Scarcity and the Intrinsic Motivation to Learn
Yuechen Wu, University of Maryland, USA
Meng Zhu, Johns Hopkins University, USA

How does a scarcity (vs. abundance) mindset impact the origination of consumer motivation when no external contingencies are provided? Four experiments demonstrate that scarcity salience hinders the origination of intrinsic motivation, an effect that is mediated by the sense of psychological freedom and moderated in the presence of external rewards.

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Why Aren’t We Intrinsically Motivated Enough?  
Novel Insights into the Origination and Expression of Intrinsic Motivation  
Chairs: Yuechen Wu, University of Maryland, USA  
Meng Zhu, Johns Hopkins University, USA

**Paper #1: Scarcity and the Intrinsic Motivation to Learn**  
Yuechen Wu, University of Maryland, USA  
Meng Zhu, Johns Hopkins University, USA

**Paper #2: The Dual Effect of Subjective Busyness on Consumer Motivation**  
Keith Wilcox, Columbia University, USA  
Juliano Laran, University of Miami, USA

**Paper #3: Process versus Outcome: How Envy and Goal Framing Affect Motivation**  
Anthony Salerno, University of Cincinnati, USA  
Juliano Laran, University of Miami, USA  
Chris Janiszewski, University of Florida, USA

**Paper #4: Underestimating the Importance of Expressing Intrinsic Motivation in Job Interviews**  
Kaitlin Woolley, University of Chicago, USA  
Ayelet Fishbach, University of Chicago, USA

**SESSION OVERVIEW**

Intrinsic motivation, which involves an individual engaging in a behavior purely because the activity itself is interesting and/or spontaneously satisfying (Deci and Ryan 2000), is a fundamental drive of human behavior, profoundly affecting consumers’ persistence, performance and well-being in the process of goal pursuit. As such, over the past decades, intrinsic motivation has received much attention from various disciplines. Researchers have made considerable progress in understanding how the effective functioning of intrinsic motivation is affected by extrinsic motivators, such as threats of punishment (Deci and Cascio 1972), deadlines (Amabile et al. 1976), rewards (Deci 1971) and monitoring measurements (Etkin 2016). Yet, our understanding of the psychological, emotional, and social determinants of intrinsic motivation remains limited.

The proposed session highlights the newest research on how the everyday feelings of scarcity and busyness and our tendencies towards social comparison and impression management might undermine intrinsic motivation. In an attempt to gain a better understanding of why we are not intrinsically motivated enough at times, four papers examine how and when the origination and expression of intrinsic motivation is hindered by resource scarcity (vs. abundance), subjective busyness (vs. non-busyness), malicious (vs. benign) envy, and the interviewee (vs. interviewer) role.

The first three papers examine how the origination of intrinsic motivation is affected by the psychological states of scarcity, busyness and envy, respectively. Wu and Zhu show that a general sense of resource scarcity (vs. abundance) hinders the origination of intrinsic motivation to learn by thwarting consumers’ psychological freedom. Scarcity’s negative effect on intrinsic motivation is mitigated by fulfilling the psychological freedom via choice. Wilcox and Laran demonstrates that the subjective feeling of busyness decreases intrinsic motivation because the perception of having many things to do makes consumers uncertain about their ability to accomplish their objectives, an effect that reverses when consumers overcome this uncertainty. Next, Salerno, Laran and Janiszewski examine how the social emotion envy impacts people’s intrinsic motivation. Whereas malicious envy orients people towards extrinsically-motivated outcomes, benign envy increases people’s intrinsic motivation to exert effort. Finally, expanding our understanding of the interplay between social environments and intrinsic motivation, Woolley and Fishbach examine the expression of intrinsic motivation in the job interview context. The authors find that job candidates tend to underestimate how much others are impressed by their expressions of intrinsic motivation, and therefore choose suboptimal pitches that fail to express their intrinsic motivation during job interviews.

