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Sharing Predictions

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In two field experiments conducted at long distance running races, we examine how sharing a prediction influences consumers predicted and actual performance. Sharing a prediction leads non-expert (expert) runners to make more ambitious predictions and perform better when they expect that their outcomes will be private (shared with others).

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Motivating Consumer Performance: Dynamics of Performance from Task-Dependent to Social Factors

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Paper #1: The Dynamics of Success: How Experiencing Success versus Failure Influences Subsequent Motivation

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Paper #2: Improving Consumer Performance by Merely Eliciting Goals

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Paper #3: Sharing Predictions

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Paper #4: Is It Always Better to Be A Big Fish in A Little Pond?

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SESSION OVERVIEW

Consumers often engage in performance activities, ranging from online games to distance running to chess. In 2014 alone, half a million Americans ran a marathon, a hundred thousand competed in the CrossFit Open, and one hundred million played games online. Despite the widespread consumer engagement with performance activities, however, the consumer literature has given scant attention to understanding the outcomes of consumer performance in these domains. The papers in this session examine how consumers' performance outcomes are predictably affected by task-related and social factors. With a combination of lab experiments, large-scale field experiments, and archival data, the papers in this session will present cutting-edge research on the psychological underpinnings of consumer performance, with an emphasis on understanding the drivers of performance and motivation. Combined, these four papers represent an important step forward in our understanding of the dynamics of consumer performance.

The first two papers in this session examine how consumers' performance may be influenced by task-related factors. First, Wei and Häubl investigate how consumers' prior experience of success or failure differentially affects their satisfaction and subsequent effort for tasks that are construed as work versus play. In four lab experiments, they demonstrate that experiencing success is more motivating than failure when a task is construed as play, whereas failure is more motivating than success when a task is viewed as work. Second, Sackett, Wu, White and Markle examine how eliciting an existing performance goal affects performance. Using a large-scale field experiment, they demonstrate that eliciting an extant goal enhances performance by abating the tendency to reduce goal ambitiousness as performance nears.

The latter two papers investigate social factors that influence consumers' performance. Kettle, Häubl, and Engeler demonstrate that sharing a performance prediction with others predictably affects one's expectations and performance. Using an intriguing set of experiments conducted in conjunction with distance running races, they show that sharing a prediction can either lead to enhanced or di-

minish performance depending on (1) the consumer's expertise and (2) whether one's eventual performance outcomes are also going to be shared. The key outcome of this research is that average (expert) consumers perform the best when they share a prediction with others whom they do not expect (fully expect) to also learn their eventual performance outcomes. Finally, Si and Dai examine how social comparison affects consumer performance. With evidence from archival data set of high school grades, they demonstrate that to be surrounded by high-achieving peers can have either a positive or negative effect on performance, depending on whether the comparison groups are chosen based on the admission score or the average of the high school period grades.

In sum, the four papers presented in this session examine factors that predict dynamics of consumers' performance, from task-dependent factors to social factors. Importantly, these factors are both theoretically relevant and grounded in real-world activities. The insights provided by these four papers enhance our understanding of consumer motivation, and can guide marketers in creating interventions that enhancing consumer motivation and satisfaction in performance activities.

The Dynamics of Success: How Experiencing Success versus Failure Influences Subsequent Motivation

EXTENDED ABSTRACT

Many of the activities that we engage in as consumers have the following properties: (1) we allocate a particular amount effort to perform the activity and (2) completion of the activity results in an observable outcome that is either distinctly favorable or distinctly unfavorable. Prior work has investigated related phenomena, such as the link between positive vs. negative feedback, approach/avoidance motivation, and regulatory focus (Förster, Grant, Idson, & Higgins, 2001) and the effect of progress feedback on goal pursuit as a function of whether the feedback signals goal commitment or goal progress (Fishbach, Eyal, & Finkelstein, 2010; Koo & Fishbach, 2008). However, the motivational dynamics associated with *repeatedly* engaging in such activities are not well understood. In particular, how does experiencing a favorable outcome (i.e., "success") vs. an unfavorable outcome (i.e., "failure") of an activity influence our motivation when we perform that activity again?

