



Exploring the relationship between trait mindfulness and entrepreneurial potential: a questionnaire-based study

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ABSTRACT

Entrepreneurship has an important impact on the economy and individual prosperity. Dispositional mindfulness could provide a positive influence on the development of entrepreneurship given that it has been associated with enhanced performance in related occupational settings such as management and leadership. With a paucity of research in this area, a brief exploratory study was used to determine if dispositional mindfulness may predict entrepreneurship. In particular to examine if specific facets of dispositional mindfulness would positively predict entrepreneurial traits. Additionally, to investigate if level of entrepreneurial activity, as indicated by employed status (self-employed, employed or student) had a moderating effect. To maximise participation, the study was kept brief employing two self-report measures: the Five Facet Mindfulness Questionnaire (FFMQ) – measuring dispositional mindfulness and its subscales (non-reacting, describing, acting aware, observing, non-judging); and the Measure of Entrepreneurial Tendencies and Abilities (META) which assesses four aspects of entrepreneurial personality (creativity, proactivity, opportunism, vision). Participants' demographic information was also collected. 173 participants took part, with a mean age of 33.25 years. FFMQ score was shown to significantly predict META scores (Beta=.48, $p<.001$). Further, non-reacting significantly predicted proactivity, creativity and vision, with acting-aware significantly predicting creativity. However, acting-aware did not significantly predict opportunism or proactivity, and non-judging did not significantly predict proactivity or creativity. Additionally, participants' employed status had no moderating effects on the observed relationships. The positive results found represent an exploratory first step toward establishing a meaningful link between mindfulness and entrepreneurship, potentially informing future interventions to nurture entrepreneurial skills in educational and occupational settings.

KEYWORDS:	MINDFULNESS	ENTREPRENEURSHIP	FFMQ	META	MULTIPLE REGRESSION
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1. INTRODUCTION

1.1 Overview

Entrepreneurship is considered a major source of employment, economic growth and innovation, playing a positive role in prosperity and personal development (Mortana et al, 2014). Understanding the drivers of entrepreneurial behaviour has important implications for organisations wishing to improve competitive advantage through workforce development, and government bodies wanting to develop and promote entrepreneurship due to its associated economic and social benefits (Ahmetoglu, 2015). Therefore interventions to promote the development of entrepreneurship are highly sought for use in business, occupational and educational settings.

One psychological construct that could potentially influence entrepreneurial behaviour is mindfulness. Increasing numbers of studies confirm the effectiveness of mindfulness-based interventions (MBIs) in clinical (Eberth & Sedlmeier, 2012) as well as non-clinical (Khoury et al., 2015) settings. Mindfulness has also been associated with increased life satisfaction, self-esteem, and positive affect (Brown & Ryan, 2003), as well as health, well-being and functioning (Reb et al., 2015). As a consequence of such positive findings, there has been growing interest in exploring mindfulness in other areas such as education, coaching (Meiklejohn et al., 2012; Cavanagh & Spence, 2012; cited in Malinowski & Lim, 2015) and consultancy (Davis, 2014).

Within occupational settings mindfulness has been positively associated with functions such as performance and employee relations (Reb et al. 2015), work engagement (Leroy et al., 2013) and leadership (Vogul & Sutcliffe, 2012). Given that the operational behaviours of entrepreneurs are similar to those within occupational contexts, the positive effects observed could potentially translate to entrepreneurship. Indeed existing research has associated mindfulness with entrepreneurial alertness (recognition of opportunities) (Kirzner, 1979; cited in McMullen, 2010) and innovative thinking (Kudesia et al., 2015).

While to date there has been little or no research on the application of mindfulness to entrepreneurialism, examining the relationship between the two constructs could represent an important area of investigation, potentially informing the development of future interventions.

1.2 Mindfulness

Mindfulness has been characterised as a nonjudgmental awareness of and attention to moment-by-moment cognition, emotion and sensation without fixation on past or future thoughts (Kabat-Zinn, 1990). Utilising knowledge from empirical studies several researchers have developed theoretical models outlining the underlying mechanisms by which mindfulness leads to positive psychological outcomes. Bishop et al. (2004) posit two key mechanisms: self-regulation of attention (focus on present moment experience) and orientation to experience (a non-judgemental attitude incorporating openness and acceptance). Extending this model Shapiro et al. (2006) introduced intention (the motivation behind practice) as a significant component.

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These three axioms lead to re-perceiving (a shift to clearer perspective), which in turn leads to positive changes in self-regulation, emotional, cognitive and behavioural flexibility, values clarification and exposure to emotions.

Mindfulness has been conceptualised as a state, describing the experience of mindful awareness (Cox et al., 2016), often associated with, but not exclusive to, meditation; and as a trait, relating to one's predisposition to be mindful in daily life (Thompson & Waltz, 2007). Additionally, in the absence of interventions, trait mindfulness appears stable over time (Brown & Ryan, 2003). Theoretically and operationally state and trait mindfulness have been considered as close, yet distinct constructs, with studies (e.g. Carmody et al., 2008; Thompson & Waltz, 2007) highlighting little or no relationship between the two (Bergomi et al., 2013). However, in line with Buddhist-based theories Kiken et al. (2015) found that eliciting state mindfulness repeatedly in meditation practice increased individuals' propensity toward dispositional mindfulness. Further, several studies have found that MBIs (e.g., Mindfulness-Based Stress Reduction; Kabat-Zinn, 1990) increase trait mindfulness which in turn contributes to psychological health benefits (Carmody et al., 2008). Such findings are consistent with neuroscientific evidence suggesting meditation can change brain function and structure in ways that support being more mindful (Holzel et al., 2011).

While it has been operationalised as a one-dimensional (Brown & Ryan, 2003) and two-dimensional (Cardaciotto et al., 2008) construct, dispositional mindfulness is likely to be multi-faceted (Baer et al., 2006), with evidence that mindfulness components may affect predictions of a range of positive psychosocial outcomes differently (Baer et al., 2008). While there is currently no agreed operational definition, several components of mindfulness have commonly been examined, with numerous measures developed to assess the construct (Bergomi et al., 2013).

