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The impact of procedural priming of selective accessibility on self-generated and experimenter-provided anchors

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HIGHLIGHTS

- This research manipulates selective accessibility with procedural priming.
- Priming impacts anchoring with experimenter-provided and self-generated anchors.
- The effect of priming on anchoring is diluted with a cognitive load.
- Selective accessibility and adjustment mechanisms are proposed to be complementary.

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ABSTRACT

Anchoring is often considered to be the product of two distinct processes: (a) the under-adjustment associated with the anchoring-and-adjustment heuristic, when individuals provide their own anchors; and (b) selective accessibility, when an experiment provides an anchor. The evidence for the existence of two distinct processes mostly comes from the differential impact of effort across anchor types (self-generated vs. experimenter-provided). The present work challenges this distinction by demonstrating that priming selective accessibility (a) impacts the anchoring bias independently of the type of anchor and (b) interacts with effort in the same way across both sources of anchors. Therefore, the present results challenge the dichotomy between selective accessibility and anchoring-and-adjustment as two independent processes. Instead, they suggest the idea that these processes are both responsible for yielding the commonly observed anchoring phenomenon.

Introduction

Anchoring studies typically involve two consecutive judgments. First, participants compare the target judgment with a standard (i.e., the anchor), which can either be self-generated or provided by the experimenter. Second, they provide a numerical estimation of the target. This estimation is usually assimilated toward the standard of comparison, resulting in an “anchoring bias.” Several decades of studies on anchoring have demonstrated that its effects hold across a diverse range of stimulus materials (e.g., Cervone & Peake, 1986; Jacowitz & Kahneman, 1995) and in situations in which the anchor is clearly irrelevant to the choice task (e.g., the last four digits of a phone number; Russo & Schoemaker, 1989).

In spite of the anchoring effect's near ubiquity, little agreement exists in its underlying psychological processes (e.g., see the recent set of papers by Epley & Gilovich, 2010; Frederick, Kahneman, & Mochon, 2010; Russo, 2010; Wegener, Petty, Blankenship, & Detweiler-Bedell, 2010a, 2010b). Two main types of mechanisms have been advanced to explain the anchoring phenomenon. The first, originally proffered by Tversky and Kahneman (1974), is an insufficient adjustment from the anchor. People use the anchor as a starting point for the required estimate and then adjust away from it until they reach a plausible answer. Because the first plausible answer is likely to be too close to the anchor, this process usually yields an under-adjusted response (Epley & Gilovich, 2006). This mechanism of a first plausible estimate is classified as a heuristic, i.e., a mental shortcut that avoids extensive reasoning at the risk of a biased response. In support of this view, more effortful thinking has been shown to overcome the use of the anchoring-and-adjustment heuristic and to reduce the under-adjustment that characterizes the anchoring bias (Epley & Gilovich, 2005, 2006).

The second potential mechanism is confirmatory hypothesis testing (Chapman & Johnson, 1999, 2002), which is closely related to the selective accessibility model (Mussweiler & Strack, 1999a, 1999b, 2000, 2001b; Strack & Mussweiler, 1997). According to this view, people engage in active confirmatory hypothesis tests of the correctness of the anchor. Judges look for similarities between the anchor value and the information that they retrieve. In this process, knowledge compatible with the anchor is more accessible and subsequently biases the final estimation. This process of retrieving confirmatory information is relatively automatic or “non-thoughtful” (Frederick et al., 2010). Because of the automaticity of information retrieval, more effort in this type of

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process typically does not lead to a bias reduction (Epley & Gilovich, 2005). This contrasts with the ability of effort applied to the anchoring-and-adjustment heuristic to decrease the resulting bias.

Each of these two processes is said to be triggered in a specific context: anchoring-and-adjustment when the anchor is self-generated and selective accessibility when the anchor is provided by the experimenter. Yet, despite the wide acceptance of this dichotomy in the last decade (Chapman & Johnson, 2002; Epley, 2004; Epley & Gilovich, 2006; Mussweiler & Englich, 2005; Simonson & Drolet, 2004), the capacity of self-generated and externally provided anchors to trigger distinct cognitive processes has already been challenged in two instances. Early work by Mussweiler and Strack (2001a) proposed and demonstrated that insufficient adjustment and selective accessibility were both responsible for producing the anchoring bias when anchors were implausible and provided by the experimenter. More recently, work by Simmons, LeBoeuf, and Nelson (2010) took a step further and contended that the distinction between self-generated and externally provided anchors is "*unnecessary, that [they both] affect judgment through largely similar processes, and that people do effortfully adjust from both provided and self-generated anchors*" (p. 917).