Taken together, the four papers (all in advanced stages) in this session provide novel insights into when and why consumers might lack, or fail to express, intrinsic motivation, suggesting multiple ways to enhance intrinsic motivation, such as increasing psychological freedom, overcoming feelings of uncertainty, and eliciting benign envy. As the session integrates diverse research to highlight newest theoretical developments in this important yet understudied area, it is expected to appeal to a broad audience, including researchers interested in goals and motivation, scarcity and resource constraints, emotion, social interactions, and consumer judgment and decision making.

**Scarcity and the Intrinsic Motivation to Learn**

**EXTENDED ABSTRACT**

While resource abundance has emerged as the norm in modern, industrialized societies, consumers are frequently exposed to contextual cues that may remind them of resource scarcity (Laran and Salerno 2013; Mehta and Zhu 2016; Zhu and Ratner 2015). In this paper, we examine how a scarcity (vs. abundance) mindset impacts consumers’ intrinsic motivation to learn (i.e., doing a behavior because of one’s internal volition rather than external contingencies; Black and Deci 2000; Deci and Ryan 2000, 2008; Vansteenkiste et al. 2004). For example, will individuals with a scarcity (vs. abundance) mindset exert more or less effort to learn in the absence of financial incentives? Will consumers people under scarcity (vs. abundance) enjoy learning more or less, or be more or less interested in intrinsically-rewarding learning materials?

Building on prior research suggesting a possible connection between scarcity and low psychological freedom (Haushofer and Fehr 2014; Mittal and Griskevicius 2014; Mehta and Zhu 2016), and a well-established linkage between the satisfaction of psychological needs to act freely and the origination of intrinsic motivation (e.g., Black and Deci 2000), we propose that a scarcity (vs. abundance) mindset lowers individuals’ psychological freedom, which consequently hinders the intrinsic motivation to learn. We test our hypotheses in four experiments.

Experiment 1 examined the main thesis that a scarcity (vs. abundance) mindset undermines the intrinsic motivation to learn. Participants were first asked to recall incidents where they either felt they did not have enough resources (“scarcity” condition) or had plenty of resources (“abundance” condition; Fischhoff et al. 2003; Mehta and Zhu 2016; Roux et al. 2015). Next, all participants were given a learning task where they could read and learn about forty festivals in different countries. Participants read one festival description at a time (each festival was presented on the screen for a fixed duration), and they could stop the task whenever they wanted to. The number of the festival descriptions read served as the measure of intrinsic mo-
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...ivation. Supporting our hypothesis, participants in the scarcity (vs. abundance) mindset condition read a significantly smaller number of festivals, and spent significantly less time on the task.

Experiment 2 tested the proposed mediating role of psychological freedom in the relationship between scarcity mindset and the intrinsic motivation to learn. Participants first read a fictitious news article that was either about the scarce supply of natural resources (“scarcity mindset” condition) or the growing abundance of natural resources (“abundance mindset” condition). Next, participants responded to the measures examining the satisfaction of psychological freedom (Chen et al. 2015). Finally, all participants completed a joke-learning task in which they read and rated ten jokes (each of which was presented on the screen for a fixed duration; Woolley and Fishbach 2015). As a measure of the decreases of intrinsic motivation to learn, we assessed the extent to which participants perceived the joke-learning task as an obligation to work (Laran and Janiszewski 2011). As predicted, participants in the scarcity (vs. abundance) mindset condition were more likely to perceive the learning task as an obligation to work, which was mediated by the lower psychological freedom associated with a scarcity (vs. abundance) mindset.

The last two studies provided further evidence for the proposed mechanism of psychological freedom. If scarcity impacts the intrinsic motivation to learn through psychological freedom, we should be able to moderate this effect by experimentally threatening (experiment 3) or fulfilling participants’ psychological freedom (experiment 4). Experiment 3 manipulated both scarcity (vs. abundance) mindset and the presence of psychological freedom threat. Specifically, participants first completed the scarcity mindset manipulation as used in experiment 2. Next, participants in the “freedom threat” condition were asked to recall three situations where they felt forced to do things they would not otherwise choose to do, whereas those assigned to the “control” condition were asked to list three activities they did in the past week. Finally, all participants read ten festival descriptions that were randomly chosen from a festival book. The maximum amount of money that participants were willing to pay for this book ($0-$100) served as a proxy of the intrinsic motivation to learn. As predicted, in the “control” condition where the psychological freedom was not threatened, participants’ willingness-to-pay for the book in the scarcity (vs. abundance) mindset condition was significantly lower; this difference disappeared when psychological freedom was experimentally threatened. In addition, consistent with our theorizing, participants in “abundance mindset” conditions were willing to pay less for the book when their psychological freedom was threatened versus not threatened.

