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Keeping the illusion of control under control: Ceilings, floors, and imperfect calibration

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ABSTRACT

Prior research has claimed that people exaggerate probabilities of success by overestimating personal control in situations that are heavily or completely chance-determined. We examine whether such overestimation of control persists in situations where people do have control. Our results suggest a simple model that accounts for prior findings on illusory control as well as for situations where actual control is high: People make imperfect estimates of their level of control. By focusing on situations marked by low control, prior research has created the illusion that people generally overestimate their level of control. Across three studies, we show that when they have a great deal of control, people under-estimate it. Implications for research on perceived control and co-variation assessment are discussed.

Introduction

In the 1970s, the city of New York installed buttons at intersections with traffic lights. Helpful signs instructed pedestrians, "To cross street, push button. Wait for walk signal." Since then, pedestrians in New York routinely have assumed that pushing the button speeds the arrival of the walk signal. As it happens, their faith is misplaced. Since the late 1980s, traffic signals in New York have been controlled by a computer system that determines when the walk signal is illuminated (Luo, 2004). Pushing the button has no effect. But because the city has not paid to remove the signs or the buttons, pedestrians continue to push the buttons.

According to Langer (1975; Langer and Roth (1975)), when people behave as if they have control in situations that are actually determined by chance (i.e., situations where they have no actual control), they are suffering from what she termed the *illusion of control*. Many studies have shown that when cues related to skills, such as choice, competition, practice, or familiarity, are introduced into chance situations, people behave as if the chance outcome was determined by skill (Goffman, 1967; see also Thompson, Armstrong, and Thomas (1998) for a thorough review). For instance, choice has been shown to induce an illusion of control. People behave as if they think they have greater control when they roll dice themselves than when someone else rolls for them (e.g., Fleming & Darley, 1986). People prefer to pick their own lottery numbers than to have others pick for them (Dunn & Wilson, 1990; Langer, 1975). And pedestrians in New York push the walk button even though it will not get them across the street any faster.

Similar patterns of results have been found in research on co-variation assessment (see Alloy and Tabachnik (1984), and Crocker (1981) for reviews). In this literature, studies have robustly found that people substantially overestimate their degree of control over events that are heavily determined by chance (i.e., situations where actual control is low, see Crocker, 1982). When people expect to produce a certain outcome and the outcome then occurs, they often overestimate the degree to which they were instrumental in making it happen (see Miller & Ross, 1975). Taken together, these findings suggest that in situations where outcomes are largely determined by chance, people perceive more control than they actually have, and they notice co-variation where none is present (Ayeroff & Abelson, 1976; Benassi, Sweeney, & Drevno, 1979; Langer, 1975; Wortman, 1975).

While prior research has focused on people's estimates of control over heavily chance-determined events, less research has examined people's assessments of control in situations where actual control is high. These situations are quite common in organizations and broader society more generally, and they often involve high-stake consequences – such as stopping a car by stepping on the brake, working hard to increase one's odds of being promoted, or exercising in order to lose weight. Are people's estimates of their control accurate in these situations?

In this paper, we suggest they are not. We extend the literature on personal control and co-variation assessment by exploring

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people's perceptions of control across a full range of situations. We consider both heavily chance-determined situations where actual control is low (as in prior studies on the illusion of control and co-variation assessment), and situations characterized by high levels of actual control. Across three laboratory studies, we examine the psychological factors that may alter the relationship between actual control and perceived control. We propose a simple theoretical framework that can be used to study people's perceptions of control by suggesting that people have an imperfect sense of how much they control probabilistic events. Specifically, when they have very little control, we expect them to overestimate it, as demonstrated in prior work. But when they have high levels of control, we expect them to under-estimate it, consistent with a case of imperfect calibration. Indeed, if people systematically overestimate their control when they have objectively little because they are unsure about how much control they have, then it is to be expected that they will systematically under-estimate their control when they actually have a great deal of control.

The psychology of personal control

The topic of perceived personal control is relevant in many different areas of both psychology and behavioral decision research (e.g., Jenkins & Ward, 1965; Langer, 1975; Seligman, 1975). This work has defined perceived personal control as the belief that one possesses the ability to act and achieve desired outcomes (Thompson, 1981), or one's estimate that a given behavior will lead to certain outcomes (Bandura, 1977). Over the last several decades, studies investigating the psychology of personal control have found that people often regard themselves as causal agents in their attempts to attain randomly determined outcomes (Fiske & Taylor, 1984; Taylor & Brown, 1988; Weinstein, 1980), suggesting an illusion of control (Langer, 1975).

