotive

BMW
DaimlerChrysler
Nissan
Rover
Volvo

Aerospace

BAE Systems
Eurocontrol
Lockheed Martin
Matra BAe Dynamics
NASA
Thales

Transportation

Alstom
KLM
SNCF

Consulting

American Management Systems
Accenture
CURE
Fraunhofer IAO
System Concepts
The Usability Company
TNO Human Factors

Information / Finance

America Online
Dow Jones
NatWest
Rabobank
Statistics Netherlands
U.S. Bureau of Labor Statistics
U.S. Bureau of the Census
Yahoo!

Focus Groups

Objective: to identify consumer preferences

How?

- Observe, analyze and evaluate
 - social interaction
 - (non) verbal behavior
 - content

Usability testing

Objective: to increase effectiveness, efficiency and user satisfaction

How?

- Test software and hardware
- Analyze human-machine interaction
- Evaluate human-machine interfaces
- Monitor consumer satisfaction

The Observer®

Professional software system for collection, management, presentation and analysis of observational data

- Flexible observations
- Collect qualitative and quantitative data
- Instant access to any point on the video
- Easy analysis
- On the spot presentations

The Observer – 1. Coding scheme

Define subjects and behaviors of interest:

- Activities
- Postures
- Gestures
- Movements
- Positions in space
- Facial expressions
- Vocalizations and speech
- Social interactions
- Human-system interactions

The screenshot displays the 'The Observer - Test of Paint Shop Pro' application window. The interface includes a menu bar (File, Edit, View, Configuration, Observation, Data, Analysis, Window, Help), a toolbar, and a main workspace. On the left, a tree view shows the project structure under 'Usability Testing', including 'Configuration', 'Independent Variables', 'Subjects', 'Behavioral Classes', 'Observation', 'Data files', and 'Analysis'. The main workspace contains three data tables:

Test of Paint Shop Pro - Independent Variables [Read-Only]			
	Name	Type	Values
1	Name observer	Nominal	Wilbo, Kirsten, ...
2	Name test person	Nominal	Stephanie, John, Andrew, Richard, ...
3	Computer experience	Nominal	Advanced, Average, Novice, ...
4	Sex test person	Nominal	Female, Male, ...
5	Prototype version	Nominal	...
6	Definition Task 1	Nominal	...
7	Definition Task 2	Nominal	...
8	Definition Task 3	Nominal	...
9	Definition Task 4	Nominal	...
10*			

Test of Paint Shop Pro - User - Behaviors [Read-Only]						
	Name	Description	Code	Modifier Class 1	Modifier Class 2	Properties
1						
2	Problem		p	Solve	None	State
3	Usab_hit		u	None	None	Event
4	Error		e	Type	None	Event
5	Other_us		o	None	None	State
6	*					

Test of Paint Shop Pro - Solve - Modifiers [Read-Only]			
	Name	Description	Code
1	Missing modifier		?
2	trial8er		t
3	oni_help	via trial and error	o
4	testead		l
5	other		z
6	restart		r
7	callsupp		c
8	*		

The Observer – 2. Data collection

Quick and easy coding:

- Positive and negative reactions
- Navigation times and task durations
- Usability problems
- Add comments

The screenshot displays the 'The Observer - Observation Module - CHI' software interface. It features several key components:

- Timers:** Shows Start (00:00:00.08), Current (00:02:05.32), Elapsed (00:02:05.24), and Observed (00:02:05.24).
- Video Control:** Includes play, pause, and stop buttons.
- Event Log:** A table recording user actions and system events.

TIME	BEHAVIOR	MODIFIER 1	COMMENT
00:00:00.08	No_error		
00:00:00.08	Normal		
00:00:02.88	Task 1		
00:00:10.68	Problem	other	cannot find how to draw circle
00:00:15.40	Usab_hit		
00:00:27.84	Task 1		
00:00:49.40	Problem	testlead	
00:00:53.28	Problem	onl.help	
00:01:28.52	Problem	callsupp	
00:01:40.64	Usab_hit		
00:01:57.88	Error	UI-error	put i text string
00:02:01.20	Other_us		problem solved with help of support call
00:02:19.88	Task 2		
00:02:28.88	Usab_hit		
00:02:29.96	Problem	other	wrong selection
00:02:39.96	Usab_hit		
00:02:44.60	Error	UI-error	
00:02:53.68	Usab_hit		
- Video Play List:** A table listing episodes with their source in, duration, and description.

