

Mindfulness and Taking Action to Start a New Business*

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Mindfulness, meaning a receptive attention to and awareness of present events and experience, is reported to have a wide range of benefits, but it has been suggested that it could prove costly in terms of task performance. This article analyzes how dispositional mindfulness relates to taking entrepreneurial action. Based on two waves of survey data, we find that mindful individuals are less likely to engage in entrepreneurial action than less mindful individuals, but when they do start to act, they take as many actions as individuals who score low on trait mindfulness, and even more if they have entrepreneurial experience.

Introduction

There has been a surge in research on mindfulness, defined as “a receptive attention to and awareness of present events and experience” (Brown, Ryan, and Creswell 2007, p. 212), across several scientific fields, including clinical and counseling psychology, social and personality psychology, neuroscience, medicine, and education (Brown et al. 2007; Dane and Brummel 2014; Good, Liddy et al. 2015; Ostafin, Robinson, and Meier 2015). These studies report that mindfulness promotes attentional stability, control, and efficiency, and is associated with a range of benefits, including improvements in physical and mental health, conscious self-monitoring, interpersonal

relationship quality, and behavioral regulation (Glomb et al. 2011; Goodman, Quaglia, and Brown 2015; Ostafin et al. 2015; Purser and Milillo 2015; Zeidan et al. 2010). Prior research also suggests that mindfulness benefits work performance. Empirical studies report positive effects on stress reduction, resilience, work engagement, reduced turnover intentions, workplace relationships and communication, and task performance (for overviews, see Good et al. 2015; Hyland, Lee, and Mills 2015; Sutcliffe, Vogus and Dane 2016).

The effects of mindfulness on performance in organizational settings have been studied with samples of employees and leaders, while the topic has been largely underexplored in

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entrepreneurship. However, mindfulness is a relevant concept in the context of entrepreneurship. Benefits of mindfulness have shown to be amplified within the settings of dynamic work environments or complex jobs (Dane and Brummel 2014; Sutcliffe et al. 2016). The process of starting a new venture is such a setting, as it involves a mid-term time span, contains risk and uncertainty, involves a variety of activities, and is influenced by a host of intrapersonal and contextual factors (Carter, Gartner, and Reynolds 1996; Frese 2009; Kibler, Kautonen, and Fink 2014; Lichtenstein et al. 2007). Moreover, attributes of the entrepreneur exert influence on whether and how the organization develops and unfolds (Frese and Gielnik 2014; Mathias, Williams, and Smith 2015). For example, entrepreneurial action may be furthered by the alertness and flexibility engendered by mindfulness. This study investigates the effects of mindfulness as a trait or disposition. Research suggests that some individuals tend to be consistently more mindful than others (e.g., Baer et al. 2006; Brown and Ryan 2003), thus scoring high on dispositional or trait mindfulness. Recent research (Caliendo Fossen, and Kritikos 2014; Frese and Gielnik 2014; Rauch and Frese 2007b) provides evidence that traits or dispositions specific to entrepreneurship explain variance in entrepreneurship-related outcomes such as business creation, survival, and success over and above the omnibus Big Five traits. This study investigates the effects of dispositional mindfulness as one such specific trait. A meta-analysis (Giluk 2009), a study employing a range of mindfulness measures (Siegling and Petrides 2014), and a study using canonical correlation analysis (Hanley 2016) have shown that mindfulness is associated with all Big Five traits (most strongly with the stability—neuroticism dimension). Having both theoretical and empirical relations with each of the Big Five traits, mindfulness cannot be considered a facet of just one of them.

Although being high in mindfulness may be conducive to entrepreneurship, the literature has also emphasized the importance of being future-focused and single-minded in pursuit of goals, which may come at the expense of mindfulness (Karelaia and Reb 2014; Reb et al. 2015). Also conceptual work on mindfulness in work and organizational settings suggests that mindfulness can prove costly from a task performance standpoint (Dane 2017; Karelaia and Reb 2014; Reb et al. 2015; Rerup 2005). In fact,

Good et al. (2015) questioned whether mindfulness, which implies a sense of non-striving and attention to present-moment events, detracts from or is conducive to goal pursuit as these properties may seem at odds with the future orientation of goal setting and its associated outcomes. As a consequence, authors posited that further work is needed to better understand the forms of performance to which mindfulness is conducive (Good et al. 2015; Reb et al. 2015; Sutcliffe et al. 2016). The objective of the present study is to help close this knowledge gap by presenting an analysis of the role of mindfulness in facilitating entrepreneurial action: engaging in activities aimed at starting a business. We develop our arguments based upon the theorization of mindfulness in the performance context (Dane 2011; Good et al. 2015) and extend Rerup's (2005) conceptual work in the entrepreneurship context, arriving at hypotheses on how mindfulness relates to entrepreneurial action, defined as actions taken with the aim of starting one's own independent business following an interest or intention to do so. We test our hypotheses with two waves of original survey data from the Swedish adult population.

Our study has three contributions. First, our study makes a contribution by bringing mindfulness into the entrepreneurship domain and by providing empirical evidence showing that dispositional mindfulness matters in terms of engaging in entrepreneurial behavior. We add to the limited knowledge outlining costs and benefits of mindfulness in the entrepreneurship context (Rerup 2005) by demonstrating how both high and low levels of mindfulness can facilitate taking entrepreneurial action. We also involve the role of prior start-up experience in our analysis. In doing so, we contribute to current theorizing of mindfulness in the performance context, particularly the work by Good et al. (2015) and Dane (2011, 2017) on the multifaceted effects of mindfulness on task performance in work environments characterized by uncertainty. The extent mindfulness literature has either overlooked the benefits of low mindfulness, or has outlined these merely conceptually, without providing empirical evidence.