One stream of research contributing to our understanding of illusory control is Seligman's (1975) work on the learned helplessness theory of depression. According to this theory, depressed people believe they are ineffective and powerless to control what happens to them. It follows that depressed individuals should under-estimate their control (Abramson & Alloy, 1980; Alloy & Seligman, 1979). Alloy and Abramson (1979) evaluated this prediction in their first experiment. Their findings suggested, surprisingly, that depressed participants were more accurate in their estimates of control, whereas nondepressed participants overestimated their control.

However, subsequent research suggested that depressed individuals simply report believing that they lack control, whereas nondepressed individuals report being in control (Dykman, Abramson, Alloy, & Hartlage, 1989). As noted by Dykman et al. (1989), depressives perceive themselves to have less control than do nondepressives; as a result, depressives may appear accurate on uncontrollable tasks and inaccurate on controllable tasks.[1] The opposite is true for nondepressives. These findings suggest that accuracy or inaccuracy of perceptions of personal control is an accident of the match between an individual difference (i.e., depression) and task characteristics (i.e., actual difficulty or controllability). The factors that influence perceptions can move independently of the factors that influence objective performance, and accuracy depends on both.

Miscalibration in judgment

Are people's perceptions of ability or performance accurate? Several studies have found that perceptions of ability and performance are poorly correlated with actual performance and therefore are regressive with respect to actual performance (e.g., Burson, Larrick, & Klayman, 2006; Moore & Healy, 2008). Research on overconfidence has suggested that there are several sources of unsystematic error in subjective confidence that influence decision makers' judgments, ranging from misleading prior experiences (Juslin, 1994; Soll, 1996) to relying on information associated with deceptive feelings of confidence (Erev, Wallsten, & Budescu, 1994; Heath & Tversky, 1991; Simmons & Nelson, 2006).

Related research has found regressive effects in comparative judgments (Moore & Small, 2007), as well as in judgments of accuracy (Dawes & Mulford, 1996). When people compare themselves with others, their imperfect knowledge of others inserts an additional source of error (Krueger, 2000; Krueger, Acevedo, & Robbins, 2005; Krueger & Clement, 1997; McFarland & Miller, 1990). Consequently, the worst performers overestimate their percentile ranks, whereas the highest performers under-estimate theirs (Krueger & Mueller, 2002; Kruger & Dunning, 1999). Building on this research, Larrick, Burson, and Soll (2007) argued that some factors influence perceptions of ability and performance without influencing actual performance. For instance, certain manipulations of task difficulty may move perceptions more than actual performance.

Theoretical model and research hypotheses

As this body of work demonstrates, the result of errors in judgments of perceived and actual performance is that people overestimate low performances and under-estimate high performances. We argue that the same type of miscalibration occurs in judgments of personal control because factors that influence actual control and factors that influence perceived control can move separately. Consequently, we expect people to systematically overestimate their control when they have objectively little or no control and to systematically under-estimate it when they have objectively high control.

Fig. 1 illustrates the hypothetical pattern of results. As the figure shows, we expect people to have imperfect knowledge of their own control and to make regressive estimates. We also expect the linear and regressive relationship between perceived and actual control to break down as one approaches 100% actual control. Unlike the 0% control condition, in which random influences can create uncertainty about how much control one has, no such ambiguity is possible when one has perfect control, creating a structural asymmetry between conditions of no control and complete control. This non-linearity qualifies the proposed regression account. We should note that a similar non-linearity is expected in cases

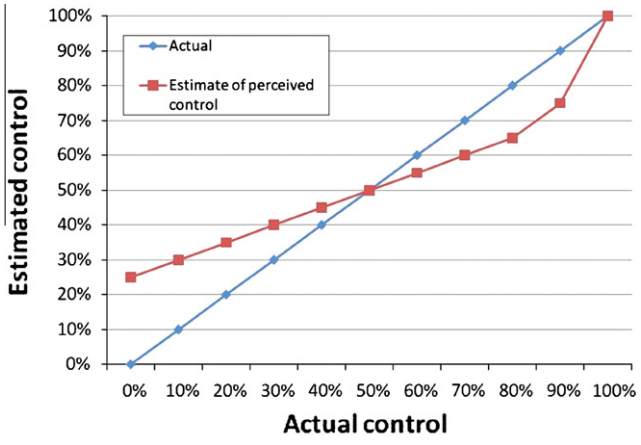

Fig. 1. Estimates of perceived control as a function of actual control (hypothetical data).

[1] We use the term uncontrollable tasks to refer to pure chance or non-contingency tasks, where outcomes are objectively unrelated to the actions of the decision maker.