

The mediating role of temperament and character on the relationship between mindfulness and entrepreneurial personality*

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The number of studies investigating the concept of entrepreneurship has increased in recent years, with efforts now focusing on using different disciplines and models to gain an understanding of its characteristics such as personality, psychology, and biological features being of particular interest. Within this context, this study seeks answers whether both the personality and psychology variables affected entrepreneurship. A group of entrepreneurs (n=197) from the Turkish city of Konya, a city renowned for the dynamism of its SMEs (Small- and Medium-Sized Enterprises), is used as the study sample. The results indicate that the full model explains 63% of the variance; yet, only temperament seems to mediate this relationship but not the character.

Keywords: Temperament and Character, Mindfulness, Entrepreneurship, SMEs

JEL: L2, L26

1. Introduction

Economic recession, unemployment rates and fluctuations are reasons that have led policy makers in many countries to pay attention to the role of self-employment and entrepreneurship as means of job creation, and to the importance of fostering an entrepreneurial, creative and innovative workforce in the economy as strategies for promoting economic prosperity (ILO 2011). The Entrepreneur is defined as the most important factor in a modern economy, as a person that recognizes and exploits opportunities (Carlsson *et al.* 2013). In recent years, studies of entrepreneurship have also questioned why certain entrepreneurs are successful while others are not, focusing on all aspects of successful and unsuccessful ventures (Baron/Henry 2010). Until now, entrepreneurship has been investigated with different dimensions and factors, such as personality (e.g. conscientiousness, assertiveness), contextual and career choice factors (Thornton *et al.* 2011; Gorgievski/Stephan 2016). The question as to whether entrepreneurship is “na-

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ture or nurture” in an individualistic dimension has not yet been fully answered (Zunino 2013).

The main purpose of this research is to seek answers for this “nature or nurture” phenomenon, by developing a theoretical model and testing it empirically in the field. The majority of research is derived from Western culture and studies from the East appear to be few and far between. Could the same rules of the game be applicable in an Eastern context, where the majority is collectivist and where religious beliefs have a far greater influence on individuals? The importance of context that interacts with a variety of constructs in entrepreneurship literature has been at the center of debates for a while (Boettke/Coyne 2009; Thornton *et al.* 2011). And it is argued that the entrepreneurs act within a context determined by the rules. It is also likely that some of these rules create payoffs that make certain entrepreneurial opportunities more attractive than others (Boettke/Coyne 2009:135). To some, entrepreneurship is even embedded in its social context (Thornton *et al.* 2011). There might not be “one particular entrepreneurial personality type” (Gorgievski/Stephan (2016:451) different individuals can be successful entrepreneurs in different contexts. Here we propose that mindfulness may serve as a context (i.e. nature) that affects entrepreneurship via temperament-character (i.e. nurture).

Although studies about entrepreneurial personality abound, as well as psychology of entrepreneurs there are still gaps that need to be filled. Our study tries to extend this vein by incorporating context and under investigated personality traits of Cloninger (1994) in entrepreneurship. The prevailing personality concepts in entrepreneurship are usually based on models such as 5 Factor (Brandstätter 2011) models. Additionally, we think another important aspect of the recent research is that it includes real entrepreneurs in a developing country context.

2. Conceptual Framework and Hypotheses

2.1. Entrepreneurship Literature

Earlier studies ignored the role of entrepreneurial activity in an economy because traditional neoclassical economics are interested more in equilibrium. Behavioral scientists such as McClelland (1961) continued with the theoretical development as well as empirically studied entrepreneurship. He queried about the reasons for economic growth and decline and the role of the entrepreneur in the midst (Carlsson *et al.* 2013). Other researchers followed these attempts at the behavioral approach and the foci shifted towards the *traits* of the individual entrepreneur. Gartner (1988), for example, made a distinction between entrepreneurs and non-entrepreneurs, such that “an entrepreneur is a set of personality traits and characteristics” and from a behaviorist perspective “it as a set of activities involved in organization creation” (p.47). Carlsson *et al.* (2013) argue

that this trend led towards “intrapersonal” processes of individual entrepreneurs and incorporates social cognition, attribution, attitudes, and the self.