Second, we focus on dispositional mindfulness, and by doing so we add to the knowledge of personality and entrepreneurship (Frese and Gielnik 2014; Rauch and Frese 2007a). Personality theory is dominated by the study of the prominent and universal Big Five

personality traits (Costa and McCrae 1992), which have also been linked to entrepreneurial emergence and success (Caliendo et al. 2014; Frese and Gielnik 2014; Zhao and Seibert 2006). In this study, we go beyond the Big Five personality traits. First, it has been shown that predictive power can be increased by employing traits specific to entrepreneurial actions and decisions (Caliendo et al. 2014; Rauch and Frese 2007a, 2007b). In contrast, Big Five traits consist of facets which may or may not be relevant to the topic of interest. For example, with regard to conscientiousness, Zhao and Seibert (2006) show that entrepreneurs, compared to managers, score higher on the facet of need for achievement, while there is no difference in terms of the facet of dependability. Broad traits, such as the Big Five, are distal and aggregated constructs, which may predict aggregated classes of behavior but not specific behaviors (Epstein and O'Brien 1985). By studying mindfulness as a trait separate to the Big Five personality, we develop an alternative and promising stream of research on entrepreneurship and personality.

Third, we add to the body of research aiming to explain when and why some individuals take action upon their entrepreneurial intentions whereas others do not. Studies in this area consistently find that a sizable proportion of people who express an intention to engage in start-up activity do not follow up on that intention with concrete actions, and that those with superior abilities pertaining to self-regulation are better at taking action (Gielnik, Barabas et al. 2014; Gielnik, Frese et al. 2015; Van Gelderen, Kautonen and Fink 2015; Van Gelderen et al. 2018). Our study adds to this line of research, and we interpret our findings as providing further evidence for the role of self-control (Van Gelderen et al. 2015) in closing the intention-action gap.

Theory and Hypotheses

High Levels of Mindfulness and Entrepreneurial Action

Entrepreneurial actions are actions taken with the aim of starting one's own independent business. Both practitioners and scholars of entrepreneurship emphasize the importance of taking action. For example, the widely used lean startup methodology (Blank 2005; Ries 2011) has the slogan "Get out of the building" and is based on the

premise that entrepreneurial ventures are not started in isolation, but are rather the product of interactions with future stakeholders such as customers and clients, suppliers, financiers, and employees. Activities to start a new venture can be seen as experimenting, information finding, opportunity shaping, and opportunity enactment, all of which require action. We note that entrepreneurial action does not necessarily lead to a successful start-up: aforementioned actions may also lead to the conclusion that starting the business is not viable.

High levels of mindfulness can contribute to taking entrepreneurial action, for a number of reasons. First, mindfulness has been shown to improve cognitive flexibility and alertness (Dane and Brummel 2014; Good et al. 2015). Theorizing of mindfulness in the performance context (Dane 2011, 2017) suggests that being able to attend to a wide range of stimuli is beneficial in business environments characterized by uncertainty and change, helping the aspiring entrepreneur to capture the information that is critical for their decision-making. Furthermore, acting under conditions of uncertainty and change requires individuals to think on their feet and be adaptable and able to improvise, and success in these activities depends on being "attentive and alert to what is happening in the now" (Vera and Crossan 2005, p. 208). Maintaining a wide span of external attention might also decrease the rate of errors that are often a consequence of individuals missing critical environmental cues (Dane and Brummel 2014; Rerup 2005).

Attention scientists distinguish between selective and executive attention (Ocasio 2011). Selective attention describes the process by which individuals focus information processing on a specific set of sensory stimuli at a moment in time, and by which mindful individuals are able to attend to a broad set of such stimuli (Ostafin et al. 2015). At the same time, mindful individuals have the ability to remain focused on the present. This is helpful from the viewpoint of executive attention, which involves allocating controlled (non-automatic) cognitive resources in working memory to goal execution and dealing with interruptions (Ocasio 2011; Ostafin et al. 2015). Executive attention guides cognition and relates to memory and planning, but applies them in the present, which can support individuals in taking entrepreneurial action. Mindfulness training has been shown to

improve sustained executive attention (Mrazek, Smallwood, and Schooler 2012; Zeidan et al. 2010). Conversely, Dane (2011) and Good et al. (2015) have suggested that being low in mindfulness can result in an individual being easily distracted from goal pursuit, meaning that he or she devotes little time and cognitive resources to the task at hand. Further, prior empirical research shows that, during such mind wandering, “attention drifts from its current train of thought (often an external task) to mental content generated by the individual rather than cued by the environment” (Smallwood and Schooler 2015, p. 486). Following this, mind wandering is associated with superficial representations of the external environment and can thus interrupt primary task focus because attention is diverted to secondary concurrent goals (Dane 2011; Smallwood and Schooler 2006). Behavioral markers of mind wandering are rapid and automatic responses during continuous performance tasks, and absentmindedness (Good et al. 2015; Mrazek et al. 2012). These arguments imply that people who are high in mindfulness take more entrepreneurial action. Therefore, we propose the following hypothesis:

H1: High levels of mindfulness have a positive effect on taking entrepreneurial action.

