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Goal Progress Velocity as a Determinant of Shortcut Behaviors

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Employees often have a great deal of work to accomplish within stringent deadlines. Therefore, employees may engage in *shortcut behaviors*, which involve eschewing standard procedures during goal pursuit to save time. However, shortcuts can lead to negative consequences such as poor-quality work, accidents, and even large-scale disasters. Despite these implications, few studies have investigated the antecedents of shortcut behaviors. In this research, we propose that employees engage in shortcut behaviors to regulate their *velocity* (i.e., rate of progress). Specifically, we predict that when individuals experience slower-than-referent velocity, they will (a) believe that the goal is unlikely to be met via standard procedures and (b) experience feelings of frustration. In turn, we expect these psychological states to be related to the perceived utility of shortcuts, especially when shortcuts are perceived as viable means to achieve the goal. Finally, we predict that the perceived utility of shortcuts will be positively related to actual shortcut behaviors. We tested these predictions using a laboratory experiment in which we manipulated velocity and unobtrusively observed shortcuts (Study 1, $N = 147$), as well as a daily diary study in which employees reported their velocity and shortcut behaviors over 5 consecutive workdays (Study 2, $N = 395$). Both studies provided support for our predictions. In sum, this research provides evidence to suggest that the experience of slow progress can lead to shortcuts not only by casting doubt on employees' perceived likelihood of meeting the goal but also by producing feelings of frustration.

Keywords: shortcut behaviors, velocity, expectancy, frustration, utility

Supplemental materials: https://doi.org/10.1037/apl0001037.supp

Employees sometimes have too much work to accomplish, and as such, use shortcuts to save time (Hannah & Robertson, 2015; Parks et al., 2010). *Shortcut behaviors* (SCBs) are defined as "the use of methods or means for completing a task that require less time than typical or standard procedures" (Beck, Scholer, & Schmidt, 2017, p. 422). Although shortcuts save time, they often involve skipping steps that are in place to ensure safety and quality (Parks et al., 2010; Sekerka & Zolin, 2007). Thus, shortcuts can lead to undesirable outcomes for employees, organizations, and the public in general. For instance, restaurant employees may skip proper handwashing procedures to save time, yet doing so is a major cause of the spread of foodborne illnesses (Green et al., 2007). Likewise, seemingly mundane shortcuts, such as sharing passwords with others to save time, threaten organizational information security (Vance et al., 2012). Finally, SCBs have also been identified as a factor contributing to several large-scale accidents, including the crash of ValuJet 592 over the Florida Everglades (National Transportation Safety Board, 1997) and the explosion of the Deepwater Horizon oil platform in the Gulf of Mexico (Reader & O'Connor, 2014). Therefore, preventing such negative outcomes requires a thorough understanding of the antecedents of SCBs.

To this end, we draw on theories of self-regulation (e.g., Lord et al., 2010; Neal et al., 2017) to argue that individuals use SCBs to regulate velocity during goal pursuit. *Velocity* is defined as an individual's perceived rate of progress toward a goal (Carver & Scheier, 1990). A growing body of theory and research indicates that whereas rapid progress is generally met with optimism and positive emotions, slow progress typically results in more pessimistic beliefs and negative emotions (Johnson et al., 2013). Importantly, a defining feature of SCBs is that they allow work to be accomplished more *rapidly* compared to standard procedures. Thus, we predict that individuals may turn to SCBs in response to slow velocity.

We tested our hypotheses across two complementary studies. Study 1 was an experiment in which we manipulated velocity while participants completed a simulated work task, and Study 2 was a diary study in which we measured velocity and SCBs daily over 5 days among a sample of employees working across a wide range of occupations. In doing so, this research makes several theoretical and practical contributions. First, despite their implications for work quality and safety, SCBs have received little research attention. We address this gap by demonstrating that individuals engage in SCBs when experiencing slower-than-desired velocity. Second, we expand on past research within the velocity literature by identifying SCBs as behavioral outcomes resulting from slow velocity. Although a great deal of research has investigated velocity's impact on individuals' thoughts and feelings during goal pursuit (Johnson et al., 2013), the effects of velocity on behavior remain largely

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unexplored. Finally, we identify multiple pathways via which velocity is likely to influence SCBs, and in doing so, highlight the fact that curbing SCBs in the workplace will likely require consideration of both cognitive *and* emotional reactions to slow velocity. Our predictions are summarized in Figure 1.

Shortcut Behaviors as Means of Goal Pursuit

Individuals pursue work goals by engaging in job-relevant behaviors (Campbell & Wiernik, 2015). These behaviors are often standardized, as deviating from standard procedures can increase the likelihood of accidents, injuries, mistakes, and other negative outcomes (e.g., Halbesleben, 2010; Reader & O'Connor, 2014). Nonetheless, there are often multiple behavioral means that can be used to pursue a given goal (Kruglanski et al., 2015). That is, even if there are ways of performing a work task "by the book," employees can sometimes take shortcuts around these standardized procedures. To this end, a body of research has begun to identify the antecedents of using SCBs to pursue work goals.

Some studies have identified individual differences as predictors of SCBs. For instance, conscientiousness and proactive personality are negatively related to the use of SCBs, and the dark triad personality traits Machiavellianism and psychopathy are associated with increased use of SCBs (Jonason & O'Connor, 2017; Yan et al., 2021). Although this research is important for identifying *who* is most likely to engage in SCBs, it is also critically important to understand *when* individuals are most likely to use SCBs to pursue their work goals. That is, although some employees engage in more SCBs *on average* relative to their peers, even the most diligent and well-meaning employees are likely to engage in SCBs on occasion. Accordingly, other research has identified situational antecedents of SCBs. For instance, Halbesleben (2010) found that exhaustion predicted SCBs among health care professionals. Likewise, Dai et al. (2015) found that adherence to hand hygiene procedures among hospital workers diminished over the course of the workday. This previous research provides important insights into the reasons individuals eschew standard work procedures in favor of shortcuts, yet we argue that this work has overlooked a critical feature of SCBs. Specifically, SCBs allow individuals to accomplish tasks *more rapidly* than they otherwise would.

For instance, there are qualitative studies that suggest that employees engage in SCBs to expedite work progress (Hannah & Robertson, 2015; Sekerka & Zolin, 2007). Similarly, there is evidence that individuals use SCBs to manage large workloads within stringent deadlines. Specifically, Beck, Scholer, and Schmidt (2017) had participants perform repeated trials of an air traffic control simulation in which SCBs were operationalized as the decision to send aircraft outside prescribed flight paths. Doing so saved time and allowed participants to land more aircraft within the deadline. Yet, SCBs could result in "near misses," which carried financial penalties. Beck, Scholer, and Schmidt (2017) found that during trials when there was a large number of aircraft to land (i.e., high workload), participants perceived shortcuts as more useful (i.e., to have high utility), relative to trials when there were fewer aircraft to land. In turn, utility perceptions predicted the degree to which participants actually engaged in SCBs.

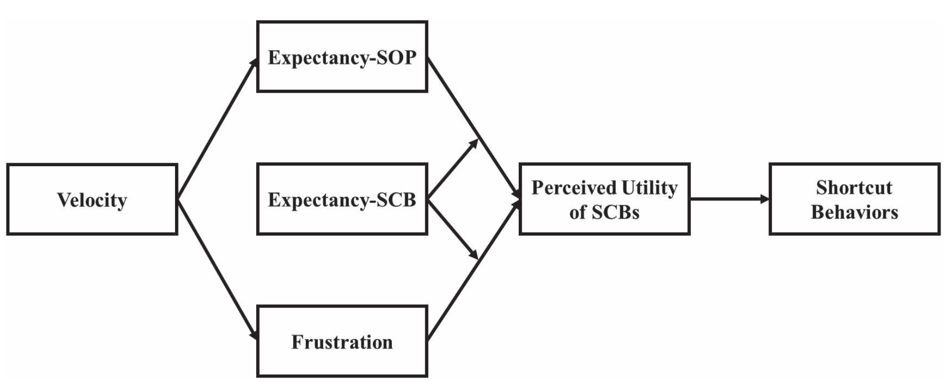
Importantly, in Beck, Scholer, and Schmidt's (2017) study, the deadline remained constant across trials, meaning high workloads created a need for individuals to work *rapidly*. Thus, these results provide indirect evidence that individuals use SCBs to regulate velocity during goal pursuit. In the present research, we consider this issue more directly. Specifically, we argue that velocity is a key driver of utility perceptions, such that SCBs will be considered most useful when velocity is slow. Downstream, utility perceptions tend to guide decision-making (Van Eerde & Thierry, 1996). As such, we expect to replicate Beck, Scholer, and Schmidt's (2017) finding that utility perceptions are a proximal predictor of SCBs.

> *Hypothesis 1:* Utility perceptions will be positively related to SCBs.

Velocity as a Determinant of the Utility of Engaging in SCBs

When faced with a problem, individuals often use the first available satisfactory solution, rather than continuing to search for an optimal solution (e.g., Simon, 1990). Along these lines, rather than considering all possible ways a work task might be completed, in most cases, we expect individuals to use standard procedures. Indeed, work procedures become standardized precisely

Figure 1
Proposed Model



Note. SCB = shortcut behavior. Expectancy-SOP = expectancy if the standard procedure was used. Expectancy-SCB = expectancy if the shortcut was used.

because they are practical, efficient, safe, and otherwise useful for completing a work task under most conditions. Thus, as long as standardized procedures are sufficient for completing the task at hand, individuals are likely to use these procedures. Yet, the purpose of this research is to understand instances when standard work procedures are *not* satisfactory. In particular, we argue that a slow rate of progress is a signal that standard procedures are insufficient. As such, we expect the perceived utility of SCBs to increase in response to slow velocity. This prediction is derived from self-regulatory theories of goal pursuit.

The central principle of these theories is that motivation stems from the desire to reduce discrepancies between goals and one's current level of performance (e.g., Carver & Scheier, 1990, 1998; Lord et al., 2010). Importantly, goals are rarely achieved instantaneously but instead are pursued over time. To this end, Carver and Scheier theorized that individuals regulate not only the *amount* of progress remaining to be made but also the *rate* at which progress is made (i.e., velocity). In particular, these authors proposed that individuals regulate velocity against an internal referent, which represents a desired or satisfactory rate of progress. More so, Carver and Scheier postulated that even after accounting for discrepancies between the amount of goal progress made and the amount of progress remaining, faster-than-referent progress results in optimism and positive emotions, whereas slower-than-referent progress leads to pessimism and negative emotions. Empirical research has supported these propositions (Johnson et al., 2013), yet as noted above, behavioral outcomes associated with velocity have been largely overlooked. We consider the use of SCBs as one such behavior.

