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Motivation purity bias: Expression of extrinsic motivation undermines perceived intrinsic motivation and engenders bias in selection decisions

Rellie DERFLER-ROZIN
University of Maryland at College Park

Marko PITESA
Singapore Management University, mpitesa@smu.edu.sg

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MOTIVATION PURITY BIAS: EXPRESSION OF EXTRINSIC MOTIVATION UNDERMINES PERCEIVED INTRINSIC MOTIVATION AND ENGENDERS BIAS IN SELECTION DECISIONS

RELLIE DERFLER-ROZIN
University of Maryland

MARKO PITESA
Singapore Management University

Organizational selection decisions often involve an exchange of information between candidates and decision makers as to why candidates are motivated to work in the given position. Drawing on popular management myths as our overarching framework, we theorize that candidates' expressions of extrinsic motivation lead decision makers to infer that the candidate is less intrinsically motivated, in turn engendering bias against such candidates. We term this effect *motivation purity bias*, and argue that it emerges despite ample evidence, which we review, that penalizing expressed extrinsic motivation is not only unfair to candidates but also counterproductive from the standpoint of maximizing future employee performance. Four studies conducted among hiring managers and business school students yield support for our theory. We discuss implications for fairness and efficiency of organizational selection decisions, as well as for prospects of developing a more balanced view of intrinsic and extrinsic motivation in management research and practice.

On March 2017, Littlething.com featured the story of Taylor Barnes (Paules-Bronet, 2017). Taylor, awaiting a second interview at a small start-up company, sent an e-mail inquiring about salary and benefits. Taylor's message read, "I had another question that I wanted to ask you. If I do end up filling this position, how much do you think I'll be getting paid an hour? Benefits will also be included, right? Sorry, I just thought I should ask now." Shortly after, the hiring manager responded,

> Your questions reveal that your priorities are not in sync with those of the company. At this time we will not be following through with our meeting this Thursday. . . we seek out those who go out of their way to seek challenges and new opportunities. We believe in hard work and perseverance in pursuit of company goals as opposed to focusing on compensation. Our corporate culture may be unique in this way, but it is paramount that staff display intrinsic motivation and are proven as self-starters.

Luckily for Taylor, one of the cofounders of the company followed up personally with her, apologizing, and offering her a second interview. However, other job candidates may not be so fortunate if, as we argue, this incident reflects a widespread bias whereby decision makers view candidates who signal extrinsic motivation or interest in job features unrelated to the work itself (e.g., compensation or flexible schedule) as less *intrinsically* motivated, or interested in the work itself. We term this effect *motivation purity bias*, and argue that it causes systematic backlash against job candidates who express extrinsic motivation, a phenomenon that, we argue, is both unfair to candidates as well as counterproductive from the standpoint of organizational performance maximization.

Correspondence concerning this article should be addressed to Rellie Derfler-Rozin (Rellie@umd.edu), Management & Organization Department, Robert H. Smith School of Business, University of Maryland; 4508 Van Munching Hall, College Park, MD 20742.

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We review early research portraying extrinsic and intrinsic motivation as antagonistic, conduced largely outside of work contexts (e.g., Deci, 1971; Deci, Koestner, & Ryan, 1999) and focused on explaining "what people do in their free time" (Gerhart & Fang, 2015: 494), as well as more recent research, including organizational studies on the topic, which, in contrast, suggests that extrinsic motivation is not only important and instrumental in its own right, but also that (a) no form of extrinsic motivation is negatively associated with intrinsic motivation (Gerhart & Fang, 2015), and (b) salience of extrinsic incentives *boosts* the positive effect of intrinsic motivation (Cerasoli, Nicklin, & Ford, 2014). Our theory suggests that, despite this positive evidence, decision makers are biased against candidates who express extrinsic motivation due to a management myth aligned with early portrayals of extrinsic and intrinsic motivation as antagonistic. We explain both the emergence and the persistence of this fallacy through the lens of psychological research showing that antagonistic construal of motivation is a natural tendency of the human mind (Haslam, Bain, Douge, Lee, & Bastian, 2005; Miller & Nelson, 2002). We argue that motivation purity bias will operate even in the context for which the current body of evidence most strongly suggests that expression of extrinsic interest should not be taken as a negative sign—selection for regular salaried employment (Cerasoli et al., 2014; Shaw & Gupta, 2015). We report four studies testing this notion.

Our research contributes to the literature on psychological drivers of biased selection decisions. The dominant theoretical paradigm in the literature has focused on the biasing role of stereotypes (Dovidio & Gaertner, 2000; Lee, Pitesa, Thau, & Pillutla, 2015; Perry, Davis-Blake, & Kulik, 1994), or myths about *social groups*. For example, due to the historical gender role divisions, people's naïve belief of what it requires to be a good worker are biased in favor of men (Perry et al., 1994), despite evidence to the contrary (Hyde, 2005). The long history of portraying physically attractive people as more capable and sociable (Eagly, Ashmore, Makhijani, & Longo, 1991), despite evidence to the contrary (Feingold, 1992), engenders bias against unattractive people that is unfair and inefficient (Hammermesh, 2011). Attention to how myths concerning gender and beauty bias selection decisions developed into large programs of research, and, realizing the power of these social myths, efforts are being undertaken to correct them, for example, by changing media portrayals of women and physically less attractive people (Chira, 2017; Pincus-Roth, 2017). We contribute to the literature through the first theoretical proposal and empirical demonstration of the importance of another widespread myth, one that is not tied to membership in a specific social group but is related to a core aspect of selection (estimating motivation), and which also introduces bias in selection decisions.

Our focus on biased views of motivation is relevant and novel because almost all research on intrinsic and extrinsic motivation has focused on measuring how different external motivators influence workers' intrinsic motivation and the relationship between intrinsic motivation and performance. Less is known about how decision makers *think* about workers' motivation, despite the fact that extrinsic and intrinsic motivation are core concepts of business school education worldwide and thus that most managers do have naïve views of the phenomenon (DeVoe & Iyenger, 2004; Heath, 1999). Our juxtaposition of past findings suggesting that expression of extrinsic motivation should by and large be interpreted positively with our novel theorizing and empirical work showing that decision makers do the opposite suggests that issues caused by the science–practice gap go beyond those rooted in a *lack of knowledge* among practitioners, which most past work has lamented (e.g., Rynes, Bartunek, & Daft, 2001). Our research shows that the fundamentally self-correcting and evolving nature of science may create important science–practice gaps whereby even outdated and contextually irrelevant science may take on a life of its own among practitioners, producing unfair and inefficient outcomes, despite the availability of updated, better, and thus more useful scientific knowledge.

Finally, we contribute to the literature on impression management and self-presentation strategies during the selection process. Our focus on selection decisions is informed not only by their key importance to candidates and organizations (Boudreau, Boswell, Judge, & Bretz, 2001; Gatewood, Feild, & Barrick, 2008) but also by the fact that this is a situation in which discussing motivation is common and important for selection outcomes. The literature on effective impression management strategies during the selection process has generally suggested that applicants aim to project a positive image of themselves, and that both applicants and recruiters share a common understanding of desirable candidate characteristics and thus self-presentation strategies (e.g., Bolino, Kacmar, Turnley, & Gilstrap, 2008). In contrast, we suggest that decision makers' bias

against extrinsic motivation can lead to backlash that is unexpected by candidates, in response to positively intentioned and common candidate impression-management strategies, such as the one in the example at the outset of the paper (see also Pilot Study section for a richer account of common extrinsic motivation expressions). We return to the various practical implications of these insights in the General Discussion.

THEORY

Research on (Expressed) Extrinsic Motivation

How does extrinsic motivation relate to intrinsic motivation? The question of how extrinsic motivation impacts *intrinsic* motivation has been the source of extensive research. The literature was sparked by an experiment conducted by Deci (1971) in which students were asked to solve puzzles in a lab. Those assigned to the control condition were not paid throughout the three days of the experiment. Those assigned to the experimental group were not paid on the first and third day, but on the second day an unexpected payment per solved puzzle was introduced. The study found that, compared to the control group, the experimental group exerted more effort on day 2 (when paid) but less on day 3 (when not paid). This result was interpreted as showing that extrinsic incentives undermined intrinsic interest in solving puzzles, as evidenced by lower performance in the experimental group on day 3, after the payment was withdrawn.

The result was interpreted as supporting the idea that making extrinsic incentives directly salient "crowded out" interest in otherwise intrinsically enjoyable tasks, a result that was core to Deci and Ryan's (1980) cognitive evaluation theory. This theory proposed that pay for performance is detrimental to intrinsic motivation, and that it can enhance extrinsic motivation, which was assumed to be lower in quality and not as sustainable in the long run in terms of performance and well-being (Gerhart & Fang, 2015). Importantly, the key outcome examined in this line of research was whether people voluntarily engaged in certain tasks, as illustrated above. Thus, work-related behavior was not of interest in this paradigm; Gerhart and Fang (2015: 494) noted that "behavior examined was what people did in their free time." This is most clearly evident from the fact that what was interpreted in the Deci (1971) experiment was not the condition in which incentives were provided, and in which performance was the highest (with the positive effect of extrinsic incentives being twice as large as any other effect in the study), but the condition in which no incentives were provided, and the outcome was what people chose to do on their own. Thus, this research examined how introducing incentives, relative to not paying people at all, impacts behavior in free time.

Given the importance of motivation to work, this body of research gradually evolved conceptually and empirically to accommodate features of the organizational context (Gerhart & Fang, 2015). In the context of a relationship people engage in to earn money, talking about potential negative effects of providing them with money does not make sense. The discussion started to focus on comparing different types of incentive plans, for example contrasting directly salient incentives such as the per-piece rate payment schemes with indirectly salient incentives, such as those provided by salaried employment. Accordingly, the same researchers who pioneered the motivation crowding out effect updated their theorizing by developing self-determination theory (Ryan & Deci, 2000), which identified different types of extrinsic motivation, with the broad differentiation between autonomous (self-determined) and controlled (not self-determined) motivation. Forms of controlled motivation would include, for example, doing the job in order to satisfy another person's desires (e.g., those of one's parents or one's boss [Grant, Nurmohamed, Ashford, & Dekas, 2011; Ryan & Connell, 1989]). Forms of extrinsic motivation that focus on aligning work and other long-term personal goals are considered more autonomous. Referring to autonomous extrinsic motivation, Gagné and Deci (2005: 354) noted: "When rewards are administered in an autonomy-supportive climate, they are less likely to undermine intrinsic motivation and, in some cases, can enhance intrinsic motivation."