According a recent literature review (Gorgievski/ Stephan 2016) there are two streams of research emerged in entrepreneurship. The first stream addresses the concept as an occupation in terms of self-employment and business owner-managers. And this category appears to be still popular. Second stream concentrates on “entrepreneurial action and processes.” With processes it is meant “the identification and/or creation and exploitation of opportunities are seen as central to entrepreneurship (Shane/Venkatraman, 2000 as cited in Gorgievski/ Stephan 2016). Similarly, Carlsson *et al.* (2013) hold a parallel view and state that one of two main approaches in the field of entrepreneurship research is first, the creation of new enterprises and their role in elevating the economic progress. The second is “the discovery and exploitation of entrepreneurial opportunities, the individuals involved, and the modes of action used to exploit the opportunities” (p.922). The first constitutes “the exploitation side” and the latter “the explorative side.” Notwithstanding their contradictory notion, these two views co-exist because both want to create new economic activities at different levels, after all.

To emphasize the embeddedness of entrepreneurship in their social contexts, scholars draw attention to the influence of socio-cultural factors on the decisions to create new businesses (Thornton et al 2011). The literature abounds with personal and economic factors (Thornton et al 2011; Gorgievski/Stephan 2016). Yet, the number of studies that deals with contextual factors is scant. Recent studies seem to be diversified and scholars from different disciplines get involved in investigating entrepreneurship phenomenon. According to Carlsson *et al.* (2013) entrepreneurship issue is still evolving and from the explorative perspective it is narrowing the “focus on stable characteristics of individuals”; from the exploitation perspective the new paradigm addresses small businesses, family firms, and internal venturing that entails discovery and exploitation of opportunities, in these different organizational contexts (p.923).

Another group of scholars furthered entrepreneurship research into biology and socially interwoven models (e.g. biosocial entrepreneurship) (White *et al.* 2007) and interesting research themes have been picked up (e.g. AD/HD Symptoms, Prenatal Testosterone Exposure, genetics variants, etc.). Due to our choice of psychobiological variables as mediators our study could be categorized within that strand as well.

2.2. Mindfulness

Mindfulness which was originated from Buddhist practices is defined as “Keeping one’s consciousness alive to the present reality with self-regulation of attention and it is explained by curiosity, openness and acceptance (Hanh 1976:11;

Bishop *et al.* 2004). The word of “Sati” is used to explain practices of mindfulness in the Pali language, which is regarded as the language of Buddhist Philosophy (Weick/Putnam, 2006). The meaning of Sati is to remember something; but rather than the past time, it means the ability to hang on to the present. The eastern form of mindfulness underwent some changes when it was introduced into Western culture (Feldman *et al.* 2007). Thus, two different approaches arose, as Western and Eastern forms.

In Eastern approach of mindfulness related studies revealed the internal attitudes and self-development features of mindfulness. Mindfulness is a concept based on the notion of “bare attention,” which means clear and single-minded awareness of what actually happens to us and in us, at the successive moments of perception in oriental Buddhist philosophy (Thera 1962). Thera called it “bare” because it attends to the bare facts of a perception without reacting them by any means of behavior. Some researchers like Brown /Ryan (2003:822) make a distinction between consciousness and other modes of mental processes in such that consciousness encompasses both awareness and attention. Awareness is acting like a type radar at the background that continually monitors the inner and outer world. Both awareness and attention functioning together refer to concentrating on present reality. Centrifugal forces, which distract mental processes, disappear and centripetal tendency, which helps the mind in the concentration process, gains strength in bare attention processes.

It is generally accepted that Langer’s studies helped to shape mindfulness into its present Western form (Weick/Sutcliffe 2006). This form of mindfulness is used to assist with decision-making, the balancing of emotions, and reducing daily fatigue and stress (Feldman *et al.* 2007) and becomes dominant view of social psychology. While this concept is being extensively used in psychology studies relating to the *self*, it has also found use in studies on the fields of training and education (Baysal/Demirbaş 2012).