In particular, we argue that velocity influences the perceived utility of SCBs. We draw on previous research to argue that velocity affects utility via two distinct pathways. First, slower-than-referent velocity signals that the goal may not be met on time (e.g., Chang et al., 2010). As such, slow velocity is likely to trigger a rational, strategic process whereby individuals recognize a need to change their goal pursuit strategy. Second, experiencing slower-than-referent velocity is unpleasant (e.g., Beck, Scholer, & Hughes, 2017). Therefore, individuals may perceive SCBs to have high utility because SCBs can increase velocity, thereby alleviating negative emotions. We consider both the strategic and emotional pathways from velocity to utility in more depth in the following sections.

The Strategic Pathway: Is Faster Velocity Needed to Reach the Goal on Time?

When determining whether or not to engage in SCBs, we expect individuals to consider the necessity of doing so. In particular, we argue that the velocity experienced during goal pursuit will influence expectancy of goal success, which is defined as a person's perceived likelihood that a goal will be met within the deadline (e.g., Sun et al., 2014; Vancouver et al., 2010). Whereas rapid progress suggests that the goal is likely to be met by the deadline, slow progress may raise doubts that the goal can be accomplished on time (Carver & Scheier, 1990, 1998). Indeed, several empirical studies have linked velocity to expectancy. For example, Chang et al. (2010) manipulated velocity while participants performed a verbal task and found that fast velocity led to higher expectancy than slow velocity. Similarly, Huang and Zhang (2011) observed positive relationships between velocity and expectancy across various tasks. Downstream, we predict that expectancy will affect the perceived utility of engaging in SCBs.

However, additional nuance is warranted. Because SCBs result in faster progress than standard procedures by definition, we differentiate the expectancy of success using only standard procedures (expectancy-SOP) from expectancy if SCBs are used (expectancy-SCB). We suggest that individuals use expectancy-SOP perceptions to determine the degree to which standard work procedures are sufficient for meeting the goal. Whereas high expectancy-SOP indicates that the goal is likely to be met within the deadline using standard procedures, low expectancy-SOP signals that an alternative approach to goal pursuit is warranted. Based on the findings from previous research reviewed above (Chang et al., 2010; Huang & Zhang, 2011), we expect velocity to be positively related to expectancy-SOP. Downstream, expectancy-SOP is expected to be negatively related to utility perceptions. That is, SCBs are expected to be perceived as most useful when there is a strong need to deviate from standard procedures. Conversely, when standard procedures are sufficient for meeting the goal on time, the perceived utility of engaging in SCBs is likely to be relatively low.

Yet, in addition to expectancy-SOP, the perceived utility of SCBs may also depend on expectancy-SCB. Formally, we predict that expectancy-SCB will moderate the effect of expectancy-SOP on utility. In particular, we expect utility to be highest when standard procedures are not perceived to be viable means of goal pursuit (i.e., expectancy-SOP is *low*), and SCBs are seen as a viable alternative (i.e., expectancy-SCB is *high*). When expectancy-SCB is low, the perceived utility of engaging in SCBs is likely to be relatively low, regardless of expectancy-SOP. This is because there are potential downsides to engaging in SCBs (e.g., low quality work, accidents). If the goal is unlikely to be achieved on time even if SCBs are used (as indicated by low expectancy-SCB), then the potential downsides of SCBs outweigh the benefits (i.e., faster velocity). Yet, when expectancy-SCB is high, we expect to observe a strong negative relationship between expectancy-SOP and utility. This is because low expectancy-SOP signals a need to change strategies, and high expectancy-SCB indicates that SCBs are a viable alternative to standard procedures.

> *Hypothesis 2a:* Velocity will be positively related to expectancy-SOP.

> *Hypothesis 2b:* Expectancy-SOP will be negatively related to utility. This relationship will be moderated by expectancy-SCB, such that expectancy-SOP will be more strongly negatively related to utility when expectancy-SCB is high, relative to when expectancy-SCB is low.

> *Hypothesis 2c:* There will be a negative indirect effect of velocity on utility via expectancy-SOP. This effect will be moderated by expectancy-SCB, such that this indirect effect will be stronger when expectancy-SCB is high, relative to when expectancy-SCB is low.

Furthermore, integrating these hypotheses with Hypothesis 1 yields the following:

> *Hypothesis 2d:* There will be a negative serial indirect effect of velocity on SCBs via expectancy-SOP and utility. This effect

will be moderated by expectancy-SCB, such that this indirect effect will be stronger when expectancy-SCB is high, relative to when expectancy-SCB is low.

Up to this point, we have described a largely rational process via which utility perceptions are formed. We argued that individuals first determine whether or not it is necessary to increase velocity, and then consider whether SCBs are viable means of doing so. In the following section, we argue that perceptions regarding the utility of engaging in SCBs are also driven by emotions, above and beyond the cognitive process described above.

The Emotional Pathway: Slow Progress Is Frustrating

Carver and Scheier (1990, 1998) argued that experiencing slower-than-referent velocity is emotionally unpleasant, and several studies have linked slow velocity to dissatisfaction and negative emotions (Beck, Scholer, & Hughes, 2017; Chang et al., 2010; Elicker et al., 2010; Lawrence et al., 2002; Phan & Beck, 2020; Wilt et al., 2017). Prior research suggests that frustration is a particularly relevant emotion linking velocity and SCBs. Frustration is characterized by annoyance, irritation, and exasperation (Spector, 1978). Importantly, frustration is often experienced in response to obstacles and impediments during goal pursuit (Audirac, 2008; Fox & Spector, 1999; Roseman et al., 1994). Slow velocity is one such impediment. For instance, across two studies, Beck, Scholer, and Hughes found slower-than-referent velocity to cause elevated frustration. In these studies, participants' likelihood of meeting the goal was held constant across experimental conditions, meaning slow velocity led to frustration *above and beyond* the objective implications of velocity for meeting the goal. As such, we expect velocity to be negatively related to frustration, even after controlling for expectancy-SOP.

Downstream, we expect frustration to be positively related to the perceived utility of engaging in SCBs. Similar to expectancy-SOP, we argue that frustration reflects the degree to which standard work procedures are satisfactory means of goal pursuit. Indeed, there is evidence that individuals use emotions as signals regarding goal progress (Richard & Diefendorff, 2011). Because frustration is aversive and unpleasant, individuals are motivated to remove sources of frustration (Berkowitz, 1989; Berkowitz & Harmon-Jones, 2004; Folkman & Lazarus, 1980). When slow velocity is the source of frustration, there is an incentive to increase velocity in the future. Therefore, we predict a positive relationship between frustration and the perceived utility of engaging in SCBs.

However, similar to expectancy-SOP, we expect the relationship between frustration and utility to be moderated by expectancy-SCB. If the velocity that can be achieved via SCBs is still too slow to meet the goal on time (i.e., low expectancy-SCB), then SCBs are likely to hold little utility, regardless of the level of frustration. Yet, when SCBs are perceived to be viable means of goal pursuit (i.e., high expectancy-SCB), we expect to observe a strong positive relationship between frustration and utility. That is, we predict that utility will be highest when both frustration *and* expectancy-SCB are relatively high.

> *Hypothesis 3a:* Velocity will be negatively related to frustration.

> *Hypothesis 3b:* Frustration will be positively related to utility. This relationship will be moderated by expectancy-SCB, such that frustration will be more strongly related to utility when expectancy-SCB is high, relative to when expectancy-SCB is low.

> *Hypothesis 3c:* There will be a negative indirect effect of velocity on utility via frustration. This effect will be moderated by expectancy-SCB, such that this indirect effect will be stronger when expectancy-SCB is high, relative to when expectancy-SCB is low.

Finally, as was the case above, integrating these hypotheses with Hypothesis 1 yields the following:

> *Hypothesis 3d:* There will be a negative serial indirect effect of velocity on SCBs via frustration and utility. This effect will be moderated by expectancy-SCB, such that this indirect effect will be stronger when expectancy-SCB is high, relative to when expectancy-SCB is low.

Overview of Studies

We tested our hypotheses across two studies. In line with our self-regulatory theoretical framework, both studies used within-person designs. That is, these studies assessed the degree to which SCBs are used to counteract slower-than-referent velocity while pursuing work goals. Study 1 was a laboratory experiment in which participants completed a work simulation. Velocity was manipulated at the within-person level of analysis, and participants' actual SCBs were unobtrusively observed. Thus, Study 1 provides an internally valid test of our hypotheses by allowing us to determine whether within-person variation in velocity can *cause* changes in SCBs. Conversely, Study 2 was a daily diary study in which employees reported their velocity and SCBs over multiple workdays. This study assesses the degree to which the processes observed in Study 1 generalize to natural work settings.

Study 1

Method

Study 1 was reviewed and approved by the University of Waterloo's Office of Research Ethics (ORE Approval #31254, "Expense Report Study").

Transparency and Openness

For both studies, we describe our sampling plan, all data exclusions (if any), all manipulations, and all measures used, and we adhered to the *Journal of Applied Psychology*'s methodological checklist. We tested our proposed model across both studies using Mplus Version 6.12 (Muthén & Muthén, 2010) and used R Version 4.0.4 (R Core Team, 2021) for all other analyses. The hypotheses and analysis plan for Study 2 (but not Study 1) were preregistered. Data, analysis code, and research materials for both studies, as well as preregistration materials for Study 2 are available at https://osf.io/3b8wx/.

Participants

Undergraduate students at a Canadian university (N = 147) participated in a laboratory study in exchange for course credit and an opportunity to earn a cash prize (described below). The sample was 82% female and had a mean age of 19.90 years (SD = 2.02). Most participants identified as Asian (38%) or White/Caucasian (27%).

Procedure

Participants completed five blocks of a work simulation task individually at a computer station during a 45-min laboratory session. Velocity was manipulated following each block. The study used a within-subjects design, such that all participants saw all three levels of the velocity manipulation (i.e., slow, average, and fast) during the study. In addition, participants reported expectancy-SOP, expectancy-SCB, frustration, and utility prior to starting each block. SCBs were recorded automatically by the task.

