On-line Purchase Behavior Research Design
Based on Ego-depletion Theory

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Abstract. People have more choices when they have a purchase behavior in this on-line era. Hypothesis in this paper is: If we have more merchandise to choose, it will accelerate our cognitive resources; then it will increase ego-depletion; assumption of cognitive resources and ego-depletion cause negative relation to self-control; which will lead to more purchase. The conclusion results in more goods choices leads to more purchase.

Introduction

Entering the era of on-line shopping, people are facing more and more choices. Go to any shop, you will see the commodity classification of goods in a superb collection, more and more detailed with more and more categories. Online shoppers are also using the ubiquitous Festival vigorously promotion, in the case of Taobao.com, a few years of "double eleven" promotion continues to create sales myths. So, as a consumer, why do we continue to contribute so much consumption? Are the number of commodities relating with the growing sales year by year?

This paper argues that the consumer has to use cognition function first to deal with so many goods information. In the cognitive processing of these goods, the consumers need to use the information in the memory and then analyze the commodity information. The brain information processing ability is limited and cannot carry out various operations at the moment. In order to successfully process a large amount of information, people can only select the specific information on the operations, and make a good organization of the numerous operations during the cognition process. Therefore, there will be an ego-depletion in the cognitive processing of goods, resulting in a decrease of self-control. As a limited resource, the ability of self-control is non-renewable in a short term. The higher consumption of this resource reduces the ability of self-control, thus bringing about an increase of impulsive consumption and compensation consumption and more products are purchased.

Table 1. Theoretical frame.

<table>
<thead>
<tr>
<th>H1</th>
<th>More choices</th>
<th>Cognitive resources consumption</th>
<th>H2</th>
<th>Ego-depletion</th>
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<td>H3</td>
<td>Self-control</td>
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<td>H4</td>
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<td></td>
<td>More purchase</td>
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<td>H5</td>
<td>More goods choices accelerate the consumption of cognitive resources.</td>
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<tr>
<td>H2</td>
<td>Cognitive resources consumption intensifies ego-depletion.</td>
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<td>H3</td>
<td>Cognitive resources consumption and the ego-depletion bring negative effect on self-control.</td>
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<td>H4</td>
<td>The decrease of self-control causes more purchases.</td>
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<tr>
<td>H5</td>
<td>More goods choices induce more purchases.</td>
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Research on consumer self-control in western countries began in the late 1950s. After more than 60 years development, it gradually became a center issue of Customer Behavior and abundant achievements had been made in this field. However, studies on consumer self-control in China are still at the initial stage and little research is focused on this area.

Most previous research shows that people tend to adapt “take-the-best” strategy while dealing with an either-or question. In this paper, more theories related to how Ego-depletion Theory affects on consumers choices of merchandise are explained. Moreover, the current situation of studies on self-control, ego-depletion and compensation consumption is systematically reviewed. This paper also puts forward that people can “take more” other than “take the best” in order to gain the best strategy. Furthermore, the either-or questions are replaced by multiple choice questions in the experiments. Research in this paper may bring about practical significance in explaining why consumers always purchase what they do not need and how to keep rational consumption. It could also promote the research on Chinese consumer self-control behavior.

**Literature Review**

Cognition process is information processing of individual cognition. Cognitive psychology regards cognition process as a system with information processing and operations made of information acquisition, encoding & coding, extraction and usage. Information acquisition receives stimulus information directly acting on senses, and the function of senses is to receive information. Information encoding & coding transfer one kind of information to another kind of information, which is useful for the storage, extraction and usage of information.

Ego-depletion Theory was firstly raised according to studies on self-control. After summarizing prior theories and research, Baumeister et al. (2000) put forward theories that self activities cause mental capacity depletion. These theories are further explained as follows: 1) Mental capacity is indispensable for self executive capacities (including self-control, cautious choice and initiative actions); 2) Mental capacity is a limited resource that only afford limited times of self-control in a short time; 3) All executive capacities require the same kind of resource, so the resource depletion in one field leads to less available resource in another field; 4) Success of self-control depends on the quantity of mental capacity; 5) The process of self-control is the process of depleting mental capacity. Time is needed for its recovery after depletion, which is similar to the recovery of muscle fatigue (Baumeister, 2000, 2001; Baumeister et al., 1998; Baumeister, Muraven, & Tice, 2000).