The last experiment manipulated the fulfillment of psychological freedom in addition to a scarcity (vs. abundance) mindset to further test the mechanism. Specifically, participants first completed the scarcity mindset manipulation as used in experiments 2-3. Next, participants were asked to read a sample of a magazine that introduced products launched in the market. In the “freedom-fulfillment” condition, participants could choose a magazine issue they would like to read amongst four options. In the “control” condition, the computer randomly chose one of the four magazine issues for the participants to read. All participants then read the same ten product descriptions.

Enjoyment of the learning task and participants’ interests in signing up for a free subscription of the magazine were used to assess the intrinsic motivation to learn. As predicted, in the “control” condition where the psychological freedom was not fulfilled, participants’ enjoyment and interests in signing up for the magazine in the scarcity (vs. abundance) condition were significantly less; this difference disappeared when psychological freedom was experimentally fulfilled. In addition, participants in “scarcity mindset” conditions enjoyed the learning task more and were more interested in signing up for the magazine when their psychological freedom was fulfilled versus not fulfilled.

Collectively, we demonstrate that a scarcity (vs. abundance) mindset lowers psychological freedom, which in turn undermines the intrinsic motivation to learn. These effects are moderated when consumers’ psychological freedom is experimentally threatened or fulfilled.

The Dual Effect of Subjective Busyness on Consumer Motivation

EXTENDED ABSTRACT

Consumers are increasingly living busy and active lives. Busyness has become an endemic aspect of modern society as the past several decades have seen a significant increase in self-reported busyness (Sullivan 2008). Previous research examining the relationship between busyness and task-related outcomes finds that being busy often has a negative impact on people’s ability to successfully achieve tasks. In this research, we offer another perspective on how busyness can impact task outcomes by examining how the psychological state of feeling busy influences consumers’ willingness to adapt and complete tasks (i.e., task motivation).

We conceptualize busyness as a subjective state that results from individuals’ assessment of their current and expected level of activity (Wilcox et al. 2016). Although this assessment is influenced by the amount of time people are engaged in activity, it is primarily determined by the perceived density of activity, such as the frequency and variety of tasks, relative to expectations (Gershuny 2005). Consequently, people feel busier when they recognize that they have many (vs. few) tasks to complete. We propose that the difficulty associated with completing many (vs. fewer) tasks underlies the influence of feeling busy on task motivation.

Specifically, we contend that subjective busyness can make consumers both less and more willing to perform certain activities. Subjective busyness can decrease task motivation because the difficulty associated with having many things to do makes consumers uncertain about their ability to accomplish their objectives. However, busyness can increase task motivation when consumers overcome this uncertainty. In these cases, those who feel busy demonstrate higher willingness to perform tasks compared to those who feel less busy. This effect is driven by busy people finding it more intrinsically motivating to perform effortful tasks.

The objective of study 1 was to demonstrate that subjective busyness makes individuals more uncertain about their ability to accomplish a focal task. We induced individuals to feel busy (vs. not) by showing them advertisements that prime feelings of busyness prior to measuring how uncertain they were about their ability to complete a task. We employed two measures of confidence. The first asked participants to set a self-imposed deadline for completing the task. The payment was structured in such a way that they would receive a lower payment for setting a longer deadline. The second was a direct measure of how confident they were that they would complete the task. As predicted, busy participants were less confident in their ability to complete the task compared to those who were not busy. Specifically, busier participants set longer deadlines (at a lower payment) and self-reported feeling less confident that they would meet the deadline.