A valuable empirical description of the facets of mindfulness is provided by The FFMQ (Baer et al., 2006). It is considered a comprehensive instrument due to its integration of various conceptualisations of mindfulness (Bergomi et al., 2013) and is the most widely used multi-factor mindfulness scale (Malinowski & Lim, 2015). The FFMQ was developed utilising Factor analyses of item pools from previously established mindfulness questionnaires (Baer et al., 2006). Subsequently five facets were identified: non-reacting (allowing thoughts and feelings to freely arise and go without fixating or ascribing undue meaning to them); acting with awareness (attending to the present experience rather than behaving automatically or absent-mindedly); non-judging (resisting any evaluation of external or internal sensations, thoughts and emotions); describing (the ability to mentally label all stimuli with words); and observing (attending to internal or external sensations, thoughts and emotions) (Baer et al., 2008).

Dispositional mindfulness has been associated with beneficial effects such as healthy emotional regulation, secure attachment style (Pepping et al., 2013a), higher self-esteem (Pepping et al., 2013b) and better relationships (Barnes et al., 2007).

By enhancing awareness of present experience, mindfulness enables individuals to stay with arising thoughts and feelings while observing them non-judgementally. This has been highlighted as an important skill in regulating one's emotions, whereby enhanced sensitivity to emotional changes allows regulation and reduction of

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negative responses (Papies et al., 2012; Teper et al., 2013). Thus individuals higher in dispositional mindfulness exhibit more cognitive and emotional flexibility which should lead to enhanced psychological well-being (Pepping et al., 2013b).

1.3 Entrepreneurship

Whilst entrepreneurship has often been conceptualised as relating to business ownership, critics argue this definition is too narrow (McKenzie et al., 2007). Indeed, entrepreneurial behaviour can occur in or outside of organisations (Kuratko, 2007), and may not involve business activities (Thompson, 2004). Proposing a more comprehensive definition Shane et al. (2010) suggested entrepreneurial success encompasses any behaviour related to development of innovation, growth and social welfare. Subsequently, Leutner et al. (2014), considering entrepreneurship in relation to individual differences, defined it as incorporating any activities or behaviours that create value through exploitation of opportunities in innovative ways.

In line with this conceptualisation, researchers have focused primarily on analysis of the antecedents of entrepreneurial behaviour and potential. Given that behaviours occur in relation to personalities, entrepreneurial behaviour should be due, at least in part, to individual personalities (Ahmetoglu et al., 2011). While meta-analyses have indeed highlighted significant associations between the Big Five personality traits and entrepreneurship (Brandstatter, 2011), Rauch & Frese's meta-analysis (2007) suggested that narrow personality traits such as innovativeness, are better predictors of entrepreneurship than broader traits such as conscientiousness and extraversion. Moreover these more narrow traits are found to be consistent and moderately strong predictors of most entrepreneurial behaviours (Ahmetoglu et al., 2011). Indeed, although numerous perspectives of entrepreneurial behaviour have been presented, Ahmetoglu's (2015) comprehensive literature review highlighted consistently recurring themes in the definitions of entrepreneurship, which were subsequently translated into the entrepreneurial traits of Creativity, Proactivity, Opportunism, and Vision (defined below).

Creativity as an entrepreneurial trait is the propensity to introduce new ideas and participate in novel and innovative behaviours that result in new products, services, and technology (Lumpkin et al., 1999).

Proactivity occurs when an individual utilises an opportunity and pursues it (Shane & Venkataraman, 2000). Research suggests that proactivity is influenced by personal characteristics (Venkataraman, 1997; cited in Ahmetoglu, 2015) such as willingness to bare risk, optimism, self-efficacy and internal locus of control (Chen et al., 1998; Cooper et al., 1988; Palich & Bagby, 1995; cited in Ahmetoglu, 2015).

Opportunism has been defined as the cognitive process by which a person concludes that they have identified an opportunity (Shane & Venkataraman, 2000). Kuratko & Hodgetts (2004; cited in Ahmetoglu, 2015) suggest that this process may be influenced by individual differences in heuristic thinking, optimism and cognitive alertness.

Vision can refer to the creation of economic, social or cultural value. Research suggests that value creation is directly influenced by individual differences in motivation and behaviours directed towards creating value (Ahmetoglu, 2015).

The identification of these traits lead to the development of the META psychometric instrument (Ahmetoglu et al., 2011), to assess individual differences in propensity to engage in entrepreneurial behaviours. META has shown to be a consistent and moderately strong predictor of most entrepreneurial outcomes over and above a number of broad personality traits including emotional intelligence and core self-evaluations (Ahmetoglu et al., 2011), dysfunctional traits (Akhtar et al., 2013), vocational interests (Almeida et al., 2014), the Big Five personality traits (Leutner et al., 2014) and general mental ability (Ahmetoglu, 2015).

1.4 Rationale

While little or no research is available examining direct links between trait mindfulness and entrepreneurship, existing occupational research may imply a positive relationship between the two constructs. For instance, Malinowski & Lim (2015) found that self-reported dispositional mindfulness positively influenced work engagement, which in turn has been associated with enhanced productivity, profitability and business success (Harter et al., 2002; Simpson, 2009; cited in Malinowski & Lim, 2015). Additionally, Zabelina et al. (2011) also found trait mindfulness (again measured by the FFMQ) was related to creativity. Mindfulness has also been associated with recognition and pursuit of ventures (Kirzner, 1979; cited in McMullen, 2010), and innovative thinking (Kudesia et al., 2015). Consequently, it was hypothesised that trait mindfulness would be positively related to entrepreneurial ability.