Findings not only support this positive view of the role of extrinsic motivation but clearly show that the downsides of extrinsic motivation tend to be confined to nonwork settings initially studied in this literature. Specifically, research has found that even the least autonomous forms of extrinsic motivation (i.e., whereby work is not at all aligned with meaningful personal goals) exhibit generally positive, albeit small, correlations with intrinsic motivation (Gerhart & Fang, 2015). Importantly, more autonomous forms of extrinsic motivation, such as those where work performance is also instrumental to other goals in life or career (which is at least to some extent objectively true of much of salaried employment) tend to exhibit *medium to large positive*

correlations with intrinsic motivation, in the .64–.80 range (as reported by Gerhart & Fang, 2015).

These findings echo results from organizational research on the related constructs of "status striving" and "accomplishment striving" (e.g., Barrick, Stewart, & Piotrowski, 2002). "Status striving" is conceptually similar to extrinsic motivation, focusing on interest in obtaining instrumental outcomes unrelated to the work itself. For example, typical status-striving items include "I frequently think about ways to advance and obtain better pay or working conditions" and "I feel a thrill when I think about getting a higher status position at work" (Barrick et al., 2002: 9). "Accomplishment striving" is conceptually similar to intrinsic motivation, focusing on how motivated an employee is by the work itself. For example, typical accomplishment-striving items include "I get excited about the prospect of getting a lot of work done" and "I am challenged by a desire to get a lot accomplished" (Barrick et al., 2002: 9). This work has also typically found that the two forms of motivation are positively associated, again with a medium effect size of $r = .50$. Thus, ample evidence has suggested that extrinsic and intrinsic motivation are generally positively related.

How does extrinsic motivation affect performance? The scientific discourse has been even simpler and clearer with regard to how extrinsic motivation affects employee performance. There is little disagreement that, on its own, extrinsic motivation has a positive direct effect on performance (Cerasoli et al., 2014; Shaw & Gupta, 2015). Most people have no choice but to work for a living, and thus the ability of a job to satisfy material needs will clearly elicit motivation among workers (e.g., Wiley, 1997). Beyond immediate and essential extrinsic personal needs, jobs also provide a way for people to develop their careers and provide for their families. As noted above, when extrinsic motivation focuses at least in part on such longer-term positive personal goals, it is considered to be less controlling and more autonomous, and desirable from the standpoint of healthy adjustment (Gagné & Deci, 2005; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009).

In addition to documenting a positive direct effect of extrinsic motivators, research has examined how the different extrinsic motivators moderate the relationship between intrinsic motivation and performance. This body of work has found that measured intrinsic motivation is a strong predictor of performance, and that making incentives salient, compared to providing no incentives, *strengthens* the positive effect of intrinsic motivation on performance (for a meta-analysis, see Cerasoli et al., 2014). Furthermore, the beneficial effect of salience of incentives on the effect of intrinsic motivation on performance is more pronounced (more beneficial) when incentives are indirectly salient (e.g., salaried employment). Directly salient incentives (e.g., pure pay-for-performance), compared to no incentives, still amplify the positive effect of intrinsic motivation on performance, but the positive moderating effect is somewhat smaller than that of indirectly salient incentives, which we focus on in our research. Cerasoli et al. (2014: 980) noted that "In a 'crowding out' fashion, intrinsic motivation was less important to performance when incentives were directly tied to performance and was more important when incentives were indirectly tied to performance." Thus, somewhat different from the original crowding-out construct, which concerned the negative effect of extrinsic incentives on *intrinsic motivation*, the authors documented that all types of incentives boost the positive effect of intrinsic motivation on *performance*, but the beneficial effect is stronger for indirectly salient incentives (e.g., salaried employment) than for directly salient incentives (e.g., per-piece rate pay).

In sum, both research studying extrinsic and intrinsic motivation by measuring extrinsic and intrinsic motives directly (Barrick et al., 2002; Gerhart & Fang, 2015) as well as research looking at the interplay of incentives (external motivators) and intrinsic motivation (Cerasoli et al., 2014), has painted a picture of a synergistic effect of the two positive forces motivating people to work: Enjoyment of the work itself as well as the attainment of financial security and other important personal goals. Indeed, the general conclusion—that when an employment relationship provides workers with a means to attain meaningful extrinsic life goals (financial security, family comfort, etc.) workers are more satisfied, motivated, and productive—resonates with conclusions reached in other organizational bodies of work, including that on needs (Kenrick, Griskevicius, Neuberg, & Schaller, 2010; Maslow, 1943), work–life balance (Beauregard & Henry, 2009), voluntary turnover (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001), and psychological contract (Robinson & Rousseau, 1994).

Myth on (Expressed) Extrinsic Motivation: Motivation Purity Bias

We propose that when it comes to decision makers' responses to expressions of extrinsic motivation, the power of management research in shaping selection decisions is overshadowed by the

power of what is perhaps one of the most widespread and prominent management myths: that extrinsic motivation is generally detrimental to intrinsic motivation. This myth may be rooted in a natural human tendency to view others in an oversimplified manner, in outdated "either–or" organizational theories, and in outdated management research regarding extrinsic and intrinsic motivation specifically.

First, the view of extrinsic motivation as antagonistic with intrinsic motivation can be understood against the backdrop of psychological research on how people perceive and understand others' motivation (Haslam et al., 2005; Malle, Knobe, & Nelson, 2007; Miller & Nelson, 2002). This body of work has found that people in general hold an overly simplified view of how other people's minds work and thus underestimate the complexity of other people's motives. For example, people realize that their own voting behavior may be motivated by a preference for one candidate as well as a dislike of the other candidate, but at the same time have difficulty imagining that other people would be guided by such complex motives, instead interpreting others' voting behavior as reflecting clear preference for the selected candidate (Miller & Nelson, 2002). People also explain their own behavior by referring to more complex mental states relative to how other people's behavior is interpreted (Malle et al., 2007), and believe that other people actually have less complex mental states than they do (Haslam et al., 2005). This general tendency to construe motivation in an overly simplistic manner might help to explain both the emergence of the management myth portraying the relationship between extrinsic and intrinsic motivation as antagonistic, and its persistence in the face of management research finding the opposite.

Second, early organizational behavior literature was dominated by theories and narratives about human behavior and its management that depict human motivation as being "either–or" with regard to being driven by instrumental motives versus enjoyment of work. For example, McGregor's (1960) Theory *X* and Theory *Y*, which is also a standard part of management education despite having been submitted to virtually no empirical testing, suggests that managers perceive employees as either motivated by the work itself (Theory *Y*), or oriented toward the material comfort that jobs provide but not the work itself (Theory *X*). In line with this tradition in motivation research, early studies on intrinsic and extrinsic motivation also tended to conceptualize and measure the two types of motivation as polar opposites. For example, an early measure (Harter, 1981) relied on a forced-choice format asking respondents to indicate whether they were intrinsically or extrinsically motivated. Thus, a taken-for-granted assumption that a more extrinsically motivated person would be lower on intrinsic motivation was prominent in early organizational behavior research.

Finally, the myth that extrinsic motivation erodes intrinsic motivation specifically has been among of the most prominent in the management literature. Managers worldwide are influenced by various naïve theories concerning the psychology and behavior of workers (Denrell, 2003; Ferraro, Pfeffer, & Sutton, 2005; Miller, 1999). Business school education is extremely prevalent in almost every country in the world, and is often a *de facto* requirement to gain access to managerial positions in organizations (Baruch & Peiperl, 2000). Core organization behavior courses typically involve a session on intrinsic and extrinsic motivation. This topic is somewhat unique in the sense that, although it is central to management education, views on the topic have evolved tremendously (as reviewed above), and the popular discourse and even education have been slow to catch up with evolving research on the topic.

As of yet, typical management education does not seem to have done enough to help correct this management myth. A superb (in our view), and perhaps the most widely used (including in our own courses), textbook on organizational behavior (Robbins & Judge, 2016: 253) noted that "people who pursue goals for extrinsic reasons (money, status, or other benefits) are less likely to attain their goals and less happy even when they do." The textbook discusses how extrinsic incentives can be structured to preserve, rather than undermine, intrinsic motivation, but does not mention research reviewed above suggesting that extrinsically motivated workers also tend to be much more intrinsically motivated (and neither do a dozen of other commonly used textbooks we perused). As such, the overall impression created by management education on motivation may be one of tension between extrinsic motivators and task enjoyment, which might easily be misinterpreted as meaning that candidates who express extrinsic motivation are less intrinsically motivated. In fact, in a recent review Gerhart and Fang (2015: 508) concluded that the "focus for so many years on extrinsic motivation as an almost exclusively negative" prevailed in the literature, education, and public discourse (see also Fang, Gerhart, & Ledford, 2013). As recently as 2009, a best-selling book repeating the idea of incompatibility between extrinsic and intrinsic motivation and suggesting this notion

should guide organizational practices was being read worldwide (Pink, 2009).

Given our review of natural tendencies to construe motivation in an either–or fashion, as well as the different popular myths reinforcing this interpretation, we theorize that managers will tend to infer that candidates who express higher extrinsic motivation are less intrinsically motivated. This is important because, similar to other biases, such managers' beliefs guide their behavior and can thus have major implications for workers. Given the fundamental goal of selection decisions to select candidates who will be good rather than bad performers when hired as employees (Hogan, Hogan, & Kaiser, 2011; Holtom, Mitchell, Lee, & Tidd, 2006), the lower inferred intrinsic motivation (in response to expressed extrinsic motivation) should adversely affect selection outcomes. Intrinsic motivation is a strong positive predictor of performance (Cerasoli et al., 2014), and in this regard people's naïve views are correct (DeVoe & Iyenger, 2004). Thus, to the extent that candidates who express extrinsic motivation are considered less intrinsically motivated, they should be seen as lacking an important prerequisite for good future performance, which should in turn lead to bias against such candidates in selection decisions.

We highlight the reason why we construe the described tendency as a bias. Recall that evidence has conclusively suggested that extrinsic motivation not only boosts the positive effect of intrinsic motivation but is also in its own right a strong independent positive predictor of performance (Cerasoli et al., 2014). Thus, the inference that a candidate is extrinsically motivated should be interpreted as a positive sign of future performance of the candidate and thus candidate attractiveness to the organization. That decision makers display bias against candidates who express extrinsic motivation is thus contrary to the main goal of selection decisions (maximizing future employee performance), and at the same time unfair to candidates as it violates principles of meritocratic selection. Given this, we refer to the proposed effect as motivation purity *bias*. We predict as follows:

Hypothesis 1. Expression of extrinsic motivation negatively affects perceived intrinsic motivation.

Hypothesis 2. Expression of extrinsic motivation negatively affects selection outcomes by reducing perceived intrinsic motivation.