The purpose of study 2a was to show that subjective busyness reduces task motivation as a result of people’s uncertainty about their ability to accomplish tasks. We manipulated busyness by having participants list ten vs. three tasks on their “to do” list. We then
asked participants about their willingness to engage in a common task: shopping. Specifically, we assessed their motivation to go to the store to take advantage of a sale on new appliances. As busyness should make participants more uncertain about their ability to get to the store, we expected that participants in the busy condition would be less motivated to participate than those in the not busy condition. As expected, busy participants indicated that they were less motivated to go shopping, an effect mediated by task confidence. Study 2b replicated the findings using the same advertising manipulation from study 2a. As a measure of motivation, we assessed their willingness to pay for a gift card that could only be redeemed in store.

The primary purpose of study 3 was to demonstrate that when task uncertainty is attenuated, consumers who feel busy become more motivated to perform a task than those who feel less busy. Our theory suggests that people reduce their task motivation when they feel uncertain about achieving an outcome because failure is a threat that is emotionally painful. Thus, in study 3 participants were primed (vs. not primed) to cope with their uncertainty by detaching themselves from the situation (Greco and Roger 2001). Consistent with previous studies, when participants were not instructed to detach themselves from the situation, busyness lowered motivation, an effect mediated by task uncertainty. However, when people were instructed to detach themselves from the situation they displayed greater motivation.

In study 4, we sought to demonstrate that the reversal of the effect of busyness on task motivation when participants overcome their uncertainty is driven by an increase in how intrinsically motivating they find performing the task to be. To accomplish this, we manipulated task uncertainty by giving people false feedback that they were either good or not good at getting tasks accomplished. When participants were told that they were not good at getting tasks accomplished, busyness reduced motivation. However, when participants were told that they were good at getting tasks accomplished, which made them more certain about their ability to accomplish tasks, busyness increased motivation. This effect was driven by participants finding it intrinsically satisfying to complete the focal task.

By advancing our understanding of busyness as a subjective state this research makes several contributions. First, previous studies on busyness have primarily relied on measures and manipulations of objective workload (i.e., number of tasks actually performed; e.g., Parkes 1995), which makes it impossible to isolate the effects of feeling busy from those that emerge from actually executing many activities. We show that subjective busyness can influence task motivation independently of objective workload by holding the actual level of activity constant. Second, we demonstrate that busyness does not always have a negative effect on task-related outcomes and that how people think about busyness determines its effect on task motivation. Finally, understanding how subjective busyness affects behavior has an array of implications, as companies may be able to use marketing communication to influence consumer purchasing behavior via their perceptions of busyness.

**Process versus Outcome: How Envy and Goal Framing Affect Motivation**

**EXTENDED ABSTRACT**

Envy occurs from a negative social comparison with another individual who holds a superior advantage on some desired quality, achievement, or possession (Parrott and Smith 1993). Envy is a self-conscious emotion that is cognitively complex and multifaceted in its experience (Crusius and Mussweiler 2012). Benign envy is said to happen when a person is envious towards another but perceives that the superior advantage of the envied individual is deserved, whereas malicious envy arises when the envious individual believes that the superior advantage of the envied individual is undeserved (Crusius and Lange 2014; Van de Ven, Zeelenberg, and Pieters 2011a).

Prior investigations into people’s motivational responses to envy have led to the consensus that benign envy motivates goal pursuit whereas malicious envy does not (Lange and Crusius 2015; Van de Ven, Zeelenberg, and Pieters 2011b). The current research challenges this conclusion by considering how each type of envy might affect goal pursuit differently, depending on how the goal under consideration is interpreted. We find that both envy facets potentially motivate goal pursuit. However, for this to occur, the goal must be framed in a way that matches the underlying motivational orientation of each envy type. Specifically, when benign envy is experienced, people are more motivated to pursue goals that are framed to emphasize the process (i.e., what you need to do to pursue the goal) of goal pursuit. This preference occurs because benign envy orients people towards intrinsically-motivated behaviors (i.e., exerting effort), and a goal highlighting the process of goal pursuit fits with that orientation. By contrast, malicious envy leads people to become more motivated to pursue goals that are framed to emphasize the outcome (i.e., what results you derive from goal attainment) of goal pursuit. This preference occurs because malicious envy orients people towards extrinsically-motivated behaviors (i.e., obtaining rewards), and a goal highlighting the outcome of goal pursuit fits with that orientation. We tested these predictions in four studies.

