Ego Depletion and its Effects on Information Search and Product Evaluation

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Self-regulation is defined as the self’s ability to alter its own responses or internal states, such as behaviors, impulses or cognitive processes (Muraven, Baumeister & Tice, 1999). Self-regulation depends on a limited resource, similar to a force or energy. When this energy is spent, self-regulation is temporarily impaired, and the person’s ability to act in a normal way in subsequent situations is harmed, in a situation defined as ego depletion (Baumeister, 2002; Baumeister et al, 1998). The concept of ego depletion has clear implications to consumer behavior, as it involves complex decisions and choices, information processing and product evaluations (Aaker & Lee, 2001; Pham & Chang, 2010). When self-regulation resources are depleted, people show a tendency to become more impulsive, taking more risks, making suboptimal decisions and searching for less information (Vohs & Faber, 2007). Much of the research on ego depletion effects on consumer behavior has focused on choice, as it is an effortful act that depletes regulatory resources (e.g., Vohs et al., 2008). To our knowledge, very few studies have attempted to unveil the effects of ego-depletion on product information search and assessment. Our work contributes to the extensive ego depletion literature by demonstrating its effects on information search and product assessment, and the conditions in which they occur. Also, we demonstrate that perceived information sufficiency is one of the mechanisms that explain ego depletion effects on product evaluation. Finally, our work contributes to search theory by demonstrating how negatively-valenced information has a stronger effect on product evaluation than positively-valenced information.

Marco Teórico
When cognitive, emotional or physical effort cause the mental energy involved in self-regulation to be weakened, the ego is depleted of its resources, so that an initial act of self-control may impact performance on a second, unrelated task (Muraven, Tice & Baumeister, 1998). In consumer behavior, ego depletion renders individuals more likely to yield to temptation, to buy impulsively and to overspend; or less able to regulate their behavior toward long range goals like saving money. If a person is temporarily ego-depleted, their valuation of goods tends to be more favorable, and their willingness to pay higher prices and to indulge in impulsive spending is greater (Vohs & Faber, 2007). Therefore, the following hypothesis is proposed: H1: Depleted participants evaluate a product more favorably than non-depleted participants. Fischer, Greitemeyer & Frey (2008) argue that depleted consumers are less likely to use their capacity for reasoning and all the information they have in making product decisions, focusing on one dimension or settling on the best or the cheapest option, whereas non-depleted subjects will seek to find the optimal solution. Depletion leads individuals to perceive their information processing as more thorough (Vohs & Schmeichel, 2003) and more elaborate (Wan, Rucker, Tormala & Clarkson, 2010), which in turn fosters greater attitude certainty. This leads them to be more certain of their attitudes toward an advertised product. Such findings have led us to formulate the following hypothesis: H2: Perceived information sufficiency mediates the relationship between ego depletion and product evaluation, so that depleted participants are more likely to perceive product information as more sufficient than non-depleted participants. According to Schmeichel, Vohs and Baumeister (2003), only more active and effortful tasks are susceptible to be impaired by ego depletion. Therefore, when individuals are led to search for additional information, the increased effort spent on the evaluation task should highlight the effect of ego depletion. Besides, studies suggest that negative information tends to be more diagnostic and of higher perceived consequence than
positive information, thus being assigned extra weight (Fiske, 1980; Maheswaran & Meyers-Levy, 1990). Negative information, such as product attributes with inferior performance, has been shown to cause more impact on consumer satisfaction or repurchase intention, so that, within a given set of attributes, the relative impact of negative and positive attributes will be asymmetric (Mittal, Ross, & Baldasare, 1998). If little information is given and the amount of external search is minimum or non-existent, both depleted and non-depleted individuals should hold similar evaluations of a product. But, when search increases, negative information should become more diagnostic and have a stronger impact on product evaluation than positive information. Because depleted individuals engage in less external search than non-depleted individuals, they will be less likely to make a precise assessment of a low-quality product than non-depleted individuals. If quality is high, both depleted and non-depleted individuals will make similar product evaluations. This discussion leads to the following hypotheses: H3a: Depleted participants evaluate a low-quality product more favorably than non-depleted participants. H3b: Depleted participants evaluate a high-quality product as favorably as non-depleted participants.