Nevertheless, another form, psychotherapy studies by John Kabat-Zinn, has been started to emerge in the West towards 1980 s. This therapy, by utilizing the individual’s own potential in treating its psychological ailments, has been used to bring forward individuals’ own potential at a strategic and lower level, and to enable them to make decisions that would yield effective and productive results (Kabat-Zinn 1994). This third approach successfully mixes psychological and meditational elements towards effective clinical applications and promotes relaxation techniques that mitigate stress, depression, eating disorders, chronic pain etc.

There are also some studies (Gaj 2013) that reveal the role of mindfulness to treat certain psychological disorders by altering personalities (e.g. temperament and character). Recent studies go even further as to claim that mindfulness practice has the power to change gene expressions (Sakai 2013). Lastly, to the best

of our knowledge, very few studies take a look into its association with entrepreneurship except Rerup (2005) and Gordon/Schaller (2014).

2.3. *Mindfulness and Entrepreneurship*

It is interesting that the number of studies on the relationship between mindfulness and entrepreneurship are fairly limited and rather theoretical in nature. The present study associates mindfulness to entrepreneurship via a three-fold link discussed in detail below.

In his studies on mindfulness, Langer (1989) highlights five important aspects of mindfulness (p.49): Openness to novelty (the ability to reason with relatively novel kinds of stimuli), alertness to distinction (the ability to distinguish minute differences in the details of an object, list, action, or environment), sensitivity to different contexts (tasks and abilities will differ depending on context), awareness of multiple perspectives (the ability to think dialectically), and orientation in the present (paying attention to current surroundings). Similarly, Karelaia / Jochen (2014) argue that mindfulness may be beneficial during decision-making processes. By enhancing goal awareness and facilitating variety of options as well as shortening the time of information search, it is possible to improve the quality of information for decisions. Additionally, it may also “reduce confirmation bias and overconfidence, allow decision makers to better differentiate between relevant and irrelevant information” (Karelaia/ Jochen 2014:163). In light of these views, mindfulness could assist entrepreneurs in two ways: by increasing recognition of opportunities and improving the quality and the precision of the decisions in dynamic and ambiguous environments. Entrepreneurship requires individual awareness of one’s competencies, as well as the ability to assess opportunities in situational and temporal terms; thus, entrepreneurship might be closely related to mindfulness. It is also plausible to relate certain traits of Langer’s mindfulness definition such as alertness to distinction and awareness of multiple perspectives to entrepreneurship. Here, it reminds us Kirzner’s theory of entrepreneurial alertness because mindfulness has been accepted as an enabler of entrepreneurial alertness (Corbett/ McMullen 2007). According to this, to ensure healthy business practices and finances, the entrepreneur must be able to notice situations that can cause problems in the market and turn them into opportunities; this, in turn, depends on the entrepreneur’s level of alertness. Thus, the entrepreneur is capable of transforming problems into business opportunities. Based on this theory, Gaglio/Katz (1986) developed a model regarding the entrepreneur’s readiness in identifying opportunities. This model evaluates how alertness increases the entrepreneur’s awareness of new situations that may harbor commercial opportunities. This model, called *mental schemata*, evaluates the knowledge and beliefs used by the individual to interpret events in his/her environment. The ability to make such interpretations, which determines alert-

ness, normally functions at an unconscious level, and is not affected by the current situation of the individual; however, such interpretative processes become routine behavior in individuals with entrepreneurial characteristics. These authors also emphasized a number of points to distinguish mindfulness from the concept of alertness. One of these is that “the ability to notice opportunities” is part of a mental process that may be absent in certain individuals. The presence or absence of this mental process is what sets entrepreneurs apart from non-entrepreneurs; this may lead to the question as to whether entrepreneurs are born or raised. In this respect, it is possible to suggest that mindfulness support this mental process (Corbett/McMullen 2007).