Study 1 examined the pursuit of a health goal, using a 3 (emotion: control, benign envy, malicious envy) x 2 (goal frame: process, outcome) between-subjects design. Participants in the benign (malicious) envy condition were told that they were suspicious of having a health problem (process condition) or “helping people achieve their health goals” (outcome condition). Results showed a significant interaction between the emotion and goal frame factors (F(2, 178) = 6.67, p < .01). Participants in the benign (malicious) envy condition were more interested in the multivitamin when framed in terms of the process (outcome) of one’s health goal.

Study 2 found that the emotional experience of envy is necessary for the differences in desiringsness between benign and malicious envy to exert an influence on goal pursuit as a function of goal framing. We examined this issue based on research showing that people’s trust in their emotions shapes their emotional experience (Avnet, Pham, and Stephen 2012), using a 2 (emotion: benign envy, malicious envy) x 2 (trust in emotions: high, low) x 2 (goal frame: process, outcome) between-subjects design. Participants in the benign (malicious) envy condition were made to feel envy based on the job offer of a fellow student that was deserved (undeserved). Next, participants were manipulated to either trust their emotions (high trust) or not (low trust). Participants then completed the consumer preference task in study 1. Results revealed a significant interaction among the emotion, trust in emotions, and goal frame factors (F(2, 178) = 6.67, p < .01). The high trust in emotions condition replicated the results of study 1. In the low trust in emotions condition, participants in the benign (malicious) envy condition were no longer more interested in the multivitamin regardless of whether it was framed in terms of the process (outcome) of one’s health goal.

Study 3 provided evidence for the hypotheses that benign (malicious) envy is driven by an underlying intrinsic (extrinsic) motivation to exert effort (obtain rewards). We examined these hypotheses during the pursuit of an academic goal, using a 2 (emotion: benign envy,
Understanding the Importance of Expressing Intrinsic Motivation in Job Interviews

EXTENDED ABSTRACT

To successfully sell yourself in a job interview, what qualities should you highlight to impress the recruiter and secure a job offer? You clearly want to make a good impression, but knowing what others find impressive is not straightforward, especially in recruitment situations where attentional resources for perspective taking are limited (Apperly et al. 2006; Vorauer et al. 2009). Obviously, you should state your skills, ambitions and long-term goals – your extrinsic motivation. But to what extent should you also emphasize your intrinsic motivation—that you value interesting, fun work?

Intrinsic motivation refers to pursuing an activity because the process is rewarding, and is contrasted with extrinsic motivation where people work to achieve an outcome for which their work is instrumental (Etkin 2016; Fishbach and Choi 2012; Laran and Janiszewski 2011). Importantly, these motivations are not mutually exclusive, and most jobs offer a combination of both intrinsic and extrinsic rewards (e.g., extrinsic: opportunity for career advancement; intrinsic: some level of interest and self-expression).

We propose that when predicting what another person finds impressive, people get intrinsic motivation wrong. That is, people lack awareness that others value intrinsic rewards in the first place (DeVoe and Lyengar 2004; Heath 1999), leading them to underestimate how much others are impressed by their expressions of intrinsic motivation. As a result, people underestimate their intrinsic motivation in recruiting.

Four experiments test our predictions. Experiment 1 assigned participants the role of job candidate or recruiter. Participants viewed a list of personal motivations that candidates could use in describing themselves during an interview. Candidates predicted how these motivations influenced recruiters’ hiring decisions, whereas recruiters indicated the likelihood of hiring someone who expressed each motivation. Traits mapping onto intrinsic motivation portrayed a person motivated by what she achieves while working (e.g., “I love doing my work.”). Traits mapping onto extrinsic motivation portrayed a person motivated by what she achieves as a result of working (e.g., “I value advancing my career.”). As predicted, candidates’ expressions of intrinsic motivation had a greater influence on recruiters’ decisions than candidates anticipated, $F(1, 206) = 6.56, p = .011$. However, candidates accurately predicted recruiters’ valuation of extrinsic motivation, $F(1, 206) = .01, p = .905$.