We also examine, in an exploratory fashion, whether higher expressed intrinsic motivation negatively impacts perceived extrinsic motivation, rather than just the other way around. The tendency to construe different types of motivation as mutually exclusive might, to some extent, be an inherent feature of the human mind (Haslam et al., 2005; Malle et al., 2007; Miller & Nelson, 2002), and thus expression of any motivation might undermine perceived levels of any other types of motivation. Such a symmetric effect would also be in line with Theory *X* and Theory *Y*, which broadly suggests that the different motivations are mutually exclusive. However, our theory also highlights that the public discourse has been very asymmetric when it comes to discussing downsides of extrinsic motivation relative to intrinsic motivation. If this management myth indeed played a role in creating the motivation purity bias, it is likely that expression of extrinsic motivation undermines perceived intrinsic motivation more than expression of intrinsic motivation undermines perceived extrinsic motivation. Thus, testing whether intrinsic and extrinsic expressions have symmetrical or asymmetrical consequences in impacting perception of the other motivation type sheds additional light on the sources of the problem as well as on promising areas for intervention.

OVERVIEW OF RESEARCH

Across four studies, we test our theory by examining reactions to expressions of extrinsic interest in cover letters and interviews, which arguably represent common situations during the selection process in which candidates and decision makers exchange information regarding candidates' motivation. In the interest of generalizability and relevance, we focus on the most common and financially relevant type of selection decisions, those for salaried employment (Gerhart & Bretz, 1994). In this type of employment relationship, the presence of extrinsic incentives is held constant (i.e., incentives are salient for all candidates), and prospective incentives can be classified as indirectly salient (i.e., salary as opposed to per-piece rate pay). As described earlier, indirectly-salient incentives that characterize regular salaried employment are the most synergistic with intrinsic motivation (Cerasoli et al., 2014), so focusing on this setting allows us to test whether the backlash against expressed extrinsic motivation operates in situations in which it is clearly counterproductive, and thus can be considered a bias.

Our examination of expressed extrinsic motivation consists either of using quasi-naturalistic materials, or of using realistic experimental stimuli whereby job candidates communicate that a certain extrinsic job feature (e.g., salary) would be satisfactory or cite

extrinsic features of the job when describing why they are motivated for the job. This is based on our pretest, which found these forms of extrinsic motivation expressions to be common (see the following section for details). The types of extrinsic motivation expressions that we find to be most prevalent (and that we focus on in the studies) also tend to be those that past research has identified as most synergistic with intrinsic motivation, most notably expressions that one is motivated "because the activity is perceived as being instrumentally important for personal goals" (Gagné & Deci, 2005: 335; see also Gerhart & Fang, 2015: 501). For example, candidates in our studies explain how benefits offered fit what they are personally looking for in life. Recall that such autonomous forms of extrinsic motivation that we focus on exhibit strong positive correlations with intrinsic motivation (Gerhart & Fang, 2015), in addition to their independent positive effects on performance. Finally, in all studies we examine whether the bias we predict occurs even for candidates who express higher levels of intrinsic motivation. Given the numerous benefits of intrinsic motivation we reviewed, the finding that motivation purity bias persists against candidates who express high intrinsic motivation would provide further demonstration of the problematic nature of the effect.[1]

PILOT STUDY

We first sought to empirically validate several key arguments underlying our theorizing. These arguments are: (a) Candidates often do inquire about or express satisfaction with extrinsic features of the job, (b) expressing satisfaction with extrinsic features of the job or inquiring about them is done in a benign manner and is not associated with greed, and (c) the myth about extrinsic motivation eroding intrinsic motivation is perpetuated, in part, by the management literature.

To validate arguments (a) and (b), we recruited employee samples online (n = 200, 45.5% female, mean age = 34.37, SD = 10.29; mean years of work experience = 14.42, SD = 10.73). We asked these employees to indicate how likely (1 = "extremely unlikely" to 7 = "extremely likely"; α = .85) they would be to express extrinsic motivation during an interview process (e.g., saying that they are "satisfied with the benefits being offered"; "happy with the salary being offered"; "appreciative of the perks that come with the job"). The average response was close to "extremely likely" (mean = 5.58; SD = 1.01; this is significantly different from the midpoint of 4; t_{200} = 22.07, $p < .001$). On open-ended responses participants indicated that they would ask questions about salary, benefits, parental leave, flexibility to work from home, etc. Dispositional greed was not significantly related to propensity to signal extrinsic motivation ($r = -.11$, $p = .14$), and neither was materialism ($r = -.04$, $p = .56$). However, trust propensity, an organizationally desirable trait (Colquitt, Scott, & LePine, 2007) was significantly and positively related to propensity to signal extrinsic motivation ($r = .18$, $p = .012$).

To validate argument (c), regarding the inadvertent consequences of management education on naïve views of intrinsic and extrinsic motivation, we recruited a random nonoverlapping sample of 294 individuals online (n = 294, 38.1% female, mean age = 35.7, SD = 10.66; mean years of work experience = 14.32, SD = 10.14) and randomly assigned them to either read the page on intrinsic and extrinsic motivation from which the textbook excerpt above was taken (Robbins & Judge, 2016, 17th Edition: 253), or a page on cognitive ability (Robbins & Judge, 2016, 17th Edition: 97), which is the second key predictor of performance (Robbins & Judge, 2016; Maier, 1965) thus allowing us to control for whether participants read about a major construct predicting performance, or not to read anything. We then asked our participants to mark the extent to which they agreed with the following statements: "When a job candidate says he or she is interested in extrinsic features of the job (e.g., perks, benefits, salary) that would usually mean that the candidate is NOT as interested in the work itself," "If I were recruiting for a job and a job candidate expressed that he or she was motivated by extrinsic features of the job (e.g., perks, benefits, salary) it would make me think they were less motivated intrinsically (i.e., less interested in the work itself)," and "If Person A is highly motivated by extrinsic motivation and Person B is not, this means that Person B is more motivated by the job itself" (1 = "definitely true" to 5 = "definitely false;" α = .81). First, we found that, on average, people agreed with these statements (tested against the scale midpoint: $t_{293} = -2.70$; $p = .007$; see Appendix A in online supplement on OSF website [Appendices document]). Furthermore, we found that participants who read the page on intrinsic and

[1] Details of our studies (including elaboration on pilot studies, main study materials, data, code for analyses, and extended write-up, where applicable, for all pretests and main studies) are available on a dedicated Open Science Framework webpage https://osf.io/5248p/?view_only=091913ea17a14f20836193d01af2eb50.

extrinsic motivation were more likely to agree than were participants in either or both control groups (all $p < .001$). These findings provide preliminary support for our overarching theoretical argument, as people self-report antagonistic views of expressed extrinsic and intrinsic motivation. The findings also provide some support for our speculation that management education might have contributed to this biased view.

STUDY 1: METHOD

In Study 1, we recruited business school students who were close to graduation and (in the case of most respondents) in the process of applying for jobs, and we asked them to write a cover letter for a specific job position. Separate samples of coders were asked to rate the cover letters for objective levels of either expressed extrinsic motivation or expressed intrinsic motivation, without making hiring decisions. We then had a separate sample of evaluators assume the role of hiring manager, report their impressions of both intrinsic and extrinsic motivation, and make a hiring decision. This design allowed us to examine whether expressed extrinsic motivation negatively relates to impressions of intrinsic motivation, controlling for the actual levels of expressed intrinsic motivation (established by the coding), thereby isolating the theorized impact on decision makers' perception.

To provide a rigorous test of our model, we also addressed several potential alternative reasons as to why expression of extrinsic motivation might be negatively related to selection decisions. For example, decision makers might interpret expressions of extrinsic motivation as an indication of greed, which may elicit concern that the individual may demand additional compensation in the future. Alternatively, decision makers might consider expressions of extrinsic motivation to be against a social norm suggesting that one should not discuss extrinsic motives (a norm that might have emerged due to the association with greed). Either of these perceptions may lead to a backlash against expressions of extrinsic motivation regardless of any effects on perceived intrinsic motivation. We deemed such alternative processes less relevant given the results of our pilot study mentioned earlier, which showed that candidates who express extrinsic motivation are in reality not more greedy or materialistic, and their expressions tend to focus on widely shared long-term life goals. Nevertheless, we examine whether the negative effect of perceived extrinsic motivation through diminished impressions of intrinsic motivation (motivation purity bias) persists after controlling for the direct effect of perceived extrinsic motivation, which accounts for all such additional reasons why a decision maker might respond negatively to (perceived) expressed extrinsic motivation, irrespective of any effect through perceived intrinsic motivation. We also directly measured these potential additional negative impressions (e.g., greed) to provide a richer examination of the phenomenon and also in order to control for these impressions in our analyses.

Candidate Perspective

Participants. For the job candidate perspective, we recruited 256 business school students (44.43% female, mean age = 21.45, $SD = 3.12$) in exchange for course credit.

Procedure and materials. Participants were told that they would take part in a hiring simulation. They were first asked to indicate the field in which they would apply for a job (e.g., marketing, finance, accounting, human resources, and general management). Once they had made their choice they were directed to a fictitious ad (see 'JOB_ADs' file in online supplement on OSF webpage), and the survey was designed such that the ad described the job of a consultant specialized in the field the participant indicated interest in. In addition to stating the key responsibilities and qualifications for the job, the ad stated the range of salary and benefits offered. The ad was designed based on online ads for similar jobs available in the area in which the experiment was conducted (and in which most participants were searching for a job). Participants were then asked to write a cover letter they would include as part of the application for the job, guided by several general questions aimed at helping participants determine how to structure their letter.

To obtain a proxy of the objective levels of extrinsic and intrinsic motivation expressed by the participants in the job candidate perspective, we recruited a separate sample of business school students ($n = 496$, 45.5% female, mean age = 21.27, $SD = 2.92$) in exchange for course credit. We provided the same definitions of intrinsic and extrinsic motivation used in this paper and participants rated six randomly selected cover letters either for expressed level of intrinsic motivation or expressed level of extrinsic motivation (between-subjects) on a scale ranging from 1 = "not at all" to 5 = "to a large extent." We adapted measures of intrinsic and extrinsic motivation from

the Work Extrinsic and Intrinsic Motivation Scale (Tremblay et al., 2009). The items for intrinsic motivation were: "The candidate expressed that he or she is interested in the job because of the satisfaction he or she would experience from taking on interesting challenges"; "The candidate expressed that he or she is interested in the job because of the satisfaction he or she would experience from being successful in a challenging and fun task"; "The candidate expressed that he or she is interested in the job because he or she derives much pleasure from learning new things" ($\alpha = .89$). The items for extrinsic motivation were: "The candidate expressed that he or she is interested in the job because of the income it provides"; "The candidate expressed that he or she is interested in the job because of the benefits it provides"; "The candidate expressed that he or she is interested in the job because it's the kind of job that allows him or her to attain a certain lifestyle" ($\alpha = .67$). Participants were instructed to mark what the candidate *expressed* (rather than their perceptions thereof). In addition, we asked participants in both conditions to rate the extent to which they thought the candidate was qualified for the job (1 = "not at all"; 5 = "to a large extent"). For each cover letter, we averaged the ratings (justified based on a significant between-letter variation in both conditions, $p < .001$).