When considering the specific facets of the FFMQ, current research may also suggest a positive relationship between these and entrepreneurial traits such as those identified in the META. For example, non-reacting, observing and acting with awareness have been positively related to novel and creative problem solving (Kudesia et al. 2015). A suggested behavioural mechanism underlying this relationship is that individuals, by not reacting to thoughts, can observe them from an inner distance; this enables them to attend to the experience more fully and subsequently consider a wider range of solutions (Teasdale et al., 1995; cited in Kudesia et al., 2015). Davis (2014) also suggested non-reactivity as being related to creative problem solving, citing Kabat-Zinn's notion (1990) that letting go of thoughts and beliefs that are reactions to experiences may leave space for new information. Additionally, acting with awareness and overcoming automatic and habitual responses has been suggested as leading to greater creative problem solving skills (Ostafin & Kassman, 2012) by providing a clearer perspective (Shapiro & Carlson, 2009; cited in Davis, 2014). In line with these studies, it was hypothesised that non-reacting, acting aware and observing would positively predict creativity.

Acting with awareness has also been related to effective performance (Davis, 2014) and could perhaps relate to proactivity. In this case it is argued that a heightened awareness of subjective experience allows individuals to be more adaptable and therefore behave more effectively (Gardner & Moore, 2007; cited in Davis, 2014). Additionally, Malinowski & Lim (2015) demonstrated that non-reactivity and non-

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judging were important predictors of work engagement. Further, the authors found that this positive influence was exerted by increasing hope, resilience, self-efficacy and optimism - psychological resources identified as components of the Psychological Capital (PsyCap) construct (Luthans et al., 2007; cited in Malinowski & Lim, 2015). The relationship of non-reactivity in particular to PsyCap resources may in turn lead to improved locus of control, and thus confidence in challenging tasks, as well as a solution focus (Malinowski & Lim, 2015) and self-motivation (Snyder, 2002; cited in Malinowski & Lim, 2015). Characteristics such as optimism, self-efficacy, locus of control and resilience have been posited as important influences of proactivity (Chen et al., 1998; Cooper et al., 1988; Palich & Bagby, 1995; cited in Ahmetoglu, 2015). Based on this research it was hypothesised that non-reactivity, acting aware and non-judging would positively predict proactivity.

Malinowski & Lim (2015) also suggested that the ability to disengage from automatic responses through non-reacting may assist in setting and maintaining goals (as a function of non-reactivity's positive relationship to hope). Such goal determined motivated behaviour has been cited as an important aspect of value creation/vision (Ahmetoglu, 2015). Thus, it was hypothesised that non-reacting would positively predict vision.

McMullen (2010), building on Gaglio & Katz's model of entrepreneurial alertness (2001; cited in McMullen, 2010) has posited that overcoming habitual mental processes around our perceptions can lead to a heightened awareness (and thus recognition) of opportunities. McMullen's argument may suggest therefore that acting with awareness could positively predict opportunism.

Given that dispositional mindfulness could positively predict entrepreneurial potential, the present study investigated the relationship between the two constructs and specified subscales from each. Due to the current paucity of research in this area and the exploratory nature of the present study, it was a deliberate intention to keep the research design simple so that its brevity ensure high participant. Consequently, the study collected responses to the FFMQ and META inventories, alongside demographic information.

To explore if different levels of current entrepreneurial activity moderate how trait mindfulness predicts entrepreneurial potential, the study focussed specifically on self-employed and employed individuals, as well as students. It was assumed that the self-employed would have a higher level of entrepreneurial activity than employed individuals and students, who have yet to demonstrate entrepreneurial activity. Although not strongly hypothesised, these differences in activity level were expected to result in differences in the strength of relationship between mindfulness and entrepreneurship across the groups.

Consequently, the following hypotheses were identified:

Hypotheses 1: trait mindfulness (as measured by the FFMQ) would positively predict entrepreneurship potential (as measured by META).

Hypothesis 2:

- non-reacting, acting with awareness and observing would positively predict creativity.
- non-reacting, acting with awareness and non-judging would positively predict proactivity.
- acting with awareness would positively predict opportunism.
- non-reacting would positively predict vision.

Hypothesis 3: the relationship between trait mindfulness and entrepreneurial potential would differ between entrepreneurially active and non-active people and student groups, with a stronger relationship expected for entrepreneurially active individuals.

2. Methods

2.1 Design

The study employed a correlational questionnaire design using a regression approach. The META scores of entrepreneurial potential represented the criterion and the mindfulness facets measured in the FFMQ represented the predictor variables. Entrepreneurial activity was examined for moderating effects, with age assessed as a covariate.

2.2 Participants

Participants were drawn from self-employed or employed people who were the researcher's friends or contacts of colleagues in occupational organisations, as well as LJMU students. They were contacted either by e mail, the researcher's Facebook page or via recruitment from the Sona system website. Participants had to be over 18. From the initial 175 respondents, two were identified as outliers during data analysis and subsequently excluded. In the final 173 participants, ages ranged from 18 – 67 years, with a mean age was 33.25 years (SD=13.09). 66% were female (N=114), and 33% male (N=59). 36 were self-employed individuals, 69 employed and 68 students.

2.3 Measures

2.3.1 Questionnaires

The 39-item Five Facet Mindfulness Questionnaire (FFMQ, Baer et al., 2006) measures the general tendency to be mindful in daily life as reflected in the capacities to observe and describe experience, act with awareness, be non-judging, and non-reacting. Examples of items include "I watch my feelings without getting lost in them", and "I am easily distracted". The five facet scales (see introduction) have demonstrated adequate to good internal consistency, with alpha coefficients ranging from .75 to .91 (Baer et al., 2006; see table 1 for values from the present study).

