

Visio 



Exploratory Procedures of children and adults with blindness in a tactile object matching task



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Exploratory Procedures

- First studied described by Lederman & Klatzky (1987)
- Relation object property - EP



Lateral Motion
(*Texture*)



Enclosure
(*Volume*)



Unsupported Holding
(*Weight*)



Contour Following
(*Exact Shape*)



Pressure
(Hardness)



Static Contact
(Temperature)

Study in the Netherlands

- Partial Replication of the study by Lederman & Klatzky in 1987
- 2007 : Pilot Study with 20 sighted Participants (10 Adults, 10 Children 8-12)

Goal Pilot-Study:

- Evaluate Procedure and Instruction
- Develop and test a Configuration in ObserverXT to analyse the hand movements

Goal Current Study (2008-2010)

- Study qualitative and quantitative differences in EP's between sighted and blind participants
- Study qualitative and quantitative differences in EP's between children and adults
- Study the influence of repeated measures for different participant-groups

Participants:

- 15 congenitally blind adults
- 15 sighted adults, matched on age, gender and level of education with the blind adults
- 15 congenitally blind children, 7-12 years of age; attending mainstream education
- 15 sighted, classmates of the blind children, matched on age, gender and level of education

Exact Shape



	A	B	C	D
13				
14				
15				
16				

Exact shape

Procedure

- Arrangement of the setting
- Participants 'cup their hands'
- Match 1 out of 3 objects with standard object



- Practice trials to explain the concepts and + procedure
- No time restrictions
- 4 Series of trials
- Between series 2 and 3 short break for children

DVD.....



Configuration in Observer XT



The screenshot displays the 'The Observer XT 7.0 - Taat Onderzoek' application window. The main interface is divided into several panels:

- Event log (Observation12.1 - Event log0001):** A table listing recorded events with columns for Event Time, Behavior, and Behavior Modifier.
- Video Frame:** A central window showing a video frame of a person's hands holding a small object.
- Codes:** A table listing various behavioral codes and their parameters.
- Playback Control:** A control panel for managing the video playback, including play, stop, and speed controls.

Event Time	Behavior	Behavior Modifier
Start	+0:00:00.000	
1	+0:00:22.440	Object
2	+0:00:22.440	EN
3	+0:00:24.400	EN
4	+0:00:24.400	LH Left
5	+0:00:24.400	TM
6	+0:00:25.800	TM
7	+0:00:26.250	LH Left
8	+0:00:26.250	Object
9	+0:00:26.394	Object
10	+0:00:26.394	LH Left
11	+0:00:26.808	Touch Only
12	+0:00:29.401	LH Left
13	+0:00:29.401	Object
14	+0:00:31.866	Object
15	+0:00:31.866	TM
16	+0:00:33.440	TM
17	+0:00:33.440	LH Left
18	+0:00:34.440	LH Left
19	+0:00:34.440	Object

Subjects	Behaviors	Modifiers
Null state behavior		N
Object	*Subject*	y u
Lateral Motion		L
LM		k l
Unsupported Holding		U
LH		g h
Enclosure		E
EN		e r
Contour Following		C
CF		c v
Task Maintenance		T
TM	*Subject*	q w
Pressure		P
PR		o p
Unclear		A
UC		a s
Events		V
Throw Over		1
Pick up - Drop		2
Touch Penk		3

Playback Control panel details:

- Buttons: Play, Stop, Previous, Next, Full Screen, Repeat, Zoom In, Zoom Out
- Status: Not recording
- Playback speed: 1.0
- Time: 00:00:33.440
- Offset: [Control]

Unsupported Holding



The screenshot displays the 'The Observer XT 7.0' software interface. The main window shows a video of a hand holding a small grey object. The interface is divided into several sections:

- Menu Bar:** File, Edit, View, Setup, Observe, Select, Visualize, Analyze, Window, Help.
- Toolbar:** Contains various icons for file operations and analysis.
- Project Browser:** Shows the current project: 'Observation04-C-ZV - Serie 1'.
- Event Table:** A table with columns for Event Time, Behavior, and Behavior Modifier. The table contains 18 rows of data, with the 17th row highlighted in blue.
- Video Player:** Displays the video frame with a hand holding a small grey object. Below the video is a 'Position' slider and an 'Elapsed Time' display showing '00:08:55,760'.
- Playback Control:** A control panel with buttons for play, stop, and record. It also includes a 'Playback speed' slider set to '1,0' and a 'Time' display showing '00:08:55,799'. There is also an 'offset' button.
- Taskbar:** Shows the Windows taskbar with several open applications, including 'The Observe...'.