Decision Maker Perspective

Participants. We recruited 310 business school students, nonoverlapping with other samples (45.75% female, mean age = 21.29, *SD* = 2.17) in exchange for course credit.

Procedure and materials. Participants were told they would be taking part in a hiring simulation and that they would be reading between three and four randomly selected cover letters written by job candidates, and would answer some questions regarding each candidate. They were presented with the same job description that was presented to participants in the candidate sample (only in a generic form, see details in Appendix A on the OSF webpage).

After reading each cover letter, participants reported their impressions of both intrinsic and extrinsic motivation for each candidate, using the same measures as in the pretest (intrinsic motivation: $\alpha = .94$; extrinsic motivation: $\alpha = .81$). The only difference relative to the pretest coders' perspective is that we instructed participants to indicate what they *thought* the motivation of the candidate who wrote the letter was, rather than to rate objectively expressed motivation.

Participants completed two items measuring the perception that the candidate might have further demands from the company (e.g., "If hired, the candidate is likely to make large financial demands in the future"; $\alpha = .92$), three items measuring impressions of greed (e.g., "This candidate is a greedy person"; $\alpha = .92$), and three items measuring the extent to which candidates' expressed motivation was seen as violating norms of appropriate conduct in the given situation (e.g., "This candidate is acting in an appropriate manner for a work context"; reverse-scored to reflect norm deviation; $\alpha = .56$).

Selection decisions may be categorical ("hire versus do not hire") as well as in the form of continuous quantitative rating scores given to different candidates (ultimately factoring into hiring choices). To be thorough, we measured both in all our studies. We asked participants whether they would hire that candidate ("yes," coded as 1, or "no," coded as 0) and also asked them to give a continuous score of the candidate ranging from 0 to 100.

STUDY 1: RESULTS

Table 1 contains details of the Study 1 variables. The letters provide us with an insight into how expressions of extrinsic and intrinsic motivation naturally occur and relate to each other and other variables, so we comment on notable findings. First, we observe that coded intrinsic and extrinsic motivation are positively related. Thus, it seems that those candidates who express higher extrinsic motivation also express higher intrinsic motivation. Higher expressed extrinsic motivation was unrelated to anticipated future demands and marginally *negatively* related to perceived norm deviation, which suggests that extrinsic motivation expression is indeed common and expected, as we argue. Yet, we observe a weak but significant correlation between extrinsic motivation expression and perceived greed, and we also find that these negative inferences (perceptions of future demands, norm deviation, and greed) predictably adversely impact selection outcomes (see Table 2, in addition to Table 1), so we control for them in our analyses.

Analytical Strategy

As each decision maker rated multiple candidates' cover letters and each candidate's cover letter was rated by multiple decision makers, we used the multiway clustering algorithm developed by Cameron, Gelbach, and Miller (2006) to cluster standard errors by decision maker and by candidate. Table 2 contains details of Study 1 regression analyses. For this study and other studies in the paper we used logistic regression for

TABLE 1
Descriptive Statistics And Correlations (Study 1)

	Mean	*SD*	Min.	Max.	1	2	3	4	5	6	7	8	9	10
Coded extrinsic motivation	3.60	0.52	1.80	4.60										
Coded intrinsic motivation	3.38	0.67	1.43	4.90	.07									
Coded competence	3.03	0.80	1.14	5.00	.08	.71								
Perceived extrinsic motivation	3.60	0.88	1.00	5.00	.27	.02	.03							
Perceived intrinsic motivation	3.48	1.07	1.00	5.00	−.07	.34	.30	−.09						
Perceived future demands	3.22	0.99	1.00	5.00	.01	−.12	−.02	.30	−.30					
Perceived norm deviation	2.65	0.79	1.00	5.00	−.06	−.24	−.26	.03	−.48	.23				
Perceived greed	2.63	0.94	1.00	5.00	.10	−.17	−.10	.30	−.46	.55	.37			
Length of letter (no. words)	238.12	101.03	27.00	591.00	.19	.55	.57	.09	.25	−.03	−.17	−.07		
Binary selection decisions[a]	0.48	0.50	0.00	1.00	−.01	.27	.33	−.04	.54	−.18	−.46	−.33	.22	
Candidate ratings	61.35	24.92	.00	100.00	.00	.35	.42	−.02	.63	−.16	−.53	−.36	.29	.70

Notes: $n = 256$. Correlations higher than $|0.05|$ are significant at $p < .05$.
[a] Coded: 0 = "no," 1 = "yes."

binary and ordinary least squares regression for continuous outcomes.

Expression of Extrinsic Motivation is Negatively Related to Perceived Intrinsic Motivation (Hypothesis 1)

We regressed decision makers' perception of candidates' intrinsic motivation on coded levels of extrinsic motivation, controlling for coded competence ratings, as well as perceptions of future demands, norm deviation, and greed. We also controlled for number of words (count) in the cover letter, as the number of words may influence perceptions of how serious or conscientious the candidate is (Kruger, Wirtz, Van Boven, & Altermatt, 2004). Most importantly, we controlled for coded levels of intrinsic motivation, which allowed us to estimate whether higher

TABLE 2
Regression Analysis Results (Study 1)

	Model 1: Perceived Intrinsic Motivation		Model 2: Binary Selection Decisions		Model 3: Candidate ratings	
	b	*SE*	*b*	*SE*	*b*	*SE*
Coded competence	0.07	(0.04)	0.85***		7.28***	(0.98)
Coded extrinsic motivation	−0.18*	(0.05)	−0.04	(0.14)	−0.25	(1.07)
Coded intrinsic motivation	0.22***	(0.05)	−0.35*	(0.16)	−1.55	(1.12)
Length of letter (#words)	0.00**	(0.00)	0.00	(0.00)	0.01	(0.01)
Perceived future demands	−0.06†	(0.04)	0.07	(0.10)	1.72*	(0.69)
Perceived norm deviation	−0.43***	(0.05)	−1.02***	(0.13)	−7.76***	(0.95)
Perceived greed	−0.31***	(0.05)	−0.24*	(0.12)	−2.76**	(0.81)
Perceived intrinsic motivation			1.17***	(0.12)	9.78***	(0.67)
Perceived extrinsic motivation			−0.00	(0.11)	0.85	(0.72)
Constant	5.09***	(0.28)	−2.50*	(0.97)	28.87***	(7.04)
Observations	1,233		1,233		1,233	
R^{2a}	0.39		0.34		0.51	

Note: Robust standard errors in parentheses.
[a] Pseudo R^2 is reported for the binary choice dependent variable.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

expressed extrinsic motivation is associated with lower perceived intrinsic motivation regardless of the actual level of intrinsic motivation expressed. We found that coded levels of extrinsic motivation were negatively related to decision makers' impressions of candidates' intrinsic motivation ($b = -0.18$, $SE = 0.05$, $p = .001$; Table 2). The results support Hypothesis 1. Results of this and all subsequent analyses in this study remain substantively unchanged regardless of whether control variables are included.

We also find that the effect did not differ depending on the level of intrinsic motivation the candidate expressed (interaction: $b = 0.09$, $SE = 0.06$, $p = .190$), suggesting that motivation purity bias affected intrinsic motivation perceptions regardless of the level of intrinsic motivation the candidates expressed. Furthermore, we find that the effect is asymmetric relative to intrinsic motivation expressions: Coded levels of intrinsic motivation did not relate to extrinsic motivation perceptions ($b = 0.06$, $SE = 0.07$, $p = .372$). This suggests that the effect may potentially be ascribed to management myths specific to extrinsic motivation.

Implications for selection decisions (Hypothesis 2). Perceived intrinsic motivation predicted selection likelihood ($b = 1.17$, $SE = 0.12$, $p < .001$), while perceived extrinsic motivation did not ($b < -0.01$, $SE = 0.11$, $p = .967$). The same was observed for the continuous measure of candidate's rating, such that intrinsic motivation perception was related to higher ratings ($b = 9.78$, $SE = 0.67$, $p < .001$), while extrinsic motivation was not ($b = 0.85$, $SE = 0.72$, $p = .240$). These results are consistent with our arguments that decision makers perceive intrinsic motivation to be more important than extrinsic motivation when making selection decisions.

We examined the indirect effect of coded extrinsic motivation on hiring decisions through perceptions of intrinsic motivation (controlling for alternative mediators), using a bootstrap method with 5,000 bias-corrected samples (Shrout & Bolger, 2002) (the same indirect effect estimation was used in all other studies). Extrinsic motivation had a negative indirect effect via reduced perceptions of intrinsic motivation on both binary selection decision ($b = -0.21$; $SE = 0.06$; $CI_{95\%}$: -0.33, -0.09) and the continuous candidate ratings ($b = -1.73$; $SE = 0.54$; $CI_{95\%}$: -2.80, -0.68). The results thus support Hypothesis 2.

STUDY 1: DISCUSSION

Study 1 provided support for our predictions using a design high on realism, as students came up with their own cover letters, and we allowed expressions of intrinsic and extrinsic motivation to vary naturally. However, this design is open to potential omitted third variable explanations, so, in Study 2, we manipulated expressions of intrinsic and extrinsic motivations using interviews scripts, and asked decision makers to evaluate four different job candidates and make selection decisions. This helped strengthen the internal validity of our conclusions.

STUDY 2: METHOD

Participants and Design

We recruited 302 participants through an online crowdsourcing platform (47.7% female, mean age = 36.05, $SD = 11.67$, average years of work experience = 16.34, $SD = 11.06$). They were each paid $1.5 to complete a 10-minute survey. Participants were randomly assigned to conditions of a 2 (expressed intrinsic motivation: average vs. high) × 2 (expressed extrinsic motivation: average vs. high[2]) within-subjects design.

Procedure and Materials

Participants were told they would be taking part in a hiring simulation in which they were recruiting for a project finance consultant job (see Appendix B in the online supplement). Participants were presented with a job ad that detailed job responsibilities and qualifications required, and the ad also specified the compensation package and benefits offered.

Manipulations of Expressed Extrinsic and Intrinsic Motivation

Participants were told they would be reading transcripts of interviews with four shortlisted candidates, all of whom had excellent recommendation letters from previous employers and had passed situational judgment tests. Participants were told that all four candidates had been interviewed by senior

[2] We compared average to high levels because we wanted to make expressions of the two types of motivation comparable in order to meaningfully examine whether they have different consequences, and we thought that candidates would be unlikely to express low levels of intrinsic motivation if they wanted to get the job they were applying for. We validated this assumption in a pretest (see Appendix C in online supplement on OSF website [Appendices document]). Thus, our approach was preferred from the standpoint of psychological realism and generalizability.

assistants and that these assistants transcribed parts of the interviews. The beginning of the interview included an introduction, after which the candidate was asked to list one strength and one area for potential development, while the last question asked specifically about motivation for the job and about what the company offers (see Appendix A below).