In cases of uncertainty or risk, individuals with high mindfulness can show flexibility and adapt to circumstances in order to minimize negative effects (Weick/Sutcliffe 2001). Gordon/Schaller (2014) demonstrate in their study that mindfulness as a cognitive construct affects the identification and processing of information during market analysis and eventually leads to opportunity evaluation. Researchers describe that strategists who can effectively anticipate the future generally possess the ability to act rapidly, to form different perspectives by acting flexibly, and to act based on new information in situations of uncertainty; in other words, such strategists exhibit a high level of mindfulness (Haynie *et al.* 2010). Such behaviors are considered innate in these individuals, and it is claimed that their ability to readily turn any opportunity they encounter into a venture or initiative is indicative of a perspective and awareness that is different from other individuals in society. When attempting to explain entrepreneurial behaviors, researchers focus on these types of individuals to determine their cognitive decision-making processes (Haynie *et al.* 2010; McMullen/Shepherd 2006). According to Hitt *et al.* (1998), individuals with entrepreneurial thinking are capable of using different perspectives to make dynamic decisions that support development, even in situations of uncertainty. Such individuals are able to review the current situation and to act flexibly according to new information; to restructure their organization, communication network, and material and human resources depending on the prevailing conditions; and to ensure the sustainability of their daily decisions that also include investment strategies. In fact, the main requirements for mindfulness, which are dynamism, flexibility, and ability to adapt to uncertain situations, are also considered as the basic skill that define entrepreneurial individuals (Haynie *et al.* 2010). The literature on social cognition describes the entrepreneur as a motivated decision-maker within an entrepreneurial framework (Carlsson *et al.* 2013).

In this context, mindfulness allows the individual entrepreneur to take action whenever he/she senses a potential opportunity. Attention and awareness allow the individual to work normally in routine tasks, while mindfulness indicates the ability to influence events or to look at them from a different perspective

(Langer/Piper 1987). Within the frame of the present study's model, the following hypothesis was developed:

Hypothesis 1: Mindfulness significantly and positively affects entrepreneurial personality.

2.4. Temperament and Character

Cloninger (1994), one of the leading pioneers of the psychobiology theory that proposes that personality is shaped since birth by inherited characteristics, has proposed a psychological model that comprises both character and temperament-related components. According to this model, temperament is defined as a behavioral or emotional characteristic that differs between individuals, which appears during the early years of life and remains relatively constant in the remaining part of life, and which occurs partly in association with biological effects and influences (Cloninger 1994). Character, on the other hand, is shaped through learning and the combination of factors and temperaments based on schematic knowledge acquired through learning. In this context, there are four temperament dimensions (novelty seeking, harm avoidance, award dependence, and persistence) that are assumed to be genetically different, constant throughout life, and invariable in face of sociocultural effects, and which are believed to have pre-cognitive effects on perceptual memory. There are also three-character dimensions considered to be affected by the interaction of environmental factors with genetic factors during growth and development; these include self-directedness, cooperativeness, and self-transcendence. The concept of persistence, which is the fourth temperament factor that is also considered as one of the components of award dependence during development, refers to continuity despite obstruction, fatigue, and reinforcement at certain intervals, and is considered as evidence for hereditary tendencies (Cloninger 1994). This model, used for diagnostic purposes in psychiatry, constitutes our study's second theory.

2.4.1. Mindfulness and its Relationship with Temperament and Character

Studies on mindfulness and temperament have generally focused on the relationship between effortful control, an aspect of temperament, and mindfulness (Rothbart/Rueda 2005). Effortful control describes the individual's ability to prevent a normal and predominant reaction through his/her own force of will to exhibit a non-predominant but more suitable reaction. In developmental psychology, effortful control is also designated as self-regulation, and allows individuals to control their reactions under stress, to maintain their attention and focus, and to utilize their mindfulness in a manner that is suitable for them and the persons in their surroundings. From the perspective of development and temperament, effortful control enables individuals to avoid behaviors and responses they are unwilling to demonstrate (Rothbart *et al.* 2000). By preventing undesir-

able reactions, the individual becomes better able to observe their current environment, to resolve problems, and to exhibit reactions in a controlled fashion (Rothbard/Rueda 2005). One of the positive effects of effortful control is that it enables individuals to notice events in their environment without being affected by emotional or psychological processes, and to then evaluate these events through cognitive processes which could presents a psychological perspective in explaining entrepreneurial behavior.