Método de investigação se pertinente
Three experimental studies were conducted and are described separately. Study 1 Study 1 addresses hypotheses H1 and H2 by examining the impact of ego depletion on the evaluation of a notebook. In the first phase, half of the participants (n=78) were asked to complete the “white bear” thought suppression task. The other half of the sample performed similar procedures without the thought suppression task. The PANAS scale was used as manipulation check. In the second task, participants were shown the description of a notebook featuring 4 attributes (processor, screen size, audio, and warranty period) and its characteristics. Next participants indicated their notebook evaluation and to what degree the information provided was sufficient for their evaluation. Study 2 Study 2 addresses H3a and H3b by examining the effect of ego depletion on the evaluation of a digital camera. Study 2 is a 2 (depletion: experimental vs. control) x 2 (product quality: high vs. low) between subjects, factorial design. Participants (n=164) assigned to the depletion condition made seventy-two choices and then completed the PANAS scale, while participants assigned to the control condition started with the PANAS scale. Next, all participants were shown four attributes (lens, display, battery, and resolution) of a digital camera. Participants were warned to click on the link next to each characteristic to learn more about the product. By clicking, participants were shown pop-up pages describing more positive or less positive characteristics of the digital camera (e.g., 14.0 Mp vs. 2.0 Mp). Same DV’s of Study 1 were used. Study 3 Study 3 is similar to Study 2, but here a different depletion manipulation (Stroop test) was used. No initial information was given to participants in order to stimulate information search. Subjects (n=151) participated voluntarily in the study. In the second phase, all participants were asked to imagine that they would take a trip during vacation and so had to evaluate a hotel. Participants were shown a fictitious hotel name and nine excerpts of comments made by guests that had stayed at the hotel. By clicking on the links, participants were directed to pop-up pages with the full comment. From the nine comments, four were neutral and five were either positive or negative.

Resultados e contribuições do trabalho para a área
Results of each study will be presented separately. Study 1 The manipulation check showed that depletion manipulation worked successfully. A t-test revealed that, contrary to what H1 hypothesized, depleted participants’ notebook evaluation (M = 6.4) was not significantly more favorable than non-depleted participants’ (M = 6.2; t(76) = .8, p > .4). PROCESS’ Model 4 (Hayes, 2013) was used to test H2. As hypothesized, depletion increased perceived
information sufficiency ($\beta = 1.61, SE = .52, t = 3.11, p < .01, r^2 = .34$), which in turn had a positive effect on the notebook evaluation ($\beta = .27, SE = .05, t = 5.12, p < .01, r^2 = .52$) when controlling for depletion. Further, the indirect effect of depletion on the notebook evaluation mediated by perceived information sufficiency was positive (.43) and the effect confidence interval based on the bootstrap method [.19; .83; 10,000 re-samples] does not contain zero, lending support to H2. Study 2 Check on manipulation revealed that depletion manipulation worked successfully. An ANOVA 2 (depletion: experimental vs. control) x 2 (product quality: low vs. high) on the digital camera evaluation revealed a main-effect of depletion ($F(1,160) = 7.6, p < .01$), a main-effect of product quality ($F(1,160) = 20.3, p < .01$), and an interaction effect between depletion and product quality ($F(1,160) = 4.5, p < .05$). Post-hoc tests showed that depleted participants evaluated more favorably the low quality digital camera ($M = 5.8$) than non-depleted participants ($M = 4.7; t(75) = 2.9, p < .01$); however, depleted participants evaluated the high quality digital camera as favorably ($M = 6.4$) as non-depleted participants ($M = 6.2; t(85) = .5, p > .5$), lending support to H3. PROCESS’ Model 5 (Hayes, 2013) was used to test H2 and the results supported it. Study 3 The manipulation check showed that depletion manipulation worked successfully. H3a and H3b were tested as in Study 2 and results supported them. H2 was tested as in Study 2 and results confirmed it. Conclusions This research highlights the conditions under which ego depletion influences the amount of search and product assessment. Our research contributes to the ego depletion literature by demonstrating that depleted individuals are more likely to evaluate more positively a low-quality product than non-depleted individuals, while a high-quality product is similarly evaluated by both depleted and non-depleted individuals. Further, we have shown that the difference between the evaluation of a high-quality and low-quality product made by depleted individuals is less pronounced than that observed for non-depleted individuals, suggesting that depleted individuals make less precise product assessments. The results also suggest that depleted individuals spend less resources processing information and have less ability to perceive missing information. We have also shown that the effect of ego depletion on product assessment is mediated by perceived information sufficiency, so that depleted individuals perceive information as more sufficient, which in turn increases product evaluation. Managerial and Public Policy Implications Managers of high-quality products should take extra care in providing consumers with information that is easily understood, readily available, and very clear. When the effort to search for additional information is lessened, both depleted and non-depleted consumers are benefited and product evaluations may become more accurate. On the other side, the results also have important public policy implications. Due to their decreased effort in information-search activity, depleted individuals are more likely to make less precise product assessments, and consequently, to make sub-optimal purchase decisions. Individuals should be warned that making purchase decisions on depletion conditions is ill-advised. Even if consumer ego depletion seems a beneficial condition to lower-quality products, in the long run it may hurt brands and products by lowering consumer trust and loyalty, and by tainting marketing efforts with a suspicious character.

Referências bibliográficas