Experimental Task. Participants assumed the role of an employee at an event-planning company. The task consisted of five blocks of 10 trials each. During each trial, participants were to retrieve the pretax cost of one past event, which was stored in a database. This was done by clicking a button on the computer screen, after which the pretax cost was displayed. After retrieving the pretax cost, participants calculated the event's *total cost* by adding a 5% sales tax using a hand-held calculator. Finally, participants entered the total cost into a text box, thereby completing the trial. Therefore, the rules of the task were simple to learn and required no special knowledge or skills. Performance on the task was computed as a function of the speed and accuracy with which participants completed the trials; this scoring is described in more detail in the "Incentives" section. A screenshot of the task is shown in Figure 2.

SCB. During each trial, participants had the option to use either a "central database" (i.e., the standard procedure) or a "local database" (i.e., the shortcut) to retrieve the pretax event cost. Participants were told that using the central database was the standard procedure for performing the task, as 100% of the pretax values stored in the central database were accurate. However, because the central database was ostensibly located in a different location, there would be a 4 s delay between the moment the button was clicked and the moment the cost appeared. Thus, following these initial instructions, participants were introduced to a shortcut that could be used to increase their rate of progress.

Specifically, participants were told that instead of using the central database to retrieve the pretax values, they could use a local database. Because the information in the local database was ostensibly stored onsite, the pretax cost would appear instantaneously after the button was clicked (i.e., there was no delay). However, using the local database (i.e., SCBs) was associated with the risk of submitting an incorrect total cost, as some of the pretax values in the local database were out of date and therefore inaccurate. In actuality, 10% of the pretax values in the local database were inaccurate. Importantly, participants were not told the exact rate of inaccuracy; they were only told that *some* of the pretax values in the local database were inaccurate. To enhance the realism of the experiment, the possibility of using the local database was introduced via a message from a "coworker."

Incentives. To incentivize performance, participants had the opportunity to earn a bonus cash prize of up to $5.00. We designed the bonus structure to reflect the positive outcomes (i.e., faster progress) and negative outcomes (i.e., inaccuracy) associated with SCBs. Specifically, participants began each block with $1.00, and the amount of money participants retained by the end of the block was based on the *speed* and *accuracy* with which they performed the task. With regards to speed, participants were allotted 2 min and 50 s to complete each block.[1] Two cents ($0.02) were deducted from participants' bonus pay for each second that they spent beyond the allotted time. Notably, there was a significant negative within-person correlation between the usage of SCBs and the amount of time required to complete a block ($r = -.31$, $p < .001$), indicating that SCBs did allow participants to complete the task more rapidly.

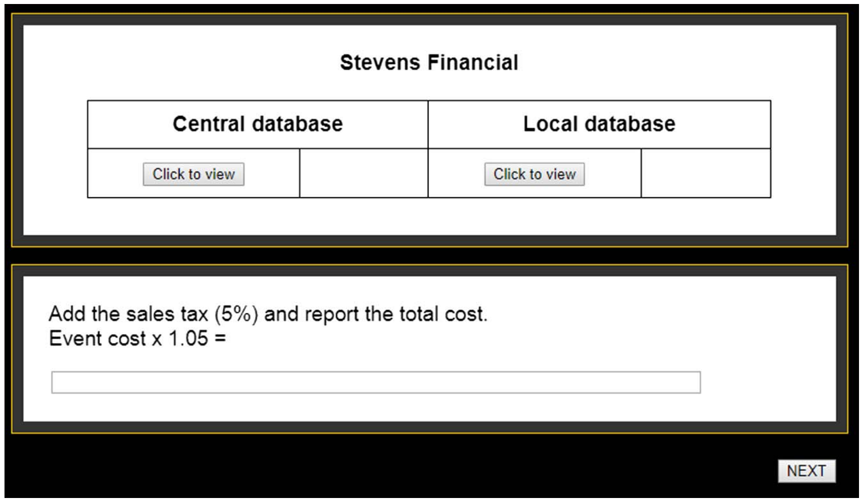
With regards to accuracy, participants lost 10 cents ($0.10) for each trial in which the total cost submitted was incorrect. Given the simplicity of the task, incorrect submissions were largely driven by SCBs. Indeed, there was a significant within-person correlation between the number of SCBs performed and the number of incorrect submissions made ($r = .47$, $p < .001$). Participants only received feedback regarding their performance and bonus payments at the end of the study, rather than after completing each individual block. This was done because the effects of SCBs are often not immediately apparent, yet being told that using SCBs has resulted in a negative outcome can have strong effects on subsequent SCBs (Beck, Scholer, & Schmidt, 2017). On average, participants earned $4.15 ($SD$ = $0.95) across the five blocks.

Velocity Manipulation. Velocity was manipulated as a within-subjects variable, such that all participants were exposed to all three levels of the velocity manipulation (slow, average, and fast). Following each block, participants were shown a feedback message regarding their velocity (e.g., "Your rate of progress on the batch you just completed was AVERAGE"). The word "AVERAGE" was replaced by "SLOW" and "FAST" for the slow and fast velocity messages, respectively. By conveying a rate of progress relative to the average, we manipulated participants' perceived velocity relative to a normative referent. A great deal of research indicates that individuals are sensitive to their standing relative to social norms (e.g., Cialdini et al., 2006; Goldstein et al., 2008). Moreover, normative referents have successfully been used to manipulate velocity perceptions in previous experimental studies (Chang et al., 2010, S2; Huang & Zhang, 2011, S2–S4). To emphasize the manipulation, each message was accompanied by an image of a speedometer (Figure 3). The "slow" and "fast" messages were shown once each, and the "average" message was shown twice.[2] Although participants were led to believe that the feedback was based on their performance, the order of these messages was randomized.

[1] The amount of time allotted was based on a pilot study in which participants (N = 100) were asked to complete 10 trials of the task as rapidly as possible. Based on the results, we concluded that 2 min and 50 s would represent a scarce but sufficient amount of time to complete 10 trials using the standard procedure (i.e., the central database). Approximately 30% of participants in the pilot study completed the 10 trials in 2 min and 50 s.

[2] All participants were also shown the "average" message following the fifth and final block. However, because the experiment was concluded at this point, no measures were taken and there were no further opportunities to engage in SCBs. Thus, the velocity feedback shown following the fifth block was not considered within our analyses.

Figure 2
A Screenshot of an Experimental Trial in the Work Simulation Task (Study 1)



Note. See the online article for the color version of this figure.

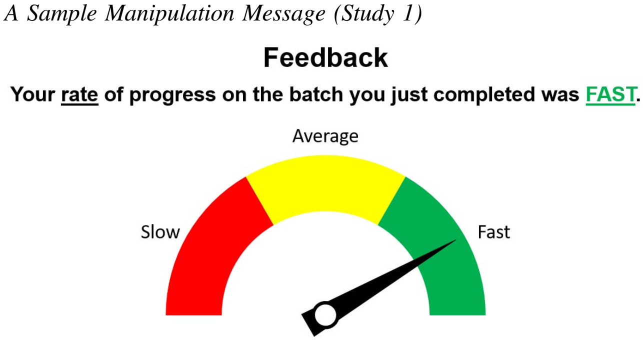
Measures

Participants completed self-report measures after receiving velocity feedback and prior to starting a new block. The expectancy and utility measures asked participants about their perceptions regarding the upcoming block. Although the experiment included five blocks, only measures following Blocks 1–4 were included in the analyses as these measures followed the velocity manipulation *and* preceded a performance block.

Expectancy-SOP. Expectancy-SOP was assessed with the item "What do you think is the probability that you will complete all 10 event files within the time available, if you DO NOT use the Local database?" Participants rated the items on a 0%–100% scale in increments of 1%. The following anchors were provided with the scale: "0% = No chance you will complete all 10 event files," "50% = 50/50 chance you will complete all 10 event files," and "100% = You will definitely complete all 10 event files."

Expectancy-SCB. Expectancy-SCB was assessed with the item "What do you think is the probability that you will complete all 10 event files within the time available, if you use the Local database (i.e., the shortcut)?" The same 0%–100% scale described above was used.

Figure 3
A Sample Manipulation Message (Study 1)



Note. See the online article for the color version of this figure.

Frustration. Frustration was measured using Peters et al.'s (1980) three-item scale, which we adapted for this study. A sample item is, "Working on this task is a very frustrating experience." Participants responded to the items on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Cronbach's α reliability across the four blocks was .95.

Utility. Utility was measured using two items that were adapted from Beck, Scholer, and Schmidt (2017). The items were: "Using the local database will pay off during the next batch of event files" and "Using the local database will help me earn more money during the next batch of event files." Participants responded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Spearman–Brown corrected ($n = 2$) reliability across the four blocks was .86.

SCBs. SCBs were operationalized as the number of times participants clicked on the button associated with the local database. This was automatically recorded by the task.

Perceived Time Available. As a manipulation check, we measured perceived time available to complete the upcoming block. Phan and Beck (2020) found that, independent of the *objective* amount of time available to complete a task, individuals *perceived* more time available following fast velocity feedback, relative to slow velocity feedback. As such, relative to the "average" velocity trials, we expected individuals to subjectively perceive more time available following the "fast" velocity trials, and to subjectively perceive less time available following the "slow" velocity trials. Perceived time available was measured using three items from Phan and Beck's second study, which were adapted for the present study. The items were "I will have a great deal of time available to work on the task," "There will be a lot of time available for the task" (1 = *strongly disagree*, 7 = *strongly agree*), and "In your opinion, how much time do you think you will have to complete the task?" (1 = *a very small amount of time*, 7 = *a very large amount of time*). The mean Cronbach's α reliability across the four blocks was .88.

Analysis Plan

Because observations were nested within individuals, we tested our hypotheses using multilevel structural equation modeling (MSEM; Preacher et al., 2010). Although conventional multilevel modeling (MLM) would also account for the nested nature of the data, a key advantage of MSEM over MLM is that it allows models to be tested in their entirety, rather than in piecemeal fashion (e.g., Kline, 2015; Preacher et al., 2016).[3] Given that Study 1 included an experimental manipulation (velocity), single-item indicators of relevant constructs (expectancy-SOP and expectancy-SCB), and a directly observed behavioral variable (SCBs), we modeled relationships between observed variables, rather than latent constructs. The frustration and utility variables were computed by averaging item responses to create composite indicators.