The Measure of Entrepreneurial Tendencies and Abilities (META, Ahmetoglu et al., 2011) is a 65-item self-report scale that assesses four aspects of entrepreneurial personality, namely creativity, proactivity, opportunism and vision. It also provides an

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overall entrepreneurial potential (the sum of all individual subscales). Examples of items include, “I see business opportunities where others don’t”, and “I am usually excited to start new work projects”. The four subscales within META have shown good internal consistency, with observed alpha coefficients ranging from .79 to .91 (Ahmetoglu et al., 2011; see table 1 for values from the present study).

Both questionnaires utilise a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

2.3.2 Demographic information

Participants were asked to provide demographic information, namely age, gender and occupational status. Participants were subsequently categorised as self-employed, employed, or student. Where participants selected more than one occupation, if self-employed and either employed or student was indicated, they were categorised as self-employed; if employed and student was indicated, they were categorised as employed.

2.4 Procedure & Ethical Considerations

The study was conducted subsequent to ethical approval by the Ethics Panel (PSYREP). Participants were provided with a website address and directed to the online questionnaire through the Bristol Online Service. After accessing the survey, participants were briefed about the study and provided with initial participant information. It was explained that participation was voluntary and that they could withdraw at any time. Participants were informed that personal information would remain confidential, and that consent was implied when online responses were submitted. Participants were then asked to provide demographic information, before being prompted to complete the META & FFMQ questionnaires as honestly and accurately as possible. Following completion and submission, participants were presented with debrief information. The researcher’s contact details for were also provided for potential welfare or other issues.

2.5 Data Analysis

Data was collated and input into SPSS 23. Expectation Maximisation procedures were carried out to account for randomly spaced missing values (done for both scales and subscales). All item responses were then individually scored and reliability tested, with columns added for total META/FFMQ scores and sub totals for each trait/facet. Due to Intellectual Property protection, Dr. Ahmetoglu provided the subscale scores and Cronbach’s alpha values for the META. Multiple regression analysis was utilised to explore how facets of mindfulness may predict entrepreneurial traits. Subsequently, moderation analysis was carried out utilising Process 215 plug in for SPSS (Hayes, 2013) to assess how level of entrepreneurial activity (as indicated by the categories of self-employed, employed or student) may affect the relationship between FFMQ scores and META scores.

3. Results

3.1 Test of assumptions

To ensure the collected data was conducive to multiple regression analysis the following assumptions were tested (Field, 2013):

Inspection of the predictor variables showed that they possessed non zero variance. Bivariate correlations between predictor variables were below .8 suggesting no problems with multicollinearity or singularity. Tolerance statistics were below 1 and variance inflation factors were below 10, therefore appearing within the acceptable range, again confirming no issues with multicollinearity. During initial analysis two participants were identified as outliers and excluded. SPSS casewise diagnostics had shown high standard residuals above 3 for the first participant, and for the second, the Mahalanobis distance values indicated a maximum of 25.11, representing a magnitude above the permitted value. Subsequently Mahalanobis distance values registered below the critical values, and Cook's distance values were below 1 suggesting no outlying influences on the model. Standard residuals were between -3 and +3 in all models. Inspection of the histogram suggested a normal distribution with a mean of zero. A normal probability plot also indicated that residuals were normally distributed, and a scatterplot inspection showed that residuals were distributed randomly and evenly, indicating linearity and homoscedasticity. Having satisfied all assumptions for the model, analysis was carried out.

3.2 Descriptive Statistics

Table 1
Cronbach's alpha coefficients and bivariate correlations between Age, the FFMQ scores, and META scores

	N	alpha	1	2	3	4	5	6	7	8	9	10	11
1 Age	171	-											
2 Observing	173	.85	.257**										
3 Describing	173	.90	.382**	.358**									
4 Act Aware	173	.86	.307**	.125	.305**								
5 Non-Judging	173	.92	.344**	.054	.320**	.491**							
6 Non-Reacting	173	.83	.360**	.534**	.462**	.274**	.280**						
7 FFMQ Total	173	.92	.497**	.596**	.721**	.656**	.681**	.714**					
8 Opportunism	173	.88	.173*	.214**	.338**	.194*	.147	.382**	.364**				
9 Pro-activity	173	.81	.206**	.067	.384**	.302**	.290**	.317**	.400**	.643**			
10 Creativity	173	.89	.367**	.352**	.461**	.366**	.259**	.547**	.572**	.626**	.533**		
11 Vision	173	.82	.057	.212**	.307**	.221**	.087	.324**	.327**	.535**	.539**	.486**	
12 META Total	173	.94	.250**	.262**	.458**	.336**	.241**	.483**	.513**	.841**	.826**	.815**	.792**

*correlation is significant at 0.05 (2-tailed)

**correlation is significant at 0.01(2-tailed)

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Table 1 shows the bivariate correlations for each dependent and independent variable. Cronbach's Alpha values are also given for the FFMQ and META totals, and subscales of each instrument. Initial inspection of the bivariate correlations showed a significant relationship between age and total META score (and all of the META components, except Vision). Age was therefore included as a covariable in the subsequent regression model. A significant correlation was also highlighted between total FFMQ score (as well as all FFMQ facets scores) and total META score.

3.3 Predicting META

To elaborate on the relationships identified above, a forced entry multiple regression was employed to ascertain the prediction of total META score from age and total FFMQ scores.

Table 2. Results of multiple regression exploring the predictor variables age and FFMQ total in respect of META scores as the outcome variable

Predictor Variable	<i>b</i>	<i>SE b</i>	<i>Beta</i>	<i>P</i>
Age	.03	.16	.01	.87
FFMQ (total)	.69	.11	.48	.001

A significant model was observed [$F(2, 168) = 25.70; p < .001$] accounting for 23% of the variance in the general sample (adjusted R -squared = .23). As shown in Table 2, total FFMQ scores were shown to be a significant predictor of META scores (Beta = .48, $p < .001$), while age was not (Beta = .01, $p > 0.05$).

