

## Assignment 3 Research Approaches in HCI

$$\Sigma = 14/20p.$$

### Task 1

Name of the paper	Strategy	Identify Items	Justification
Paul Marshall, Richard Morris, Yvonne Rogers, Stefan Kreitmayer, and Matt Davies. <b>Rethinking 'multi-user': An in-the-wild study of how groups approach a walkup-and-use tabletop interface.</b>	Descriptive ✓	<i>Method:</i> observation + case study ✓	<p>There is no connection to establish between any controlled variables and thus no reason for why one(s) is changed by changing another(s). The focus is on the observation and further explanation of observed steps/events which were done by groups during the process of interaction with tabletop interface at their first time in a tourist information centre. For this research, it is crucial to observe such factors as "how groups form, disperse and organise" by themselves and "how tabletops can be designed" to help.</p> <p>Regarding the method, it is observation "in-the-wild", since the main idea of the research is to observe participants' behaviour in real-life situation while they are using the tabletop interface.</p> <p>But reality settings and the use of specific tourist center for tourist application testing are the reasons to consider it as a case study, too. It makes the research more precise and better reality-oriented ✓</p>
Christian Corsten, Marcel Lahaye, Jan Borchers and Simon Voelker. <b>ForceRay: Extending Thumb Reach via Force Input Stabilizes Device Grip for Mobile Touch Input</b>	Relational ✗	<p><i>Variables are measured:</i></p> <ul style="list-style-type: none"> <li>• Technique (DT, OM, MS, BC, and FR)</li> <li>• Target (on the border of the screen, on the centre of the screen)</li> <li>• Size (small/large)</li> <li>• Time (ms)</li> <li>• Success (1/0)</li> <li>• Gesture Footprint ("to where users had to move their thumb")</li> <li>• Rotation ("around x-, y-, and z-axis at 60 Hz")</li> </ul>	<p>It is underlined in the paper that the main focus of both studies is relational connection between Techniques and other measured variables: "we will focus our analysis on this main effect (regarding the chosen Technique) and <i>related</i> interaction effects" for the Study 1. And for Study 2, focus is "on the main effects from the final session conducted after training", again describing the dependencies among measured variables, but with no need to concentrate on the reason for</p>

3/3p.

		<ul style="list-style-type: none"> <li>• Technique (on a Likert scale from 1 to 5)</li> </ul> <p><i>Which ones are independent/dependent?</i></p> <p><i>Correlation of variables described in the paper:</i></p> <p>Study 1:</p> <ul style="list-style-type: none"> <li>• Technique and Time ("for each Technique except FR, users needed significantly more time to select Border targets compared to Center targets")</li> <li>• Technique and Success ("only for DT, there was a significant difference for Success comparing both Sizes: Small targets had 11% lower Success than large targets")</li> <li>• Technique and Rotation ("for each angle, FR always caused the fewest device movement")</li> <li>• Technique and Gesture Footprint ("FR caused the smallest and most coherent footprint")</li> </ul> <p>Study 2:</p> <ul style="list-style-type: none"> <li>• Participants time and the number of training sessions ("participants' Time decreased over the twelve training sessions for both BC and FR")</li> <li>• Technique and Time ("BC was significantly faster than FR")</li> <li>• Technique and Rotation ("for each axis, Rotation was significantly lower for FR than for BC")</li> </ul>	<p>these dependencies. Taking into account different techniques, the idea was not to find casualties, but to compare them and find the difference between applying various Techniques, and judge them by the effect they have on interaction.</p> <p>Measured variables and their correlation are mentioned for both studies precisely, so there is no problem to find out the dependence</p> <p><i>X</i></p> <p><i>0/5 p.</i></p>
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<p><b>form factors and input conditions on absolute indirect-touch pointing tasks.</b></p>		<p>Experiment 1 IV: DEVICE SIZE, INPUT CONDITION, TARGET POSITION, TARGET SIZE ✓ DV: Success Rate, Number of Failed Attempts, Targeting Error ✓</p> <p>Experiment 2 IV: WORKSPACE HEIGHT, ASPECT RATIO, TARGET SIZE, TARGET POSITION DV: Success Rate, Number of Failed Attempts, Targeting Error. ✓</p> <p>Experiment Design: In both the experiments within-group design was used with each participant spending roughly 50 minutes and 20 minutes for experiment 1 and 2 respectively. Experiment 1 had 17,496 trials in total while experiment 2 had 7,776 total trials ✓</p>	<p>tasks, which clearly suggest that they wanted to find some causality among the variables.</p> <p>In experiment 1, authors wanted to evaluate “how the size of the input device affects the minimum target size users can successfully acquire on first attempt”. They found significant differences in the Number of Failed Attempts with different INPUT CONDITIONS as well as with different TARGET SIZES. The mean number of failed attempts also fell in case of using a SMALL DEVICE SIZE. Similarly, they reported results for Targeting error based on the changes in the IVs.</p> <p>In experiment 2, their main goal was to “evaluate the influence of form factors of the display on absolute indirect touch pointing performance”. While doing pairwise comparisons to analyze the number of failed attempts they found significant differences between HS, HL WORKSPACE HEIGHTS and RM, RXL ASPECT RATIO. Similarly, with TARGET POSITION pairs (13,19) and (13,22) there were significant differences in the number of failed attempts. Authors also published how IVs affected Targeting Error</p> <p style="text-align: right;">✓</p>
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5/5p.