We further expand these arguments by suggesting that entrepreneurial experience is an important moderator enhancing the effect of high mindfulness on taking action. First, those high in mindfulness may be better able to learn from and reflect on experience. Mindfulness has been shown to benefit fluid intelligence, the ability to process and respond to novel information by assessing patterns and relationships (Good et al. 2015). Mindfulness has also been associated with flexible cognition, which supports adaptation via the generation of novel perspectives and responses (Good et al. 2015). These qualities help to learn from experience. Second, and relatedly, being high in mindfulness helps prevent those with experience from becoming cognitively entrenched. Cognitive entrenchment refers to a high level of stability (or rigidity) in one’s mental schemas (Dane 2010). Although cognitive entrenchment may not arise solely among those with experience, the acquisition of experience can lead to such entrenchment (Dane 2010). Being high in mindfulness prevents experienced entrepreneurs from

becoming rigid in their mental schemas. Those low in mindfulness may also be able to learn from experience and develop valid intuitions if it falls within their focus. But given that they are less open to experience and pay less attention to the wider range of internal and external stimuli, they learn less from aspects outside of their limited awareness, their intuitions may not apply in different or changed conditions, and they may be more at risk to become cognitively entrenched.

Third, as mindfulness expands one’s internal attentional breadth and thus attunes individuals to their intuitions, the usefulness of capturing intuitions through this wide internal attentional breadth is contingent on the degree of expertise individuals have attained (Dane 2011). Those with experience are more likely to have more accurate intuitions that enhance their task performance, which suggests that taking note of one’s intuitions is increasingly useful with experience (Dane 2011).

Finally, experience is particularly conducive for those high in mindfulness when the task and the environment are dynamic, as is typically the case when starting a new venture. As Rerup (2005) argues, when the venture, industry, and/or technology are complex, dynamic, ill-structured, ambiguous, and unpredictable, the costs of mindfulness outweigh the benefits of mindlessness, and prior experience can be mindfully used. We agree with Dane (2010) that the relationship between mindfulness and task performance is positive when one operates in a dynamic task environment and has a high level of task experience. Therefore:

H2: Having prior start-up experience strengthens the positive effect of high levels of mindfulness on taking entrepreneurial action.

Low Levels of Mindfulness and Entrepreneurial Action

Not all actions require conscious present-centered awareness and attention in order to operate smoothly. A substantial portion of day-to-day behavior occurs automatically, without the need for conscious attention (Bargh and Chartrand 1999). Automaticity saves time and frees the mind for more important tasks. Prior research on work engagement and performance (Kahn 1992; Rich, LePine, and Crawford 2010) has emphasized the positive impact of

being deeply attentive to and engaged with a particular role, task, or challenging activity. By attending to a wide range of stimuli, individuals may consequently fail to devote sufficient attention to those stimuli that are most essential for performing the focal task (Karellaia and Reb 2014; Vogus and Sutcliffe 2012; Zeidan et al. 2010). Moreover, multiple areas of research have highlighted how focusing on the future is pivotal for performing effectively. For example, research on such concepts as goal setting (Locke and Latham 2002), implementation intentions (Gollwitzer 1999), implemental mindset (Gollwitzer 2012), and change-oriented behavior (Grant and Ashford 2008) has pointed to the benefits associated with directing one's attention to desired future states and the costs of focusing just on the present. Thus, paying attention to a wide range of external (environmental) and internal (intrapsychic) stimuli that constitute mindfulness is not costless, especially if focusing on a future goal and the current tasks required to achieve it enables an individual to work toward the goal without being distracted.

Moreover, part of mindfulness is an open, accepting attitude toward whatever is experienced in the present. Mindful individuals may be inclined to respond to demands made on them in the present rather than to prioritize a future goal (Ostafin et al. 2015; Reb et al. 2015). In addition, mindful individuals are more likely to perceive potentially harmful effects of their actions (Ruedy and Schweitzer 2010). Given that new venture creation involves both value creation and value appropriation, ethical aspects with regard to either could cause mindful individuals to be more cautious compared to less mindful individuals (Rerup 2005). Finally, mindful individuals show less reactivity because they are less likely to operate in automatic patterns. This makes mindful individuals more conscious and aware, which can cause them to refrain from taking entrepreneurial action (or at least be more cautious when doing so).

Thus, the literature offers theoretical arguments advocating a positive relationship between low levels of mindfulness—a lack of receptive awareness of currently experienced intrapersonal and external stimuli—and entrepreneurial behavior (Dane 2017). These arguments suggest that people who are low in mindfulness take more entrepreneurial action.

H3: Low levels of mindfulness have a positive effect on taking entrepreneurial action.

To round off our theory section, we note that H1 and H3 may both be accurate. A lack of attention to and awareness of present events and experiences can be helpful in goal pursuit. By means of a narrow focus on the task at hand, and avoiding distractions of any kind, entrepreneurial goals can be pursued. On the other hand, mindful people have been shown to have better attentional stability, control, and efficiency, and decreased reactivity to negative events. All of these can be also be seen as providing an increased focus, and thus be helpful in taking action. Thus, the possibility for a curvilinear effect occurs, where at intermediate levels of mindfulness, the beneficial effects associated with being at the extremes do not occur.

