Statistical Data Analysis - Empirical study 1. part

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1 Research questions

Our research question is defined as follows:

Is the time spent typing on a keyboard with layout A equal to the time spent typing on a keyboard with layout B?

Layouts **A** and **B** are displayed below.

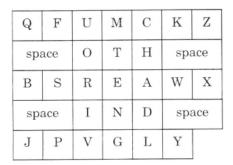




Figure 2: Layout **B**

Figure 1: Layout A

2 Hypotheses

Our null and the alternative hypotheses are defined as follows:

 H_0 : The time spent typing on a keyboard with layout ${\bf A}$ is equal to the time spent typing on a keyboard with layout ${\bf B}$.

 H_a : The times spent typing on keyboards with the two respective layouts are not equal.

3 Independent/dependent/other variables

3.1 Independent variables

The (binary) independent variable is the keyboard layout: ${\bf A}$ or ${\bf B}$.

3.2 Dependent variables

The dependent variable is the duration of typing: t.

3.3 Other variables

Other variables I can think of could be for example: tiredness of parcitipants, position of participants while typing (whether they were standing or sitting) or previous experience with layout $\bf A$ (because layout $\bf B$ is common). These variables were ignored and not controlled at all, except for position of parcitipants while typing - participants were sitting.

4 Participants

Population of this experiment were all computer users from which all needed to have the ability to operate keyboard on any (at least basic) level.

5 Counter balancing

One half of the participants started with layout A and then moved on to layout B, the other started with layout B and then moved on to layout A.

6 Procedure

Our testing procedure consisted set of of parcitipats what were asked to type the same sentence 5 times for each keyboard layout. The sentence was "the quick brown fox jumps over the lazy dog". Typos were ignored. The performance of each participant was measured - from the time when the participant says "start" to the time when participant says "stop" after he types the last letter.

7 Validity classification

In my opinion, the experiment is not fully valid, because majority of the participants comes from the same background - we all are CS students.