Because we were interested in testing within-person relationships, all variables were person-mean centered to remove between-person variance (Hofmann & Gavin, 1998). All R^2 values reported refer to the proportion of within-person variance accounted for by the model. The velocity manipulation was represented in our analyses using a *slow velocity* dummy variable (1 = slow, 0 = average, 0 = fast) and a *fast velocity* dummy variable (0 = slow, 0 = average, 1 = fast). Both expectancy measures (SOP and SCB) were rescaled from 0–100 to a 0–10 scale to facilitate interpretation of the coefficients.

We specified a model in which (a) expectancy-SOP and frustration were regressed on both velocity dummy variables, (b) utility was regressed on expectancy-SOP, frustration, expectancy-SCB, the Expectancy-SOP × Expectancy-SCB interaction, and the Frustration × Expectancy-SCB interaction, and (c) SCB was regressed on utility. We also specified several covariances. First, expectancy-SOP and frustration were allowed to covary because we sought to estimate the effects of velocity on frustration independent of expectancy-SOP, as well as the effects of velocity on expectancy-SOP independent of frustration. Second, expectancy-SOP and expectancy-SCB were allowed to covary, as both are expectancy variables. Third, the interaction terms were allowed to covary with their constituents (e.g., the Expectancy-SOP × Expectancy-SCB interaction covarying with expectancy-SOP and expectancy-SCB). Fourth, both interaction terms were allowed to covary, as both interaction terms are a function of expectancy-SCB. Significant interactions were probed using simple slopes analyses (Cohen et al., 2003).

Next, we tested the hypothesized indirect effects using Monte Carlo simulations (Bauer et al., 2006; Preacher & Selig, 2012). Specifically, we generated a normal distribution (N = 10,000) for each individual pathway comprising the indirect effect (e.g., velocity → expectancy-SOP and expectancy-SOP → utility) using the regression coefficient and standard error associated with that pathway. Because we predicted moderated indirect effects, we calculated indirect effects of velocity on utility and SCBs at both *low* (−1 *SD*) and *high* (+1 *SD*) levels of expectancy-SCB. This was done using the simple slopes obtained from tests of Hypotheses 2b and 3b. Similarly, because relationships between velocity and the mediators were tested with two velocity dummy variables, for each indirect effect hypothesis, we calculated the indirect effect of both *slow* velocity and *fast* velocity on utility and SCBs. Next, we computed the product of these distributions to generate a distribution of each indirect effect, where the lower bound and upper bound of the 95% confidence interval correspond to the 2.5th and the 97.5th percentiles of the distribution, respectively (MacKinnon et al., 2004, 2007). An advantage of this method is that it accounts for the fact that indirect effect distributions tend to be asymmetrical (MacKinnon et al., 2002). Indirect effects were considered significant if the 95% confidence interval excluded zero.

Results

Manipulation Check

As a test of our manipulation, we regressed perceived time available on the velocity manipulation using MLM. As anticipated, the velocity manipulation was significantly related to perceived time available, $F(2, 439) = 67.03$, $p < .001$, $R^2 = .05$. Specifically, relative to the average velocity blocks, participants perceived less time available following slow velocity feedback ($\gamma = -.51$, $SE = .06$, $p < .001$) and more time available following fast velocity feedback ($\gamma = .28$, $SE = .06$, $p < .001$). Thus, the velocity manipulation functioned as intended.

Descriptive Statistics

Means, standard deviations, intercorrelations, and intraclass correlations, ICC(1), are presented in Table 1. Below, we provide complete tests of our hypotheses using MSEM.

Hypothesis Tests

Results are summarized in Table 2. The proposed model provided acceptable fit to the data ($\chi^2 = 48.563$, $df = 18$, $p < .001$, comparative fit index [CFI] = .920, root mean square error of approximation [RMSEA] = .054, standardized root mean square residual [SRMR] = .045).

Hypothesis 1. In support of Hypothesis 1, utility perceptions were positively related to SCBs ($\gamma = .65$, $SE = .10$, $p < .001$).

Hypothesis 2. In support of Hypothesis 2a, relative to average velocity, slow velocity decreased expectancy-SOP ($\gamma = -.28$, $SE = .09$, $p = .001$), whereas fast velocity increased expectancy-SOP ($\gamma = .22$, $SE = .09$, $p = .011$). That is, participants' perceived likelihood of meeting their goals by using standard procedures *decreased* following slower-than-average velocity feedback and *increased* following faster-than-average velocity feedback.

Hypothesis 2b predicted a negative relationship between expectancy-SOP and utility, and that this relationship would be moderated by expectancy-SCB. Although there was a negative main effect of expectancy-SOP on utility ($\gamma = -.10$, $SE = .03$, $p < .001$), the Expectancy-SOP × Expectancy-SCB interaction was not significant ($\gamma = -.02$, $SE = .02$, $p = .329$, $\Delta R^2 = .002$). Therefore, Hypothesis 2b was not supported. Furthermore, because the moderated indirect effects of velocity on utility (Hypothesis 2c) and on SCB (Hypothesis 2d) via expectancy-SOP depend on these results, these hypotheses were also not supported. Nonetheless, there were significant indirect effects of the velocity manipulation on utility via

[3] We also tested the hypotheses using conventional MLM. These analyses are summarized in the Supplemental Online Materials. Importantly, neither the pattern nor the interpretation of the results changes when analyzing the data using MLM instead of MSEM.

Table 1
Means, Standard Deviations, and Intercorrelations for Study 1

Variable	*M*	Min	Max	SD_B	SD_W	ICC(1)	Correlations 1	2	3	4	5	6	7
1. Slow velocity	.25	0.0	1.0		.43	.00	—						
2. Fast velocity	.25	0.0	1.0		.43	.00	−.33***	—					
3. Expectancy-SOP	6.64	0.3	10.0	1.87	.93	.80	−.19***	.18***	—	−.13	.62***	−.34***	−.33***
4. Frustration	2.62	1.0	5.0	.98	.47	.75	.23***	−.13**	−.23***	—	−.11	.12	.04
5. Expectancy-SCB	8.11	1.0	10.0	1.85	.83	.81	−.09*	.12**	.33***	−.04	—	−.08	−.03
6. Utility	2.57	1.0	5.0	.91	.55	.70	.10*	−.15***	−.13**	.20***	.15***	—	.64***
7. SCB	2.52	0.0	10.0	3.40	1.41	.85	.13**	−.10*	−.04	.13**	.09*	.25***	—

Note. Slow velocity and fast velocity are dummy variables with average velocity as the referent. Expectancy-SOP = expectancy if the standard procedure was used. Expectancy-SCB = expectancy if the shortcut was used. SCB = shortcut behavior. Between-subject correlations are shown above the diagonal (147 individuals). Scores were averaged within each person to compute between-subject correlations. Within-subject correlations are shown below the diagonal (588 observations). Scores were centered at each person's mean to compute within-subject correlations. SD_B = standard deviation of between-subjects (i.e., aggregated) variable. SD_W = standard deviation of within-subjects (i.e., centered) variable.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

expectancy-SOP, IE_{Slow} = .027, 95% CI [.007, .056]; IE_{Fast} = −.021, 95% CI [−.047, −.003], as well as significant serial indirect effects of velocity on SCBs via expectancy-SOP and utility, IE_{Slow} = .017, 95% CI [.004, .038]; IE_{Fast} = −.013, 95% CI [−.032, −.002]. In sum, we found support for the pathway via expectancy-SOP linking velocity and utility, yet this pathway was not moderated by expectancy-SCB.

Hypothesis 3. Relative to average velocity, slow velocity resulted in increased frustration (γ = .23, *SE* = .05, $p < .001$). However, fast velocity was not related to frustration (γ = −.06, *SE* = .05, p = .174). Altogether, these results suggest that slower-than-average velocity—but not faster-than-average velocity—influenced participants' frustration during goal pursuit. Thus, these results provide partial support for Hypothesis 3a.

Next, Hypothesis 3b hypothesized that frustration would be positively related to utility, and that this relationship would be moderated by expectancy-SCB. Specifically, we predicted that the positive relationship between frustration and utility would be stronger when expectancy-SCB is high as opposed to low. This interaction was significant (γ = .09, *SE* = .05, p = .048, ΔR^2 = .01). In line with Hypothesis 3b, the relationship between frustration and utility was stronger when expectancy-SCB was high (γ = .28, *SE* = .06, $p < .001$) as opposed to low (γ = .12, *SE* = .06, p = .044). This interaction is plotted in Figure 4.

We tested Hypotheses 3c and 3d using the estimates obtained from these simple slopes analyses. These indirect effects are presented in Table 3. Consistent with Hypothesis 3c, the positive indirect effect of *slow velocity* on utility via frustration was larger when expectancy-SCB was high, relative to when expectancy-SCB was low, difference = .034, 95% CI [−.004, .082]. However, the 95% confidence interval of the difference between these two indirect effects included zero. Nonetheless, the magnitudes of these indirect effects depend on the level of moderator variable at which the indirect effects are tested. In this case, we tested these indirect effects at values of expectancy-SCB corresponding to +/−1 *SD*. However, +/−1 *SD* is an arbitrary value and was chosen by convention. To this end, we tested the difference between these indirect effects at different levels of expectancy-SCB. The difference in indirect effects becomes significant at values of expectancy-SCB +/− 1.25 *SD*, difference = .043, 95% CI [.001, .099].[4] Taken together with the significant interaction between frustration and expectancy-SOP on utility, these results indicate that the indirect effect of velocity on utility was indeed dependent on the level of expectancy-SCB. Therefore, these results support Hypothesis 3c.

Next, the positive serial indirect effect of *slow velocity* on SCB via frustration and utility was significant when expectancy-SCB was high, as well as when expectancy-SCB was low (see Table 3). As with Hypothesis 3c, the 95% confidence interval of the difference between these serial indirect effects included zero, difference = .022, 95% CI [−.002, .056]. Yet, this difference was significant at values of expectancy-SCB +/−1.25 *SD*, difference = .028, 95% CI [.001, .068]. Thus, Hypothesis 3d was supported.