EPISODE	SOURCE IN	DURATION	DESCRIPTION
1	00:00:14.40	00:00:02.00	Usab_hit
2	00:00:52.52	00:00:02.00	Usab_hit, /* test
3	00:00:57.08	00:00:02.00	Usab_hit
4	00:01:43.48	00:00:02.00	Usab_hit, /* enter some text
5	00:02:39.96	00:00:02.00	Usab_hit
6	00:03:42.48	00:00:02.00	Usab_hit
7	00:00:49.40	00:00:05.88	Problem,testlead
8	00:00:09.88	00:00:40.72	Problem,other, /* cannot find how to draw circle
9	00:01:27.52	00:00:34.68	Problem,callsupp
10	00:00:38.04	00:00:02.00	Error,UI-error
- Codes: Behavior:** A table defining coding schemes for tasks, user actions, and facial expressions.

Code	Behavior	Modifier	Facial
[Task]	p = Problem	+= Positive	s = Smile
1 = Task 1	u = Usab_hit	[Computer]	l = Normal
2 = Task 2	e = Error	c = PC_error	. = Other_fa
3 = Task 3	o = Other_us	x = No_error	
4 = Task 4	[Satisfac]	[Facial]	
0 = No task	n = Neutral	f = Frustrat	
[User]	- = Negative	g = Laugh	

Based on flexible coding scheme!

The Observer – 3. Analyze

Quantitative and qualitative analysis:

- Task times to identify design strenghts and limitations
- Identify user preferences and problems
- Determine best improvement strategy

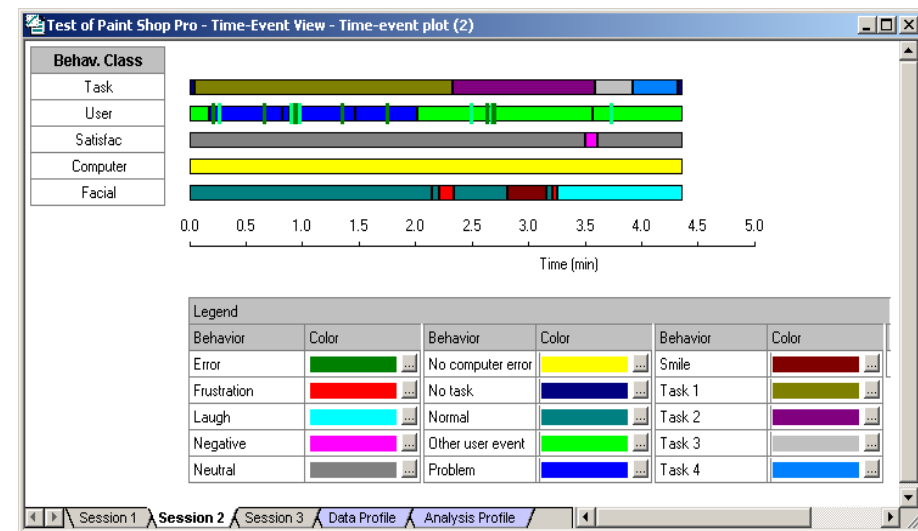
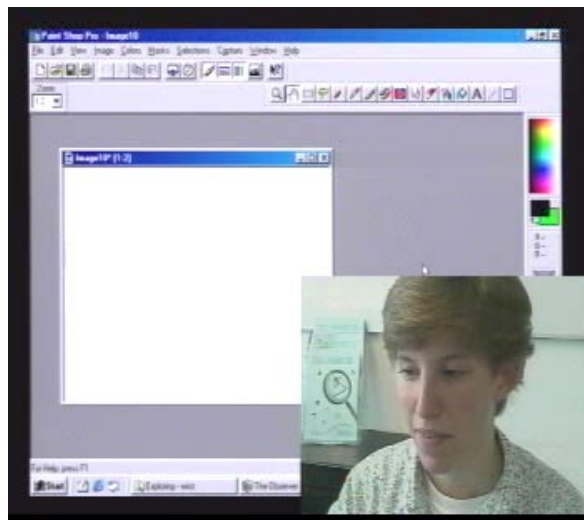
The screenshot displays two overlapping data windows from the Noldus Observer software. The top window, titled 'Test of Paint Shop Pro - Elementary Statistics - Usability issues report (5)', shows a table of usability events. The bottom window, titled 'Test of Paint Shop Pro - Elementary Statistics - Task completion time', shows a table of task durations across three sessions.

	Total number	Latency (observation)	Rate	Total dur	Total duration (%)	Mean
Problem	5	10.60	1.14			
Usability hit	7	15.32	1.60			
Error	11	12.04	2.52			
Other user event	3	0.00	0.69			

	Task 1	Task 2	Task 3	Task 4
	Total duration	Total duration	Total duration	Total duration
Session 1	137.00	75.36	20.64	23.32
Session 2	137.00	75.36	20.64	23.32
Session 3	11.64	163.24	58.12	23.32

The Observer – 4. Communicate!