3.4 Predicting META from the Facets of FFMQ

Further multiple regression analyses were carried out to distinguish how the FFMQ facets may individually contribute to the prediction of META scores. Given that the order of entry may influence the interaction of the model, FFMQ facets were entered according to the strength of their bivariate correlations with Total META scores (see Table 1). Subsequent exploratory analyses employing forward, backwards and entry regression approaches yielded a similar pattern of results confirming the robustness of the order.

Table 3. Results of a multiple regression exploring the individual facets of the FFMQ and their relative contribution to the prediction of META scores

Predictor Variable	<i>b</i>	<i>SE b</i>	<i>Beta</i>	<i>P</i>
Age	-.002	.16	-.001	.988
Non-Reacting	2.16	.52	.34	.001
Describing	1.23	.37	.26	.001
Acting Aware	.77	.39	.15	.049
Observing	-.21	.36	-.05	.568
Non-Judging	-.06	.30	-.02	.851

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Again the model appeared significant [$F(6, 164)=11.82$; $p<.001$] accounting for 28% of the variance in the general sample (adjusted R -squared =.28). As highlighted in Table 3, the Non-Reacting facet was found to be the strongest predictor of the variance in the META scores (Beta = .34, $p<.001$), with Describing (Beta = .26, $p<.01$) and Acting Aware (Beta = .15, $p<.05$) also contributing significantly to the model. The Non-Judging and Observing facets however did not contribute significantly to the prediction of META scores. Additionally, age was not a significant contributor to the model and did not predict total META scores. Consequently age was excluded as a variable in subsequent analyses.

3.5 Predicting META Traits

Multiple regression analyses were carried out to distinguish how the FFMQ facets may individually contribute to the prediction of META subscale scores. Mindfulness facets were entered into the models based on their hypothesised importance for each META subscale (Hypothesis 2).

3.5.1 Creativity

Table 4. Results of a multiple regression exploring the individual facets of the FFMQ and their relative contribution to the prediction of Creativity scores

Predictor Variable	<i>b</i>	<i>SE b</i>	<i>Beta</i>	<i>P</i>
Non-Reacting	.77	.16	.37	.001
Acting Aware	.34	.12	.20	.006
Observing	.08	.11	.05	.462
Describing	.34	.11	.22	.003
Non-Judging	-.02	.10	-.01	.853

For Creativity the model was significant [$F(5, 167)=21.28$; $p<.001$] accounting for 37% of the variance (adjusted R -squared =.37). Table 6 shows that Non-Reacting was found to be the most significant contributor to Creativity scores (Beta = .37, $p<.001$), with Acting Aware also significant (Beta = .20, $p<.01$). While these observed relationships were in line with hypothesis 2, contrary to what was proposed, Observing was not a significant contributor to the model (Beta = .05, $p>.05$). Additionally, Describing (Beta = .22, $p<.01$) was found to be a significant contributor, and the second strongest predictor in the model.

3.5.2 Proactivity

Table 5. Results of a multiple regression exploring the individual facets of the FFMQ and their relative contribution to the prediction of Proactivity scores

Predictor Variable	<i>b</i>	<i>SE b</i>	<i>Beta</i>	<i>P</i>
Non-Reacting	.42	.17	.22	.013
Acting Aware	.22	.12	.14	.084
Non-Judging	.10	.10	.08	.313
Describing	.40	.12	.28	.001
Observing	-.24	.12	-.17	.040

For Proactivity the model was significant [$F(5, 167)=9.94$; $p<.001$] accounting for 21% of the variance (adjusted R -squared =.21). As highlighted in Table 5, Describing was found to be the most significant contributor to Proactivity scores (Beta = .28, $p<.01$). Non-Reacting (Beta = .22, $p<.05$) was also found to be a significant contributor to the model, as proposed in hypothesis 2. Observing was found to have a significantly negative relationship with Proactivity (Beta = -.17, $p<.05$). Contrary to the expected relationship proposed in hypothesis 2, Acting Aware (Beta = .14, $p>.05$) and Non-Judging (Beta = .08, $p>.05$) did not significantly predict Proactivity scores.

3.5.3 Opportunism

Table 6. Results of a multiple regression exploring the individual facets of the FFMQ and their relative contribution to the prediction of Opportunism scores

Predictor Variable	<i>b</i>	<i>SE b</i>	<i>Beta</i>	<i>P</i>
Acting Aware	.10	.11	.07	.375
Non-Reacting	.48	.15	.29	.002
Describing	.251	.11	.20	.018
Non-Judging	-.034	.09	-.03	.694
Observing	-.023	.10	-.02	.822

In this case the model was significant [$F(5, 167)=7.46$; $p<.001$] and accounted for 16% of the variance in the general sample (adjusted R -squared =.16). As shown in Table 4, the Non-Reacting facet was found to be the strongest predictor of the variance in Opportunism (Beta = .29, $p<.01$), with Describing (Beta = .20, $p<.05$) also contributing significantly to the model. The Non-Judging and Observing facets however did not contribute significantly to the prediction of META scores. Contrary to hypothesis 2, Acting Aware was not found to significantly predict Opportunism (Beta = .07, $p>.05$).

3.5.4 Vision

Table 7. Results of a multiple regression exploring the individual facets of the FFMQ and their relative contribution to the prediction of Vision scores

Predictor Variable	<i>b</i>	<i>SE b</i>	<i>Beta</i>	<i>P</i>
Non-Reacting	.45	.20	.22	.019
Describing	.30	.13	.20	.025
Acting Aware	.27	.14	.16	.060
Non-Judging	-.15	.11	-.11	.183
Observing	.02	.13	.02	.865

The model for Vision was significant [$F(5, 167)=6.22$; $p<.001$] with 13% of the variance (adjusted R -squared =.13) accounted for. Table 7 highlights that Non-reacting was also found to be the most significant predictor of Vision (Beta = .22, $p<.05$) and this relationship was in line with hypothesis 2. Describing was also found to be a significant predictor (Beta = .20, $p<.05$) to the model.