Method

Data Collection

We collected two waves of survey data using an online questionnaire such that all independent and control variables were measured in wave 1, whereas the dependent variable was measured six months later in wave 2. The first wave was conducted in May 2015 and targeted a sample of 3500 individuals aged between 18 and 70 randomly chosen from the approximately 90,000 registered members of the M3Panel for Sweden. The panel is maintained by the market research agency Bilendi for the purpose of conducting survey studies that are representative of the Swedish adult population. The survey was clearly positioned as being part of an academic research project. Sixty percent of the target group ($n = 2092$) participated in the survey. This is high by international standards but common in Scandinavian countries. Archival analysis involving a comparison of the basic demographic characteristics of the sample with those of the Swedish population (Rogelberg and Stanton 2007) does not suggest nonresponse bias is an issue with this sample.

From the initial pool of 2092 individuals who participated in wave 1, we selected for the follow-up study those who (a) were neither self-employed nor already engaged in business gestation activity and (b) reported some level of intention to engage in start-up

activities in the next six months. We focused on those with at least some level intentions, as intention-action gaps are caused by intenders not taking action, not by non-intenders taking action (Sheeran 2002). Inclusion of those without intentions would increase the intention-action correlation in a trivial manner, as nearly all without intentions to start a business will also not have taken steps to start a business. We invited those 903 individuals who met the criteria to participate in wave 2 in November 2015. We received 450 responses, representing a response rate of 50 percent. There are no statistically significant differences in the level of interest in start-up activity or mindfulness between the final sample of 450 respondents and the group of 453 individuals who were eligible for but did not participate in wave 2. We minimized the risk of common method bias by counterbalancing the order of the questions at the survey design stage, assuring the respondents of their anonymity, and including a time lag of six months between the measurement of the independent and dependent variables (Podsakoff et al. 2003).

Measures

Dependent Variable: Business Gestation Activity. Entrepreneurial action is operationalized as the self-reported number of business gestation activities that the respondents undertook between waves 1 and 2 (Kautonen, Van Gelderen, and Fink 2015; Stuetzer, Goethner, and Cantner 2012). Our survey instrument contained 12 different gestation activities and the respondents were asked to choose all activities they had engaged in within the last six months. These activities included writing a business plan, generating financial projections, developing a product or service, conducting market research, discussing a product or service with potential customers, renting or buying facilities for the business, creating a homepage, making a cooperation agreement with another business, hiring an employee or intern, applying for external funding, acquiring resources (such as tools, equipment, copyrights), and applying for a business identity code for a formal registration of the firm. Because these activities are discrete, the variable we created is a count of the number of gestation activities

that the respondent reported having undertaken (range: 0 to 7 activities; no respondent had undertaken more than seven activities).

Independent Variable: Mindfulness. We measured trait mindfulness with the 15-item Mindful Attention Awareness Scale (MAAS; Brown and Ryan 2003). The MAAS is the most widely used and cited mindfulness measure and can be applied to a wide range of clinical and non-clinical populations (MacKillop and Anderson 2007; Medvedev, Siegert et al. 2016; Osman, Lamis et al. 2016; Park, Reilly-Spong, and Gross 2013). Although the merits of the MAAS are debated (Brown et al. 2011; Choi and Leroy 2015; Grossman 2011; Van Dam, Earleywine, and Borders 2010), validation studies show good internal reliability, external reliability, and convergent validity, and its psychometric properties are supported by a larger number of studies than for any other instrument (MacKillop and Anderson 2007; Medvedev et al. 2016; Osman et al. 2016; Park et al. 2013). Sample items from the scale include "I could be experiencing some emotion and not be conscious of it until sometime later" and "I tend not to notice feelings of physical tension or discomfort until they really grab my attention." All items were rated on six-point scales ranging from "almost always" to "almost never." All items measure mindfulness indirectly, as Brown and Ryan (2003) considered that statements reflecting low levels of mindfulness are probably more accessible to most individuals. Moreover, positively phrased items may induce more socially desirable responses. Nevertheless, Brown and Ryan (2003) present evidence that a positively worded scale has similar psychometric properties and relations to other constructs as the MAAS. In our data, the MAAS scale is unidimensional, with all 15 items loading on a single factor in an exploratory factor analysis. The Cronbach's alpha coefficient for the scale is .95. For the subsequent analysis, we created an index of mindfulness by averaging the item scores.

Moderator: Entrepreneurial Experience. We operationalized entrepreneurial experience as a dummy variable where 1 denotes that the individual has started one or more businesses prior to the currently intended one, and 0 denotes that they have not started a business previously.

Control Variables. The regression model includes several control variables that, ex ante and based on prior research, influence either the dependent variable or the dependent and the independent variables. The first control variable is a dummy indicating whether the respondent had a *low or high level of intention* to engage in start-up activity in wave 1. Prior studies have shown a positive relationship between entrepreneurial intention and action (Kautonen et al. 2015). This variable was measured with a question about whether the respondent intended to engage in start-up activities in the coming six months. The response option “perhaps I will, but I am not yet sure” was coded as a low level of intention, whereas the response options “I am pretty sure I will” and “I definitely will” were coded as representing a high level of intention. The second control variable captures *intention duration*; that is, how many months the individual had held the intention to commence business start-up activities. Because the initial sample was collected at a single point in time, participants varied in terms of how long they had held their intention, which may affect the likelihood of taking action. We further followed prior studies on start-up behavior and entrepreneurial intentions by controlling for the *type of business activity* to which the start-up intention pertains (Kautonen et al. 2015) (see Table 1); *gender* and, *age* (also in a quadratic specification to allow for curvilinear effects) (Parker 2009). The inclusion of a dummy variable to indicate whether the individual has a higher *education* degree or not controls for the possibility that the level of trait mindfulness is driven by education level. Finally, we examined the regression model for omitted variable bias to ensure that our results are not biased by the absence of further potentially relevant control variables. Ramsey’s (1969) RESET test did not reject the null hypothesis of the model not having omitted variables (F test with 3 and 883 degrees of freedom, $p = .53$). Thus, we gained confidence that the absence of further control variables does not bias the results of our regression analysis.

