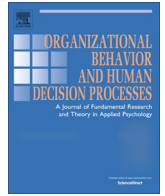




Contents lists available at ScienceDirect

Organizational Behavior and Human Decision Processes

journal homepage: www.elsevier.com/locate/obhdpIncorporating conflicting descriptions into decisions from experience[☆]Leonardo Weiss-Cohen^{*}, Emmanouil Konstantinidis¹, Maarten Speekenbrink, Nigel Harvey

Department of Experimental Psychology, Division of Psychology and Language Sciences, University College London, London, UK

ARTICLE INFO

Article history:

Received 8 December 2014

Revised 11 May 2016

Accepted 23 May 2016

Keywords:

Decision-making

Decisions from experience

Reinforcement learning

Repeated decisions

Warning labels

ABSTRACT

Decisions in everyday life are commonly made using a combination of descriptive and experiential information, and these two sources of information frequently contradict each other. However, decision-making research has mostly focused on description-only or experience-only tasks. Three experiments show that individuals exposed to description and experience simultaneously are influenced by both, particularly in situations in which descriptions are in conflict with experience. We examined cognitive models of how people integrate their experience with descriptions of choice outcomes, with different weights given to each source of information. Experience was the dominant source of information, but descriptions were taken into consideration, albeit at a discounted level, even after many trials. Models that included the descriptive information fitted the human data more accurately than models that did not. Wider implications for understanding how these two commonly available sources of information are combined for daily decision-making are discussed.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

The vast majority of human decision-making research to date has been based around descriptive paradigms (Camilleri & Newell, 2009; Fantino & Navarro, 2012; Rakow, Demes, & Newell, 2008). When participants make decisions based on descriptions, they gather information about the potential outcomes of their choices and associated probabilities by reading complete abstract descriptions of available options (e.g., Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). However in everyday life individuals are rarely presented with such detailed unambiguous descriptions and instead make decisions based on their own direct experiences in noisy environments. When making decisions based on experience, individuals learn about the potential outcomes of their choices by observing samples of outcomes over time (e.g., Bechara, Damasio, Damasio, & Anderson, 1994; Knox, Otto, Stone, & Love, 2012; Yechiam & Rakow, 2012).

Much of the research on decisions from description has dealt with factors that influence people's risky decision making. Thus, typically, experimental participants have been asked to choose between a risky option and a sure option or between a high-risk

option and a low-risk option. For example, Kahneman and Tversky (1979) report studies of this type when providing their rationale for the development of Prospect Theory. Concurrently, decisions from experience have been mostly used in research on learning, exploration, exploitation, and cognitive modeling. For example, all of these processes have been extensively studied using the Iowa Gambling Task (Bechara et al., 1994), which is a frequently employed risky-choice task based on decisions from experience. Before Barron and Erev (2003), these two approaches had mostly been studied separately, with little overlap. However, from the start of the research confronting these two types of experimental paradigms, those interested in how decisions from experience differ from decisions from description have focused on the same issues. For example, Barron and Erev used experiential paradigms to explore many of the same risky choices initially presented by Kahneman and Tversky using descriptions. Thus, risky decision making provides a common thread that links classic literature on descriptive decision making with more recent research on decisions from experience.

If the core relevant information about outcomes is the same, in particular the quantitative information such as probabilities and values of outcomes, then there should be no differences in behavior according to how the information is presented. However this does not always appear to be the case. Recent research confronting description and experience has found significant differences between choices made from experience and those made from description when the two sources carry the same information about the outcomes (e.g., Barron & Erev, 2003; Hau, Pleskac, &

[☆] This research has been supported by a UCL Impact Award.

^{*} Corresponding author at: Department of Experimental Psychology, University College London, Gower Street, WC1E 6BT London, UK.

E-mail address: leoweisscohen@gmail.com (L. Weiss-Cohen).

¹ Present address: School of Psychology, University of New South Wales, Sydney, Australia.

Hertwig, 2010; Hertwig, Barron, Weber, & Erev, 2004). This phenomenon has been named the “description–experience gap” by Hertwig and Erev (2009), and there has been growing interest in this field recently (for reviews, see Camilleri & Newell, 2013b; Rakow & Newell, 2010). Despite strong support, some studies still failed to find any behavioral differences between decisions from description and decisions from experience (e.g., Camilleri & Newell, 2011, 2013a; Fox & Hadar, 2006; Rakow et al., 2008), raising new issues to be explored regarding the mechanisms that contribute towards the appearance of gaps. For example, one such issue is how the two different sources of information are processed and integrated together when they are both available simultaneously. However, research on the description–experience gap also kept the two paradigms separate by presenting different participants with either description-only or experience-only tasks in isolation (for a review, see Fantino & Navarro, 2012).

