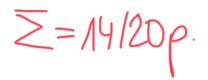
Assignment 3 Research Approaches in HCI



Task 1

Name of the paper	Strategy	Identify Items	Justification
Paul Marshall, Richard Morris, Yvonne Rogers, Stefan Kreitmayer, and Matt Davies. Rethinking 'multi-user ': An in-the-wild study of how groups approach a walkup-and-use tabletop interface.	Descriptive	Method: observation + case study	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. 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. 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
Christian Corsten, Marcel Lahaye, Jan Borchers and Simon Voelker. ForceRay: Extending Thumb Reach via Force Input Stabilizes Device Grip for Mobile Touch Input	Relational	 Variables are measured: Technique (DT, OM, MS, BC, and FR) Target (on the border of the screen, on the centre of the screen) Size (small/large) Time (ms) Success (1/0) Gesture Footprint ("to where users had to move their thumb") Rotation ("around x-, y-, and z-axis at 60 Hz") 	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

• Technique (on a Likert scale from 1 to 5)

Which ones we independently dependent?

Correlation of variables described in the paper:

Study 1:

- Technique and Time ("for each Technique except FR, users needed significantly more time to select Border targets compared to Center targets")
- 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")
- Technique and Rotation ("for each angle, FR always caused the fewest device movement")
- Technique and Gesture Footprint ("FR caused the smallest and most coherent footprint")

Study 2:

- Participants time and the number of training sessions ("participants' Time decreased over the twelve training sessions for both BC and FR")
- Technique and Time ("BC was significantly faster than FR")
- Technique and Rotation ("for each axis, Rotation was significantly lower for FR than for BC")

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.

Measured variables and their correlation are mentioned for both studies precisely, so there is no problem to find out the dependence





		Technique and Gesture	
		Footprint ("Gesture	
		Footprint for BC and FR	
		was similar to Study 1")	
Christian Corsten, Bjoern Daehlmann, Simon Voelker and Jan Borchers. BackXPress: Using Back-of-Device Finger Pressure to Augment Touchscreen Input on Smartphones	Study 1 and 2 Descriptive	Case Study	In Study 1 authors wanted to find out good pressure candidates i.e. fingers which the users are comfortable with to exert pressure on different locations in the back of the device. Then they just reported the results without claiming any relation/correlation among the variables. Similarly, in Study 2 they wanted to know the areas where the users place their index, middle and ring finger at the back of the device to exert pressure. Again after the study, they reported a figure showing the distribution of pressure touched at the back of the device, no relation or correlation discussion.
	Study 3 Experiment al	Task 1-Tap IV: MENU SIZE, PRESSURE LEVEL, FINGER and TOUCH TARGET DV: Time, Touch, Success, Touch Error, Pressure Range Task N-Tap IV: MENU SIZE, PRESSURE LEVEL, FINGER, TIME BLOCK DV: Touch Error, Pressure Range, Tap Count Success Experimental Design: Both Tasks had within-group design. Since all the participants tried all the variants suggest that this is Within-group experiment. In 1-Tap and N-Tap each participant tried 456 trials and 57 trials respectively according to authors	In Study 3 the authors wanted to test Targeting and Maintaining i.e. "How accurately can users apply BoD pressure for a single tap at the front of a smartphone while holding it with two hands in landscape orientation?" and "How accurately can users maintain BoD pressure over time while tapping several targets in sequence?". These tasks boil down to how changes to IVs affect the DVs. For example, they found in the case of 1-Tap Time increased with increase in MENU SIZE and in case of N-Tap Tap Count decreased with increasing Pressure Level similarly they published more results like this
Jérémie Gilliot, Géry Casiez, and Nicolas Roussel. 2014. Impact of	Experiment		As the name of the paper suggests that authors tried to study the impact of form factors and input conditions on absolute indirect-touch pointing

form factors and input conditions on absolute indirect-touch pointing tasks.

tasks, which clearly suggest that they wanted to find some causality among the variables.

IV: DEVICE SIZE, INPUT CONDITION, TARGET POSITION, TARGET SIZE

DV: Success Rate, Number of Failed Attempts, Targeting Error

Experiment 1

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.

Experiment 2
IV: WORKSPACE HEIGHT,
ASPECT RATIO, TARGET
SIZE, TARGET POSITION
DV: Success Rate, Number of
Failed Attempts, Targeting
Error.

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

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

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