3.5.5 Entrepreneurial activity as Moderator

During moderation analysis, self-employed, employed and student status were combined as a multi-categorical variable and entered into Process moderation model 1 with META score as the dependent, and FFMQ score as the independent variables. Moderation analysis was subsequently carried out utilising the indicator coding method. Students were considered a baseline group against which the remaining groups were compared (it was inferred that generally, they would have had less opportunity to exhibit entrepreneurial activity).

Table 8. Results of a moderation analysis exploring how entrepreneurial activity (indicated by self-employed, employed or student status) moderated the relationship between FFMQ scores and META scores

Moderator Variable	<i>b</i>	<i>SE b</i>	<i>t</i>	<i>P</i>
Employed	.35	.30	1.18	.24
Self-employed	-.14	.33	-0.45	.68

Analysis showed that the moderation model was significant [$F(95,167)=15.91$; $p<.01$] and accounted for 32% of the variance in META scores (R -squared=.32). Table 8 shows that no significant interaction effects were found suggesting that the relationship between FFMQ scores and META scores was not moderated by employment status.

Confirming this finding, analysis also highlighted, as shown in Table 9, that at each level of entrepreneurial activity the prediction of META scores by FFMQ scores was sufficiently similar (despite a non-significant relationship found for self-employed) to suggest that no moderating effects occurred.

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Table 9. The effect of FFMQ scores as a predictor of META scores in each level of entrepreneurial activity

Moderator Variable	<i>b</i>	<i>SE b</i>	<i>t</i>	<i>P</i>
Student	.50	.20	2.53	.00
Employed	.85	.23	3.77	.01
Self-employed	.36	.27	1.35	.18

3.5.6 Summary of Results

In summary, the total FFMQ score significantly predicted total scores for META.

Non-reacting was found to significantly predict Proactivity, Creativity and Vision, with Acting Aware found to be a significant predictor of Creativity. However, Acting Aware did not significantly predict Opportunism or Proactivity, and Non-judging was not found to significantly predict Proactivity or Creativity (see table 10 for overview).

Additionally, no moderating effects were found for level of entrepreneurial activity on the relationship between FFMQ scores and META scores.

Table 10. Overview of the FFMQ facets' predictive relationships to the META total & subscales

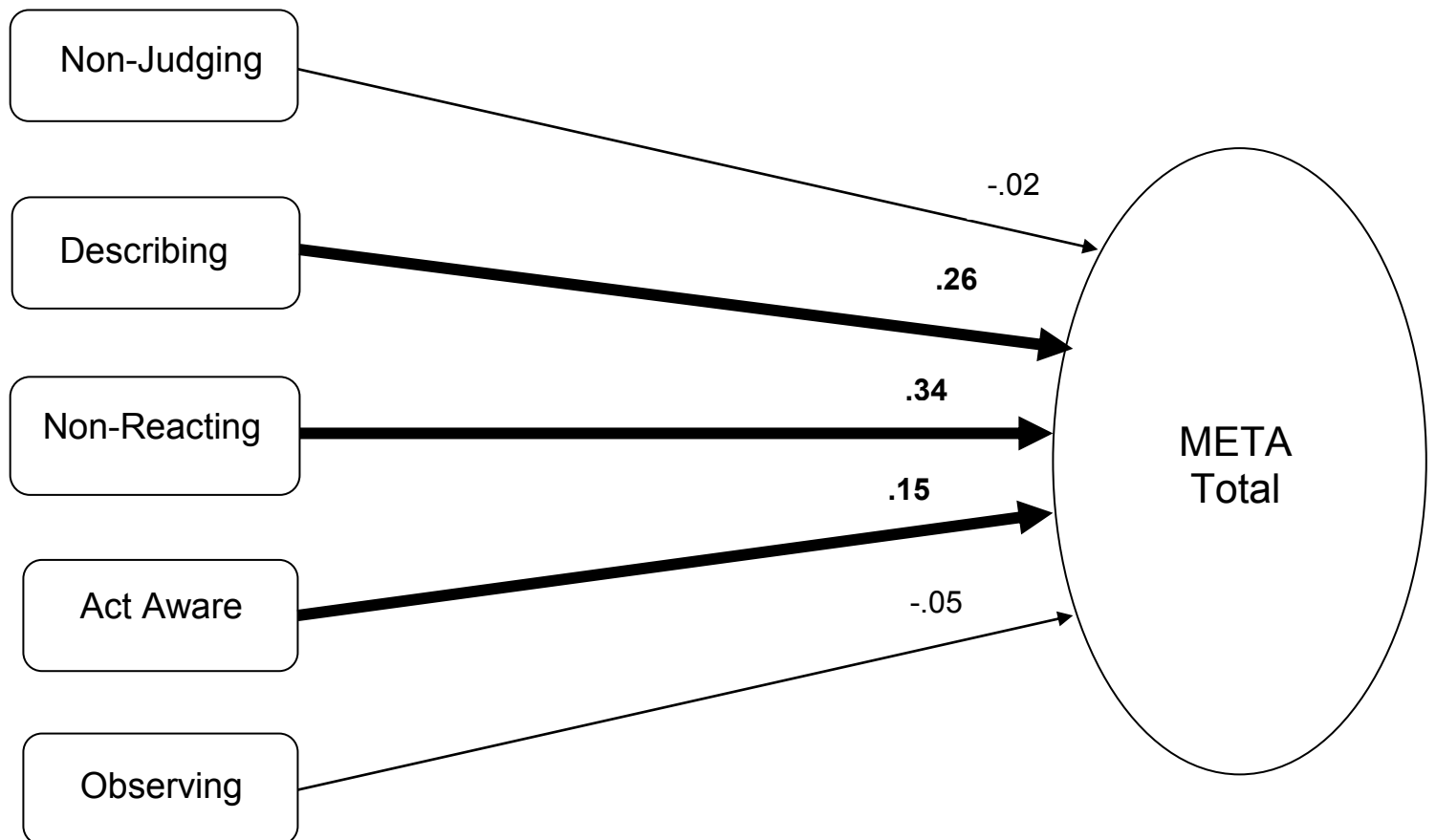
	META	Creativity	Proactivity	Vision	Opportunism
Non-Judging	0	0	0	0	0
Describing	+	+	+	+	+
Non-Reacting	+	+	+	+	+
Acting Aware	+	+	0	0	0
Observing	0	0	-	0	0

Notes: (+) denotes a significant positive predictor; (-) denotes a significant negative predictor; (0) indicates a non-significant relationship.