Finally, because the fast velocity dummy variable was not significantly related to frustration, the indirect effects involving fast velocity were also nonsignificant. Therefore, Hypotheses 3c and 3d were only partially supported. Specifically, experiencing slower-than-average velocity had indirect effects on utility and SCBs via frustration, but only to the degree that SCBs were seen as viable means of goal pursuit (i.e., when expectancy-SCB was high). However, experiencing faster-than-average velocity had no significant influence on this process.

Discussion

The results of Study 1 support our overall proposition that velocity can lead to SCBs via both a strategic pathway (i.e., expectancy-SOP) and an emotional pathway (i.e., frustration). However, results regarding the moderating effects of expectancy-SCB were mixed; whereas expectancy-SCB moderated the relationship between frustration and utility as expected, the predicted Expectancy-SOP × Expectancy-SCB interaction was nonsignificant. Instead, expectancy-SOP was negatively related to utility *regardless* of the level of expectancy-SCB. An implication of these results is that participants may have perceived SCB to be useful *even* when shortcuts were not perceived as particularly viable means of reaching the goal. However, this pattern of results may have been driven by the incentive structure used in Study 1.

[4] Given that expectancy-SCB was scaled from 0 (*0% chance of success*) to 10 (*100% chance of success*), and the within-person standard deviation of expectancy-SCB was .83, +/−1 *SD* corresponds to +/−8.3%. Likewise, +/−1.25 *SD* corresponds to +/−10.4%. Therefore, the difference between these values corresponded to a +/−2.1% difference in perceived chances of success.

Table 2
MSEM Results for Study 1

Predictors	DV = expectancy-SOP						DV = frustration						DV = utility						DV = SCB					
	γ	*SE*	*t*	*p*	*LB*	*UB*	γ	*SE*	*t*	*p*	*LB*	*UB*	γ	*SE*	*t*	*p*	*LB*	*UB*	γ	*SE*	*t*	*p*	*LB*	*UB*
Slow velocity	−.28	.09	−3.19	.001	−.45	−.11	.23	.05	4.98	<.001	.14	.32												
Fast velocity	.22	.09	2.54	.011	.05	.39	−.06	.05	−1.36	.174	−.15	.03												
Expectancy-SOP													−.10	.03	−3.87	<.001	−.15	−.05						
Frustration													.20	.05	4.23	<.001	.11	.29						
Expectancy-SCB													.14	.03	4.73	<.001	.08	.19						
Expectancy-SOP × Expectancy-SCB													−.02	.02	−.98	.329	−.06	.02						
Frustration × Expectancy-SCB													.09	.05	1.98	.048	.00	.19						
Utility																			.65	.10	6.35	<.001	.45	.85
R^2	.04						.06						.10						.06					

Note. n = 588 observations nested within N = 147 participants. Coefficients are unstandardized multilevel regression weights. Expectancy-SOP = expectancy if the standard procedure was used. Expectancy-SCB = expectancy if the shortcut was used. Lower bound (LB) and upper bound (UB) are based on the 95% confidence interval around the estimate. MSEM = multilevel structural equation modeling; DV = dependent variable.

Specifically, an anonymous reviewer noted that participants may have perceived the monetary penalties associated with the use of SCBs to be low, relative to the penalties associated with working too slowly. That is, whereas taking a shortcut during the present study *may* have led to a $0.10 penalty, working too slowly *was certain* to lead to a financial penalty. Indeed, missing the deadline by just 5 s resulted in a $0.10 loss (i.e., $0.02 per s × 5 s). Thus, participants may have reasoned that the possibility of incurring a $0.10 loss for taking a shortcut was preferable to the guaranteed loss associated with working too slowly. Thus, the design of Study 1 may have provided participants with a strong incentive to eschew standard procedures in favor of shortcuts, regardless of the perceived effectiveness of SCBs.

Yet, this incentive structure may not necessarily reflect the incentives present in a typical workplace setting. For example, in many cases, the consequences of engaging in SCBs may include poor-quality work and being reprimanded by a supervisor. Although these consequences are not necessarily catastrophic, they are nonetheless likely to be perceived as stronger disincentives of engaging in SCBs than the $0.10 penalty used in Study 1. We address this limitation in Study 2 by conducting a daily diary study in which we asked full-time employees to report on their own use of SCBs at work. Doing so allows us to determine whether the processes observed in Study 1 generalize to more natural work settings.

Similarly, an anonymous reviewer highlighted that the utility items used in Study 1 made no reference to the potential negative outcomes occurring as a result of SCBs. Instead, the utility items used in Study 1 emphasized the potential positive outcomes associated with SCBs (e.g., "paying off"), and thus, may have provided incomplete coverage of participants' utility perceptions. We address this limitation in Study 2 by using a measure of utility that explicitly considers both the positive and negative potential outcomes associated with SCBs.

Finally, in Study 1, we manipulated velocity relative to a *normative* referent. Normative velocity feedback has successfully been used in past research to alter velocity perceptions (Chang et al., 2010, Huang & Zhang, 2011), and participants' responses to the manipulation check questions suggest that the manipulation functioned as intended in the present research. Nonetheless, it is possible that some participants' individual velocity referents may not have matched this manipulation. That is, some participants may have been satisfied with slow velocity, meaning "average" velocity is above their referent. Likewise, others may have only been satisfied with fast velocity, meaning "average" velocity was below referent. To this end, in Study 2, we directly measured velocity relative to an internal personal referent. Additionally, we included items referencing several sources of internal referents (e.g., desired velocity, expected velocity) in order to ensure adequate coverage of the velocity construct.

Study 2

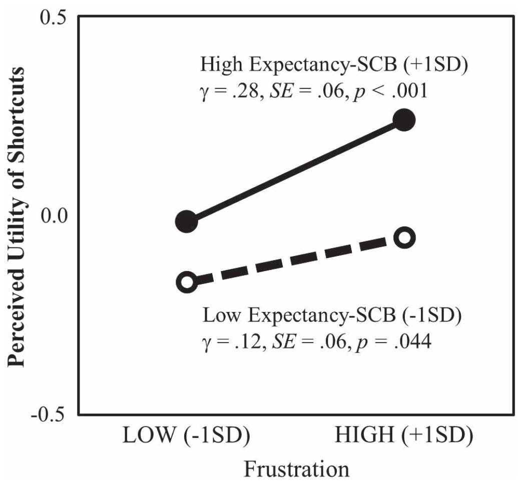
Method

Study 2 was reviewed and approved by the University of Waterloo's Office of Research Ethics (ORE Approval #42453: "Day-to-day experiences at work").

Participants and Procedure

Screening for Eligibility. Participants were recruited from Amazon's Mechanical Turk (MTurk). We began by administering

Figure 4
The Interaction Between Frustration and Expectancy-SCB Predicting Perceived Utility of Shortcuts (Study 1)



Note. Because utility was centered around each person's mean, zero refers to the person's mean perceived utility. Expectancy-SCB = expectancy if the shortcut was used.

a one-time questionnaire to 1,000 potential participants to determine eligibility for the study. Specifically, potential participants were told that in order to participate in the present research they were first required to complete a brief survey to determine their eligibility. The eligibility survey was administered on a Friday, and the focal study was conducted over the following work week (Monday through Friday). All individuals who completed the eligibility questionnaire were paid $1.00, regardless of their responses.

Table 3
Indirect Effects (Study 1)

Path	Mediation		
	IE	LB	UB
Velocity → Frustration → Utility			
Slow velocity			
Low expectancy-SCB	.027*	.001	.062
High expectancy-SCB	.063***	.029	.108
Fast velocity			
Low expectancy-SCB	−.006	−.026	.005
High expectancy-SCB	−.016	−.048	.011
Velocity → Frustration → Utility → SCB			
Slow velocity			
Low expectancy-SCB	.017*	.001	.042
High expectancy-SCB	.040***	.017	.075
Fast velocity			
Low expectancy-SCB	−.004	−.017	.003
High expectancy-SCB	−.010	−.032	.007

Note. 588 observations nested within 147 individuals. SCB = shortcut behavior. Expectancy-SCB = expectancy if the shortcut was used. Low expectancy-SCB = 1 *SD* below the mean. High expectancy-SCB = 1 *SD* above the mean. Lower bound (LB) and upper bound (UB) are based on the 95% confidence interval around the indirect effect (IE).
* $p < .05$. *** $p < .001$.

In an effort to ensure high-quality responding, the advertisement for this research was only visible to MTurk workers with at least a 95% approval rating and who had completed at least 50 MTurk assignments in the past. Furthermore, the study was only visible to MTurk workers residing within the United States. In particular, only U.S. MTurk workers residing in either the Eastern or Central time zones could view the advertisement. We restricted access to the study based on time zone because during the focal study, participants were required to respond to morning and afternoon surveys, meaning it was important that all participants were reporting on approximately the same portion of their workday. Finally, the study was not visible to MTurk workers who had participated in another SCB study that we had previously conducted.

Before accessing the eligibility questionnaire, individuals reported their age, whether or not they were employed (not including MTurk), and the number of hours worked per week (also not including MTurk). Individuals who were not at least 18 years old and did not work at least 30 hr per week were informed that they were ineligible to participate. We also included two additional items designed to screen out nonhuman respondents (i.e., "bots"). Individuals who passed all screening items were given access to the eligibility questionnaire.

The primary purpose of the eligibility questionnaire was to determine whether or not the potential participant would be working when the daily diary data would be collected. To this end, individuals were asked to indicate the specific days that they anticipated working, as well as their anticipated work schedule for the upcoming work week. To be eligible for the focal study, individuals needed to indicate that they intended to work primarily during standard business hours (i.e., approximately 9:00 a.m.–5:00 p.m.) every day of the upcoming work week (i.e., Monday–Friday). This questionnaire also contained several demographic questions, including race, gender, primary language spoken, industry, income, and education. Finally, we also included a three-item measure of work autonomy (Hackman & Oldham, 1980) for exploratory purposes; this variable is not considered further.[5]

As noted above, 1,000 individuals completed the eligibility questionnaire. Upon completing the questionnaire, individuals who were not eligible for the focal study ($N = 399$) were thanked and debriefed. Conversely, individuals who were eligible for the focal study ($N = 601$) were provided with detailed information about the study and were invited to participate. In particular, these individuals were told that they would receive two brief surveys each day over the following work week (Monday through Friday). Of the 601 potential participants, 489 indicated that they were interested in participating in the focal study. Of these individuals, only those who completed both the midday and the evening surveys on at least 3 days were included in our analyses ($N = 395$). The final sample was 54.4% male, 81.5% Caucasian, had a mean age of 39.2 ($SD = 10.2$) years, and worked 41.9 hr per week ($SD = 5.6$) on average. Participants worked in various sectors, including professional,

[5] Because data were collected during the COVID-19 pandemic (November 2020), we also included several questions regarding the impact of the pandemic on the individual's work situation. Specifically, individuals were asked if they were considered an "essential worker," if their work hours had changed as a result of the pandemic, and if their work setting (i.e., inside vs. outside the home) had changed as a result of the pandemic. Responses to these questions had no influence on the results and thus are not considered further.

scientific, or technical services (15.0%); educational services (11.1%); finance or insurance (10.0%); information technology (8.8%); and health care or social assistance (8.4%).