**Experiments and Methodology**

**Experiment 1:** 100 college students were chosen with a female-to-male ratio of 1:1. The test was divided into two sections, and the first one started from 9 a.m. to 10.20 a.m. Before the experiment, all students entered the computer room and finished a test of the Self-Control Scale (Shuhua Tan & Yongyu Guo, Revision of Self-Control Scale for Chinese College Students, 2008). Then they began on-line shopping, each with 1000 simulative money. All the goods were adjusted and controlled. In the first half an hour, 50 types of products were showed every 10 minutes and students could pick up anything from that. After that, they were asked to take a reading comprehension test and finish 10 multiple choice questions in 10 minutes. In the next half an hour, 100 types of goods were showed every 5 minutes. Similarly, students had to accomplish another reading comprehension test in 10 minutes. Numbers of purchase and money left of each student were counted separately. The multiple choice questions were also marked and the accuracy of them was calculated.

Experiment 1 was determined to verify H1: More goods choices accelerate the consumption of cognitive resources. It was used to examine whether there were random goods choices or compensation consumption or not. Goods choices were the independent variable while cognitive resource consumption was the dependent variable. This experiment could validate H2 as well: Cognitive resources consumption intensifies ego-depletion. To check whether ego-depletion intensified during the process, the way of cognitive resources consumption was adjusted. Cognitive resource consumption was considered as the regulated variable to accommodate the result of
ego-depletion. If the accuracy of the second reading comprehension test was lower than it of the first one, it meant that cognitive resources consumption led to intensified ego-depletion, thus affecting on correct judgments and self-control.

**Experiment 2:** The same experiment continued at 13 p.m. Except for lunch, students were not allowed to take a break or have coffee or chocolate to replenish energy at noon. All students took a small test first which could regulate their ego-depletion. They were asked to transcribe a paragraph and delete all “a” and “i” letters, thus increasing their ego-depletion to the peak value. At 13.15 p.m., the experiment took in the morning started again. Pictures and prices of 100 products were showed each 5 minutes to candidates. After half an hour, the number of purchase was calculated and the test of the Self-Control Scale (Shuhua Tan & Yongyu Guo. Revision of Self-Control Scale for Chinese College Students, 2008) was taken, too.

Experiment 2 aimed to explain H3: Cognitive resources consumption and the ego-depletion bring negative effect on self-control. In which, cognitive resource consumption was the independent variable, self-control was the dependent variable, and ego-depletion was the regulated variable. Meanwhile, this experiment could verify H4: The decrease of self-control causes more purchases. In this part, self-control was the independent variable while purchase volume was the dependent variable. The degree of ego-depletion of all candidates was controlled in Experiment 2 and self-control was quantified. Results from Self-Control Scales in two experiments were compared to verify H3. Purchase volume was used to verify H4 and H5 could be deduced: More goods choices induce more purchases. H5 took self-control as the regulated variable and more choices as the independent variable, so that purchase volume could be influenced.

**Discussion and Prospect**

What is the mechanism of ego-depletion? Or what is the psychological basis of mental capacity? In the past time, researchers thought it might be glucose, but this opinion was not universally accepted. Recent studies explore that related variations are produced in brain cortical activity before and after the ego-depletion. Nevertheless, whether these variations directly cause ego-depletion or not remains to be tested. Variations of which part of cortex reflect the change of mental capacity? What is the mechanism of these variations? Are there any available interventions? These questions require detailed investigation in the future.

So far, Ego-depletion Theory has been extended. However, it is practically planar extended rather than stereoscopic developed. The intention has been enriched that mental capacity consumption appears not only in self-control, but in many complicated intellectual activities; The extension is also expanded that the effect of ego-depletion turns from temporary to persistent; Regulated variables become increasingly affluent and specific, but lack of further investigation on a profound mechanism is the source of the current problem which put a negative effect on the development of Ego-depletion Theory.

Logic in this paper is clear, however, there are still some problems while verifying it. For example, all candidates are college students whose low average age and self-control ability might be interference factors in the experiments. What’s more, regulated variables in the experiments may be prominent so that affect on the final results.

**References**