We theorize that an important factor that governs the nature of these motivational dynamics is whether an activity is construed as *work* or *play*. We conceptualize a *work* activity as one that has a narrow focus on the key favorable *outcome* that one strives to achieve (i.e., outcome-orientation), and a *play* activity as one that is driven largely by the enjoyment of the *process* of engaging in the activity (i.e., process-orientation) (Csikszentmihalyi, 1990; Glynn, 1994; Sandelands, 1988). We propose that, under outcome-orientation, the experience of success vs. failure is encoded as a signal of how difficult it is to complete the activity successfully. Thus, we hypothesize that failure is more motivating (than success) in work as it indicates that this activity is more challenging and requires greater effort. By contrast, we argue that, under process-orientation, the experience of success or failure is encoded as a signal of one's competence over an activity. Consequently, we hypothesize that success is more motivating (than failure) in play because it indicates greater competence at

performing this activity. To recap, we propose that failure is more motivating than success when an activity is construed as work, whereas success is more motivating than failure when an activity is construed as play.

We present evidence from four experiments that were designed to test this theorizing. Each of these employed a paradigm that captures the essential properties of the type of activities that we examine. Participants allocate a particular amount effort to an activity, which has an observable binary outcome that is either favorable (success) or unfavorable (failure). This is implemented as a computer-based “Red Ball Task” in which the participant has a bowl that (ultimately) holds a combination of two types of balls – red and white. At the end of a round of this task, one of the balls in the bowl is drawn randomly. The draw of a red ball indicates success, and a white ball means failure. These outcomes are conveyed to participants in the form of a large smiling/crying emoticon, accompanied by the word “Success/Failure,” appearing on the screen. At the start of a round, the bowl contains 30 white balls and no red balls. Participants may add red balls, one at a time, by clicking them as they appear on the screen for 1000ms. Once a participant has stopped adding red balls, the outcome – success or failure – is determined via a random draw from the bowl. Thus, greater effort increases the probability of achieving success, but the marginal returns to effort diminish, and no amount of effort is sufficient to guarantee success. Participants complete two rounds of the Red Ball Task. In the first round, they are required to add 30 red balls to the bowl, resulting in an equal likelihood of success and failure. In the second round, participants are free to add as many red balls as they wish. The number of red balls added serves as the measure of participants’ motivation to achieve success in this activity.

Experiment 1 was designed to test the hypothesized interaction effect between whether an activity is construed as work or play and whether engaging in the activity previously resulted in success or failure on motivation. A total of 315 participants were randomly assigned to the conditions of a 2 (activity type: work vs. play) × 2 (prior outcome: success vs. failure) between-subjects design. Activity type was manipulated by informing participants that the Red Ball Task they were about to perform two rounds of was either a work or play task. The results reveal a significant interaction effect ($p = .017$) such that, as predicted, failure was more motivating than success in the work condition, and success was more motivating than failure in the play condition. Moreover, mediation analyses show that, in the work condition, failure increased motivation via the perception of greater task difficulty, whereas in the play condition, success increased motivation via enhanced feelings of competence.

In Experiment 2, we conceptually replicate the above findings using a direct manipulation of outcome- vs. process-orientation, suggesting that the different motivational dynamics under work vs. play are driven by the contrast between these two orientations. Experiment 3 provides a more direct examination of the motivational dynamics of success vs. failure for work activities by showing that the motivating effect of failure vanishes if that outcome is uninformative about the difficulty of the upcoming activity. Finally, Experiment 4 more closely examines the underlying psychological process for play activities by demonstrating that the motivating effect of success is no longer observed if that outcome is uninformative about one’s competence.

Evidence from four experiments supports our theorizing about the motivational dynamics associated with the experience of success vs. failure. Whether an activity is construed as work or play is a critical factor in understanding these dynamics. For work activities, experiencing failure (rather than success) increases our motivation to

achieve success when we perform these activities again in the future. By contrast, for play activities, experiencing success (rather than failure) is more motivating.

Improving Consumer Performance by Merely Eliciting Goals

EXTENDED ABSTRACT

Goal-setting interventions have been widely adopted to improve consumer and organizational behavior (e.g., Ordóñez et al., 2009; Pervin, 1989; van Houwelingen & van Raaij, 1989). However, such interventions typically involve an external source imposing a goal or explicitly encouraging individuals to make existing goals more ambitious or specific. In either scenario, externally-induced goals must overcome numerous barriers. Consumers may have already established a goal and thus might resist outside efforts (Ashforth, 1989; Brehm, 1966). Outsiders might lack the access, authority, credibility, or knowledge to successfully establish effective external goals.