The essence of the argument of Simmons et al. (2010) comes from a potential confound between anchor type (self-generated vs. experimenter-provided) and knowledge of the direction in which the adjustment should be made. When an anchor is self-generated, participants usually know in which direction they should adjust away from the anchor. As a result, people who expend the effort to keep generating estimates farther from the anchor will show a reduction of the anchoring bias. In contrast, participants who are provided with an anchor by the experimenter usually do not know in which direction to adjust (always assuming that the anchor value is plausible). Consequently, more effort would not lead to a reduction of the anchoring bias, not because of the reasons usually advanced (selective accessibility) but because the correct direction of the adjustment is not known. Based on this reasoning and the confirming results of five studies, Simmons et al. (2010) concluded that the adjustment heuristic can underlie the anchoring phenomenon for both self- and experimenter-generated anchors. In their conclusion, they did not dispute the results of the selective accessibility literature but offered an "integrative theory of anchoring" (ITA). In this theory both selective accessibility and the adjustment heuristic act in parallel instead of one of them acting alone (as determined by the source of the anchor).

Simmons et al. (2010) focused only on anchoring-and-adjustment. Not until their final discussion was selective accessibility proposed as a parallel process. The present research tests the ITA's implied prediction that the role played by selective accessibility may not be confined to experimenter-provided anchors but can operate across both anchor types. To perform these tests, procedural priming is manipulated for some participants. In the last decade, research has confirmed that cognitive procedures can be activated through a priming task and then remain active to influence a subsequent task (for a review, see Wyer & Xu, 2010). If selective accessibility is a relevant process for both self-generated and experimenter-provided anchors, then priming should impact both types of anchor in a similar fashion.

The differential impact of effort on anchoring has already been used to distinguish between anchoring-and-adjustment and selective accessibility. In parallel, the present research imposes a cognitive load and tests for a difference between self-generated and experimenter-provided anchors when selective accessibility is primed. Whereas there is relative agreement that the activation of anchor-consistent knowledge is not intentional (i.e., relatively automatic), there is less agreement on whether selective accessibility depends on cognitive effort (see Wegener et al., 2010a, 2010b for a discussion). On the one hand, Mussweiler and Strack (2001b, p. 251) described selective accessibility as "fairly elaborate and systematic in nature," that is, as a process likely to require cognitive resources. Adopting an attitudinal perspective, Blankenship, Wegener, Petty, Detweiler-Bedell, and Macy (2008) found corroborative evidence for this view by demonstrating that the activation of background knowledge (equivalent to a manipulation of selective accessibility) had a stronger impact on the anchoring bias in conditions of high elaboration (versus low). On the other hand, selective accessibility has also been assumed to operate in the presence of a *null* effect of effort (Epley & Gilovich, 2005) and has been directly contrasted to anchoring-and-adjustment as a process that is automatic instead of effortful (Frederick et al., 2010). Therefore, revealing the interaction between effort and selective accessibility should contribute to (a) resolving whether effort actually impacts anchoring when selective accessibility operates and (b) verifying whether the presence (or absence) of an impact of effort differs between anchor types. Beyond the anchoring context, the studies should contribute to understanding whether a null impact of effort can be taken to indicate the presence of a selective accessibility mechanism.

To summarize, the present work has two objectives:

1. Investigate whether selective accessibility can drive the anchoring bias for both self-generated and experimenter-provided anchors.
2. Determine the impact of effort on the anchoring bias across anchor types when selective accessibility is primed.

Study 1

Study 1 tests whether a selective accessibility mechanism is observed for both self-generated and experimenter-provided anchors. To do so, selective accessibility is experimentally activated through procedural priming. The effects of procedural priming on anchoring are then compared across anchor types. If selective accessibility only occurs with experimenter-provided anchors, then priming should have no impact on self-generated anchors. Further, because the direction of adjustment is controlled, the results cannot be attributed to a confound between the anchor's source and the judge's knowledge of the adjustment's direction.

Procedural priming of selective accessibility

To prime selective accessibility, the experimental procedure of Mussweiler (2002) was used. This procedure requires participants to compare two drawings (Markman & Gentner, 1997a). Some participants were instructed to list as many similarities as possible between the two scenes, while others were requested to list as many differences as possible. The similarity condition was intended to facilitate similarity search, which would increase selective accessibility and, therefore, boost the anchoring bias (at least in those conditions where selective accessibility operates). The difference condition was designed to get participants to focus on inconsistent information in the comparison process, thereby impeding similarity search and mitigating the anchoring bias (when selective accessibility operates). To ensure that a selective accessibility process is operating, selective accessibility is thus manipulated in both the similarity and dissimilarity conditions. In contrast to Mussweiler (2002), a control group was added in which participants saw only one of the two drawings and were asked to describe the scene with as many details as possible. The control group provided a baseline against which the results of the similarities and differences conditions could be compared.

Method

A total of 450 participants were recruited on Amazon Mechanical Turk. The design of the study varied three factors between subjects, priming (similarities vs. differences vs. control), type of anchor (self-generated vs. provided), and direction of adjustment (certainty of the correct direction: high vs. low). Following the priming task, the participants were asked to answer two anchoring questions that matched the condition to which they were randomly assigned. Table 1 contains the