



The effect of introspection on judgment and decision making is dependent on the quality of conscious thinking



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ABSTRACT

That introspection may impair certain judgments and result in fabrication has been attributed to a distracting shift from more adaptive intuitive processing to more analytic and conscious processing. This phenomenon was studied in an experiment where participants made multidimensional visual choices. It was found that the effect of this shift on decision-making performance was dependent on the quality of the explanations during introspection, while the performance in silent conditions was not. Therefore, it appears that the effect of introspection on judgments is not only influenced by the thinking mode per se, but also by the individual's ability to approach the decision problem analytically.

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1. Introduction

The past two decades have witnessed a considerable change in how the role of consciousness is seen in judgment and decision making (JDM). Though seldom explicitly stated, good decision making was earlier viewed as effortful conscious mental activity, with all the limitations that are imposed by conscious cognition, such as serial processing (Payne, Bettman, & Johnson, 1988). Furthermore, it was assumed that this activity could be probed by asking experiment participants to think aloud (Harte, Westenberg, & van Someren, 1994; Payne, 1976). An early challenge to this view was from Nisbett and Wilson (1977), who showed that people are sometimes unable to access the real reasons for their choices: in such cases, introspective reports only consist of subjective causal theories and not the real reasons for the choices. It was further shown that introspection can be distracting during JDM tasks (Levine, Halberstadt, & Goldstone, 1996; Wilson & Schooler, 1991; Wilson et al., 1993). This has led some researchers to question the superiority of conscious deliberation in comparison with intuition: it has been suggested that not only do people make choices intuitively by default (Bargh & Chartrand, 1999; Kahneman, 2003), but that often these intuitive choices are also better, especially when dealing with complex tasks (Glöckner & Betsch, 2008; Usher, Russo, Weyers, Brauner, & Zakay, 2011).

Previous publications on the subject have mostly compared JDM performance in conditions where the participants are asked either to engage in conscious deliberation or make intuitive judgments. A straight comparison between such experimental conditions, however, does not take into account that intuition is based on fast, automatic processes, whereas conscious deliberation is based on a controlled manipulation of information in working memory (Evans & Stanovich, 2013). Conscious deliberation easily suffers from distractive factors, such as information load, time pressure or being able to focus

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on the task; automatic processes are, on the other hand, rather robust to such stressors (Schneider & Chein, 2003). Following this, it has been suggested that intuitive preferences are more stable (Lee, Amir, & Ariely, 2009), whereas strategies determining deliberate choices may change according different situational factors, such as individuals' current computational resources or emotions (Bettman, Luce, & Payne, 1998). People also differ in their ability and disposition to think analytically (De Neys, 2006; Epstein, Pacini, Denes-Raj, & Heier, 1996; Evans & Stanovich, 2013; Simonson & Nowlis, 2000; Stanovich & West, 2000), meaning that permanent individual differences, such as cognitive style, also influence deliberation but not automatic processes (Zhou, Zhou, Li, & Zhang, 2015).

Intuition may therefore seem superior to conscious deliberation in certain cases because some experiment participants do not, for various reasons, properly engage in analytic thinking, and when they are prevented from using their intuition it results in inferior performance. The purpose of this paper is to study how differences in the quality of analytic thinking are related to JDM performance when participants are either asked to introspect their choices or rely on intuition. We take a slightly more idiographic approach to the subject: we examine differences in how individuals react to the requirement to introspect, in contrast to the usual approach which only compares average performance between conditions. Because psychological phenomena are rarely deterministic, some people always behave contrarily to the hypotheses behind these averages. Instead of treating these differences between individuals as unwanted variance, we endeavor to find reasons for them. We also suggest that understanding these differences can also inform about the processes that determine the superiority of the thinking mode in different situations.

As the target here, we have taken verbalizations about why the choices were made, brought up concurrently with the judgments, and not the permanent differences between individuals in cognitive ability, such as working memory capacity or general intelligence. We assume that these explanations reflect the differences in conscious thinking, and address these differences in a case where individuals are asked to decide between alternatives that differ slightly in terms of multidimensional visual quality.

1.1. Dual process theories and introspection

The role of consciousness in judgment and decision making is usually approached using dual-process theories, which describe human cognition in terms of two processes, systems or modes, one being non-conscious, parallel and automatic, and the other conscious, serial and controlled (Evans & Stanovich, 2013; Kahneman, 2003). Only the products of the former, intuitive process are assumed to become conscious, whereas the latter, analytic process itself should be accessible for introspection due to its conscious nature. These different modes of thinking are assumed to have distinct roles in JDM that are dependent on the task characteristics (Hogarth, 2005): intuition offers processing power since it is based on parallel automatic processes that are not limited by the capacity of working memory and serial processing (Glöckner & Betsch, 2008, 2012; Usher et al., 2011), but is biased toward salient, or available, information. Non-salient information may then be accessible for effortful analytic thinking (Hogarth, 2005; Kahneman, 2003).

Introspection has been shown to sometimes influence JDM performance, both beneficially (Hamilton, Hong, & Chernev, 2007; Miller & Fagley, 1991; Rusou, Zakay, & Usher, 2013; Sieck & Yates, 1997) and negatively (Levine et al., 1996; Rusou et al., 2013; Wilson & Schooler, 1991; Wilson et al., 1993). Such an effect has been interpreted in accordance with dual-process theories by assuming that explaining one's actions makes the thought processes more conscious and analytic (Baumeister, Masicampo, & Vohs, 2011). This occurs because intuitive processing is mostly non-verbal and thus beyond verbal access, and, when introspecting, one is required to come up with a resolution by generating reasons that can be verbalized by using the other, deliberative and effortful style of processing. This shift, then, should differently influence tasks that require different amounts of intuitive or analytic thinking (Hammond, Hamm, Grassia, & Pearson, 1987; McMackin & Slovic, 2000; Rusou et al., 2013). It has also been shown, however, that it may not be solely the task that determines the superiority of the thinking mode, but also individual differences. For example, unconscious thought advantage (Dijksterhuis & Nordgren, 2006), which means phenomenon in which a period of unconscious thought leads to better decisions than the same period of conscious thought, exists only for people who tend to process information analytically and not holistically (Zhou et al., 2015). This may be because holists use more effective holistic information integration for complex decisions in both unconscious and conscious thought conditions.

Another factor that seems to influence the effect of verbalization on task performance is individuals' explicit (i.e. verbalizable) knowledge about the factors influencing their judgments, especially in perceptual JDM tasks, which are easily interfered by the lack of proper terminology (McGlone, Kobrynowicz, & Alexander, 2005; Melcher & Schooler, 1996, 2004). For example, wine tasting is an intuitive task, because wine's different attributes are automatically integrated to create an overall impression of a wine's taste. Explaining one's judgments has been shown to impair untrained wine drinkers' ability to discriminate between wines, because they do not have the explicit knowledge to describe their experiences. Trained wine drinkers, who have the capability to explain their judgments, are not distracted by this requirement (Melcher & Schooler, 1996). In some cases, explaining can even enhance performance, when individuals do not yet have the intuitive knowledge about the task, but have learned the concepts necessary to execute the task (Melcher & Schooler, 2004).

Still, no studies to date have directly examined the relation between the reported thoughts and JDM performance, so the mechanism which causes the verbalization to either impair or enhance judgment has remained unclear. The present study assumes that the benefit or disadvantage of conscious thinking, induced by the requirement for introspection, is dependent on the individual's ability to perform it effectively.

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