Focal Study. Participants completed two brief surveys per day over 5 consecutive workdays. During each workday, participants received an email invitation at 11:00 a.m. (Eastern Standard Time) to complete the *midday* survey. This survey contained measures of velocity, expectancy (both SOP and SCB), frustration, and perceived utility of SCBs. The questions referenced participants' experience at work up until that point in the day. Participants were then contacted again at 5:00 p.m. to complete the *evening* survey. This survey contained a measure of the amount of SCBs in which participants had engaged during the previous 3 hr at work (i.e., since the midday survey). Both the midday and evening surveys were open for 3 hr, thereby allowing participants adequate time to respond while also isolating responses to a specific portion of the day.

Participants were paid $0.25 for each survey they completed, meaning they could earn up to $2.50 ($0.25 per survey × 5 midday surveys + $0.25 per survey × 5 evening surveys). Furthermore, we also provided bonus payments to incentivize completing as many surveys as possible. That is, participants received a daily bonus of $1.00 for each day in which they completed both the midday and the evening surveys. Therefore, participants would earn an additional $5.00 by completing both daily surveys. Also, participants who completed all 10 daily surveys received an additional $2.50. Thus, participants could earn up to $10.00 in total ($2.50 base pay + $5.00 daily bonus + $2.50 full-completion bonus). Recall that only days on which participants responded to both the midday and evening surveys are included in our analyses. On average, participants provided responses on 4.8 days (SD = .50) out of a possible maximum of five. Our final data set contained 1,614 observations nested within 395 individuals.

Measures

Velocity. We measured velocity using a three-item scale designed for this study. The items were written to measure perceived velocity relative to an internal referent. In particular, although the velocity literature is clear that individuals regulate velocity against internal standards, there is far less clarity regarding the source (or sources) of velocity referents. Thus, we wrote items to capture three potential sources of velocity referents: the velocity that is *minimally acceptable* (e.g., to reach a goal), the velocity that is *expected* (e.g., based on previous experience), and the velocity that is *desired*. Participants were asked to think about the progress they had made toward their work goals up until the current point in the day. The three items were: "Today, compared to the rate of progress that I would have considered *acceptable*, my actual rate of progress has been . . . ," "Today, compared to the rate at which I *expected* to make progress towards my goals, my actual rate of progress has been . . . ," and "Today, compared to the rate at which I *wanted* to make progress towards my goals, my actual rate of progress has been . . . ." Participants responded on a scale from 1 (*slower*) to 5 (*faster*). The average Cronbach's α reliability across all 5 days was .88.

Expectancy-SOP. We measured expectancy-SOP using Sanchez et al.'s (2000) three-item scale, which we adapted for the present study.[6] Sample items include, "If I follow standard procedures at work today I will accomplish my work tasks by the end of the day" and "If I follow standard procedures at work today I will get all my work done by the end of the day." Participants responded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Cronbach's α across all 5 days was .95.

Expectancy-SCB. We also used Sanchez et al.'s (2000) three-item scale to measure expectancy-SCB. For example: "If I take shortcuts at work today I will accomplish my work tasks by the end of the day." Participants responded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Cronbach's α across all 5 days was .97.

Frustration. We measured frustration using the same three-item scale from Peters et al. (1980) that was used in Study 1. The items were slightly adapted to fit the present study. Example items include "Today, trying to get my job done has been a very frustrating experience" and "Today, I am experiencing a great deal of frustration on my job." Participants responded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Cronbach's α across all 5 days was .93.

Utility. We measured utility using four items developed for this study. In particular, we developed items to capture perceptions of both positive *and* negative outcomes associated with SCBs. The items were "Taking shortcuts will be useful for keeping up the pace of work," "It will be beneficial to take shortcuts when working on my tasks," "Taking shortcuts will do more harm than good" (reverse coded), and "It will be a bad idea to take shortcuts when working on my tasks" (reverse coded). Participants responded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Cronbach's α across all 5 days was .90.

SCB. We measured SCBs using Jonason and O'Connor's (2017) eight-item scale, which we adapted for this study. Participants responded to the items with regards to their behaviors during the last 3 hr of their workday. Sample items included "I cut corners at work" and "I took shortcuts at work to get ahead." Participants responded on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The average Cronbach's α across all 5 days was .92.

Analysis Plan

As in Study 1, we tested our hypotheses using MSEM. We specified a model in which (a) expectancy-SOP and frustration were both regressed on velocity; (b) utility was regressed on expectancy-SOP, frustration, expectancy-SCB, the Expectancy-SOP × Expectancy-SCB interaction, and the Frustration × Eexpectancy-SCB interaction; and (c) SCB was regressed on utility (see Figure 1). We also specified the same covariances among variables as in the model tested in Study 1. Specifically, (a) the proposed mediators were allowed to covary, (b) expectancy-SOP

[6] Participants were shown the following instructions before responding to the expectancy-SOP and expectancy-SCB items: "Often, there are multiple ways to complete the same work task. For example, you might follow standard procedures. That is, you may complete the task by following the specific steps and procedures that are formally mandated by your employer. In other words, you may complete the task 'by the book.' However, you might also take shortcuts. That is, you may skip some of the steps and procedures formally mandated by your employer to save time and complete the task more rapidly. In other words, you may complete the task by 'cutting corners' on the job. Please rate the following statements regarding these two ways of completing your work tasks."

and expectancy-SCB were allowed to covary, (c) both interaction terms were allowed to covary with their constituents, and (d) both interaction terms were allowed to covary with each other. As in Study 1, significant interactions were probed using simple slopes analyses (Cohen et al., 2003), and indirect effects were tested using Monte Carlo simulations (Bauer et al., 2006; Preacher & Selig, 2012) with 10,000 replications.

Furthermore, as was done in Study 1, in Study 2, we modeled relationships among observed variables, rather than latent variables. Because we hypothesized interactions, a latent variable approach would require us to model interactions among latent variables. Yet, conventional model fit indices cannot be computed when testing models that include interactions among latent variables (Maslowsky et al., 2015; Sardeshmukh & Vandenberg, 2017). Thus, we opted to model relationships among observed (rather than latent) variables when testing the proposed model. Nonetheless, although conventional fit statistics are not available, it is still possible to evaluate the path coefficients in models containing interactions among latent variables. Importantly, this approach does not change the interpretation of any hypothesis test in the present research. These results are presented in the Supplemental Materials.

Results

Descriptive Statistics

Means, standard deviations, intercorrelations, internal consistency reliabilities, and ICC(1) for Study 2 are shown in Table 4.

Measurement Invariance

We used confirmatory factor analyses to test the measurement invariance of the scales used in Study 2. Doing so is important to ensure that participants interpreted the measures in a consistent manner across measurement periods (Vandenberg & Lance, 2000). First, we tested for *configural invariance* by specifying our measurement model (Model 1): that is, the velocity, expectancy-SOP, frustration, expectancy-SCB, utility, and SCB items were set to load onto their respective factors across all five measurement points. Like items were allowed to correlate across time, latent factors were allowed to covary, and latent factor means were set to zero. All other parameters (factor loadings, item intercepts, and residual variances) were freely estimated. Model 1 fit the data well ($\chi^2 = 4010.38$, df = 1,185, CFI = .928, RMSEA = .086, SRMR = .045), thus providing evidence for configural invariance.

Next, we tested *metric invariance* by specifying the same factor model, but with like factor loadings constrained to be equal across time (Model 2). We compared the change in fit from Model 1 to Model 2. Change in comparative fit index (ΔCFI) was used to compare models; models with ΔCFI equal or less than .002 were considered invariant (Meade et al., 2008). We used ΔCFI rather than the $\Delta\chi^2$ because the ΔCFI test has greater power and lower Type I error rates. Model 2 provided good fit to the data (χ^2 = 4076.16, df = 1,257, CFI = .929, RMSEA = .083, SRMR = .048), and fit was not significantly different from Model 1 (ΔCFI < .001) despite the increased restrictions. These results provide support for metric invariance.

We also tested several more stringent models of measurement invariance, none of which resulted in a significant decrement in model fit. These tests are presented in the Supplemental Materials. In total, the measurement invariance tests provide strong support for our measurement model. Specifically, these results indicate that our measures capture distinct constructs and that these measures were perceived consistently by participants over the course of the study.

Hypothesis Tests

Results of all hypothesis tests are summarized in Table 5. The proposed model provided acceptable fit to the data based on conventional criteria (χ^2 = 235.88, df = 13, CFI = .934, RMSEA = .103, SRMR = .079).

Hypothesis 1. Utility was positively related to SCBs ($\gamma = .39$, $SE = .03$, $p < .001$), meaning Hypothesis 1 was supported.