Sample Characteristics

Table 1 displays the means, standard deviations, range, and correlations for all variables. Because some of the control variables

are ordinal rather than continuous (type of intended business and intention duration), the correlation coefficients reported are Spearman’s *rhos*. Although the correlations between the variables are moderate, we examined potential multicollinearity by computing the variance inflation factor (VIF) scores. These ranged from 1.03 to 1.38, suggesting that multicollinearity is not a serious concern in our analysis. It is interesting to note that there is a negative and significant correlation between mindfulness and the count of gestation activities (dependent variable).

Analysis Strategy

Our analysis strategy is based on the properties of the dependent variable. It is a count of discrete business gestation activities with a range from 0 to 7 and an excessive proportion of zeros (46 percent). Because these properties counter the normality assumption in linear regression, we used count regression models for a more appropriate estimation technique. The large number of zeros in the dependent variable suggests a violation of the equidispersion assumption for conventional Poisson count regression models. We compared several model specifications including Poisson, negative binomial (which accounts for overdispersion in general), and zero-inflated Poisson and negative binomial models (which account for overdispersion due to excess zeros). The comparisons suggest that overdispersion caused by the excessive number of zeros in the dependent variable is a concern and hence, a zero-inflated model specification would be appropriate. Because the test comparing zero-inflated Poisson and negative binomial specifications did not suggest that the latter would be more appropriate, we opted for a zero-inflated Poisson (ZIP) model. The advantage of ZIP over a normal Poisson count model is that it places additional weight on the probability of observing a zero. ZIP is a two-part model consisting of a binary logistic regression to model the probability of zeros and a Poisson regression to model the count response (Greene 2012). Therefore, for each predictor in our model, we can observe its effect on the likelihood of observing a zero, or not engaging in business gestation activity at all, and the extent of gestation activity as the number of gestation activities undertaken.

Table 1
Means, Standard Deviations, and Correlations

	Mean	SD	Min	Max	1	2	3	4	5	6	7	8
1. Count of gestation activities	1.20	1.48	0	7	1							
2. Mindfulness	3.95	1.02	1	6	-.17*	1						
3. Prior entrepreneurial experience	.24		0	1	.01	.08	1					
4. High level of intention	.17		0	1	.25*	-.22*	.03	1				
5. Type of intended business					.01	.02	-.03	-.04				
a. Part-time	.47		0	1								
b. Employ oneself	.20		0	1								
c. Small business with a few employees	.21		0	1								
d. Growth-oriented	.11		0	1								
6. Intention duration					-.26*	.22	-.08	-.26*	1			
a. Less than 6 months	.31		0	1								
b. 6–12 months	.18		0	1								
c. More than 12 months	.51		0	1								
7. Female	.51		0	1	-.08	.06	-.03	.04	-.01	-.03	1	
8. Age	43.82	14.54	18	70	-.12*	.38*	.23*	-.15*	-.18*	.26*	-.21*	1
9. Higher education degree	.31		0	1	-.02	-.00	.01	-.07	.00	.06	.01	.04

Notes: $n = 450$. Type of intended business and intention duration are treated as ordinal variables for the correlation analysis; hence, the correlation coefficients reported are Spearman's r_{hos} for the entire variable. *denotes statistical significance at the 5% level. SD = standard deviation.

Results

Hypothesis Tests

Our hypotheses suggest that both low and high levels of mindfulness can exert positive effects on taking entrepreneurial action. This implies a U-shaped curvilinear effect, which we tested by including both a linear and a squared term for mindfulness (mean-centered) in the ZIP model. We first estimated a ZIP model that only includes the control variables. We then added the linear and squared terms for mindfulness, which add significantly to the model fit ($\chi^2_{4df} = 10.55, p = .032$), over and above the effects of the control variables (Model 1 in Table 2). In addition to the coefficients and their standard errors, Table 2 reports the standardized incidence rate ratios for the count component and the standardized odds ratios for the logit component of the model. These are the exponentiated Poisson and logit coefficients, respectively, which are expressed in units of standard deviation that serve as effect size estimates for the individual variables in the model.

For the count of gestation activities in Table 2, the squared term of mindfulness is positive and statistically significant. This suggests that the effect of mindfulness on the magnitude of business gestation activity (when at least one activity has been undertaken; this part of the ZIP model excludes zero outcomes) is curvilinear. In order to examine this effect further, we computed the predicted values of the dependent variable for the full range of values in the mindfulness index (1 to 6, or -2.62 to 2.05 in the mean-centered version used in the ZIP model). A plot of these values (Figure 1) shows a clear U-shaped effect for mindfulness: the highest counts of gestation activities occur when mindfulness is either low or high. This finding provides support for both Hypotheses 1 and 3.