Gartstein/Rothbart (2003) previously investigated temperament based on a number of sub-factors that included general psychological appearance (surgency, being talkative or shy), negative affectivity (fear, anger, sadness, etc.), and effortful control (level of sensitivity and attention in perception). High levels of general temperament and perception of control (which are sub-factors of temperament) contribute to the development of a positive temperament (Gartstein/Rothbart 2003). For this reason, positive experiences of mindfulness can have a positive effect on temperament. In addition, an increase in mindfulness also reduces negative thoughts, and increases self-confidence (Pepping *et al.* 2013).

Silberman (2007) suggested a positive and significant relationship between mindfulness, on one hand, and the components of temperament and character such as self-control, self-organization, courage, and social intelligence. On the other hand, researchers such as Chiesa (2012) describe that mindfulness is evaluated with an array of different assessment tools in the literature. Bishop (2004) also notes that although a number of findings suggest that mindfulness has a genetic aspect (or trait), it is possible for individuals to develop mindfulness later on through their own efforts. Studies emphasize that mindfulness can especially be learned through practices of Buddhist philosophy.

Researchers who view mindfulness as an effective approach for teaching higher thinking skills claim that mindfulness can help raise independent individuals capable of life-long learning, who have knowledge on how to acquire information, who are capable of solving the problems they encounter, and who assume responsibility for their actions. In this context, the concept of mindfulness is believed to have a positive effect on character and personality development. Mindfulness allows individuals to analyze a current situation based on their objectives, and to collect information in line with their goals without prejudice and without being affected by distracting and “noise-like” information. This, in turn, promotes acceptance and discovery-oriented behavior among individuals (Bishop, 2004). It is possible to claim that Cloninger’s (1994) four temperaments, which include novelty seeking, harm avoidance, award dependence and persistence, might be directly or indirectly associated with mindfulness. It is also possible to say that since mindfulness support openness to novelty and experience, it could support the novelty-seeking dimension of temperament. There are also three-character dimensions considered to be affected by the interaction of envi-

ronmental factors with genetic factors during growth and development; these include self-directedness, cooperativeness, and self-transcendence (Cloninger 1994). Self-directedness involves individual efforts, as well as a sense of responsibility, to develop one's skills and capabilities, and required planned behavior to achieve. Individuals exhibiting self-directedness tend to have higher mindfulness and to be in harmony with their environment (Costa/McCrae 1992). Cooperativeness not only helps individuals engage in planned behavior, but also assists them in developing non-selfish behaviors; feelings tolerance, empathy, altruism, and kindness; and the ability to act compassionately with others. Zohar/Marshall (2001) claim that practices promoting mindfulness help members of an organization act together and in unison. Self-transcendence refers to individuals' tendency to put their own expectations and demands on hold in order to act in unison with their environment; to abandon individualism in order to form a team spirit; and to adopt a non-rational and non-materialist way of thinking (Cloninger 1994).

Previous studies generally evaluate and demonstrate the relationship between mindfulness and the five-factor model of personality. Although temperament and character are generally considered as the two main components of personality (Kedia/Cloninger 2013), they also form the basis of the affective, activation, and attentional aspects of personality. Such relationships suggest a strong biological link. However, personality usually refers to a broader concept that encompasses various other factors such as beliefs, social cognition, morality, skills, etc. (MacDonald 2012). Within the scope of our study, we believe that temperament and character, the mediating variables, can also have a positive interaction with mindfulness. Novelty seeking is one of the dimensions of temperament, which is usually described as being genetic characteristic. Considering that character is shaped by temperament and environmental factors, it appears possible that mindfulness may also affect openness to novelty (or novelty seeking). Considering that personality is formed by the combination of temperament and character, it is possible that mindfulness may affect the temperament- and character-based personality of individuals. In this context, the following hypotheses were formulated:

Hypothesis 2 a: Mindfulness significantly affects the temperament of entrepreneurs.

Hypothesis 2 b: Mindfulness significantly affects the character of entrepreneurs.