Shaded green areas show results in support of, while red areas show results counter to, hypothesis 2.

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Figure 1. Conceptual diagram of the main regression model analysis. Similar regression analyses were computed for each of the META subscales.



Notes: Arrows & coefficients in *bold* indicate statistically significant relationships.

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4. Discussion

4.1 Summary of Findings

The aim of the present study was to determine if mindfulness as measured by the FFMQ predicted entrepreneurial potential as measured by the META. In line with hypothesis 1, total FFMQ score was shown to significantly predict the total scores for META. Hypothesis 1 was therefore accepted. In further regression analyses, the individual facets of non-reacting, describing and acting with awareness were found to positively contribute to the prediction of overall META scores (As depicted in Figure 1).

An additional objective was to examine if individual FFMQ facets would positively relate to individual META traits. In line with hypothesis 2, Non-reacting was found to significantly predict proactivity, creativity and vision, with acting with awareness found to be a significant predictor of creativity. However, contrary to the hypothesis, acting aware did not significantly predict opportunism or proactivity; non-judging was not found to significantly predict proactivity; and observing did not significantly predict creativity. Consequently hypothesis 2 was only partially accepted.

A further aim was to investigate if the relationship between mindfulness and entrepreneurial potential differs between people who are entrepreneurially active (categorised as self-employed), those who are entrepreneurially non-active (employed), and students who as yet have had no opportunity to demonstrate entrepreneurship. No moderating effects were found for level of entrepreneurial activity on the relationship between FFMQ scores and META scores; therefore hypothesis 3 was rejected.

4.2 Links to previous research & Explanation of Results

The finding that dispositional mindfulness positively predicts entrepreneurship complements research that has previously related mindfulness to occupational settings, such as Malinowski & Lim's (2015) study which found that dispositional mindfulness influenced work engagement, which in previous research has been positively associated with enhanced productivity, profitability and business success (Harter et al., 2002; Simpson, 2009; cited in Malinowski & Lim, 2015). This current finding may also align with McMullen's (2010) argument for mindfulness being associated with entrepreneurial alertness, and add weight to the evidence that Mindfulness may aid in innovative thinking (Kudesia et al., 2015).

The finding that non-reacting was the most significant predictor of creativity supports previous evidence for the relationship between non-reactivity and innovation and creative problem solving (Davis, 2014; Kudesia et al., 2015). In terms of its relationship to creativity, it has been posited that non-reacting – signified by the ability to not react to initial thoughts, sensations and experiences - allows individuals to attend to their experience more fully and leave space for new information, allowing consideration of a

wider range of possibilities and hence novel or innovative solutions (Teasdale et al., 1995; cited in Kudesia et al., 2015).

In previous studies non-reacting has also been positively related to hope, resilience, self-efficacy and optimism (Luthans et al., 2007; cited in Malinowski & Lim, 2015). Through enhancing these characteristics non-reacting may in turn lead to improved locus of control, task confidence, and a solution focus (Malinowski & Lim, 2015) as well as self-motivation (Snyder, 2002; cited in Malinowski & Lim, 2015) which are all traits considered important influences of proactivity (Chen et al., 1998; Cooper et al., 1988; Palich & Bagby, 1995; cited in Ahmetoglu, 2015). The current finding that non-reacting significantly predicts proactivity suggests a potential direct relationship between the two constructs.

Non-reacting has also been suggested, through its relationship with hope, to potentially enhance goal-directed behaviour (Malinowski & Lim, 2015). Motivation towards goals is considered an important component of vision (Ahmetoglu, 2015), hence the current finding that non-reacting relates to vision may suggest a more direct behavioural link between the two traits. The ability to remain calm and disengage from automatic responses towards distress has been cited as an important determinant of goal-setting behaviour (Malinowski & Lim, 2015) and thus may offer a potential explanation for how non-reacting may influence vision.

The previous identified relationship between acting aware and creative problem solving (Ostafin & Kassman, 2012; Shapiro & Carlson, 2009; cited in Davis, 2014) was also supported in the current findings. It is posited that acting with awareness and overcoming automatic behaviour is important to enable generation of novel ideas and solutions (Teasdale et al., 1995; cited in Kudesia et al., 2015). However, no evidence was found to link acting with awareness to proactivity, despite previous studies associating the trait with aspects of proactivity, such as effective performance (Davis, 2014; Gardner & Moore, 2007; cited in Davis, 2014). Equally there was no evidence to support McMullen's (2010) assertion that acting with awareness would enhance recognition of opportunities.

The finding that non-judging did not significantly predict proactivity could be seen as contrary to Malinowski & Lim's (2015) observation that the trait may positively affect work engagement. However the authors had proposed that non-judging had only a minor role as a predictor of work engagement and that its influence had been indirect via its relationship with positive affect. It is therefore perhaps not too surprising that no direct relationship was identified between non-judging and proactivity.