The zero-inflation column for the logit component of Model 1—which compares a zero outcome, or no entrepreneurial action taken, with a positive outcome of one or more business gestation activities having been undertaken—shows a positive and significant coefficient for the linear term of mindfulness, whereas the squared term is not significant. Because the predicted category in this part of the model is zero—not having taken any action—and the reference category is one—having taken at least some action, the positive coefficient

suggests that mindfulness is linearly and negatively associated with taking action. In other words, individuals scoring low on the mindfulness index are more likely to engage in business gestation activity than are individuals with higher mindfulness scores. This result supports Hypothesis 3. Thus, the effect of mindfulness is different when predicting no action versus some action (the logit component of the ZIP model), compared to predicting the magnitude of the action undertaken (the count component of the ZIP model). We also ran one-way ANOVA tests using tertiles of the mindfulness score (low, medium, and high mindfulness) to further explore the relationship between mindfulness and action. The results of these tests support the findings from the ZIP model.

Hypothesis 2 proposes that the positive effect of a high level of mindfulness on taking action is stronger for individuals who have prior entrepreneurial experience. We tested this hypothesis by interacting the linear and squared terms for mindfulness with the entrepreneurial experience dummy (Model 2 in Table 2). Adding the interaction terms does not add significantly to the fit of the zero-inflation component of the ZIP model ($\chi^2_{2df} = 1.32, p = .52$), but the interaction terms contribute significantly to the fit of the count component ($\chi^2_{2df} = 7.94, p = .02$). In order to understand the interaction effect, we plotted the predicted values of the count of gestation activities for the full range of values in the mindfulness index for individual with and without prior entrepreneurial experience. Figure 2 shows that the U-shaped effect of mindfulness on taking entrepreneurial action is more pronounced for individual with prior entrepreneurial experience such that the positive effect of high levels of mindfulness on taking action is stronger for experienced individuals compared to individuals who are starting a business for the first time. This finding supports Hypothesis 2. We find no evidence that experience moderates the relation between low levels of mindfulness and taking action.

Sensitivity Analysis

We examined the robustness of our findings by conducting a number of post-hoc analyses. First, we used perceived progress made with the intended business as an alternative dependent variable with which to examine the

Table 2

The Effect of Mindfulness on the Count of Gestation Activities: Zero-Inflated Poisson Estimates

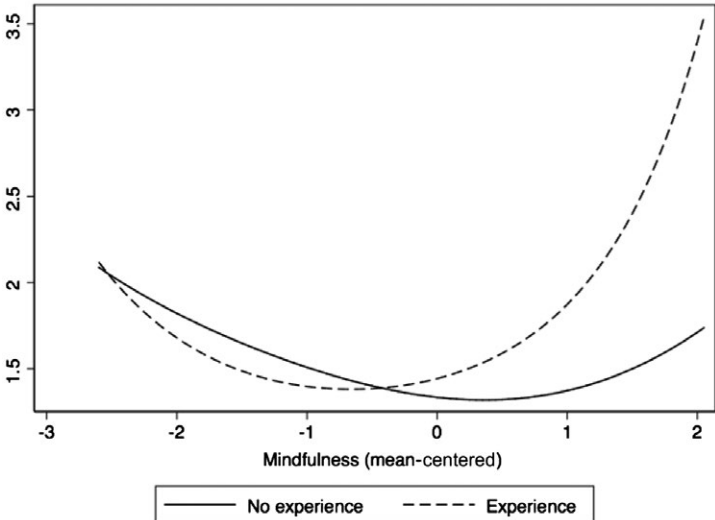
	Model 2											
	Model 1											
	Count of gestation activities (Poisson)			Zero inflation (logit)			Count of gestation activities (Poisson)			Zero inflation (logit)		
	β	SE	Std. IRR	β	SE	Std. OR	β	SE	Std. IRR	β	SE	Std. OR
Mindfulness (mean-centered)	.11**	.05	1.12	.68**	.26	1.99	.02	.07	1.02	.49	.33	1.65
Mindfulness squared	.08**	.03	1.13	-.24	.17	.69	.05	.03	1.05	-.28	.23	.65
Prior entrepreneurial experience	.19*	.11	1.09	.34	.33	1.16	.08	.18	1.08	.00	.48	1.00
Mindfulness x experience							.28***	.11	1.33	.53	.63	1.33
Mindfulness squared x experience							.10	.06	1.10	.08	.41	1.08
High level of intention	.09	.14	1.04	-1.34**	.68	.60	.04	.14	1.05	-1.65	.83	.54
Business aim (base: part-time)												
Employ oneself	-.07	.14	.97	-.81	.52	.72	-.11	.15	.90	-.84	.54	.71
Small business that employs a few	-.34**	.16	.87	-.19	.42	.93	-.41**	.16	.67	-.32	.45	.88
Invest and grow	-.07	.17	.98	-.84*	.49	.77	-.15	.18	.86	-1.02*	.58	.73
Intention duration (base: more than 12 months)												
Less than 6 months	.07	.13	1.03	-.90**	.40	.66	.10	.13	1.11	-.87**	.41	.67
6–12 months	-.10	.16	.96	-1.17**	.48	.64	-.08	.15	.92	-1.12**	.45	.65
Female	-.10	.11	.95	.24	.35	1.13	-.09	.12	.91	.30	.37	1.16
Age (mean-centered)	.01	.00	1.08	.01	.01	1.20	.01	.00	1.01	.01	.01	1.22
Age squared	-.00	.00	.99	-.00	.00	.93	-.00	.00	1.00	-.00	.00	.93
Higher education degree	.05	.13	1.02	.16	.34	1.08	.00	.13	1.00	.10	.36	1.05
Intercept	.60***	.14		.14	.38		.67***	.15		.25	.38	
Log pseudolikelihood												
Wald chi-squared test of model fit			39.87***						50.23***			
(13 degrees of freedom)												
Nagelkerke pseudo R-squared												
												.22

Notes: $n = 450$ (242 nonzero and 208 zero observations). SE = robust standard error. Std. IRR = standardized incidence rate ratio; Std. OR = standardized odds ratio. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels (two-tailed), respectively.