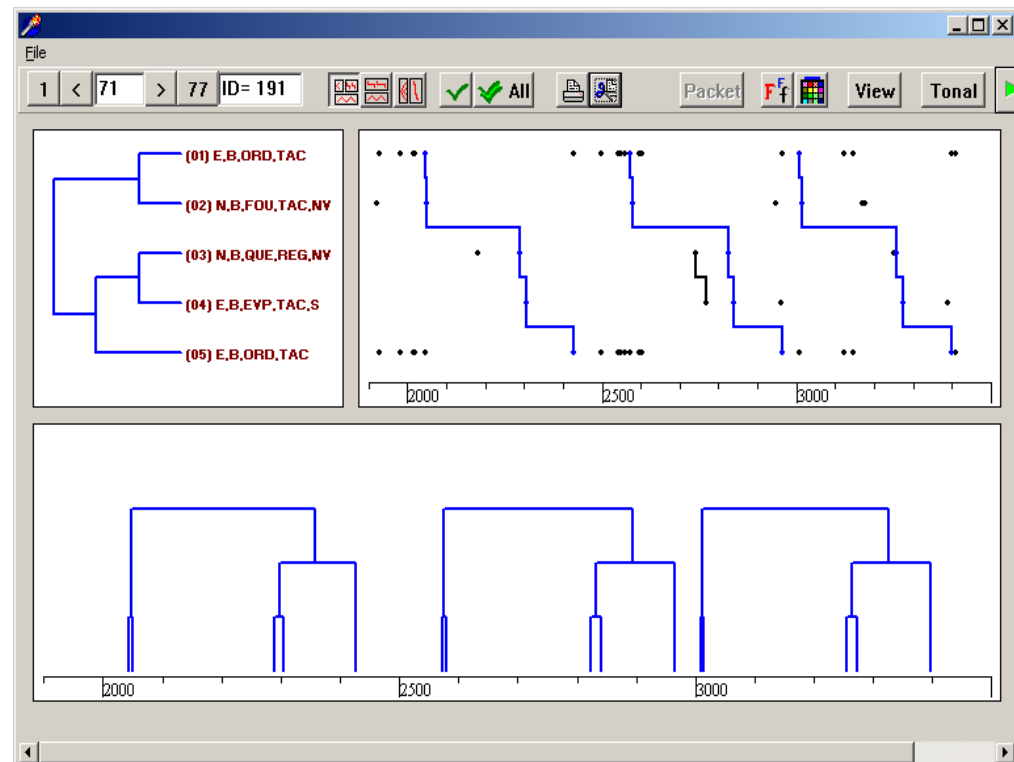
- Video Highlights of key moments
- Report-ready statistical and graphical data summaries



Theme™

Detect hidden repeated temporal patterns in behavior and interactions

Find patterns that are hidden to observers and very hard or impossible to detect with other available methods