2.5. Temperament, Character, and Entrepreneurship

According to Bolton/Thompson (2000), the concept of temperament is the biological driving force behind behavior. Temperament, which is inherited from birth, interacts with an individual's life experiences, education, and learning to

form his/her set of skills. An entrepreneurial individual's personality will be affected not only by his/her education and learning, but also by his/her temperament. In other words, the entrepreneur's biological temperament will also play a role in his/her entrepreneurial personality. Johnston *et al.* (2008) observed a significant and positive relationship between temperament and entrepreneurship, while noting no similar relationship between other personality components. Bolton/Thompson (2000) consider entrepreneurship as a combination of skills, temperament, and technique. Researchers investigate success and skill as a natural consequence of character and temperament. It is claimed that the factors that allow individuals to succeed are not only physical and intellectual, but also involve their character and genes (Wahba/McCroskey 2005; Rothbart *et al.* 2000). In this context, temperament provides the motivation and determination needed by the entrepreneur. In addition, within the frame of the present study model, we believe that temperament can, together with skills and technique, help reveal a person's entrepreneurial personality. We therefore think that mindfulness may enhance the positive effects of skills and technique. Increasing mindfulness may also help increase the determining effect of temperament and character. Thompson (2009) claims that the development of entrepreneurship in individuals is affected by the individual's psychological past and cognition, and by environment factors. Considering that temperament is a genetic factor and that character comprises both genetic and environmental factors, it can be assumed that these factors may have an indirect effect on entrepreneurship.

From the standpoint of temperament, novelty seeking is defined as "a hereditary tendency that leads to behaviors such as frequent investigative activities, instinctive decision-making, excessiveness when an opportunity for reward is identified, quick temper, and active avoidance of obstacles" (Tok/Arkar 2012:263). In this context, innovativeness, which is perhaps one of the most important factors in entrepreneurial personality, directly overlaps with temperament. As described above, innovativeness and being open to novelty are associated with one another, just as mindfulness is associated with temperament. In this context, the following hypotheses were developed:

Hypothesis 3 a: Temperament significantly affects entrepreneurial tendencies.

Hypothesis 3 b: Character significantly affects entrepreneurial tendencies.

Eisenberg (2012) describes that the concept of effortful control (which is considered as a temperament characteristic that can be developed) may help increase an individual's mindfulness. In cases where the individual faces environmental conditions and stress that prevent him/her from taking decisions freely and comfortably; a strong effortful control that enables the individual to act in the right and proper way without bothering others will help enhance mindfulness. In this respect, it is possible that an increase in individual mindfulness will also affect

entrepreneurship, which is a dependent variable. Although effortful control is viewed as a genetic temperament characteristic, it is also accepted that it can be developed (Eisenberg *et al.* 1998).

It is generally believed that the development of character is age-dependent, and that it can be shaped by personal insights and learning regarding the concept of self (Tok/Arkar 2012). This learning can be explained through the individual differences in the objectives and values of what we have learned about other people, objects and ourselves. These differences are largely related to the variability in three sub-factors. One of these can be defined as autonomous personality (self-directedness), another can be defined as integration into society (cooperativeness), while the third can be defined as feeling part of the larger universe (self-transcendence) (Tok/Arkar 2012). The relationship between entrepreneurial personality and character can, in this respect, be considered similar. Autonomous personality (Albert/Couture 2013) and cooperativeness (Kisfalvi 2002), in particular, are among the most distinguishing characteristics of entrepreneurs.

Studies show that mindfulness can interact with temperament, which represents an inherited part of personality, and character, which is shaped by environmental factors (Lynch *et al.* 2006). In addition, in their study demonstrating the positive effect of mindfulness on innovative thinking, Colzato *et al.* (2012) observed that their study group was capable of proposing solution-oriented innovative ideas through the optimum use of their mindfulness and cognitive skills. Novelty seeking, which is one of the dimensions of temperament, reflects openness to new experience. According to Costa/McCrae (1992), it also describes the individual's interest in discovering their environment and self, as well as a genuine focus on novelty. Mindfulness, on the other hand, describes the selective awareness that individuals exhibit towards events in their lives and environment. The concept of mindfulness recommends that people become aware of their surroundings and environment, and is, in a way, a criticism of the "sleep-walking, day-dreaming" attitudes that have come to characterize modern life. Since novelty seeking and the ability to identify opportunities both remain at the center of entrepreneurship behaviors, both concepts can be presumed to have a notable impact on entrepreneurship behavior. Our assumption that personality traits can affect the relationship between mindfulness and entrepreneurship stems from the idea that both genetic and environmental factors can influence personality.