Measures

After reading each script, participants responded to the same measures of intrinsic ($\alpha = .92$) and extrinsic ($\alpha = .89$) motivation, and selection decisions used in Study 1.

Piloting of Scripts

Since our theory suggests that perceived intrinsic motivation will be influenced by expressions of extrinsic motivation, as in Study 1, we assessed the effectiveness of our manipulation using a separate sample, with participants randomly assigned to conditions in a 2 (evaluation of extrinsic vs. intrinsic motivation) × 2 (expressed extrinsic motivation in the script: high vs. average) × 2 (expressed intrinsic motivation in the script: high vs. average) between-subjects design. We recruited 376 participants through an online crowdsourcing platform (48.94% female, mean age = 36.56, $SD = 10.89$) and paid them $0.75. After reading one of the scripts, participants were asked, similar to the Study 1 coding procedure, about the extent to which the candidate *expressed* that they were interested in the job because of a specific motivation (either intrinsic, $\alpha = .84$, or extrinsic, $\alpha = .63$). We used the same scale as in the Study 1 coding, with an added item for extrinsic manipulation check: "The candidate expressed that he or she is interested in the job because it will help him or her achieve other objectives in life." We added this item to provide stronger evidence of the validity of our manipulation, given that the item clearly captures autonomous external motivation. To make the intrinsic motivation manipulation check equal in length, we added the following item to it: "The candidate expressed that he or she is interested in the job because he or she finds the work itself enjoyable."[3]

To check the effectiveness of the manipulation, we regressed coded level of expressed intrinsic motivation on expressed extrinsic and intrinsic conditions (high levels were coded as 1 and average levels as 0 for each motivation) and their interaction. We found that, relative to average intrinsic motivation scripts, the high intrinsic motivation scripts were coded as higher on intrinsic motivation ($b = 0.83$, $SE = 0.19$, $p < .001$), while the high extrinsic motivation scripts were not coded as any higher on intrinsic motivation compared to the average extrinsic motivation scripts ($b = -0.30$, $SE = 0.19$, $p = .101$). Importantly, the two factors were orthogonal, as indicated by the fact that there was no interaction between the extrinsic and intrinsic manipulations in predicting coded intrinsic motivation ($b = 0.17$, $SE = 0.26$, $p = .524$).

We performed the same analysis with coded extrinsic motivation as the dependent variable and found that, relative to average extrinsic motivation scripts, scripts high on extrinsic motivation were coded as higher on extrinsic motivation compared to those average on extrinsic motivation ($b = 0.45$, $SE = 0.17$, $p = .009$), while those high on intrinsic motivation were not coded as higher on extrinsic motivation compared to the average intrinsic motivation ($b = -.05$, $SE = 0.17$, $p = .731$), and there was also no interaction between the extrinsic manipulations in predicting coded intrinsic motivation ($b = 0.05$, $SE = 0.24$, $p = .843$). Our manipulations are thus effective and orthogonal.[4]

STUDY 2: RESULTS

Table 3 contains details of Study 2 variables, and Table 4 details of regression analyses. Since each decision maker rated four candidates, we clustered standard errors by decision maker.

Expression of Extrinsic Motivation is Negatively Related to Perceived Intrinsic Motivation (Hypothesis 1)

We regressed perceived intrinsic motivation on the two expressed motivation conditions, finding that extrinsic motivation was negatively related to intrinsic motivation perceptions ($b = -0.29$, $SE = 0.04$, $p < .001$; see Table 4). The results thus support Hypothesis 1. The effect stays the same without controlling for the intrinsic motivation condition, ($b = -0.29$, $SE = 0.04$, $p < .001$), and the same is true of all subsequent analyses in this study.

[3] We note that in Studies 3a and 3b these items were also used in the main study. We also note that results of the manipulation check piloting stay the same if the added item is removed from each scale.

[4] See Appendix E in online supplement on OSF website (Appendices document).

TABLE 3
Descriptive Statistics And Correlations (Study 2)

	Mean	*SD*	Min.	Max.	1	2	3	4	5
Intrinsic condition[a]	0.50	0.50	0.00	1.00					
Extrinsic condition[a]	0.50	0.50	0.00	1.00	.00				
Perceived intrinsic motivation	3.75	1.00	1.00	5.00	.48	–.15			
Perceived extrinsic motivation	3.94	0.93	1.00	5.00	–.15	.41	–.06		
Binary selection decisions[b]	0.59	0.49	0.00	1.00	.43	–.12	.57	–.20	
Candidate ratings	67.09	23.17	0.00	100.00	.41	–.10	.67	–.06	.68

Notes: $n = 302$. Correlations higher than $|0.05|$ are significant at the $p < .05$.
[a] Coded as 0 = "average" and 1 = "high."
[b] Coded: 0 = "no," 1 = "yes."

We also find that the effect was somewhat stronger when expressed level of intrinsic motivation was high ($b = -0.37$, $SE = 0.04$, $p < .001$) than when it was average ($b = -0.22$, $SE = 0.07$, $p = .001$; interaction: $b = -0.15$, $SE = 0.07$, $p = .039$). Additionally, in this study the effect was not specific to extrinsic motivation expression, as indicated by the fact that intrinsic motivation expression was also negatively related to perceived extrinsic motivation ($b = -0.27$, $SE = 0.04$, $p < .001$). This suggests that, in this study, the effect might have been driven primarily by a more general tendency to construe different types of motivation in an either–or fashion.

Implications for Selection Decisions (Hypothesis 2)

Perceived intrinsic motivation predicted selection likelihood ($b = 1.58$, $SE = 0.13$, $p < .001$). Perceived extrinsic motivation negatively predicted selection likelihood ($b = -0.72$, $SE = 0.12$, $p < .001$), though the positive effect of perceived intrinsic motivation on selection likelihood was significantly stronger ($\chi^2 = 36.96$, $p < .001$). For the continuous measure of candidate's ratings, intrinsic motivation perception was related to higher ratings ($b = 14.26$, $SE = 0.67$, $p < .001$), while extrinsic motivation was not ($b = -0.04$, $SE = 0.74$, $p = .960$). These results are consistent with our arguments that decision makers perceive intrinsic motivation to be more important than extrinsic motivation when making selection decisions.

We examined the indirect effect of extrinsic motivation condition on hiring decisions through perceptions of intrinsic motivation. Extrinsic motivation had a negative indirect effect via reduced perceptions of intrinsic motivation on both binary selection decision ($b = -0.47$; $SE = 0.09$; $CI_{95\%}$: -0.64, -0.32) as

TABLE 4
Regression Analysis Results (Study 2)

	Model 1: Perceived Intrinsic Motivation		Model 2: Binary Selection Decisions		Model 3: Candidate Ratings	
Variables	***b***	***SE***	***b***	***SE***	***b***	***SE***
Intrinsic condition	0.96***	(0.05)	0.92***	(0.14)	5.42***	(1.05)
Extrinsic condition	−0.29***	(0.04)	0.09	(0.16)	−0.47	(0.96)
Perceived intrinsic motivation			1.58***	(0.13)	14.26***	(0.67)
Perceived extrinsic motivation			−0.72***	(0.12)	−0.04	(0.74)
Constant	3.42***	(0.04)	−3.10***	(0.54)	11.21**	(3.92)
Observations	1,208		1,208		1,208	
R^{2a}	0.25		0.34		0.46	

[a] Cluster-robust standard errors in parentheses.
[b] Pseudo R^2 is reported for the binary dependent variable.
** $p < 0.01$
*** $p < 0.001$

well as the continuous candidate ratings ($b = -4.26$; $SE = 0.73$; $CI_{95\%}$: -5.74, -2.95). The results support Hypothesis 2.

STUDY 2: DISCUSSION

Study 2 provided additional support for our hypotheses using experimental manipulations of expressed intrinsic and extrinsic motivation, and using a within-subjects design, thereby demonstrating that motivation purity bias arises in situations in which decision makers need to choose between different candidates, as is the case in many hiring situations. Study 3a supplemented Studies 1 and 2 in four key ways. First, we wanted to assess selection decisions that are more consequential and thus more externally valid than the hypothetical decisions used in previous studies. Second, we recruited hiring managers who make hiring decisions on a regular basis to further increase the external validity and generalizability of our findings. Third, we enhanced mundane and psychological realism through the use of more elaborate and realistic materials, and also by having decision makers watch an interview with the candidate. Fourth, Study 3a used a between-subjects design, which prevented decision makers from comparing candidates against each other. This was important as it afforded even greater experimental control, allowing us to keep constant the candidate's resume as well as the beginning of the interview, and to only vary expressed motivation in the interview, thereby allowing for a rigorous test of the hypotheses.

STUDY 3A: METHOD

Participants and Design

We presented ourselves as a small professional services firm looking for help in validating our selection procedure and interview protocol. We recruited hiring managers through ROI Rocket (previously ClearVoice), a U.S.-based market research organization, which helped us recruit managers with at least three direct reports who make hiring decisions on a regular basis. ROI Rocket verifies its panelists' employment status through a comprehensive verification procedure, and we reached an agreement with them that allowed us to use a cover story and thus collect data unobtrusively (approved by our IRB). Participants were told that our human resource team had interviewed and video-taped candidates and that we were seeking outside input from human resource professionals in evaluating these candidates with the aim of informing our selection decisions and making them more objective. Thus, data collection was unobtrusive, as decision makers were made to believe they were being hired to provide input into how a hiring process of a real firm would be designed.

The sample consisted of 239 participants (23.01% female, mean age = 45.07, $SD = 11.20$). Participants had 21.39 years of work experience on average, and the sample was very diverse in terms of experience ($SD = 11.40$). This allowed us to test the possibility that experienced decision makers are less naïve about the myth surrounding extrinsic motivation, and we report the results of exploratory tests examining this possibility. We also asked managers in the end of the study about their frequency of making hiring decisions: 72.8% reported making a hiring decision at least once a month, 23% once every six months, and 4.2% once a year. We paid ROI Rocket $12 for each recruited hiring manager. Participants were randomly assigned to one condition in a 2 (expressed extrinsic motivation: average vs. high) $\times$ 2 (expressed intrinsic motivation: average vs. high) between-subjects design.

Procedure and Materials

Participants were told that we had converged on four finalists who had passed the first two interviews and situational judgment tests, and that we were asking them to read a resume of one of these finalists, watch a videotaped interview with the finalist, and finally to report selection decisions that they would make and recommend us to make. Participants were presented with a job ad similar to that used in Study 2, but more elaborate and focused on finding a general project manager rather than a financial consultant (Appendix D in the online supplement). Participants were randomly assigned to watch one of the four videos, all of which had a similar beginning but varied in the content of the response to a question pertaining to motivation (see Appendix A below).