Additionally, the present study found no evidence to concur with reports relating observing to creativity (Kudesia et al. 2015). Indeed, observing was found to negatively predict proactivity. In other studies observing has been unexpectedly positively correlated with absentmindedness, psychological symptoms, thought suppression and negatively with non-judging (Baer et al., 2006). Further, in a hierarchical model Baer et al. (2006) found all FFMQ facets except observe were shown to be components of an

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overall mindfulness construct, although in a sub-group with meditation experience this was not the case. This may indicate that individuals not experienced in mindfulness may easily misinterpret such FFMQ items, where they may instead reflect exaggerated self-attention (Bergomi et al., 2013). Further, the FFMQ items for observing, which address external stimuli, may involve aspects such as strain and effort to pay attention, and consequently not pertain to the quality of perception that is an essential component of mindfulness. These observations and potential issues may go some way to explaining the current findings.

Perhaps the most unexpected observation in the present study was the positive influence of the describing facet on all META traits. Malinowski & Lim (2015) found that describing significantly related to self-efficacy (Beta = .23) but did not identify any significant influence on work engagement. However, other studies have found a positive association between self-efficacy and work engagement (Bakker et al., 2011; Xanthopoulou et al., 2007; cited in Malinowski & Lim, 2015) and also identified self-efficacy as an important characteristic in proactivity (Chen et al., 1998; cited in Ahmetoglu, 2015), suggesting a possible pathway by which describing may impact on occupational behaviours. It has been posited that the ability to label and express cognitive and emotional experiences may prevent individuals from fixating on self-critical thoughts and feelings (Baer et al., 2006) enabling them to pursue activities without being overwhelmed. This may suggest a possible mechanism by which describing may influence entrepreneurial traits.

The fact that no moderation effects were found among the different employment status groups may not necessarily suggest entrepreneurial activity has no effect on the relationship between mindfulness and entrepreneurship. This may simply reflect the idea that entrepreneurship is as likely to be exhibited within employment or student positions as in self-employed positions (Kuratko, 2007; Thompson, 2004). That said, in the present study the groups may not have been particularly well defined. Participants chose a status without any qualification given about the level of entrepreneurial activity undertaken in those roles. Additionally, there was a degree of overlap between categories where participants chose more than one occupation, for instance, 97 participants were employed, but of these, 19 were students, perhaps making distinctions between levels of entrepreneurial activity in these groups not sufficiently clear. Consequently the categories of self-employed/employed/student in this study may have been too arbitrary to provide any meaningful analysis.

4.3 Limitations

One of the study's limitations was that it relied exclusively on self-report measures. Consequently participants may have differed in their understanding and interpretation of items across both FFMQ and META scales. Regarding the FFMQ, some unexpected results in previous studies have been attributed to significant differences in how items were understood semantically (Grossman, 2011; cited in Bergomi et al., 2013). Furthermore, participants having prior experience of mindfulness may have lead to biased or inflated FFMQ scores, as conscious attempts are made to answer items in

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accordance with a desire to confirm themselves as mindful (or not). This may have been a particular issue given that 67 participants were psychology students who may have had mindfulness based lectures.

The current findings evidenced mindfulness as multi-faceted. However, due to the lack of a consensual definition, there are differing conceptualisations of the construct, as well as several questionnaire measures. Therefore caution should be exercised with generalising the current findings across differing conceptualisations (Bergomi et al., 2013).

4.4 Future Studies

With the current study representing an exploratory venture into the relationship between mindfulness and entrepreneurship, there remain many avenues for further research. To add to the current study one could employ more objective measures of current entrepreneurial activity as well as past entrepreneurial achievement. This would allow a more robust moderation analysis, as well as an examination of potential behavioural mediators, but also allow an examination of how the dispositional mindfulness/entrepreneurship link may relate to real world experience. A further recommendation would be for researchers to utilise more clearly defined sample groups, for example comparing mindfulness and entrepreneurial traits among groups of entrepreneurs of differing achievement levels (perhaps using turnover as a parameter) or comparing serial entrepreneurs against long-term employed or unemployed individuals. Additionally, one could examine the entrepreneurial potential/activity in groups of long-term meditators compared to meditative naive groups, and/or groups partaking in a MBI. Further, employing a longitudinal, experimental format, one could examine the effects of a MBI on entrepreneurship compared to control groups over time. Lab based research could also be utilised to examine for the effects of a brief MBI on an entrepreneurship task. These types of designs would allow researchers to examine how the different mindfulness/entrepreneurial components develop and interact, and determine potential causal mechanisms involved in the relationship. Additionally, qualitative study could also be undertaken to help gain an understanding of subjective perspectives of how mindfulness may affect entrepreneurship in daily life.

4.5 Implications

Given that entrepreneurship has been cited as a major source of wealth creation, technological innovation, employment and personal development (Mortana et al., 2014), the positive findings observed in the present study suggest that further research to establish and elucidate on the relationship between mindfulness and entrepreneurship is warranted. Future research could potentially uncover causal mechanisms of behaviour that could lead to the development of interventions to improve entrepreneurial abilities. Such interventions could be important for vocational guidance programmes or in educational settings to nurture entrepreneurship. Organisations could also benefit from developing employees, managers and leaders to gain competitive advantage. The finding that the non-reacting and describing facets were the most significant predictors

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of META traits suggests that the ability to allow distressing experiences to come and go without ascribing undue meaning to them, as well as the ability to mentally label cognitive and emotional experiences, may be particularly important skills to enhance entrepreneurial abilities. Thus, based on the present study, the development of interventions could perhaps focus on these traits as potentially important antecedents of enhanced entrepreneurship.

4.6 Conclusion

Given the paucity of research into the link between mindfulness and entrepreneurship, the present study represented an exploratory step toward establishing a meaningful link between the two constructs, providing useful insights for further research. The study found that dispositional mindfulness (as measured by the FFMQ) significantly predicts entrepreneurial ability (as measured by the META). Level of entrepreneurial activity, as indicated by employed status, was not found to have any moderating effect on this relationship. The mindfulness facets of non-reacting and describing were found to be the most significant predictors of entrepreneurial traits, suggesting that they may be particularly important skills relating to entrepreneurship. Interventions which emphasise the development of these facets in particular may hold promise for educational and occupational settings wishing to promote entrepreneurship.

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