Replication of

Washing Away Postdecisional Dissonance

by Lee, S. W. S. / Schwarz, N. (2010)
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In individual sessions, Lee and Schwarz (2010) asked undergraduate students to rank preferences for CDs as part of an alleged consumer survey. In a seemingly different task, half the participants were asked to evaluate liquid soap by looking at the bottle and the other half were asked to test and evaluate the soap by washing their hands. After completing some filler items, the students were again asked to rank their preferences for the CDs. For participants who washed their hands, the preferences remained the same after they made their decisions, while those who merely examined the bottle replicated the standard dissonance effect by strengthening their preference for the chosen CDs. There are two experiments in this paper, the second is a replication of the first. Experiment 1 is the first experiment in the paper. Following the replication project protocol, Experiment 1 was chosen for replication.

Hypothesis to replicate and bet on:

Hand washing will significantly reduce the need to justify one's choice by increasing the perceived difference between alternatives. Specifically, the mean difference between the rankings of the chosen and rejected albums before and after making the choice will be greater for the soap examining condition compared to the soap hand washing condition. F-test assessing the interaction between before-after and hand-washing condition, $p < 0.05$.

Original test statistics:

- *Soap examining condition:*
  Mean difference between chosen and rejected, before making choice: $M = 0.14$, $SD = 1.01$. Mean difference between chosen and rejected, after making choice: $M = 2.05$, $SD = 1.96$.

- *Soap hand washing condition:*
  Mean difference between chosen and rejected, before making choice: $M = 0.68$, $SD = 0.75$. Mean difference between chosen and rejected, after making choice: $M = 1.00$, $SD = 1.41$. Interaction of before-after and hand-washing: $F(1, 38) = 6.74$, $p = 0.0133$ (reported as $p = 0.01$).

Power Analysis and Criteria for Replication: First Data Collection

The original sample size was 40 observations, and the standardized effect size was $r = 0.388$. To have 90% power to detect 75% of the original effect size, a sample size of 123 is required. The criteria for replication is an effect in the same direction as the original study and a p-value < 0.05 (F-test, interaction effect).

Power Analysis and Criteria for Replication: Second Data Collection

If the original result is not replicated in the first data collection, a second data collection of 163 additional individuals will be carried out so that the total sample size is 286. If a second data collection is carried out, it will be tested if the original result replicates in the pooled sample of the first and second data collection.

To have 90% power to detect 50% of the original effect size, a sample size of 286 is required; i.e. a sample size of 163 in the second data collection to have a sample size of 286 in total for the first and second data collection pooled. The criteria for replication is an effect in the same direction as the original and a p-value < 0.05 (in a F-test) in the pooled data.

Sample

The sample size in the first data collection consists of 123 students from University of Virginia. All participants will be recruited from the UVA participant pool for research credit.

If the original result is not replicated in the first data collection (two-sided p-value < 0.05 in the original direction), a second data collection of 163 additional students will be carried out so that the total sample size is 286.

Materials

We will use the same materials as in the original study, including the music preference survey and instructions, filler tasks, and soap evaluation survey (for both examining and using conditions). Following recommendations from the original authors, we will present physical CDs of the albums listed on the ranking sheet with corresponding album covers, due to the theorized role touch plays in the postdecisional dissonance effect. However, the music representation will be modernized through adjustments made to the corresponding materials to replace the term "CD" with "album". Following the debriefing at the conclusion of the experiment, participants will return the physical CD they selected in the first ranking activity in return for a digital download link of the same album.

The second adjustment will be an updated selection of albums used during the ranking tasks, in order to retain a similar standard of relevancy to the participant sample. The updated album selection will be derived from the most current Official Charts top 40 album sales ranking of 2016. Per the suggestion of the original authors, this updated selection of music will be pilot tested among the UVA undergraduate population, to ensure general appeal.

For the soap evaluation, we will use the same Pure & Natural liquid hand soap as used originally. The experiment will be in English as in the original study.

Procedure

We will follow the experimental procedure described in study 1 of the original article and Supplementary Information, in combination with direct feedback provided by the original authors.

In individual sessions, undergraduate students will participate in two allegedly unre-

lated consumer choice activities. In the first activity, participants will be asked to rank preferences for music albums. The students will pick 10 albums that they would like to own, after marking all the albums they owned out of 30 album covers, as if they were shopping for music. Then, the participants will rank the 10 albums they chose by preference. The participants will then be offered a choice between their 5th and 6th ranked albums as an appreciation gift from the alleged entertainment retail sponsor. The reasoning given to participants for choosing between their 5th and 6th rankings will be that the researcher has a limited number of albums remaining. The album that the participant selects will be the "chosen" album, and the other will be the "rejected" album.

For the second consumer choice activity, students will evaluate a liquid soap as part of an ostensibly different consumer marketing task. Half the students will evaluate the soap bottle using observable qualities ("non-handwashing" condition) and the other half will test the soap by washing their hands ("handwashing" condition). Finally, after filler tasks, participants will again rank their 10 albums, allegedly because the sponsor wants to know what customers thought of the albums after leaving the store.

Analysis

The analysis will be performed exactly as in the original article. No exclusion rules were applied in the original study, so all participants will be included unless they fail to provide rankings either before or after the choice.

The dependent variable will be the rank difference between the chosen and rejected album. The analysis will be 2 (hand-washing vs. no hand-washing) $\times$ 2 (before vs. after choice) mixed-model ANOVA.

The results will first be estimated based on the first data collection. If the original result is replicated in the first data collection (a two-sided p-value < 0.05 in the same direction as the original study), the second data collection will not be carried out. If the original result is not replicated in the first data collection a second data collection will be carried out. The above statistical test will then be estimated for the pooled sample of the first and second data collection to test if the original result replicated (a two-sided p-value < 0.05 in the same direction as the original study).

Differences from Original Study

Following correspondence with the original authors, the complete scripts, list of materials used, analysis scripts, and clarifications were provided to our team. However, the replication procedure will likely differ from the original study due to unavoidable conditions in the following ways.

The replication will be performed in Charlottesville between September 2016 and September 2017, whereas the original study was carried out in Ann Arbor, time unknown. As such, participants will be recruited using the UVA research participant pool and compensated using UVA class participation credit. Additionally, at the conclusion of the experiment, participants in the replication will receive a link for a corresponding digital version of the physical CD they return from the ranking activities.

The original paper contains two studies: for the replication the focus is only on study 1 following the project protocol to select the first study in the paper reporting treatment effects

Replication Results for the First Data Collection (90% power to detect 75% of the original effect size)

[To be added when replication experiments have been completed.]

Replication Results for the First and Second Data Collection Pooled (90% power to detect 50% of the original effect size)

[To be added when replication experiments have been completed.]

Unplanned Protocol Deviations

[To be added when replication experiments have been completed.]

Discussion

[To be added when replication experiments have been completed.]

References

Lee, S. W. S. / Schwarz, N. (2010): *Washing away postdecisional dissonance.* Science, 328(5979), p. 709.