

Student Names:

Keyword:

CS/Psych/EdPsych-770 Human-Computer Interaction, *Hands-on Activity*

## Step-by-step Experimental Design

In this hands-on activity, you will work with your project team to make concrete study design decisions for your course project (if you plan to conduct an experiment or an evaluation) or a version of your course project that can be reformulated as an experiment (if you do not currently plan to conduct an experiment) only for purposes of this activity.

1. Formulate your research question.

*What are the effects of **X** on **Y** under conditions **Z**?*

**X:** \_\_\_\_\_

**Y:** \_\_\_\_\_

**Z:** \_\_\_\_\_

2. Identify your experimental variables.

*Independent variable → Dependent variable*

**IV(s), INCLUDING LEVELS FOR EACH FACTOR:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**DV(s):** \_\_\_\_\_

**RANDOM FACTOR(s):** \_\_\_\_\_

3. Generate hypotheses.

*What are the effects of **X** on **Y** under conditions **Z**?*

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***Y** will be higher/lower when **X** is **X<sub>i</sub>** than when **X** is **X<sub>j</sub>** under conditions **Z**.*

**H1:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**H2:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Determine experimental design.

**WITHIN-PARTICIPANTS FACTORS:** \_\_\_\_\_

**BETWEEN-PARTICIPANTS FACTORS:** \_\_\_\_\_

**EXPERIMENTAL DESIGN:** \_\_\_\_\_

\_\_\_\_\_

5. Develop experimental task and procedure.

**TASK:**

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**EXPERIMENTAL PROCEDURE**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

6. Determine manipulations and measurements.

**CONTROL CONDITION(s):** \_\_\_\_\_

\_\_\_\_\_

**TREATMENT CONDITION(s):** \_\_\_\_\_

\_\_\_\_\_

**MEASUREMENTS:** \_\_\_\_\_

\_\_\_\_\_

7. Identify participants.

**TARGET POPULATION:** \_\_\_\_\_

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**CONVENIENCE SAMPLE:** \_\_\_\_\_