

**Reference:** Hartlieb, S., Santos, J., Lee, S-H., Anderson, A. A., & Barchard, K. A. (2013, April). Data checking is important: Let's also make it satisfying. Poster presented at the Western Psychological Association annual conference, Reno, NV.

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### **Abstract**

People change with their use of computers. When they first start to do a certain task on a computer, people might find it boring. However, as they gain experience, sometimes their opinions change. The purpose of this study is to determine if data entry experience is related to enjoyment of data checking. Data checking is the process of examining data that has already been entered into the computer, to try to detect and correct data entry errors. Many researchers spend considerable time on data checking to avoid errors, yet few probably enjoy it. This study used 185 participants (40 with previous data entry experience). All participants checked the data for a fictitious study with 20 participants. Then they rated the data checking on 16 adjectives. People with previous data entry experience found the data checking to be more satisfying and less boring. This suggests that as people gain more experience, they might like data checking more. Future research should examine other factors that might influence evaluations of data checking. For example, different interfaces may have different impacts on the users.

### **Introduction**

Data entry errors can completely change the results of a statistical analysis. They can change a positive correlation into a negative one, or make a significant t-t-test non-significant (Barchard & Pace, 2008). Because of this, many researchers spend considerable time locating and correcting data entry errors. This process is called data checking.

“This is tedious and annoying.” “This is interesting and enjoyable.” These are possible evaluations of data checking. Why would some people enjoy data checking, while others dislike it? Perhaps this relates to how much data entry experience they have. Little research has directly addressed this question. One study found that data-entry tools increase productivity and minimize workload, but health professionals would still rather spend time on patients than making sure that data entry was done accurately (Sahin, Celikkan, & Senuzun 2012). This is one case where those with data entry experience may have found data checking not enjoyable. On the other hand, success at data entry can lead to enjoyment: Data entry operators receiving developmental feedback enjoyed data entry more when they succeeded than when they failed (Stephan & Walter, 1989). With practice comes success, and so experienced data checkers might enjoy data checking more. We hypothesize that people who have data entry experience will enjoy data checking more than people with no previous experience. If so, this suggests that human-computer interaction can alter a user's attitude towards tasks carried out on a computer.

### **Methods**

#### ***Participants***

There were 185 participants in this study: 40 participants with previous data entry experience and 145 participants without. The sample included 98 females and 87 males, ranging in age from 18 to 67 (mean 21.84, sd 6.04). The participants were from several different ethnic backgrounds: 12.4% African American, 21.6% Asian, 42.2% Caucasian, 15.7% Hispanic, 5.4% Pacific Islander, and 2.2% other.

#### ***Procedures***

Participants completed this study in a single 90-minute session. During this session, they checked the data for 20 data sheets using one of three randomly assigned data checking methods. Afterwards, they evaluated the data checking method.

#### ***Measures***

Previous data entry experience was measured by asking participants “Have you ever worked as a data entry operator? (This can be paid or unpaid work.)” Participants answered either Yes or No. To measure enjoyment of data checking, participants rated the data checking task using 16 adjectives on a scale that ranged from 1 (strongly disagree) to 5 (strongly agree).

#### ***Data Analysis***

We used independent sample t-tests to compare the two groups (participants with data entry experience and those without) on the 16 items.

### **Results**

Compared to people with no previous data entry experience, people with previous data entry experience rated the data checking as more satisfying and less boring. See Table 1.

### Discussion

The purpose of this study was to determine whether there exists a relationship between data entry experience and enjoyment of data checking. As expected, those with previous experience rated the data checking more favorably. However, the differences were relatively small. Of the 16 adjectives that participants used to rate the data checking task, only two adjectives showed significant differences. Those with more experience rated the task as more satisfying and less boring. One possible cause of the small differences is the variety of data checking methods used. In this study, participants were randomly assigned to one of three data checking methods. If all participants were exposed to the same data checking task and the task was similar to something they had done before, this might increase statistical power. In addition, data entry interfaces vary in their usability (Marshall, Foster, & Jack 2001) and this could influence attitudes towards data entry and data checking. Future research should compare evaluations of different data checking methods.

### References

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Table 1  
*Mean (and Standard Deviation) for Evaluation of Data Checking*

Adjective	Data Entry Experience	No Data Entry Experience	<i>t</i> -test
Satisfying	4.20 (0.79)	3.71 (1.10)	$t(183) = 2.62, p = .010$
Comfortable	3.98 (1.14)	3.85 (1.15)	$t(183) = 0.63, p = .538$
Pleasant	3.48 (0.85)	3.16 (1.12)	$t(183) = 1.66, p = .098$
Relaxing	2.92 (0.86)	2.79 (1.05)	$t(183) = 0.74, p = .462$
Accurate	3.78 (1.05)	3.88 (0.98)	$t(183) = -0.61, p = .544$
Enjoyable	3.02 (0.83)	2.84 (1.11)	$t(183) = 0.97, p = .332$
Fun	2.62 (1.00)	2.66 (1.12)	$t(183) = -0.19, p = .850$
Calming	3.15 (0.83)	2.91 (1.02)	$t(183) = 1.36, p = .174$
Reliable	3.62 (1.03)	3.67 (1.01)	$t(183) = -0.24, p = .809$
Frustrating	2.30 (1.18)	2.36 (1.15)	$t(183) = -0.32, p = .751$
Painful	1.95 (1.12)	1.91 (1.03)	$t(183) = 0.14, p = .890$
Boring	3.08 (1.25)	3.53 (1.21)	$t(183) = -2.09, p = .038$
Tedious	3.65 (1.10)	3.67 (1.10)	$t(183) = -0.10, p = .924$
Uncomfortable	2.28 (1.13)	2.34 (1.22)	$t(183) = -0.29, p = .770$
Annoying	2.55 (1.11)	2.79 (1.17)	$t(183) = -1.18, p = .240$
Depressing	1.88 (0.94)	1.91 (0.99)	$t(183) = -0.20, p = .840$