



Case Report

Experiential fluency and declarative advice jointly inform judgments of truth

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ABSTRACT

Processing fluency, the experienced ease of ongoing mental operations, influences judgments such as frequency, monetary value, or truth. Most experiments keep to-be-judged stimuli ambiguous with regards to these judgment dimensions. In real life, however, people usually have declarative information about these stimuli beyond the experiential processing information. Here, we address how experiential fluency information may inform truth judgments in the presence of declarative advice information. Four experiments show that fluency influences judged truth even when advice about the statements' truth is continuously available and labelled as highly valid; the influence follows a linear cue integration pattern for two orthogonal cues (i.e., experiential and declarative information). These data underline the importance of processing fluency as an explanatory construct in real-life judgements and support a cue integration framework to understand fluency effects in judgment and decision making.

1. Introduction

Processing fluency is the experiential component of mental operations such as perceiving, storing, retrieving, or generating information (see Unkelbach & Greifeneder, 2013). This fluency experience influences judgments and evaluations from basic dimensions such as stimuli's frequency (e.g., Tversky & Kahneman, 1973), likeability (e.g., Reber, Winkielman, & Schwarz, 1998), or size (e.g., Reber, Zimmermann, & Wurtz, 2004), to more complex judgments such as the truth of statements (e.g., Hansen, Déchene, & Wänke, 2008), the ability of persons (e.g., Greifeneder et al., 2010), or companies' economic value (e.g., Hertwig, Herzog, Schooler, & Reimer, 2008). Processing fluency increases judgments and evaluations on the relevant dependent variable. High fluency stimuli are judged to be more frequent, more likeable, and bigger; and if the relevant information is processed more fluently, statements appear more true, target persons more capable, and companies more valuable (and vice versa for low fluency; however, for reversals of this relation, see Olds & Westerman, 2012; Unkelbach, 2006, 2007).

A surprisingly neglected question in these research lines is *how* processing fluency influences judgments when other information is available; for example, knowledge about a person's ability or a company's value. That is, how is experiential fluency information integrated with available declarative information? Many studies assume,

implicitly or explicitly, that people rely either on fluency or on other available information. This either-or perspective is particularly apparent in studies investigating moderators of fluency use, which often investigate one condition in which fluency information, and another condition in which semantic content information, is expected to be relied on in judgment (see Greifeneder, Bless, & Pham, 2011). The either-or perspective is also prominently present in studies on fluency and judged truth: Researchers typically choose statements for which participants have little or no knowledge. As Dechêne, Stahl, Hansen, and Wänke (2010) stated in their review: "Statements have to be ambiguous, that is, participants have to be uncertain about their truth status because otherwise the statements' truthfulness will be judged on the basis of their knowledge" (p. 239). Two examples of studies that investigated additional informational cues for judging truth illustrate this distinction. Fazio, Brashier, Payne, and Marsh (2015) had participants judge statements for which they should have knowledge, and Unkelbach and Stahl (2009) had information presented by a truthful and untruthful source. Both studies employed multinomial processing trees which necessitate this either-or distinction (see Fazio et al., 2015; Figs. 2 and 3; Unkelbach & Stahl, 2009; Fig. 1) and also translate the distinction into their discussion: "The results of two experiments suggest that people sometimes fail to bring their knowledge to bear and instead rely on fluency as a proximal cue." (Fazio et al., 2015, p. 999).

In contrast, we assume that processing fluency influences judgments

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and evaluations jointly with other available information. This prediction is central to the fluency model by Unkelbach and Greifeneder (2013). They argued that fluency effects are best described using the lens model by Brunswik (1952, 1955, see Karelaia & Hogarth, 2008, for an overview). The lens model perspective holds that any given judgment is influenced by informational cues which are weighted according to their subjective validity and then linearly integrated. Thus, both processing fluency and other information (e.g., knowledge) should jointly influence judgments and evaluations.¹

1.1. Experiential fluency effects in the presence of declarative information

Most experiments carefully control their materials as such that the sole systematic difference between stimuli is indeed processing fluency. For example, participants judge statements such as “Osorno is in Chile” as more likely true when presented in high fluency colors (i.e., blue and red) compared to low fluency colors (i.e., green and yellow; Reber & Schwarz, 1999; Unkelbach, 2007). Random assignment of statements to the high/low fluency conditions ensures that changes on the relevant DV are directly interpretable as fluency effects.

This typical setup does not allow gauging the contribution of processing fluency when other information is available; for example, when participants factually know that Osorno is a city in Chile (it is). Intuitively, the statement’s font color should have no impact when one has relevant knowledge about the task. However, this intuition restricts fluency influences to cases when there is no other information available about stimuli in terms of their ability, monetary value, or truth.