Hypothesis 2. Velocity was positively related to expectancy-SOP ($\gamma = .45$, $SE = .02$, $p < .001$), supporting Hypothesis 2a. Furthermore, expectancy-SOP was negatively related to utility ($\gamma = -.25$, $SE = .02$, $p < .001$), and this effect was qualified by a significant Expectancy-SOP × Expectancy-SCB interaction ($\gamma = .06$, $SE = .03$, $p = .049$; see Figure 5). However, this interaction term accounted for a very small proportion of unique variance beyond the main effects ($\Delta R^2 = .001$). Furthermore, contrary to Hypothesis 2b, the relationship between expectancy-SOP and utility was *weaker*

Table 4
Means, Standard Deviations, and Intercorrelations for Study 2

Variable	M	Min	Max	SD_B	SD_W	ICC(1)	Correlations 1	2	3	4	5	6
1. Velocity	3.16	1	5	.58	.69	.18	(.88)	.49***	−.35***	.09	−.02	−.16**
2. Expectancy-SOP	3.99	1	5	.66	.60	.38	.54***	(.95)	−.50***	.10*	−.29***	−.45***
3. Frustration	2.29	1	5	.83	.78	.35	−.52***	−.54***	(.93)	−.03	.25***	.48***
4. Expectancy-SCB	3.72	1	5	.97	.65	.58	.11***	.24***	−.15***	(.97)	.36***	.22***
5. Utility	2.53	1	5	.86	.51	.65	−.28***	−.38***	.37***	.10***	(.90)	.64***
6. SCB	2.25	1	5	.83	.56	.58	−.28***	−.37***	.36***	.00	.36***	(.92)

Note. N = 1,614 observations nested within N = 395 individuals. Between-person correlations are shown above the diagonal, and within-person correlations are shown below the diagonal. Scores were averaged within each person to compute between-person correlations. SD_B = standard deviation of between-person (i.e., aggregated) variable. SD_W = standard deviation of within-person (i.e., centered) variable. Internal consistency reliabilities were calculated by computing the mean Cronbach's α across all 5 days and are displayed on the diagonal. Expectancy-SCB = expectancy if the shortcut was used; Expectancy-SOP = expectancy if the standard procedure was used.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
MSEM Results for Study 2

Predictors	DV = expectancy-SOP						DV = frustration						DV = utility						DV = SCB					
	γ	*SE*	*t*	*p*	*LB*	*UB*	γ	*SE*	*t*	*p*	*LB*	*UB*	γ	*SE*	*t*	*p*	*LB*	*UB*	γ	*SE*	*t*	*p*	*LB*	*UB*
Velocity	.45	.02	24.72	<.001	.41	.48	−.59	.02	−24.32	<.001	−.63	−.54												
Expectancy-SOP													−.25	.02	−11.10	<.001	−.30	−.21						
Frustration													.16	.02	9.28	<.001	.12	.19						
Expectancy-SCB													.16	.02	9.32	<.001	.13	.20						
Expectancy-SOP × Expectancy-SCB													.06	.03	1.97	.049	.00	.11						
Frustration × Expectancy-SCB													.10	.02	3.97	<.001	.05	.14						
Utility																			.39	.03	15.41	<.001	.34	.44
R^2	.27						.27						.25						.13					

Note. n = 1,614 observations nested within N = 395 participants. Coefficients are unstandardized multilevel regression weights. Expectancy-SOP = expectancy if standard procedures are used. Expectancy-SCB = expectancy if shortcuts are used. Lower bound (LB) and upper bound (UB) are based on the 95% confidence interval around the estimate. MSEM = multilevel structural equation modeling; DV = dependent variable.

when expectancy-SCB was high ($\gamma = -.22$, *SE* = .03, $p < .001$) as opposed to low ($\gamma = -.29$, *SE* = .03, $p < .001$). Therefore, Hypothesis 2b was not supported. As a result, Hypotheses 2c and 2d were also not supported.

For the sake of completeness, we calculated the overall indirect effects of velocity on utility and SCB via expectancy-SOP.[7] This is the same approach as was used in Study 1. Specifically, there was a significant negative indirect effect of velocity on utility via expectancy-SOP, IE = −.112, 95% CI [−.135, −.091], as well as a significant negative *serial* indirect effect of velocity on SCB via expectancy-SOP and utility, IE = −.044, 95% CI [−.054, −.034]. In sum, the results suggest that when participants perceived slower-than-referent velocity, they felt less confident with regards to meeting their work goals by using standard procedures, perceived more utility in SCB, and engaged in more SCBs. Yet, expectancy-SCB did not strengthen these effects.

Hypothesis 3. In support of Hypothesis 3a, velocity was negatively related to frustration ($\gamma = -.59$, *SE* = .02, $p < .001$). Also, there was a significant Frustration × Expectancy-SCB interaction on utility ($\gamma = .10$, *SE* = .02, $p < .001$, $\Delta R^2 = .01$; see Figure 6). The positive relationship between frustration and utility was stronger when expectancy-SCB was high ($\gamma = .22$, *SE* = .02, $p < .001$), relative to when expectancy-SCB was low ($\gamma = .09$, *SE* = .02, $p < .001$). Thus, Hypothesis 3b was supported.

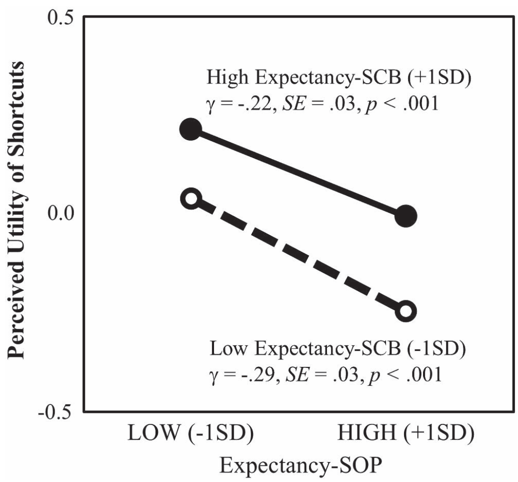
Next, as shown in Table 6, there was a negative indirect effect of velocity on utility via frustration, and this effect was stronger when expectancy-SCB was high, relative to when expectancy-SCB was low, difference = −.074, 95% CI [−.113, −.036]. Thus, Hypothesis 3c was supported. Likewise, Hypothesis 3d was also supported. Specifically, the negative *serial* indirect effect of velocity on SCB via frustration and utility was stronger when expectancy-SCB was high, relative to when expectancy-SCB was low, difference = −.029, 95% CI [−.045, −.014]. In sum, these results suggest that when participants experienced slower-than-referent velocity, they felt increased frustration, perceived greater utility in SCBs, and engaged in more SCBs. This was especially likely to occur when SCBs were perceived to be highly viable means of meeting work goals.

Discussion

Study 2 replicated key findings from Study 1 using a daily diary design. Specifically, as in Study 1, velocity influenced utility perceptions via both strategic (i.e., expectancy-SOP) and emotional (i.e., frustration) pathways, and utility was related to SCBs in turn. Study 2 also addresses some of Study 1's limitations by including a velocity measure in which participants rated their rate of progress relative to a personal referent, as well as a utility measure that referenced both the positive and negative outcomes associated to SCBs. As a whole, Study 2 shows that the results observed in Study 1 are not limited to the specific laboratory context, but rather, that

[7] Given the significant Expectancy-SOP × Expectancy-SCB interaction on utility, we also conducted these analyses separately across low and high levels of expectancy-SCB. These results are summarized in detail in the SOM. Notably, the indirect effect of velocity on utility did not differ across levels of expectancy-SCB, difference = .032, 95% C.I. [−.004, .068], nor did the serial indirect effect of velocity on SCBs, difference = .012, 95% C.I. [−.002, .027].

Figure 5
The Interaction Between Expectancy-SOP and Expectancy-SCB Predicting Perceived Utility of Shortcuts (Study 2)

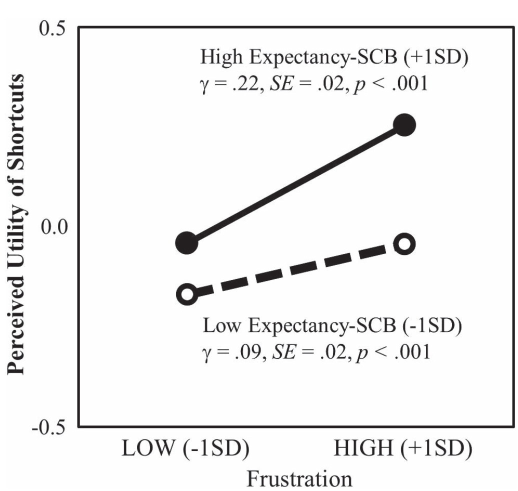


Note. Because utility was centered around each person's mean, zero refers to the person's mean perceived utility. Expectancy-SOP = expectancy if the standard procedure was used. Expectancy-SCB = expectancy if the shortcut was used.

these effects generalize to employees across a variety of different jobs.

However, as in Study 1, our predictions regarding expectancy-SOP were not fully supported. Although expectancy-SOP was negatively related to utility as anticipated, the Expectancy-SOP × Expectancy-SCB interaction was not consistent with our predictions. Specifically, the effects of expectancy-SOP on utility were *weaker* (rather than stronger) when expectancy-SCB was high, compared to when expectancy-SCB was low. Therefore, contrary to our hypothesis, in both Studies 1 and 2, expectancy-SCB did not *strengthen* the effects of velocity on utility and SCBs via expectancy-SOP. We return to this issue in the General Discussion.

Figure 6
The Interaction Between Frustration and Expectancy-SCB Predicting Perceived Utility of Shortcuts (Study 2)



Note. Because utility was centered around each person's mean, zero refers to the person's mean perceived utility. Expectancy-SCB = expectancy if the shortcut was used.

General Discussion

SCBs allow employees to complete work tasks more rapidly than standard procedures, but can also lead to undesirable outcomes, which range from the spread of foodborne illnesses (Green et al., 2007) to large-scale disasters such as the explosion of the Deepwater Horizon oil platform (Reader & O'Connor, 2014). Despite the significant workplace implications of SCBs, little research has investigated the reasons individuals take shortcuts. Drawing on theories of self-regulation (e.g., Carver & Scheier, 1998), we proposed and found across two studies that individuals engage in SCBs to regulate velocity. Furthermore, we found evidence to suggest that the experience of slow velocity leads to SCBs via both expectancy-SOP and frustration. Together, these studies indicate that SCBs are driven by cognitive *and* emotional reactions to velocity.

