



Earning Rewards and the Endowment Effect: Evidence from a Lab Experiment

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Abstract

The way an item is attained affects the perceived value of that item by the owner. Previous research has shown that personal attachment (Shu et al. 2011), self-made products (Norton et al. 2012), and hard work (Festinger, 1957) all influence how much owners value items.

I devised a lab experiment in which students from Northwestern College performed an unrelated test before receiving a hot drink of their choice. Participants were then asked to offer their willingness to pay for their drinks. The experiment differs from previous research in that the work being done is unrelated to the product being evaluated. In addition, all participants in the treatment group performed the same amount of work.

The findings of the experiment show that participants that failed the test had a willingness to pay of \$0.85 lower than the control group. In the other hand, participants that passed the test had a willingness to pay of \$0.85 higher than the control group.

I suggest that participants that *felt* they earned their drinks valued it higher than those that did not feel they earned their drink.

Introduction

I suggest that the feeling of “earning” a product affects willingness to pay for a product that was given freely to a person. A person that feels their work was good enough to have earned a product that was freely given to them will have a higher willingness to pay for the product than a person who feels their work was not good enough to have earned the same product also given to them freely.

My approach differs from other studies in that I am not concerned with the product itself, but rather how consumers view the same product when their methods of obtaining it are different. The participants in this study realized worked completely unrelated to the product, unlike previous studies where the idea of self-assembly was explored. It is also important to know that all participants were getting a hot drink of their choice no matter how they performed in the test.

These findings suggest that **participants who passed the test likely feel they earned their hot drinks through their success** in the brain teaser. Likewise, those who failed the test feel the hot drinks given to them were not earned and were therefore undervalued, compared to the control group.

Experimental Design

The control group was offered a free hot drink from which they could choose between coffee and hot chocolate. The people in this group were then asked to complete a short survey that asked them to rate their liking and state their willingness to pay for their drinks.

The treatment group was given an informed consent form which informed them that they would be taking a short brainteaser and that they would receive a hot drink of their choice afterwards regardless of the outcome of the test. The brain teaser consisted of a sheet of paper that included a paragraph-length of random grouped letters.

Participants were tasked with finding as many pairs as possible of repeating letters in the span of 20 seconds. A passing grade was finding more than 5 pairs, and a failing grade was considered finding 5 pairs or less.

After being timed, their tests were graded, and participants were informed of their grade. Participants took the test one at a time, under direct supervision. After being informed of whether they passed or failed the test they were asked to pick between coffee and hot chocolate. Participants would then try their drinks and complete the same survey as the control group. Afterwards, both groups were given a debriefing form.

Data

The dataset contains information of sixty Northwestern College students that participated in the experiment.

- Of these sixty students, thirty belong to the experimental group that took the brainteaser test before receiving their drink
- The other thirty belong to the control group – those that did not take any tests before receiving their drinks.
- Of the thirty students that took the test before receiving their drinks, fifteen of them passed the test and fifteen failed the test.

	Obs	Mean WTP	Coffee	Mean Preference
Passed Test	15	1.973	0.6	3.2
Did Not Pass Test	15	0.336	0.333	2.2
Control Group	30	1.168	0.433	3.667

Results

An ANOVA test was conducted on willingness to pay between the control group, those who passed the test in the treatment group and those who failed the test in the treatment group. **It showed a statistically significant difference between the three groups regarding willingness to pay** with $F=5.058$, $Pr(>F)=0.0283$.

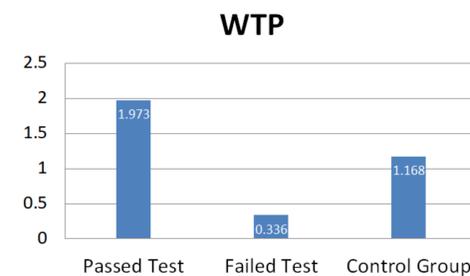
Model 1 of Table 2 serves as a baseline model where the only variables predicting willingness to pay are whether a participant passed or failed the test.

Both passing and failing the test are statistically significant at a 99.9% confidence level. This falls in line with the hypothesis that that willingness to pay for the hot drinks would be influenced by performance on the brain teaser beforehand.

Model 2 of Table 2 adds two other variables: *coffee* and *enjoy*. **These two variables do not affect the original results of the first model.**

$$Y = \alpha + \beta_1 * test_pass + \beta_2 * test_np + \beta_3 * coffee + \beta_4 * enjoy + \epsilon_i$$

Model 3 predicts preference with the same four variables as Model 2. According to Model 3, passing the test did not have a statistically significant correlation to the preference variable. However, failing the test correlated to a decrease in preference.



.variable	.stat	Willingness to Pay (Model 1)	Willingness to Pay (Model 2)	Preference (Model 3)
(Intercept)	Estimate	1.1683***	1.00	3.00**
	Std Err	[0.1203]	[0.6386]	[0.8820]
Test Pass	Estimate	0.805***	0.8605***	-0.4707
	Std Err	[0.2084]	[0.2047]	[0.2828]
Test No-Pass	Estimate	-0.8023***	-0.8546***	-1.5040***
	Std Err	[0.2084]	[0.2040]	[0.2818]
Coffee	Estimate		-0.4044*	-0.1252
	Std Err		[0.1700]	[0.2348]
Enjoy	Estimate		0.3554	0.7458
	Std Err		[0.6539]	[0.9032]
N		60	60	60
R2		0.439	0.4919	0.3416
adj R2		0.4193	0.4549	0.2937
BIC		133.5516	135.7961	174.5506

¹ Table 2 demonstrates statistical significance in the following way: *** = p < 0.001, ** = p < 0.01 and * = p < 0.05.

Conclusion

The data demonstrates a clear relationship between whether someone passed the test and how much they enjoyed their drink. This relationship is substantiated by the fact that participants that failed the test had a lower willingness to pay for their drinks than those in the control group. The data also shows that participants that passed the test had a higher willingness to pay for their drinks than those in the control group. This leads to the following hypotheses to explain this behavior.

The proposed explanation is that **participants that passed the test felt they “earned” their drink and were therefore more likely to have a higher willingness to pay** for their drink and rate it higher than the participants that did not pass the test. Consequently, those who failed the test felt they did not “earn” their drink, which in this case might have acted like a prize and were thus less likely to have the same willingness to pay as their counterparts or those participants in the control group.

The implications of this idea are numerous and widely applicable. The proposed hypothesis would suggest that the way we value things is influenced by whether we feel we earned them. **This could explain:**

- Risk aversion** levels on consumers, investors and even portfolio managers.
- Salary satisfaction** in workers. Those that feel they are doing more meaningful work would be more likely to be receptive of their salaries.

Acknowledgements

- Dr. Han-Yen Kao & Dr. Fan Fei, for their advice and mentorship.
- Dr. Feenstra & Dr. Vonder Bruegge, for their leadership in the Honors Program.
- The IRB, for making sure the experiment was up to the college's standards
- Hailey Louw, for being a good proofreader and statistics double-checker.