Our theory assumes mispredictions—predictors fail to appreciate the extent to which their intrinsic motivation matters for others—yet, our theory does not imply that only job candidates mispredict. Recruiters will also underestimate the extent to which admitted candidates value a work place that emphasizes intrinsic motivation when deciding to accept a job offer. Experiment 2 tests both sides simultaneously.

Experiment 2 manipulated both role (candidate vs. recruiter) and perspective (predictor vs. evaluator). Replicating Experiment 1, candidates expected that their expressions of intrinsic motivation mattered less to recruiters than they did, $F(1, 77) = 5.28, p = .024$, with no effect for extrinsic motivation, $F(1, 77) = 1.15, p = .286$. We further examined whether recruiters persuading a job candidate to join their company mispredict how much candidates care about expressions of intrinsic, but not extrinsic motivation. We find this is indeed the case. Recruiters predicting what job candidates care for underestimated candidates’ valuation of intrinsic motivation, $F(1, 77) = 6.03, p = .016$, with no effect for extrinsic motivation, $F(1, 77) = .40, p = .527$. Overall, evaluators cared more about intrinsic motivation than predictors anticipated, whereas predictors accurately assessed valuations of extrinsic motivation.

Do people mispredict how much others value expressions of intrinsic motivation because they fail to realize that others find intrinsic rewards at work important? To examine this underlying process, participants in Experiment 3 assumed the role of job candidate or recruiter. To measure recruiters’ rewards from work, candidates estimated what recruiters care about at work, whereas recruiters provided their true valuations of intrinsic rewards (e.g., “Doing work that you are interested in”) and extrinsic rewards (e.g., “Having job security at your work”; modified after Heath 1999). To measure the weight recruiters give to motivation in hiring, participants answered the same list of intrinsic and extrinsic motivations (traits) from Experiment 1 that candidates could express to recruiters during an interview.

As predicted, recruiters valued receiving intrinsic rewards at work more than candidates expected, $F(1, 206) = 14.91, p < .001$, with no effect for extrinsic rewards, $F(1, 206) = 1.87, p = .173$. Replicating Experiments 1-2, recruiters valued candidates’ expressions of intrinsic motivation more than candidates anticipated, $F(1, 206) = 6.95, p = .009$, with no effect of extrinsic motivation, $F(1, 206) = .16, p = .693$. Mediation analyses revealed that candidates underestimate how much recruiters value their expressions of intrinsic motivation because they underestimate how much recruiters value receiving intrinsic rewards at work ($b_{values} = .23, SE = .06; 95\% CI [.12, .36]$).

In Experiment 4, participants assigned the role of job candidate or recruiter both read two job pitches, an “Intrinsic Pitch” and an “Extrinsic Pitch.” Recruiters selected the pitch for the candidate they preferred to hire, whereas job candidates were incentivized (lottery for $100) to select the pitch they believed recruiters preferred to hear.
The Intrinsic Pitch highlighted the presence of intrinsic motivation as a strength and the absence of extrinsic motivation as a weakness; the opposite was true for the Extrinsic Pitch. As predicted, a majority (69.5%) of recruiters selected the Intrinsic Pitch, with only 43% of candidates selecting this pitch despite being incentivized to predict recruiters’ preference, \( \chi^2(1, N = 168) = 11.95, p < .001 \).

Across four experiments, we find people underestimate how impressed others are by their expressions of intrinsic motivation, although they accurately predict how much others value their extrinsic motivation. This was true both for job candidates interviewing for an open position and companies trying to market their organization to new hires. As a result, people fail to emphasize their intrinsic motivation, leading them to be less persuasive to others.

**REFERENCE**