Theoretical Implications and Directions for Future Research

Self-Regulatory Underpinnings of SCBs

Whereas previous research has identified individual differences linked to SCBs (Jonason & O'Connor, 2017; Yan et al., 2021), as well as situational antecedents of SCBs (Dai et al., 2015; Halbesleben, 2010), few studies have examined the self-regulatory underpinnings of SCBs. As an exception, Beck, Scholer, and Schmidt (2017) demonstrated that individuals engage in SCBs to manage large workloads within stringent deadlines. We expanded on these findings by providing direct evidence that SCBs are driven by the need to increase velocity. As such, our findings corroborate arguments made within the broader self-regulation literature; beyond simply progressing toward their goals, individuals seek to maintain satisfactory rates of goal progress (Carver & Scheier, 1990, 1998). Yet, theory and research within the velocity literature have paid little attention to the specific behaviors a person may engage in response to slower-than-referent velocity. We addressed this gap by identifying the use of SCBs as one such behavior.

Speed–Accuracy Trade-Offs

The use of SCBs to regulate velocity can be considered a trade-off between speed and accuracy; SCBs increase the rate at which work can be performed, but may also lead to lower quality work and an increased risk of accidents. Although speed–accuracy trade-offs have been considered within previous research (Audia et al., 1996; Gilliland & Landis, 1992; Locke et al., 1994), this work has not been integrated with the velocity literature. However, speed–accuracy trade-offs inherently result from individuals' efforts to regulate their rate of progress, meaning velocity research likely provides important insights into speed–accuracy trade-offs. For instance, whereas previous research has shown that speed–accuracy trade-offs are often driven by strategic decision-making processes

Table 6
Indirect Effects (Study 2)

Path	Mediation IE	LB	UB
Velocity → Frustration → Utility			
Low expectancy-SCB	−.055***	−.083	−.028
High expectancy-SCB	−.129***	−.159	−.101
Velocity → Frustration → Utility → SCB			
Low expectancy-SCB	−.021***	−.033	−.011
High expectancy-SCB	−.050***	−.064	−.038

Note. n = 1,614 observations nested within N = 395 individuals. Expectancy-SCB = expectancy if shortcuts are used. Lower bound (LB) and upper bound (UB) are based on the 95% confidence interval around the indirect effect (IE). SCB = shortcut behavior.
*** $p < .001$.

(Förster et al., 2003), we demonstrate that strategic considerations cannot fully account for these trade-offs. Instead, speed–accuracy trade-offs appear to be at least partially driven by individuals' emotional reactions to slow progress. Thus, further integration of this literature is likely warranted. Incorporating the emotional processes involved in individuals' efforts to regulate velocity may lead to a more thorough understanding of speed–accuracy trade-offs.

Incorporating Additional Determinants of Utility

In this article, we considered expectancy and frustration as two determinants of the utility of engaging in SCBs. We argued that these variables served as indicators of the degree to which standard work procedures are sufficient for completing the task at hand. Said differently, expectancy-SOP and frustration could be construed as cognitive and emotional signals of the *likelihood* that a goal can be accomplished within the deadline. Yet, the perceived *value* of the goal being pursued is also likely to be an important determinant of utility (e.g., Steel & König, 2006; Tversky & Kahneman, 1992; Vancouver et al., 2010). That is, individuals may be more likely to "do whatever it takes," such as engaging in SCBs, when a highly valued outcome is on the line. Beyond value, there may be additional determinants of utility that warrant attention. For instance, Steel and König argued that utility is higher for actions that yield immediate rewards, relative to actions for which outcomes are delayed. With regard to SCBs, the benefits may be realized almost immediately. For example, skipping proper handwashing procedures may allow a restaurant employee to serve customers more rapidly. Yet, the downsides associated with SCBs may not occur until later in the future (e.g., when a customer becomes ill). Furthermore, future studies may benefit from investigating the role of individual differences (e.g., impulsiveness) that may accentuate or weaken this discounting effect (Steel, 2007).

Expectancy-SCB Did Not Strengthen the Relationship Between Expectancy-SOP and Utility

Although we hypothesized that expectancy-SCB would strengthen the negative relationship between expectancy-SOP and the perceived utility of engaging in SCBs, this was not the case in either Study 1 or Study 2. Although we did observe a significant interaction between expectancy-SOP and expectancy-SCB on utility in Study 2, the form of this interaction was the opposite of our hypothesis. That is, the relationship between expectancy-SOP and utility was *weaker* when expectancy-SCB was high, relative to when expectancy-SCB was low. However, we urge caution before interpreting this interaction. For one, as noted above, the interaction effect was quite small ($\Delta R^2 = .001$), and the negative simple slopes of expectancy-SOP on utility were similar (and statistically significant) across levels of expectancy-SCB. Furthermore, we have no theoretical reason for this pattern (indeed, we hypothesized the opposite), and this interaction was not observed in Study 1. Therefore, we believe this significant interaction term is most likely a Type 1 error, and instead focus our interpretation on the negative main effect of expectancy-SOP on utility.

Because SCBs can cause negative outcomes, we reasoned that if the goal was unlikely to be met on time even if SCBs were used, then individuals would not perceive much utility in these behaviors, regardless of whether or not standard procedures were sufficient for completing the goal on time. However, in retrospect, we realize that there may be reasons that SCBs hold high utility, even if expectancy-SCB is relatively low. In particular, when faced with the prospect of not meeting the deadline (i.e., low expectancy-SOP), SCBs may be seen as a "last ditch effort." When the standard procedures are perceived to lead to almost certain failure, SCBs may be perceived to be "worth a shot" regardless of their expected level of effectiveness. Indeed, previous research indicates that individuals become more tolerant of risks at times when facing losses and when they believe they have few alternatives (Scholer et al., 2010).

Of course, this explanation for our results implies that participants in our studies were not highly sensitive to the potential negative consequences of SCBs. This assumption may be reasonable for Study 1; as noted above, the financial penalties associated with SCBs were relatively mild. However, in Study 2, participants reported on their actual workplace behavior, meaning SCBs had the potential to be associated with serious outcomes. Nonetheless, most participants in Study 2 worked in the knowledge and service sectors. In most cases, these individuals were probably not engaged in SCBs with the potential to threaten life and limb. Thus, future research in which the (negative) valence associated with SCBs is varied may be warranted. We argue that the Expectancy-SOP × Expectancy-SCB interaction on utility is more likely to emerge when the SCBs in question can cause severe outcomes like accidents and injuries. Likewise, we anticipate the pattern of results observed in the present study when SCBs are associated with less severe outcomes (e.g., lower quality work).

Finally, it is unclear why the Expectancy-SOP × Expectancy-SCB interaction on utility did not match our hypotheses, yet the Frustration × Expectancy-SCB interaction was in line with our hypotheses and highly consistent across both studies. That is, we argued that both expectancy-SOP and frustration served as signals that the standard work procedures were not satisfactory and that an alternative approach to goal pursuit was needed. We believe that the difference in the pattern of results across these variables may be due to the precision of that signal. In particular, expectancy perceptions are relatively precise and can be verbalized. Thus, low expectancy-SOP reflects a clear belief that standard procedures are insufficient. Yet, emotions like frustration are less precise and their specific magnitude is relatively hazy (Carver & Scheier, 1998).

As a result, the effect of frustration on the perceived utility of SCBs may be more likely to be tempered by low expectancy-SCB, relative to the effect of expectancy-SOP. In other words, individuals may be more willing to act on a clear signal that standard procedures are no longer sufficient, whereas "fuzzier" signals may be more affected by additional information (i.e., expectancy-SCB). Of course, this post hoc explanation requires confirmation via additional empirical research.

Practical Implications

This research indicates that workplace SCBs may be curbed by addressing individuals' *experience* of slow velocity. One way this might be done is to implement changes that allow employees to work more rapidly, such as removing bureaucratic red tape and upgrading outdated equipment and software. Yet, we acknowledge that, in many cases, it may not be feasible to increase employees' *actual* rate of progress. Instead, organizations might seek to alter how employees *interpret* their velocity. For instance, new employees may experience slow progress while learning new work tasks and feel frustrated as a result. Although it may not be possible to simply increase these employees' actual rate of progress, organizations may instead be able to alleviate frustration by communicating that slower progress is expected during the learning process. By tempering unrealistic velocity expectations, it may be possible for employees to remain satisfied with their rate of progress and thus resist the temptation to take shortcuts.

Additionally, some workplace practices may inadvertently lead employees to form unrealistic expectations regarding the rate at which work can be completed. For instance, when employees receive training on standard work procedures, the training may occur under ideal conditions (e.g., restaurant hygiene training might occur during downtime). On the one hand, training under ideal conditions allows employees to dedicate attention to learning as opposed to other job demands (e.g., dealing with customers). However, this approach may also result in trainees forming unrealistic velocity referents that are unlikely to be attained under typical work conditions. As a result, trainees may experience slow velocity and, in turn, feel compelled to take shortcuts. Thus, it is important to consider how employees form expectations regarding velocity, as well as how organizational practices may contribute to unrealistic expectations.

Strengths and Limitations

A key strength of this research is the use of different methodologies to test our hypotheses. Specifically, we conducted an experiment in Study 1 and collected daily diary data in Study 2. Importantly, the limitations of each individual study are offset by the strengths of the other. For instance, as noted previously, a limitation of Study 1 was that its incentive structure may have provided participants with a disproportionate incentive to use SCBs, which may raise questions as to whether the results observed would generalize in more typical work settings. We addressed this limitation in Study 2 by collecting daily diary data in which employees reported on their velocity and SCBs. Nonetheless, the use of self-report measures is a limitation of Study 2, as employees may not necessarily be honest or accurate when reporting on their own use of SCBs. Moreover, daily diary studies do not allow for strong causal inferences. Fortunately, the design of Study 1 addresses those concerns, as we manipulated velocity and directly observed SCBs. In sum, the fact that we obtained nearly identical findings across two studies using very different methodologies speaks to the robustness of these results.

Conclusion

Shortcuts offer increased speed and efficiency relative to standard procedures, but can also lead to undesirable outcomes for employees, organizations, and the broader public. In spite of these outcomes, few studies have thoroughly investigated the reasons individuals take shortcuts at work. Across two studies, we found that individuals take shortcuts to increase velocity and, further, that the decision to engage in SCBs is driven by two separate and independent pathways. On the one hand, we found that individuals may take shortcuts based on a relatively strategic consideration of their likelihood of goal success. On the other hand, we also found evidence to suggest that individuals also take shortcuts to alleviate feelings of frustration. Altogether, the present studies demonstrate that the decision to engage in SCBs is determined by both strategic and emotionally laden processes. Accordingly, we encourage researchers and practitioners to consider both types of mechanisms in efforts to understand and prevent SCBs.

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