In addition to this, the fact that mindfulness can be learned and turned into a form of behavior, and that character components of personality can be changed, have led us to think that mindfulness and personality might be interrelated and interact in certain ways. While the self-directedness dimension of character involves the effective and efficient use of individual skills and capabilities, mindfulness involves the ability to perceive events that might benefit the individual,

as well as the shaping of these events through the individual's own skills and capabilities. The novelty-seeking dimension of temperament, which is a genetic aspect of personality, as well as the openness to novelty and experience, appear to nearly overlap with the concept of mindfulness. This suggests that novelty seeking might assume a role similar to that of mindfulness in explaining entrepreneurship.

Within the frame of the present study's model, the following hypothesis was developed:

Hypothesis 4a: Temperament mediates the relationship between mindfulness and entrepreneurship personality.

Hypothesis 4a: Character mediates the relationship between mindfulness and entrepreneurship personality.

3. Methods

The study sample consisted of entrepreneurs who own Small- and Medium-Sized Enterprises (SMEs) operating in the Konya province. Data analysis was performed using the SPSS 23 statistical package software and a macro named PROCESS, developed by Hayes (2013). Before starting the descriptive factor analysis, extreme values were removed from all scale data by using the Mahalanobis D^2 method. Following this, the Varimax axis rotation technique was used to determine whether the factor analysis results were suitable for data analysis. All calculations were performed with a confidence interval of 95% and based on a sample size of 197 for a sample of 5000 by using the bootstrap method. The four-stage regression method of Baron/Kenny (1986) was used, which is commonly employed for testing models with mediating variables.

3.1. Sample

The study population consisted of entrepreneurs ($n=197$) who own SMEs that operate in different industrial areas of the Konya province. Most (34%) of the respondents who completed the questionnaires were between the ages of 34 and 41. An evaluation of the sectors indicated that most of the study participants were from the wheeled vehicle repair group/sector, and that most of the enterprises were, in terms of the years of activity, within the 0 to 5 years (29.4%) and 11 to 15 (29.9%) groups. Only four (2%) of the participants were women, while all the rest (98%) were men. Finally, only three (1.5%) described that they inherited their current business from their family; while 194 (98.5%) described that they established their own businesses.

3.2 Assessment Tools

In this study, we used the Freiburg Mindfulness Inventory (FMI) to determine the different levels of mindfulness (Walach *et al.* 2006), a 56-item short form revised from the original by Adan *et al.* (2009) to measure temperament and character; the Entrepreneur Personality Scale adapted to Turkish by Bozkurt/Erdurur (2013), and a form to record demographic information.

4. Results and Interpretation

The test results obtained with the assessment tools are shown in Table 1. The KMO and Bartlett test have shown that the sample was suitable for all assessment tools. During the analysis, items with factor loads below 40% and those that loaded under more than one factor were removed, while only factors with Eigen values greater than 1 were taken into consideration. The relevant table also shows the number of factors for each scale. The general reliability coefficients of the scales are also shown in the table; it can be said that the results were significant and suitable for further analyses.

Table 1. Analyses Results for the Study Scales

Test Performed	Temperament Scale	Character Scale	Mindfulness	Disposition to Entrepreneurship
KMO and Bartlett Compatibility Test	0.904($p < .001$)	0.904 ($p < .001$)	0.828 ($p < .001$)	0.901 ($p < .001$)
Number of Factors	4 Factors	3 Factors	5 Factors	5 Factors
According to the Factor Loads, and Ratio of Variance Explained	55.99%	49.11%	54.25 %	54.77%
Reliability Results	$\alpha=0.86$	$\alpha=0.91$	$\alpha=0.81$	$\alpha=0.91$

Pearson's correlation coefficient was used to evaluate the relationship between the variables. The results are shown in Table 2. According to the results in Table 2, a strong and positive relationship was identified between entrepreneurship and mindfulness ($rs(197) = 0.73$; $p < 0.001$), while a strong and positive relationship was observed between entrepreneurship and temperament ($rs(197) = 0.76$; $p < 0.001$). The results also indicate that while the relationship between entrepreneurship and character was positive and significant ($rs(197) = 0.15$; $p < 0.05$), the said relationship was relatively smaller compared to the other two.