We propose that external sources can improve consumers’ performance by instead targeting “self-set” goals—goals that individuals establish for themselves—and test a simple method of doing so: merely asking individuals about their existing goals while performance is temporally distant. Why would this improve the performance of consumers who already use goals to motivate themselves? We identify two plausible explanations supported by psychological research and theory: (1) *goal commitment*, whereby consumers asked to report a (preexisting) goal become more motivated to achieve that goal than do consumers who are not asked to report a goal, and (2) *temporal optimism*, whereby consumers asked to report a (preexisting) goal when performance is temporally distant end up with more ambitious goals at the time of performance than do consumers who are not asked to report a goal, because reporting goals “locks in” goals that would otherwise be revised downward over time.

Whereas both the temporal-optimism and goal-commitment accounts predict better performance as a result of merely asking about goals, the goal-commitment account predicts that consumers will be more committed to the same goal if they do report the goal in advance than if they do not. In contrast, the temporal-optimism account predicts that consumers will end up with different goals altogether at the time of performance, depending on whether or not they report their preexisting goal when performance is temporally distant.

When selecting a context in which to test our intervention, we sought a domain in which goals and performance are highly relevant, measurable, and standardized, and in which consumers are accessible for research participation. One domain met all of our criteria: marathon running. We report data from 1,758 marathoners who participated in a field experiment consisting of two online surveys separated by marathon performance. Participants were randomly assigned to one of two pre-marathon survey conditions. In the *goal-not-asked* condition, participants were asked for information about their demographic and running background, but not about goals. In the *goal-asked* condition, participants were asked to report the same information as the goal-not-asked participants, plus information about their time goal if they had one. In the post-marathon survey, runners who reported having time goals stated their numeric goal and rated the importance of that goal. Finally, for each participant, we matched our survey results with official finishing times and intermediate times such as the half marathon.

Our manipulation had no significant effects on novice marathoners (i.e., those who had run no more than one previous marathon), so the analyses below focus on experienced runners. Among experienced runners, our manipulation led to significantly faster

marathon performance ($M = 8.13$ min), $t(928) = 2.90$, $p = .004$, controlling for marathon run, gender, and age. This result is robust, remaining significant for various definitions of “experienced marathoners,” specifications that included different combinations of controls or no controls, elimination of outliers, log transformations of finishing time, etc. Consistent with a temporal-optimism explanation, our manipulation also produced goals that were 8.48 minutes more ambitious, $t(662) = 3.29$, $p < .001$. The effect on goals mediated the effect of our manipulation on performance (bootstrapping with 50,000 iterations, 95% CI: [4.54, 14.79]). To put the effect of our manipulation in perspective, asking a runner to provide a goal prior to the marathon provided an advantage that was equivalent to either: (i) having a 13.51-minute (or 5.5%) faster lifetime best marathon; (ii) increasing training by 13.5% (from 35 to 39.7 miles per week); or (iii) setting the clock back 9 years (the difference between a 42- and a 33-year-old runner).

This intervention has broad potential. We expect that its impact extends beyond the specific domain of marathon running or athletics more generally. Conceptually, this intervention should be effective in domains in which goals are relevant, performance can be measured objectively, and performance is episodic rather than chronic. For example, we would expect to see similar effects in many academic, health, personal finance, and workplace performance settings.

Perhaps surprisingly, our intervention was effective in a context in which performers have already established goals. By contrast, most previously-demonstrated goal interventions work through externally-induced goals, where, for reasons discussed earlier, the prior existence of self-set goals is a likely impediment to the effectiveness of such interventions. However, we suspect that our intervention is not limited to contexts in which people already have goals in mind. Consistent with past research, asking people about goals when goals have not yet been set should also increase performance (Greenwald et al., 1987; Levav & Fitzsimons, 2006; Morwitz et al., 1993). However, such effects likely operate through very different psychological processes.