Decisions in everyday life are commonly made using a combination of descriptive and experiential information. For example, doctors frequently rely on readings of published literature and research, which can be considered a form of description, and combine it with their own clinical experience, when prescribing drugs or assessing the risk of a medical procedure (Dawes, Faust, & Meehl, 1989). Consumers may base their buying decisions on a combination of descriptive reviews and experiences of similar items bought in the past. Warning labels can be considered as descriptive information that is added to an individual's own experience. Limited published research so far has looked at the influence of descriptions when participants have access to both description and experience at the same time, with contradictory results. According to a study by Lejarraga and Gonzalez (2011), descriptive information is neglected when experience is also available. In contrast, Barron, Leider, and Stack (2008) showed that providing participants with descriptive information influenced behavior.

The extant “description-and-experience” research used paradigms in which the description matched the experience, with both based on the same underlying distribution of outcomes and providing participants with the same basic information. That is, the description was a verbal representation of the distribution of payoffs actually experienced by the participants. The researchers therefore had to rely on observing differences in behavior based on the existence of a robust description–experience gap and its theoretical predictions to test whether description or experience was influencing participants: Behavior consistent with underweighting of rare events would be expected from participants following experience, while overweighting would be associated with descriptive information being used. For example, Lejarraga and Gonzalez (2011) mention that, when providing participants with both description and experience simultaneously, they observed behavior consistent with underweighting of the rare event. According to the authors, this is evidence that experience was taken into account, but description was neglected: Previous research has associated the underweighting of rare events with decisions from experience (Hertwig & Erev, 2009), while the overweighting of rare events observed has subsequently been associated with decisions from description (Kahneman & Tversky, 1979).

However, recent research in this area has explored the idea that the gap is likely a product of differences between the experimental paradigms. Descriptive tasks typically rely on single-shot paradigms without feedback, while experiential tasks tend to use repeated-choice paradigms with feedback (Camilleri & Newell, 2013a; Jessup, Bishara, & Busemeyer, 2008). Therefore, the overweighting and underweighting of rare events may not be necessarily driven by the mere presence or absence of descriptions, respectively, but instead by the different nature of the paradigms used in each line of research. In both studies mentioned in the pre-

vious paragraph, the paradigms used were repeated-choice experiential tasks with feedback. We suggest that the reason why Lejarraga and Gonzalez (2011) observed behavior explicable by underweighting of rare events is not because participants neglected the descriptions, but because the paradigm used was typical of experiential research. Furthermore, the reason why the authors did not observe any differences in behavior in their experiment is not because description was neglected, but because it conveyed the same information as experience and therefore its influence on behavior was not observable. Barron et al. (2008) observed a difference in behavior in their experiment because the rare event in their description, with a chance of 1 in 1000, rarely or never occurred.

We present an experimental paradigm in which description conflicts with experience, which will allow us to verify how different sources of information influence behavior. If each source provides different information to participants then, by analyzing the choice patterns, we can determine which one has been used in the decision process. These situations of conflicting information are likely to be representative of typical day-to-day decision making in a dynamic world. In such ever changing environments, the more adaptive short-term nature of experience, which tends to rely on small samples (Hertwig & Pleskac, 2010), compared to the relatively more static long-term nature of description, which tend to rely on large samples (e.g., published results from randomized control trials), would naturally lead to the two diverging over time.² Experience allows for continuous learning of the environment; this is not the case with descriptions, which typically take longer to be updated and can quickly become out of date, leading to negative impacts on choices made in changing environments (Rakow & Miller, 2009). Sampling biases can also create mismatches between description and experience, in particular when rare events are involved (Fox & Hadar, 2006; Hertwig et al., 2004).

Even with large samples, the representative set behind a description can differ from an individual's particular experience, depending on the source of the description. Glasgow et al. (2006) and Kamal and Peppercorn (2013) discuss the external validity of medical research findings, which are typically used as reference points for decision-making, but are not always applicable to a doctor's more localized clinical experience. This is especially true for doctors who have to deal with patient populations that are not representative of the reference population in the standard description. Rakow, Vincent, Bull, and Harvey (2005) showed how mortality risk assessments based on reference research conducted in the United States differed from personal experience of doctors at a selected hospital in the United Kingdom. Other examples can result from the overzealous usage of warning signs which misrepresent risks, for example by describing a risk as likely when in reality it is rarely experienced. Carson and Mannering (2001) mention the overuse of road traffic ice warning signs in locations where ice is rarely observed.

If such mismatches between description and experience are encountered frequently, understanding how individuals deal with these situations is crucial for ecologically valid research with real life practical implications. For example, warning labels can be considered descriptive information that conflicts with experience, since they typically present rare events that are not observed directly by the majority of individuals. Research “suggests that the warning labels' impact on behavioral compliance is not as clear

² We thank an anonymous reviewer for highlighting that in a new world of more dynamic on-line information sharing such divergences can also occur in the opposite direction. For instance, when considering customer reviews on web pages, reviews constantly accumulate, affecting the overall mean rating of a product, leading to more dynamic descriptive information. Conversely, experiences might remain static if a person is simply no longer exposed to similar situations in the future.

Download English Version:

<https://daneshyari.com/en/article/7248183>

Download Persian Version:

<https://daneshyari.com/article/7248183>

[Daneshyari.com](https://daneshyari.com)