Figure 1
The Effect of Mindfulness on the Count of Gestation Activities
(Predicted Count)



Figure 2
The Effect of Mindfulness on the Count of Gestation Activities for
Individuals with and without Prior Entrepreneurial Experience
(Predicted Count)



robustness of our findings. This variable is an index of two items adapted from Brunstein (1993) and measured on a six-point rating scale: “I have made a great deal of progress in pursuing my intended business” and “I have had

quite a lot of success in pursuing my intended business” (Cronbach’s alpha: .90). The correlation between perceived progress and the count of gestation activities is .60. The results support those in Table 2: the effect of mindfulness

is negative and linear on the threshold from “no progress” (index score equal to 1) to “some progress” (index score greater than 1), whereas its effect on the magnitude of progress is U-shaped, such that low and high levels of mindfulness lead to more progress than moderate levels. When the interaction between mindfulness and entrepreneurial experience is added to the model, the effect of high levels of mindfulness on taking entrepreneurial action become stronger for those with prior start-up experience. Accordingly, the findings presented above are robust against an alternative dependent variable.

Second, we computed an index of mindfulness using the factor scores from a principal components analysis instead of averaging the item scores (Piatek and Pinger 2016). The correlation between these two index scores is very high ($r = .99$) and they produce virtually identical results in the ZIP models. Therefore, we conclude that our results are robust to alternative ways of computing the index score of mindfulness.

Third, although intention strength and intention duration are important control variables due to their expected confounding effects, their inclusion in the regression model might bias the estimation of the effect of mindfulness on taking entrepreneurial action because intention might act as an important channel through which mindfulness operates. Therefore, we estimated the models in Table 2 without these two control variables included in the specification. The results concerning the relationship between mindfulness and taking entrepreneurial action from this estimation are virtually identical to those presented above. Hence, we conclude that the inclusion of intention strength and intention duration does not bias the estimation of the effect of mindfulness on taking entrepreneurial action.

Discussion

Several authors have provided conceptual arguments that dispositional mindfulness—receptive attention to and awareness of what is happening in the present—may have costs and benefits in performance contexts (Dane 2011; Karellaia and Reb 2014; Reb et al. 2015; Sutcliffe et al. 2016). The present study adds empirical evidence of the impact of dispositional mindfulness in one such context: taking actions

to start a new venture. Our findings point to mindfulness fulfilling a multifaceted role in facilitating or reducing entrepreneurial action. For the individuals who took at least some action, the effect of mindfulness on the extent of action undertaken is U-shaped: individuals with high or low levels of mindfulness take more action than those with medium levels of mindfulness. We also find that mindfulness has a negative linear effect on the likelihood of taking some action versus not taking any action. In other words, individuals with lower levels of mindfulness are more likely than their more mindful counterparts to start taking entrepreneurial action. Thus, mindful individuals are less likely to act than less mindful individuals, but when they do start to do act, they take as many actions as individuals who score low on trait mindfulness. This applies even more if mindful individuals have entrepreneurial experience. Our results hold after controlling for education level, level of interest, how long ago the intention was formed, and the intended scope of the business.

It should be noted that our outcome measure is not normative—taking slower or no action following interest or intentions to pursue entrepreneurship is not necessarily a bad thing. People who score high on trait mindfulness have been shown to be less overconfident and to take fewer risks (Lakey et al. 2007), whereas overconfidence has shown to be associated with taking entrepreneurial action (Koellinger, Minniti and Schade 2007). As Karellaia and Reb (2014) have argued, mindfulness implies taking an observing, witnessing, and possibly accepting stance, so it may slow down or altogether prevent implementation through a more passive stance. However, as our results show, once mindful individuals start to take action, they take as many actions as those who score low in mindfulness. This resembles the proposition made by Reb et al. (2015) that mindfulness may slow down the decision-making process, but that mindful decision-makers “catch up” at the decision implementation stage. Interestingly, entrepreneurial experience allows mindful individuals to catch up even faster, a finding we could not replicate for those low in mindfulness. Following this, our study generates several contributions to the literature and opens avenues for future research.