There is a growing emphasis within the behavioral sciences on finding small, low-cost, easy-to-implement interventions that can meaningfully impact consumer behavior and either individual or collective well-being (e.g., Bryan, Walton, Rogers, & Dweck, 2011; Greenwald et al., 1987; Johnson & Goldstein, 2003). We suggest that the present investigation shares many features with other exemplars from this growing literature. Like the “Save More Tomorrow™” retirement savings intervention (Thaler & Benartzi, 2004), our findings reveal a way in which advance commitment can lead to quantifiably better future individual outcomes. Like studies in which highlighting social norms increases environmental conservation (Goldstein, Cialdini, & Griskevicius, 2008), our intervention is brief, simple, and effective. It is our hope that our basic intervention will facilitate better individual and organizational performance across a wide variety of domains, with minimal costs of implementation.

Sharing Predictions

EXTENDED ABSTRACT

Shared predictions are integral to many consumption activities. For instance, some organizations have individuals explicitly share personal goals with a group (e.g., CrossFit, Anthony Robbins Inc.), whereas other organizations providing on-line support groups, enable individuals to make public forecasts while their actual performance outcomes are kept private (e.g., Daily Strength, Weight Loss Buddy). Despite the ubiquity shared predictions in performance domains, however, it is not known if sharing a prediction affects performance.

As a social behavior, a shared prediction of one’s own future performance can be used to convey different qualities about oneself. A more ambitious prediction can suggest that one is skilled and confident (Dunn et al. 2007), whereas a less ambitious prediction may convey one’s modesty (Tice et al., 1995). Building on prior work on impression management, we hypothesize that a shared prediction may be more or less ambitious depending on the social context in which it is made. Further, we argue that ambitious predictions set expectations that direct behavior (Buehler et al. 2010) and that ambitious predictions enhance performance when the outcome is under personal control.

In particular, we examine two factors that influence the social context: (1) whether one’s eventual performance outcomes are also going to be shared and (2) where the consumer is an expert in the performance domain. Our key proposition is that sharing predictions will have opposing effects for expert versus non-expert consumers. In particular, for non-expert (expert) consumers, sharing predictions leads to more ambitious predictions – and enhanced performance – when it is expected that eventual performance outcomes are unobservable (observable) to others. We tested our predictions in two field experiments in which over 300 distance runners shared a prediction of their performance before completing a race.

Experiment 1 was conducted in conjunction with a major marathon. Four months prior to the race, we recruited runners to participate. Using an only interface, we randomly assigned them to small groups (with runners they did not previously know). We independently manipulated (at a between-group level) whether the runners would share their race time prediction with their group members, and whether they expected their outcome would also be shared with fellow group members. As hypothesized, sharing their prediction led non-expert (expert) consumers to make more ambitious predictions – and subsequently perform better – precisely when they expected their performance outcome would be unobservable (observable) to others in the group. Predicted performance fully mediated the interactive effect of prediction (and outcome) sharing on performance.

In experiment 2, we intercepted individual runners in the waiting area immediately prior to a race. We randomly assigned them to small groups (with runners they did not previously know), and had them share their race time prediction with their group members. We manipulated (at a between-group level) whether the runners expected their outcome would also be shared with fellow group members. We then asked each participant to complete a short survey prior to the race, and we observed their performance in the race. Consistent with the results of experiment 1, expert (non-expert) runners made more ambitious predictions – and subsequently performed better – in the shared (private) outcome condition, and the predicted performance fully mediated the effect of expected outcome sharing on performance.

The present research is the first to examine how sharing a prediction affects performance, and is the first to show that the social context in which a prediction is made influences both the predicted and the actual level of performance. In doing so, we contribute to prior research on the effect of social context on performance (Baumeister, 1984) and recent work on the relationship between predicted performance and actual performance (Armor & Sackett, 2006; Kettle & Häubl, 2010) in two important ways: (1) the present work is the first to identify the social context in which predictions are expressed (and performance outcomes are observed) as a critical factor in understanding the interplay between predictions and performance; and (2) we contribute to literature that examines performance in a social context by demonstrating asymmetrical motivational effects of prediction sharing for consumers with low vs. high expertise.

Is It Always Better to Be A Big Fish in A Little Pond?

EXTENDED ABSTRACT

In the present research we utilized archival data of 4,005 high school students' actual academic performances to provide a critical and unique re-examination of the Big-Fish-Little-Pond-Effect (BFLPE). Our analyses have revealed two interesting and seemingly opposite findings: first, consistent with the BFLPE, we found that students who had the worst average high school performance in the high-ability classes underperformed substantially as compared to students who had the best average high school performance in the low-ability classes. Second, and more importantly, we found that *despite the nearly identical level of performance on high school entrance exam*, students who had the lowest entrance exam scores in the high-ability classes outperformed significantly than students who had the highest entrance exam scores in the low-ability classes during the course of high school. In the following text, we briefly introduce the literature and report the major findings of the present research.