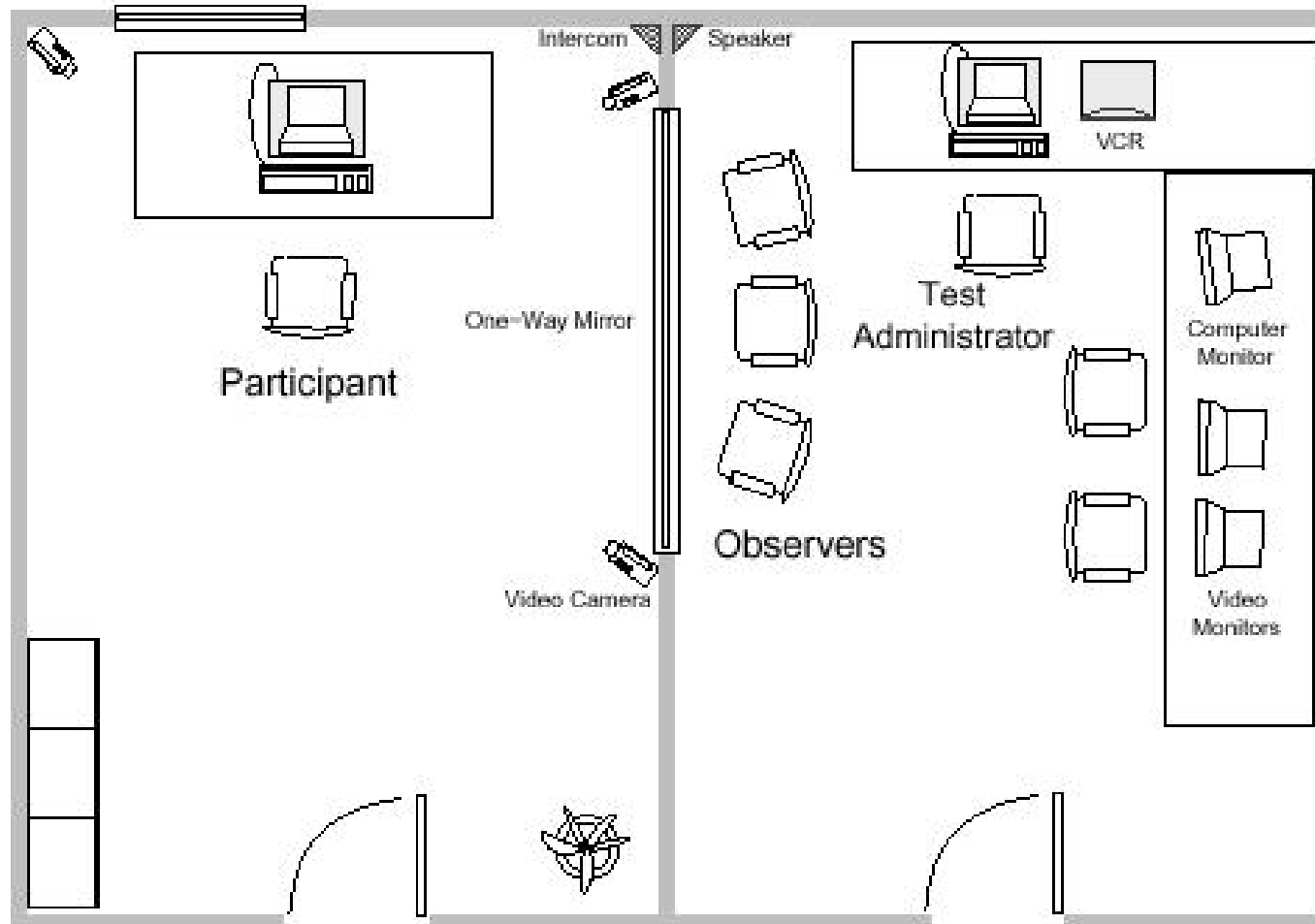
Integrated Solutions

Tailor-made observational labs and systems

System configurations

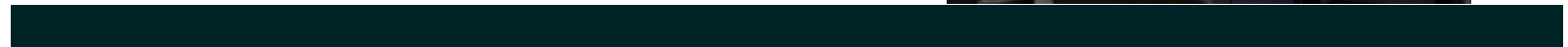
- Stationary Lab
- Portable Lab
- Mobile Data Collection Systems
- Mobile Device Camera
- Eye Tracking Systems

Usability lab





Usability lab

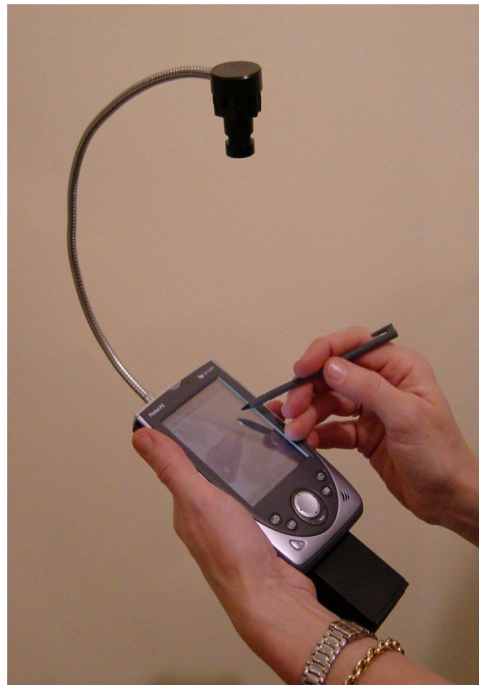


Portable usability lab



Mobile Device Camera

Wireless camera for usability testing of mobile devices and applications



Mobile data collection

The Observer Mobile

- Collect observational data while on the move
- For unobtrusive observation when videotaping is not feasible
- Both keyboard- and pen-based models available



Eye tracking

Video-based contact-free evaluation of gaze position with high accuracy and precision

Complement observational methods for usability testing of human-machine interfaces

Measure:

- where the subject looks
- how long and often they look for
- the path their eyes follow areas of interest (pre-defined by you)



*In collaboration with
SensoMotoric Instruments*

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