Event Time	Behavior	Behavior Modifier
153	+0:08:02,254	CF
154	+0:08:10,584	CF
155	+0:08:10,603	TM
156	+0:08:10,622	Exact shape
157	+0:08:12,024	Exact shape
158	+0:08:12,042	TM
159	+0:08:12,061	CF
160	+0:08:19,541	CF
161	+0:08:19,560	TM
162	+0:08:19,579	Exact shape
163	+0:08:21,479	Exact shape
164	+0:08:21,498	TM
165	+0:08:21,516	CF
166	+0:08:30,240	CF
167	+0:08:30,259	TM
168	+0:08:30,278	Exact shape
169	+0:08:51,148	voorbeeld gewicht
170	+0:08:51,199	TM
171	+0:08:52,199	UH Both
172	+0:08:56,439	Touch Only
173	+0:08:59,271	Touch Only
174	+0:09:00,731	UH Both
175	+0:09:00,758	TM
176	+0:09:00,796	voorbeeld gewicht
177	+0:09:04,568	Weight
178	+0:09:04,914	Touch Only
179	+0:09:05,480	UH Right
180	+0:09:06,031	Touch Only
181	+0:09:07,875	UH Right
182	+0:09:08,431	Weight
183	+0:09:10,265	Weight
184	+0:09:10,403	TM

Coding Scheme



The Observer XT 7.0 - Tastonderzoek definitief 19-2--2010 per doelgroep

File Edit View Setup Observe Select Visualize Analyze Window Help

Type a question for help

Project Explorer

- Tastonderzoek definitief 19-2--2010 pe
 - Setup
 - Coding Scheme
 - Independent Variables
 - Default Observation Settings
 - Observations
 - Observation01-C-BV
 - Observation02-C-ZV
 - Observation03-C-ZV
 - Observation04-C-ZV
 - Observation Settings
 - Event Files
 - Serie 1
 - Serie 2-Li
 - Serie 3
 - Serie 4-R
 - Media Files
 - External Data

Subjects

Behavior Name	Description	AP	A	Properties	Modifiers	Channels	Color
Null state behavior		N		State Event			
standaard texture		y	u	State Event			
textuur		t	f	State Event			
voorbeeld gewicht		b	B	State Event			
Weight		i	i	State Event			
Volume 1		[]	State Event			
Inhoud		m	n	State Event			
sd exacte vorm		8	9	State Event			
Exact shape		0	-	State Event			
textuur (Inactive)		F	f	State Event			
Lateral Motion		L		State Event			
LM		k	l	State Event			
Unsupported Holding		U		State Event			
UH		g	h	State Event	Hands		
Enclosure		E		State Event			
EN		e	r	State Event			
Contour Following		C		State Event			
CF		c	v	State Event			
Task Maintenance		Q		State Event			
TM		q	w	State Event			
Pressure		P		State Event			
PR		o	p	State Event			
Unclear		A		State Event			
UC		a	s	State Event			
Events		V		State Event			
Throw Over		1		Point Event			

Modifiers

Modifier Name	Description	AP	Values
Hands			Links; Right; Both; Left (Inactive); Bel...
Links		b	
Right		n	
Both		m	

Behaviour Classes



- Lateral motion
- Enclosure
- Pressure
- Unsupported Holding
- Contour Following
- Static Contact
- Task Maintenance
- Unclear
- Object/No Object

Events



- Throw Over
- Pick Up Drop
- Touch Only
- Examine Features
- Position Orient
- Measurement

Outcomes: What could be expected?

- Differences children/adults (speed, accuracy, use of EP's)?
- Differences blind/sighted participants (speed, accuracy, use of EP's)?
- Influence of repeated trials for different participants

Preliminary Results
Analysed data:
trial 1 and trial 3 in Observer XT

- Children/Adults:
 - accuracy (lower for the children, especially in Weight and Exact Shape)
 - speed (children are faster in the task Exact Shape and slower in Weight and Texture)
 - children use more EP's than adults

- Blind/Sighted
 - accuracy and speed are best for the group
 - blind adults
 - the blind children perform worse than the sighted children (in accuracy and speed). They also use more EP's

- Repeated trials:
 - Accuracy: The participants in all groups do not perform significantly better or worse in trial 3 in relation to trial 1
 - Speed and use of EP's: participants explore significantly faster in trial 3 (Exact Shape excluded) and they use the same EP's.

Thank you for your attention!!!!

Any questions??

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