The deeply rooted intuition that fluency should play no role if declarative information is present derives from a Cartesian dualism, which gives knowledge and reasoning a priori precedence over experiential information; that is, given knowledge about a matter, a “rational” judge should not be influenced by experienced processing fluency. However, if one drops the a priori Cartesian ordering, it becomes less clear why experiential (e.g., fluency) and declarative (e.g., semantic knowledge) information should not have joint influences on judgments. In a lens model view (Brunswik, 1952, 1955), any cue may “rationally” influence judgments, as long as it has an ecological correlation with the to-be-judged criterion; and fluency might be such an ecologically valid cue (see Greifeneder, Bless, & Scholl, 2013; Hertwig et al., 2008; Reber & Unkelbach, 2010). Thus, even if someone believes to *know* that Osorno is in Chile, presenting this piece of trivia in a difficult-to-process way may lead to lower truth ratings just because the statement *feels* false.

Fazio et al. (2015) showed this point when participants evaluated the truth of repeated (i.e., high fluency) and new (i.e., low fluency) statements. For half of the statements, participants might have known the factual truth (60% correct answers in a norming sample; p. 994), while the other half were more difficult (only 5% correct answers in a norming sample). Fazio and colleagues observed a reliable fluency effect for both kinds of statements. However, the either-or perspective and the Cartesian precedence of “knowing” over “feeling” is still present in Fazio and colleagues’ argument (see above). It follows from their conclusions (p. 999) that given people bring knowledge to bear, there should be no fluency effect. Here we go a critical step further and show that even if other information is clearly available for the judgment, people are still influenced by processing fluency.

¹ The predicted additive nature of fluency influences is undisputed when people judge inherently experiential properties. For example, when participants judged noise levels while reading old or new statements, the increased fluency due to repetition leads to lower judged noise, in addition to a clear main effect of factual noise volume (Jacoby, Allan, Collins, & Larwill, 1988). Similarly, when judging presentation duration, participants judged fluently processed stimuli (i.e., words) as being presented longer than less fluently processed stimuli (i.e., non-words), again, in addition to a main effect of factual presentation time.

1.2. The present research

Building on the model by Unkelbach and Greifeneder (2013), we argue that experiential fluency information and declarative information jointly influence judgments. In the following four experiments, we manipulated an experiential cue and a declarative cue. First, participants either judged new statements or repeated statements. As repetition influences processing ease (Feustel, Shiffrin, & Salasoo, 1983), this creates statements of relative low and high fluency, respectively. Second, participants received advice whether the to-be-judged statement is “true” or “false.” In addition, the provided advice was labeled to be 50%, 60%, or 70% correct (Exp. 1 and 2), 70%, 80%, or 90% correct (Exp. 3), and 50% or 100% correct (Exp. 4). Thus, we did not rely on participants’ knowledge about the statements. While appealing, participants’ private knowledge is difficult to control experimentally; that is, as suggested by Fazio et al. (2015), even if participants have knowledge, they might fail to retrieve it. Here, the declarative advice information was consistently present. We expected processing fluency to influence truth judgments at all levels of the additional cue information.

For all experiments, we report all data exclusions, all manipulations, and all measures. We only report test statistics that are significant; we report non-significant results only when they are theoretically relevant. We report partial eta-square as effect size indicator and its 95% confidence intervals, based on the formulas in the SAS macro for effect size estimation by Kromrey and Bell (2010). Sample sizes are based on the authors’ previous experiments with repetition-induced truth effects and data collection was always completed before any analyses. Raw data and analysis scripts are available online (<https://osf.io/v2gmb/files/>).

2. Experiment 1

Experiment 1 aimed to show the joint influence of processing fluency and declarative information on truth judgments. While reading new or repeated statements, participants got information from advisors about the statements’ truth or falsity with a stated 50%, 60%, or 70% validity. The main dependent variable was the mean probability of a “true” judgment (PTJ; see Unkelbach & Rom, 2017). As manipulation check for processing fluency, we measured response latencies with the assumption that faster responses should map onto more fluent processing (e.g., Scholl, Greifeneder, & Bless, 2014).

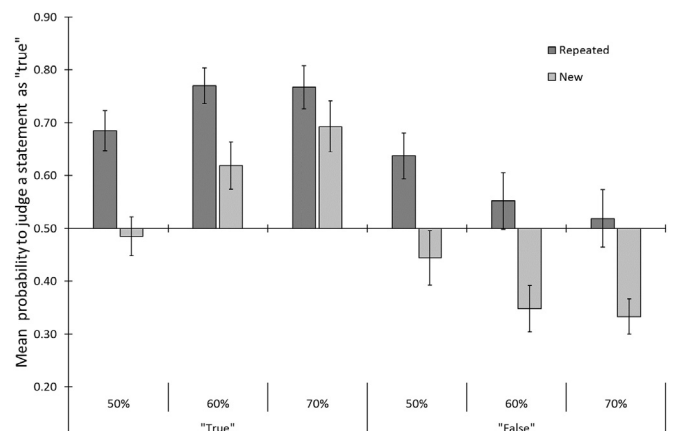


Fig. 1. Experiment 1’s mean probabilities to judge a statement as true (PTJ) as a function of repetition (repeated vs. new), advice (“true” vs. “false”), and advice validity (50% vs. 60% vs. 70%). Error bars represent standard errors of the means.

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