The videos were based on a subset of the same scripts pretested in Study 2. We hired a male professional actor and video-recorded him, ostensibly during a job interview that took place during the final stages of a selection process. The video shooting took place in a professional media center, and the actor learned the interview scripts pretested and validated in Study 2 and followed them during the interview using a hidden teleprompter. This setup ensured a high degree of mundane and psychological realism

for the decision makers who viewed the videos, while maintaining a high degree of standardization and experimental control.

Measures

After watching the video, participants responded to the same measures of intrinsic ($\alpha = .92$) and extrinsic ($\alpha = .84$) motivation used in the piloting of the scripts described in Study 2 (four items for each[5]), and then made selection decisions (binary and continuous).

STUDY 3A: RESULTS

Table 5 contains details of the Study 3a variables, and Table 6 details of regression analyses.

Expression of Extrinsic Motivation is Negatively Related to Perceived Intrinsic Motivation (Hypothesis 1)

We regressed perceived intrinsic motivation on expressed intrinsic and expressed extrinsic motivation conditions. We also included work experience in the model to examine the role of work experience in motivation purity bias. We find that extrinsic motivation was negatively related to intrinsic motivation perceptions ($b = -0.22$, $SE = 0.11$, $p = .047$; see Table 6), providing support for Hypothesis 1. We note that, repeating the analysis without controlling for the intrinsic motivation condition or any other control, the effect is marginally significant ($b = -0.21$, $SE = 0.11$, $p = .056$). Results of all subsequent analyses in this study without the inclusion of controls hold.

The effect did not differ depending on the level of intrinsic motivation the candidate expressed (interaction: $b = 0.36$, $SE = 0.22$, $p = .107$). Thus, motivation purity bias affected candidates regardless of the level of intrinsic motivation they expressed. Furthermore, the effect is specific to extrinsic motivation expressions: Expressed intrinsic motivation did not relate to extrinsic motivation perceptions ($b = -0.07$, $SE = 0.10$, $p = .454$), as in Study 1. Finally, and somewhat disturbingly, we find that the motivation purity bias was no less pronounced among more experienced decision makers (interaction: $b = 0.01$, $SE = 0.01$, $p = .601$).

Implications for Selection Decisions (Hypothesis 2)

We found that perceived intrinsic motivation predicted selection likelihood ($b = 1.18$, $SE = 0.23$, $p < .001$). Perceived extrinsic motivation was not related to selection likelihood ($b = 0.32$, $SE = 0.24$, $p = .176$). Perceived intrinsic motivation was positively related to higher continuous candidate ratings ($b = 7.32$, $SE = 1.56$, $p < .001$), and so was perceived extrinsic motivation ($b = 4.21$, $SE = 1.70$, $p = .014$), though the effect of intrinsic motivation was significantly stronger ($\chi^2 = 42.78$, $p < .001$). These results are consistent with our arguments that decision makers perceive intrinsic motivation to be more important than extrinsic motivation when making selection decisions.

We next examined the indirect effect of extrinsic motivation condition on hiring decisions through perceptions of intrinsic motivation. Extrinsic motivation expression had a negative indirect effect via reduced perceptions of intrinsic motivation on both binary selection decision ($b = -0.26$; $SE = 0.13$; $CI_{95\%}$: -0.61, -0.002) as well as the continuous candidate ratings ($b = -1.61$; $SE = 0.92$; $CI_{95\%}$: -3.75, -0.09). The results support Hypothesis 2.

Supplementary Analysis

Beyond our theory tests, we note that, in this study, the extrinsic motivation expression factor did not significantly correlate with perceptions of extrinsic motivation, and the intrinsic motivation expression factor did not significantly correlate with perceptions of intrinsic motivation. We argue that the fact that the expressed intrinsic motivation factor is not related to intrinsic motivation perceptions is part of the phenomenon we study: Since high levels of extrinsic motivation depress perceived intrinsic motivation, it is conceivable that on average the two expressed intrinsic motivation conditions result in comparable levels of perceived intrinsic motivation. Similarly, our theoretical background may be useful to explain the lack of relationship between the expressed extrinsic motivation factor and extrinsic motivation perceptions, as it points to the fact that people primarily pay attention to extrinsic expression when making inferences about intrinsic motivation, given the lack of public discourse and attention to extrinsic motivation in any other role. This rationale also underlined our decision to separate our main studies,

[5] In this study, as well as in Study 3b, we randomly changed the position of the anchors of the scales. Namely, sometimes "strongly disagree" would be on the left-hand side and "strongly agree" on the right-hand side, and sometimes the opposite. We did this to mitigate single-source self-report methods biases (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

TABLE 5
Descriptive Statistics And Correlations (Study 3a)

	Mean	*SD*	Min.	Max.	1	2	3	4	5	6
Extrinsic condition[a]	0.46	0.50	0.00	1.00						
Intrinsic condition[a]	0.46	0.50	0.00	1.00	.10					
Manager's work experience	21.39	11.40	3.00	61.00	.05	.12				
Perceived intrinsic motivation	4.14	0.86	1.00	5.00	−.12	.08	−.13			
Perceived extrinsic motivation	4.10	0.78	1.25	5.00	−.02	−.06	−.10	.42		
Binary selection decisions[b]	0.77	0.42	0.00	1.00	.06	.05	−.14	.44	.23	
Candidate ratings	75.20	20.06	0.00	100.00	.09	.06	.05	.36	.28	.54

Notes: $n = 239$. Correlation above $|0.12|$ are significant at the $p \leq .05$.
[a] Coded as 0 = "average" and 1 = "high."
[b] Coded: 0 = "no," 1 = "yes."

in which people report their naturally occurring perceptions, from our manipulation checks, in which people instead rated objective levels of expressed intrinsic and extrinsic motivation.

STUDY 3A: DISCUSSION

Study 3a provided further support for our theory using a high-involvement design in which hiring managers making decisions on a regular basis were told that their responses were consequential for hiring decisions. However, one limitation of Study 3a is that, although we conducted extensive pretests for the different scripts used for the study, the wording used to manipulate intrinsic manipulation varied for the two extrinsic conditions, and vice versa. In Study 3b, we sought to conduct an additional test of our theory using an even higher level of experimental control so as to maximize internal validity. To this end, we used the *exact same words* to manipulate intrinsic motivation in both extrinsic conditions, and the *exact same words* to manipulate extrinsic motivation in both intrinsic conditions. As in Study 1, in this study we also measured and controlled for perceived greed, perceived norm deviation, and perceived future demands. Additionally, we measured perceived candidate risk in terms of openness to outside offers to account for the possibility that candidates perceived as higher on extrinsic motivation might be seen as riskier in terms of commitment to a particular job.

STUDY 3B: METHOD

Participants and Design

As in Study 3a, we pretended to be a small company seeking to validate its screening procedure, so

TABLE 6
Regression Analysis Results (Study 3a)

	Model 1: Perceived Intrinsic Motivation		Model 2: Binary Selection Decisions		Model 3: Candidate Ratings	
	b	*SE*	*b*	*SE*	*b*	*SE*
Intrinsic condition[a]	0.18	(0.11)	0.21	(0.36)	1.01	(2.45)
Extrinsic condition[a]	−0.22*	(0.11)	0.72†	(0.37)	5.22*	(2.43)
Manager's work experience	−0.01*	(0.00)	−0.03	(0.02)	0.17	(0.11)
Perceived intrinsic motivation			1.18***	(0.23)	7.32***	(1.56)
Perceived extrinsic motivation			0.32	(0.24)	4.21*	(1.70)
Constant	4.37***	(0.13)	−4.55***	(1.20)	21.19**	(8.12)
Observations	239		239		239	
R^{2b}	0.04		0.20		0.18	

[a] Coded as 0 = "average" and 1 = "high."
[b] Pseudo R^2 is reported for the binary dependent variable.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

managers were made to believe they were making consequential decisions. We recruited 247 hiring managers (nonoverlapping sample from Study 3a) through ROI Rocket (23.79% female, mean age = 42.22, *SD* = 11.47, average years of work experience = 19.92, *SD* = 12.94). As with Study 3a, in order to qualify for the study managers had to have at least three direct reports and make hiring decisions on a regular basis: 71.8% of the managers reported making hiring decisions at least once a month, 22.03% made such a decision once every six months, and 6.17% once per year. We paid ROI Rocket $11 for each completed survey. Managers were randomly assigned to one of the four experiential conditions: 2 (expressed extrinsic motivation: average vs. high) × 2 (expressed intrinsic motivation: average vs. high).

Procedure and Materials

The procedure was identical to that used in Study 3a, except that, instead of watching a video, participants read a transcript of the interview (after reading the candidate's resume). As noted above, we kept the exact same wording to signal intrinsic motivation in both extrinsic conditions, and the same wording to signal extrinsic motivation in both intrinsic conditions (see Appendix A below for details). Although the wording used in this study was a subset of the validated wording from previous studies, to be conservative we again assessed the effectiveness of our manipulation in the same manner as reported in Study 2. See Appendix F in online supplement on OSF website (Appendices document).

After reading the resume and the transcript (which varied in the last part based on the assigned motivation condition), managers rated each candidate on intrinsic and extrinsic motivation using the same scales used in Study 3a (intrinsic: α = .89; extrinsic: α = .84), and made hiring decisions (both binary and using continuous rating). They also completed the same scales of greed (α = .92), norm deviation (α = .69), and perceived future demands (α = .85) as in Study 1. For perceived norm deviation we included only the first two items of the scale, as including the third one (which is reverse coded) yielded an inadequate reliability score. We note that including the third item in the scale and repeating all the analyses has no effect on any of the results. We also added a single question asking managers about the extent to which they thought the candidate was likely to accept the job, if offered, so as to measure perceived candidate risk, as noted above.

STUDY 3B: RESULTS

Table 7 contains details of Study 3b variables, and Table 8 details of regression analyses. Higher expressed extrinsic motivation was unrelated to perceived future demands, norm deviation, greed, or perceived candidate risk, which suggests that extrinsic motivation expression is indeed seen as common and expected, as we argue. Nevertheless, we control for these perceptions in

TABLE 7
Descriptive Statistics And Correlations (Study 3b)

	Mean	*SD*	Min.	Max.	1	2	3	4	5	6	7	8	9	10
1. Extrinsic condition[a]	0.47	0.50	0.00	1.00										
2. Intrinsic condition[a]	0.49	0.50	0.00	1.00	−.04									
3. Manager's work experience	20.10	12.93	2.00	51.00	.04	−.02								
4. Perceived extrinsic motivation	3.99	0.82	1.25	5.00	.03	.00	.06							
5. Perceived intrinsic motivation	3.86	0.88	1.00	5.00	−.12	.22	.04	.51						
6. Perceived candidate risk	4.04	0.93	1.00	5.00	.13	.02	.26	.38	.24					
7. Perceived greed	2.52	1.15	1.00	5.00	.07	.00	−.26	.05	−.10	−.06				
8. Perceived future demands	3.14	1.02	1.00	5.00	.05	.01	−.21	.12	.03	.15	.55			
9. Perceived norm deviation	2.37	0.97	1.00	5.00	.01	−.20	−.03	−.24	−.35	−.42	−.14	−.20		
10. Binary selection decisions[b]	0.77	0.42	0.00	1.00	.00	.09	−.24	.12	.42	−.02	−.13	−.09	−.18	
11. Candidate ratings	75.09	15.28	0.00	100.00	−.09	.10	−.10	.17	.49	.17	−.21	−.16	−.32	.61

Notes: $n = 247$. Correlations above $|0.13|$ are significant at $p < .05$.
[a] Coded as 0 = "average" and 1 = "high."
[b] Coded: 0 = "no," 1 = "yes."

