Computer mouse usability comparison

Team 4
김예찬 / 김동주 / 이동희 / 문영은 / 박기쁨

Computer mouse usability comparison experiment between design majors and non-specialist

- **Background: Newly developed mouse shapes and materials**
  Trends that ergonomic mice are developed and used by designers
  Is there any difference in task performance and usefulness depending on the type?
  Will familiarity with the mouse, proficiency, also affect task performance?
  On the other hand, since long-term tasks have difficult-to-control variables such as wrist fatigue and concentration, we should experiment with short-term tasks
  Experiment with design students who use a lot of mice and students who use less mouse relatively.

- **Purpose of Study**
  It is aimed at recommending mouse according to user needs by measuring which mouse is effective and efficient in which field
  Extract quantitative measure of how mouse type and skill vary in usability, whether it affects task

- **Survey method**

- participants
design major 10 people, not design major 10 people(al handong students)

- variable
1. independent variable
(1). user characteristic (major and non-major/ mouse usage frequency/ experiment the use of vertical mouse/ proficiency)
(2). type of mouse (angle of the mouse/ wrist angle)
(3). Sequence of tasks
2. dependent variable
(1). Game performance(time, score, level, number)
3. control factor
(1). same environment
(2). same type of mouse
(3). same type of laptop

- experiment sequence
1.agreement and pre-examination
after assigning the agreement, taking examination of the emotional analysis(professional, difficulty, comfortability)
2. taking 3 tasks
each mouse taking task1, task2, task3(total 3 enforcement
- task1: using mouse to move a dot to box avoiding obstacles
measuring comfortability and precision at the narrow range by measuring time
- task2: clicking the dots exactly. if not, then score decrease and 5 times or more, the game will over
measuring accuracy and speed by level and score
- task3: putting all the files in the trash as fast as you can
measuring speed and accuracy at the wide range by measuring time and number of the file that are left
3. post-examination
checking the most comfortable mouse of each task and also a space to write the feedback freely

- experiment environment
all experiment was done in Ebenezer using quiet mood

- data analysis
each mouse function analysis, major and non-major mouse preference,each mouse result difference

- **Results**

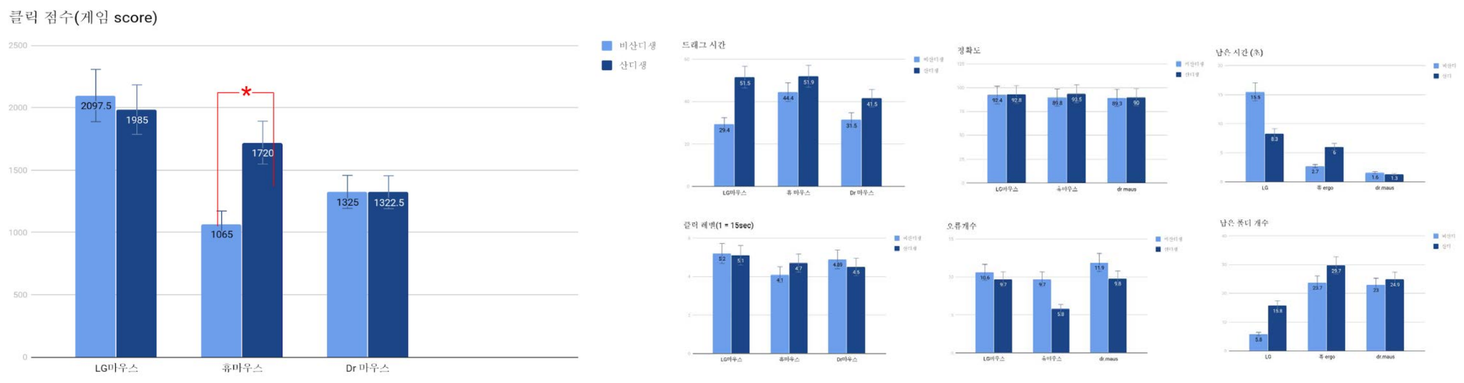
1. Before the experiment

Prior to this experiment, the subjects were surveyed on the feeling of each mouse. 1) Expert, 2) Convenience, 3) Usability

3. After the experiment

To find out the overall preference of the mouse felt while performing the tasks, we examined the preferences of the subjects.

2. The experiment



In Hu-mouse, it was slightly different from the results of the previous two mice.
For categories of click level, accuracy, and number of errors, the significance probability values are 10%, 15%, and 25% respectively. This result cannot be said to be as meaningful as the other two mice (Typical mouse, Dr.maus).

However, for the click score, the significance probability value was 4%. This suggests that there is a clear difference in Task2 ability to perform with Hu-mouse between design majors and non-specialist.

- **Discussion**

I. Most of the non-specialist answered the typical mouse is better than others, because it is more familiar.
II. Also, design majors answer was the same. However, they focused on the functional aspects (Grip, weight, sensitivity, wrist fatigue, etc)
III. Mouse that got good result by task in design-majors was different. While, non-specialist results were almost identical.

Task별 수행능력 1위 마우스

	task1	task2				task3	
	드래그 시간	클릭 레벨 (1 = 15sec)	클릭 점수	정확도(%)	오류 개수	남은 시간(초)	남은 폴더 개수
전공자	dr.maus	dr.maus	일반마우스	휴마우스	휴마우스	일반마우스	일반마우스
비전공자	일반마우스	일반마우스	일반마우스	일반마우스	휴마우스	일반마우스	일반마우스

IV. For task 1, there was a learning effect.
V. If a long-term tasks are conducted with those mouses and more participants, it is expected to result in a significant probability value.