The various antecedents and consequences of social comparison reflect one of the most dynamic aspects of human psychology and have long been a keen focus in behavioral research (Suls and Wheeler 2000). One important and universal finding from the field of educational psychology is what may be termed the 'Big-Fish-Little-Pond-Effect' (BFLPE), in which results from different studies using a variety of student samples have converged to show that students in low-ability schools have higher academic self-concept than their equally able counterparts in high-ability schools (Marsh and Parker 1984).

The BFLPE may reflect one or both of the following tenets in social comparison research—that downward comparison is self-enhancing whereas upward comparison is somewhat self-derogating (Wheeler and Miyake 1992). However, research in social comparison has demonstrated that neither positive nor negative consequence is invariably associated with a certain direction of comparison and a plenty of studies have documented both the benefits of upward comparison and the disadvantages of downward comparison (see Alicke, Zell, and Guenther 2013; Suls and Wheeler 2000).

Therefore, it seems that in the classroom context, the BFLPE may only be a partial and incomplete reflection of the complex consequences resulting from social comparison (Huguet et al. 2009). Our research therefore aims to gain a deeper understanding of the BFLPE and offers a new perspective from which this seemingly universal phenomenon may need to be reconsidered.

The archival data consists of the actual exam scores of students from a high school in China. The data includes the students' scores of the high school admission exam, all major exams (midterms and finals) during the three-year period of high school, and the college entrance exam (which is the sole criterion of college admission). The school implemented the streaming of elite versus non-elite classes from year 2003 to year 2007 and the data includes the exam scores of all the five cohorts of students admitted under this streaming policy. On average about 100 students with the highest admission exam scores were mandatorily recruited into two elite classes in each cohort. All scores have been properly standardized within cohort and we have pooled over the scores of students from all five cohorts when conducting the subsequent analyses.

Of the most important feature of the current analyses, we conducted two groups of comparisons between the last tiers of students in the elite classes (hereafter referred to as the 'last tiers') and the top tiers of students in the non-elite classes (hereafter referred to as the 'top tiers'). The two groups of comparisons differed crucially in

how we defined the last and top tiers of students in the two streams of classes—we first defined the last and top tiers *by students' average high school performance* (i.e., the average of standardized high school exam scores), and we next defined the last and top tiers *by students' scores of the high school admission exam*.

The results of the first group of comparisons are consistent with the BFLPE: despite the relatively big disparity in admission exam scores as compared with the last tiers, the top tiers had consistently outperformed their counterparts in the elite classes to a considerable extent on both the average high school performance and the college entrance exam. Our results indicate that the average performance of over half of the students in the elite classes was significantly inferior to the average performance of the top-50 students in the non-elite classes. This is a strong demonstration of the BFLPE.

The results of the second group of comparisons show the exact opposite pattern: the last tiers of the elite classes had outperformed the corresponding top tiers of the non-elite classes significantly on both the average high school performance and the college entrance exam. The results may be particularly striking and meaningful when the difference of the admission exam scores between the tiers is considered. For example, the average mean difference of admission exam score between the last- and top-5 students across the five cohorts is merely 1.4 points, whereas the average range of the admission scores is about 400 points. We can thus consider these students to have equivalent academic ability upon admission but the nearly 'random' assignment of these students to different streams of classes according to an arbitrary cutoff had developed substantially significant differences on their average high school performance and their performance on the ultimate college entrance exam.

Our first group of comparisons contributes to the literature by demonstrating BFLPE's consequences on actual academic performance. However, importantly, our second group of comparisons suggests a strong positive motivational effect of being in the high- versus low-ability academic unit that could totally reverse the BFLPE. The current findings suggest the need of a critical re-examination of the BFLPE: whereas the student's perceived relative standing in the academic unit drives the BFLPE (Huguet et al. 2009; Marsh and Parker 1984), the motivational benefits of being in the high- versus low-ability academic unit could also have important and substantial impacts. Future research is needed to develop a more coherent account of the current findings.

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