TABLE 8
Regression Analysis Results (Study 3b)

	Model 1: Perceived Intrinsic Motivation		Model 2: Binary Selection Decisions		Model 3: Candidate Ratings	
	b	*SE*	*b*	*SE*	*b*	*SE*
Intrinsic condition[a]	0.26*	(0.11)	−0.32	(0.42)	−1.58	(1.74)
Extrinsic condition[a]	−0.22*	(0.11)	0.68	(0.42)	−0.46	(1.70)
Manager's work experience	−0.00	(0.00)	−0.07***	(0.02)	−0.25***	(0.07)
Perceived greed	−0.11†	(0.06)	−0.39†	(0.23)	−1.74†	(0.91)
Perceived future demands	0.03	(0.07)	−0.33	(0.26)	−2.84**	(1.01)
Perceived norm deviation	−0.25***	(0.06)	−0.42†	(0.25)	−3.35**	(1.02)
Perceived candidate risk	0.12†	(0.07)	−0.28	(0.27)	1.44	(1.12)
Perceived intrinsic motivation			1.60***	(0.32)	8.01***	(1.20)
Perceived extrinsic motivation			−0.28	(0.32)	−2.02	(1.26)
Constant	4.12***	(0.42)	2.10	(1.80)	73.65***	(7.91)
Observations	226		226		224	
R^{2b}	0.19		0.31		0.37	

[a] Coded as 0 = "average" and 1 = "high."
[b] Pseudo R^2 is reported for the binary dependent variable.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

our analyses, given their associations with perceived intrinsic motivation as well as selection outcomes (see Tables 7 and 8).

Expression of Extrinsic Motivation is Negatively Related to Perceived Intrinsic Motivation (Hypothesis 1)

We regressed perceived intrinsic motivation on the two expressed motivation conditions, thus controlling for levels of expressed intrinsic motivation when estimating impact on perceived intrinsic motivation. We included perceptions of greed, future demands, norm deviation, candidate risk, and work experience in the model. We find that extrinsic motivation was negatively related to intrinsic motivation perceptions ($b = -0.22$, $SE = 0.11$, $p = .048$; see Table 8), providing support for Hypothesis 1. We note that repeating the analysis without controlling for the intrinsic motivation condition or any other control, the effect is similar but only marginally significant ($b = -0.20$, $SE = 0.12$, $p = .091$). Results of all subsequent analyses in this study remain similar when controls are excluded, with the exception of indirect effects, which were only significant at the 90% confidence level.

We further find that the effect did not differ depending on the level of intrinsic motivation the candidate expressed (interaction: $b = 0.18$, $SE = 0.22$, $p = .408$). Thus, motivation purity bias affected candidates regardless of the level of intrinsic motivation they expressed. Furthermore, the effect was specific to extrinsic motivation expressions: Coded levels of intrinsic motivation did not relate to extrinsic motivation perceptions ($b = -0.04$, $SE = 0.10$, $p = .638$), as in Studies 1 and 3a. We again find that the motivation purity bias was no less pronounced among more experienced decision makers (interaction: $b = -0.01$, $SE = 0.01$, $p = .125$).

Implications for Selection Decisions (Hypothesis 2)

We found that perceived intrinsic motivation predicted selection likelihood ($b = 1.60$, $SE = 0.32$, $p < .001$). Perceived extrinsic motivation was not related to selection likelihood ($b = -0.28$, $SE = 0.32$, $p = .376$). Results for the continuous measure of candidates' ratings exhibited a similar pattern, such that perceived intrinsic motivation was positively related to higher ratings ($b = 8.01$, $SE = 1.20$, $p < .001$), while perceived extrinsic motivation was not ($b = -2.02$, $SE = 1.26$, $p = .112$).

We examined the indirect effect of extrinsic motivation condition on hiring decisions through perceptions of intrinsic motivation (controlling for the alternative mediators). Extrinsic motivation had

a negative indirect effect via reduced perceptions of intrinsic motivation on both binary selection decision (b= −0.35; SE = 0.22; $CI_{95\%}$: −0.87, −0.006) and the continuous candidate ratings (b= −1.74; SE = 0.89; $CI_{95\%}$: −3.71, −0.25). The results support Hypothesis 2. We note that the extrinsic condition did not significantly correlate with extrinsic perceptions, as in Study 3a, arguably due to the same reasons offered in Study 3b discussion.

INTERNAL META-ANALYSIS

We followed recent recommendations to conduct a single paper meta-analysis in any multiple studies paper (McShane & Böckenholt, 2017). A random effects meta-analysis found that the negative effect of extrinsic motivation expression on perceived intrinsic motivation was significant (b = −0.24, SE = 0.03; $CI_{95\%}$: −0.30, −0.18), providing support for Hypothesis 1. We repeated the meta-analysis without controls, and the effect of extrinsic motivation expression on perceived intrinsic motivation remained significant (b = −0.25, SE = 0.03; $CI_{95\%}$: −0.32, −0.19). Indirect effects on binary selection decisions (b = −0.34, SE = 0.06; $CI_{95\%}$: −0.46, −0.22) and continuous rankings (b = −2.77, SE = 0.67; $CI_{95\%}$: −4.08, −1.45) were also significant, providing support to Hypothesis 2.

Interestingly, in Study 2 we found that the negative effect of expressed extrinsic motivation on perceptions of intrinsic motivation was *stronger* at higher levels of expressed intrinsic motivation. This effect can also be interpreted the other way around, as the effect of expressed intrinsic motivation on perceptions of intrinsic motivation being dampened when expressed extrinsic motivation is high—a finding that might suggest that decision makers' inferences are aligned with the original crowding-out effect. However, this interaction emerged in only one study, and a random effects meta-analysis found it not to be significant across all the studies (b = 0.05, SE = 0.10; $CI_{95\%}$: −0.14, 0.25). Overall, the results are most consistent with our management myth perspective suggesting that expressed extrinsic motivation undermines perceived intrinsic motivation, and the effect seems robust regardless of the level of intrinsic motivation candidates express.

We found in one of the four studies that expressions of intrinsic motivation had an effect on perceived extrinsic motivation (Study 2), while in the three other studies expressed extrinsic motivation undermined perceived intrinsic motivation but expressed intrinsic motivation had no effect on perceived extrinsic motivation. We meta-analyzed the effect of intrinsic motivation expression on perceived extrinsic motivation across the studies and found that it was not significant (b = −0.06, SE = 0.07; $CI_{95\%}$: −0.19, 0.07). These results support our arguments, which highlight that the public discourse has been asymmetrical when it comes to discussing downsides of extrinsic relative to intrinsic motivation. Finally, we also examined the overall main effect of extrinsic motivation expression on selection outcomes, controlling for the indirect effect through intrinsic motivation perceptions, and found it to be not significant (binary variable: b = 0.33, SE = 0.22; $CI_{95\%}$: −0.11, 0.76; for the continuous variable: b = 0.43, SE = 0.98; $CI_{95\%}$: −1.49, 2.35).

GENERAL DISCUSSION

We theorized that the management myth concerning the effect of extrinsic motivation on intrinsic motivation is stronger than the actual findings of management research, leading decision makers to perceive candidates who express extrinsic motivation as less intrinsically motivated, an effect we term motivation purity bias. The results of four studies provide overall support to our theorizing that decision makers interpret candidates' expression of satisfaction with extrinsic features of the job as indicative of lower intrinsic motivation, and that such perception of lower intrinsic motivation in turn leads to bias in selection decisions.

We documented motivation purity bias in the context of selection decisions for salaried employment, the most common and financially relevant type of selection decisions (Gerhart & Bretz, 1994), which suggests that the problematic effect might be quite widespread and affecting selection outcomes on a wide scale. That the effect arises in this context provides evidence of its biased nature, given the literature showing that indirectly salient incentives (which correspond to those offered in this context) amplify the positive effect of intrinsic motivation on performance more than do directly salient incentives (for example, per-piece rate pay), in addition to incentives having an independent positive effect on performance (Cerasoli et al., 2014). We also documented motivation purity bias even though we focused on those forms of extrinsic motivation expressions that signal alignment between financial goals in one's job and other personally important long-term personal goals, which past research has found to be strongly positively related to intrinsic motivation (Gerhart & Fang, 2015). Our results thus suggest that mitigating motivation purity bias is not

just in candidates' but also in organizations' interest. Finally, we found that motivation purity bias affected candidates regardless of the level of intrinsic motivation they expressed, a finding that further illustrates both the obstinate and the biased nature of the effect.

Implications for Theory

Our findings demonstrate the importance of studying naïve beliefs concerning motivation, and call for more research on the topic. Past motivation research has considered motivation primarily from the employee perspective. Most studies have focused on examining how the different types of motivation are related to each other, or their direct and interactive relationships with different measures of performance (e.g., Cerasoli et al., 2014). Despite motivation being a core concept in the management literature, we know little about how decision makers perceive and understand others' motivation. Research on how decision makers' biased beliefs impact consequential organizational decisions, such as selection decisions, has been limited to myths concerning social categories, such as those regarding gender and beauty (Hammermesh, 2011; Perry, Davis-Blake, & Kulik, 1994). This gap created by the idiosyncratic developments of these different intellectual traditions means that there is limited understanding of the role of myths concerning motivation, as well as other worker characteristics, in consequential organizational decisions. We thus contribute to filling this gap through an integration of the motivation and organizational decision-making biases literature, and in so doing import an important novel perspective for each stream of literature.