The enabling effects of low mindfulness found in this study represent a contribution to the mindfulness literature generally, which

predominantly establishes the beneficial effects of mindfulness, perhaps overlooking the curvilinear effects we found to be important. Authors have conceptually pointed out possible advantages of having low mindfulness (Karelaiia and Reb 2014; Reb and Atkins 2015; Rerup 2005; Sutcliffe et al. 2016), without providing empirical support. We draw attention to the facilitating effects of being less mindful, at least in the context of taking entrepreneurial action. At the same time, our results suggest that we need a more fine-grained measure of what it means to score low on mindfulness. Authors such as Reb et al. (2015) view mindfulness as an umbrella term comprising a number of elements. The definition of mindfulness contains three different elements (receptiveness, awareness of internal and external stimuli, and being present-centered). Thus, mindfulness can be absent if an individual is being diverted by random stimuli or caught in automatic, habit-driven responses, but also in concentrated, future-focused goal pursuit. Our findings suggest that the second form dominates, as the first form cannot explain the why less mindful individuals are more likely to act on their intentions. Nevertheless, a better measure would be able to distinguish between the two. Masicampo and Baumeister (2007) suggested a basis on which to do this, arguing that the benefits of mindfulness may be attributed to self-control, thus presenting mindfulness as an expression of self-control. It may be possible to distinguish the two types of low mindfulness outlined above by the amount of self-control involved. Moreover, we suggest that it may be possible to attribute the beneficial effects of both mindfulness and its absence to self-control. This would be aligned with the findings of Van Gelderen, Kautonen, and Fink (2015), which highlighted the role of trait self-control and action-related emotions in moderating the relationship between entrepreneurial intentions and actions.

Our study is an attempt to empirically revisit Rerup's (2005) assertion that mindfulness, and the lack thereof, can have positive and/or negative effects in the entrepreneurship context. Rather than interpreting our findings in normative terms, we suggest that our set of findings may be explained by qualitative differences between the ventures started by more and less mindful individuals. Research has shown mindful individuals to be more aware of their personal goals and values, at the same time as being more sensitive to their environment,

and more capable of feeling empathy (Glomb et al. 2011; Luberto, Shinday et al. 2017; Ruedy and Schweitzer 2010). Another difference is that mindful individuals show less reactivity and are therefore more likely to be guided by autonomous motivation (Brown et al. 2007; Chatzisarantis and Hagger 2007). These differences give rise to the suggestion, open to future empirical confirmation, that mindful individuals may more often be involved in endeavors that have aspects of social entrepreneurship or that consider environmental aspects. Less mindful individuals find it easier to close themselves to negative repercussions of their actions (cf. the notion of bounded ethicality; Chugh, Bazerman, and Banaji 2005). The mindfulness construct offers a way of understanding what is happening with the entrepreneur's perception and judgment in a wider social, economic, environmental, and personal context. For mindful individuals, the construct of entrepreneurial alertness may go beyond perceptions of profit and market change. As Good et al. (2015) suggested, the compassionate behavior of mindful individuals can potentially interfere with decision making that is oriented to maximizing profits, and taking ethical aspects into account may cause mindful individuals to be more cautious. Consequently, mindful people might have to cross higher thresholds before taking action, but once they do cross them, their actions are as numerous as performed by those low in mindfulness. As entrepreneurship research expands its scope to cover different aspects of reality, including socially oriented ventures, we encourage further research into how entrepreneurs' degree of mindfulness influences the behaviors involved in value creation and appropriation.

Dane (2011, p. 1010) suggested another contingency to explain the differential effects of mindfulness in work performance settings. He proposed that "the relationship between mindfulness and task performance is positive when one operates in a dynamic task environment," and that this relationship is "negative when one operates in a static task environment." Similarly, it has been posited that mindfulness is more beneficial for complex than for routine tasks (Dane 2011; Rerup 2005; Sutcliffe et al. 2016). Our findings suggest that the relationship between mindfulness and performance in complex and dynamic task environments, such as starting a new venture, is more multifaceted than these authors suggest. Mindfulness

has a negative relationship with taking some entrepreneurial action when compared to taking no action at all. This runs contra to Dane's (2011) first proposition. Then again, when the individual crosses the threshold from non-action to some action, mindfulness facilitates taking *more* action, particularly when accompanied with entrepreneurial experience. Thus, both high and low mindfulness have positive relationships with task performance in the dynamic business start-up context.

One limitation of our study is that we do not consider whether the venture becomes operational, or how it performs once becoming so. Research has shown that attributes of the founder play an important role in determining the features of an organization (Boeker 1988; Mathias et al. 2015). The study of entrepreneurs and their firms allows for the concurrent study of mindfulness at the individual and organizational levels. Therefore, a future research design could relate the degree of mindfulness of the owner/founder to subsequent intermediate organizational outcomes such as organizational mindfulness (Sutcliffe and Vogus 2016), workplace climate, and ethical performance; and to final outcomes such as financial performance and venture growth.

Conclusion

Frese and Gielnik (2014) have argued that research on the entrepreneurial personality should not rely on Big Five constructs alone, that we should look at more specific personality dimensions. We add to the body of research in the psychology of entrepreneurship on the factors that influence engagement in entrepreneurial behavior (Frese 2009; Frese and Gielnik 2014; Kautonen et al. 2015) and show additional evidence for the value of studying specific traits relevant to entrepreneurship (Caliendo et al. 2014; Rauch and Frese 2007a). However, mindfulness may prove to have significance which extends much further. Root constructs (such as motivation, personality, identity) shape our basic understanding of human functioning and affect human experiences in a wide variety of functional domains, including thought, emotion, and action (Albert, Ashforth, and Dutton 2000). Good et al. (2015) discussed mindfulness as a root construct that has the potential to fundamentally alter our conception of human life as mindfulness tends to

focus primarily on *being* rather than *doing*, *having*, or *achieving*. Combining these modes involves transcending paradox. Mindfulness is not antagonistic to doing or striving, as it is possible to conceive of mindful doing and striving. Therefore, a wider future research question is how *being-while-doing*, *being-while-having*, or *being-while-striving* might be implemented together.

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