We focus on what is perhaps the most widely discussed myth concerning motivation: the antagonistic view of extrinsic and intrinsic motivation. Our findings, summarized in the meta-analysis section above, suggest that management research might have played a role in creating motivation purity bias, as evidenced by the fact that we generally did not observe a symmetrical effect of intrinsic motivation expression on extrinsic motivation perception (which would suggest that the effect of extrinsic motivation expression is due to a more general assumption of either–or influence among any two motives). This finding contributes to the literature lamenting the gap between management research and practice (Rynes et al., 2001). Most of the focus in this research has been on the fact that managers fail to turn often enough to academia to find solutions to real-world problems (Abrahamson, 1996; Mowday, 1997; Porter & McKibbon, 1988), while academics fail to turn to practitioners to seek help or inspiration in formulating research problems (Sackett & Larson, 1990). Our findings demonstrate that the science–practice gap may be more complex and problematic: Practitioners do seem to adopt ideas from academia (as reflected by the fact that they adopted early theories portraying intrinsic and extrinsic motivation in a zero-sum fashion), but beliefs will rarely be updated concurrently with scientific developments, leading theories to take on a life of their own. Thus, in addition to the cross-sectional view of the science–practice gap, our results suggest that a longitudinal conceptualization is warranted, whereby the gap may close and open at various times in response to scientific developments, but that, due to the evolving nature of science and the limited ability of scientists to reach a wide audience rapidly, the gap may often arise because disproved scientific theories continue to dominate public attention.

Our findings also contribute to the impression management literature by challenging one of the core assumptions in this line of work, which may spark new theoretical developments. We document a notable departure from a major assumption in the impression management literature: that candidates generally know what image they are supposed to convey when being interviewed for a job, and that they try to align their conduct accordingly (Leary & Kowalski, 1990). Our pilot study suggested that people see it as normative and benign to express satisfaction with extrinsic features of the job. However, our studies show that hiring managers do not receive such expressions in a benign manner, suggesting a discrepancy that inhibits job candidates' efforts to manage their impression while interviewing for a job. It may appear puzzling that people respond negatively to others' expression of extrinsic motives, while at the same time do not anticipate a similar backlash in response to their own extrinsic motivation expression. It may be that from a candidate's perspective, true positive motives (e.g., expression of satisfaction with the benefits offered) are salient, and that candidates typically do not bother assuming a decision maker's perspective, leading to a lack of self-censoring. Future research is needed to address this possibility.

Implications for Practice

Our results suggest that the management myth regarding extrinsic motivation might contribute to motivation purity bias beyond a more general human

tendency to view different types of motivation as mutually exclusive, given that extrinsic motivation expressions more strongly undermined perceptions of intrinsic motivation than intrinsic motivation expressions undermined perceptions of extrinsic motivation. This result is encouraging. If motivation purity bias was a result of a strong universal psychological bias, attenuating it might be difficult. Since it seems to be amplified by the social discourse specific to extrinsic motivation, changing the discourse offers the promise of attenuating the bias.

As with other myths that introduce bias in organizations, such as those regarding gender and beauty, managing the problematic effect of management myths regarding extrinsic motivation will require coordinated action among the academia, the public, organizations, and candidates themselves. Academia is perhaps most responsible for managerial theories, their accuracy, and their impact on the real world, and also has the most power to dispel myths regarding extrinsic motivation, in the same way it tries to dispel other myths about human behavior. The public can also contribute through policy-level solutions, for example by requiring companies to provide all possible information regarding extrinsic incentives early on in the selection process and keep the discussions concerning motives to a minimum. Organizations can contribute by making such adjustments to the selection process, or through employee training.

Unfortunately, the implications of our findings for candidates are that openness might not be the best strategy when it comes to discussing extrinsic motivation during the selection process. It does not seem as though decision makers are leveraging expressions of extrinsic motivation as useful information, as indicated by a nonsignificant average direct effect of extrinsic motivation expression for selection outcomes in our studies. Rather, extrinsic motivation expression seems to only impact their perception of candidate intrinsic motivation, which suggests that not volunteering information that one is highly extrinsically motivated would not deprive organizations of useful information, and might help them avoid succumbing to motivation purity bias.

Limitations and Future Research

The current investigation represents the first test of the phenomenon in question, and more research is needed to test generalizability, robustness, and actionable boundary conditions. We aimed to use multiple methods and samples in our research to increase the generalizability of, and confidence in, our conclusions, but our research was largely experimental in nature and we were not able to gain access to other forms of data. Access to real hiring notes and interviews would help shed further light on motivation purity bias in hiring decisions, and potentially other consequential organizational decision-making situations.

Motivation purity bias might disproportionally harm workers who have a pressing need for certain extrinsic job features, such as money or flexible work schedule. Given this, the bias might be most damaging to those lacking money or time, or those whose life circumstances introduce idiosyncratic burdens and challenges. Future studies are needed to test these possibilities and thus pinpoint areas in which intervention is most needed. Future research is also needed to establish not just whether certain groups are disproportionately likely to (have to) express extrinsic motivation but also whether motivation purity bias is stronger in relation to certain types of candidates. For example, one could expect that motivation purity bias would be more pronounced in relation to women, as they are generally perceived as less committed to work (Correll, Benard, & Paik, 2007; Fernandez-Mateo & King, 2011; Rivera & Tilcsik, 2016), which might make decision makers even more sensitive to cues they interpret as relevant to detecting lower intrinsic motivation among women, including expressions of extrinsic motivation.

Our findings also have implications for future research on naïve views of motivation (DeVoe & Iyenger, 2004; Heath, 1999). One striking finding we observe across our studies is that people seem to see very few positive sides of extrinsic motivation. Our theory focused on the impact expressed extrinsic motivation has on perceived motivation, and we predicted that it would overshadow any potential positive reactions to extrinsic motivation. However, we did not make specific predictions as to whether people would or would not see some value in extrinsic motivation. As we report in the Internal Meta-Analysis section, we find across studies virtually no relationship between expressed extrinsic motivation and selection outcomes. This is puzzling given that extrinsic incentives are a strong predictor of performance (Cerasoli et al., 2014). Our findings suggest that there might be a disturbingly large gap between people's beliefs about the importance of extrinsic incentives and the reality. If so, this might lead not just to inadequate valuation of extrinsic motivation in selection decisions but more broadly to inefficiency in various other domains of organizational

life where understanding extrinsic motivation is important for effective decision making, such as incentivization decisions. We thus hope that our findings provide impetus for future research to investigate broader problems and inefficiencies generated by naïve beliefs concerning motivation.

CONCLUSION

Four studies found evidence of motivation purity bias, or the fact that decision makers interpret job candidates' expressions of extrinsic motivation as connoting lower intrinsic motivation (despite evidence to the contrary), ultimately engendering bias in selection decisions. Our research points to what is potentially a systemic source of inefficiency for organizations and harm for candidates. We hope that our findings motivate more balanced thinking about intrinsic and extrinsic motivation, and promote more attention to myths concerning motivation in management research and practice.

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Rellie Derfler-Rozin (rellie@umd.edu) is an associate professor of management and organization at the Robert H. Smith School of Business at the University of Maryland. She received her PhD in organizational behavior from London Business School. She studies decision making in the social context, focusing on behavioral ethics and selection decision biases.

Marko Pitesa (mpitesa@smu.edu.sg) is an associate professor and Lee Kong Chian Fellow at Singapore Management University, Lee Kong Chian School of Business. His PhD is from Grenoble Ecole de Management, France. Marko's research examines how organizations can promote inclusion and ethical behavior, with emphasis on issues related to gender, socioeconomic background, race, age, and physical attractiveness.

APPENDIX A

JOB INTERVIEW TRANSCRIPTS USED IN STUDIES 2 AND 3[6]

Beginning of Interview (Identical in all Conditions for Studies 3a and 3b, Slight Variation for the Within-Subjects Design in Study 2)

Interviewer:

Hello and nice to see you again, Alex. I am very pleased that you have successfully passed the job simulation and previous interviews, and am happy we have another chance for a conversation today.

Candidate:

Thank you, it is great to be here again.

Interviewer:

What I would like to ask you now is to tell me one strength of yours and one area in which you think you need more development.

Candidate:

I am a very hard worker, and am always aiming for the best result and work output I can provide. Maybe one area of development would be to acquire more hands-on experience with the technical language used in this firm.

Ending of Interview (Different for Each Condition)

Average intrinsic, average extrinsic:

Interviewer:

Can you tell me how motivated are you specifically to work for ABD international and about what we offer to employees?

Candidate:

I am happy about working at ABD international as I can see myself enjoying doing this kind of work. I am also happy about the benefits this job offers.

Average intrinsic, high extrinsic:

Interviewer:

Can you tell me how motivated are you specifically to work for ABD international and about what we offer to our employees?

Candidate:

I am very excited about the job, and see how I can enjoy doing all the different aspects of it. I am also extremely excited about the benefits this job offers and I can see myself enjoying the flexibility and lifestyle this job affords. Given my situation and [outlook] in life, these kinds of benefits, rewards, opportunity and ability for telecommuting etc., fit very well with what I was hoping to get in a job.

High intrinsic, average extrinsic:

Interviewer:

Can you tell me how motivated are you specifically to work for ABD international and about what we offer to our employees?

Candidate:

I am enthusiastic about this job, since I know I will enjoy it, finding it fun and rewarding by itself and satisfying my curiosity and interest. It is exactly the kind of job that would be genuinely motivating for me, as I simply enjoy both aspects of budgeting and pricing as well as aspects of coordination and interactions with other key members in the firm. I see many growth and learning opportunities here. I am also happy with the overall package you offer.

High intrinsic, high extrinsic:

Interviewer:

Can you tell me how excited are you specifically to work for ABD international and about what we offer to our employees?

Candidate:

I know I will be enjoying this type of work. I know it will be motivating to do the day-to-day work, and I can learn a lot and grow within this company. This is the type of role I see as rewarding by nature to me, as I am someone who enjoys both the more "individualized" work of pricing, budgeting, etc., as well as the more collective, teamwork aspect of collaborating and coordinating with other project managers, contractors and so forth. I am also super enthusiastic about the benefits that come with the job. I know the lifestyle that comes with the job and the flexible schedule is a huge plus for me. The opportunity and ability for telecommuting as well as the opportunities for bonuses, perks, etc., are things I extremely appreciate in this job.

Notes: For Study 3b we used the exact same wording for each motivation: "I am enthusiastic about this job, since I know I will enjoy it, finding it fun and rewarding by itself and satisfying my curiosity and interest. It is exactly the kind of job that would be genuinely motivating for me, as I simply enjoy both aspects of budgeting and pricing as well as aspects of coordination and interactions with other key members in the firm. I see many growth and learning opportunities here." This was used for high intrinsic motivation and was appended with either "I am also happy about the benefits this job offers" (average extrinsic) or with "I am also super enthusiastic about the benefits that come with the job. I know the lifestyle that comes with the job and the flexible schedule is a huge plus for me. The opportunity and ability for telecommuting as well as the opportunities for bonuses, perks, etc., are things I extremely appreciate in this job" (high extrinsic). For average intrinsic we used: "I am happy about working at ABC International as I can see myself enjoying doing this kind of work" (which was again appended with either of the above).

[6] Videos of interviews lasted on average 75 seconds.