Table 2. Mean, Standard Deviation, and Correlation Values of the Variables

n=197	Mean	SD	1	2	3
1-Entrepreneurship	3.55	0.45	1		
2-Mindfulness	3.88	0.70	0.73**	1	
3-Temperament	3.39	0.38	0.76**	0.75**	1
4-Character	2.93	0.19	0.15*	0.11	0.29**

In the first stage of the Baron and Kenny (1986) regression used for testing the hypothesis (the “c path” or “total effect”), the effect of the independent variable (X-Mindfulness) on the dependent variable (Y-Entrepreneurship) was examined. The result indicated a significant effect ($\beta = 0.464$; $p < 0.001$), which supports the validity of Hypothesis 1. Every one-unit increase in mindfulness was thus associated with a 0.46-unit increase in entrepreneurship. In the first path of the second stage (a_1), we examined the effect of the independent variable (X-Mindfulness) on the first mediating variable (M1-Temperament), and found a positive and statistically significant relationship ($\beta = 0.407$; $p < 0.001$). This showed that a one-unit increase in mindfulness was associated with a 0.41-unit increase in temperament. In other words, Hypothesis 2 a was also accepted to be valid.

We also checked the effect of the independent variable (X-Mindfulness) on the second mediating variable (M_2 -Character) (a_2), and found a positive yet non-significant relationship ($\beta = 0.030$; $p > 0.001$). This disproved the validity of Hypothesis 2 b. In the first path of the third stage (b_1), we examined the effect of the first mediating variable (M1-Temperament) on the dependent variable (Y-Entrepreneurship), and found a positive and statistically significant relationship ($\beta = 0.594$; $p < 0.001$). This showed that a one-unit increase in temperament was associated with a 0.59-unit increase in entrepreneurship. This supported the validity of Hypothesis 3 a. We also examined the effect of the second mediating variable (M2-Character) on the dependent variable (Y-Entrepreneurship), and identified a negative yet non-significant relationship ($\beta = -0.078$; $p > 0.001$). This finding did not support the validity of Hypothesis 3 b.

The direct effect (c' path) of mindfulness on entrepreneurial personality after controlling for temperament (M_1) and character (M_2) remained significant ($\beta = 0.225$ $p < 0.001$). Thus, a one-unit increase in mindfulness will bring about a 0.23 increase in entrepreneurial personality.

Table 3. Results of the Mediating Test

	M ₁ (Temperament)				M ₂ (Character)				Y (Intervention)			
	Premise	Coefficient	SH	p	Coefficient	SH	p	Coefficient	SH	p		
X (Mindfulness)	a ₁	0.407	0.026	<0.001	a ₂	0.030	0.019	0.123	c'	0.225	0.043	<0.001
M ₁ (Tempera- ment)	-	-	-	-	-	-	-	-	b ₁	0.594	0.082	<0.001
M ₂ (Character)	-	-	-	-	-	-	-	-	b ₂	-0.078	0.108	0.473
Constant	i _{M1}	10.816	0.101	<0.001	i _{M2}	2.811	0.077	0.1	i _y	0.891	0.313	<0.001
			R ² = 0.562				R ² = 0.012				R ² = 0.634	
			F(1,195)	250.680; p < 0.001**			F(1,195)	2.401; p> 0.01*			F(3,193)=	111.292; p < 0.001**

n=197, Confidence interval 95%, Bootstrap Re-Resampling Size: 5000, Total Effect (c) = 0.464, R² = 0.528; F_{1,195} = 218.371; p< 0.001

For the first regression model shown in Table 3 (the a_1 path), $R_2 = 0.562$; $F_{1,195} = 250.680$; and $p < 0.001$. For the second model (the a_2 path), $R_2 = 0.012$; $F_{1,195} = 2.401$; and $p > 0.001$. And for the third model (the b_1 - b_2 and c' path), $R_2 = 0.634$; $F_{3,193} = 111.292$, $p < 0.001$. Based on these results, it is possible to state that all three models were statistically significant. In this context, the first model demonstrates that 56% of the changes in the mediating variable temperament can be explained with the independent variable mindfulness. According to the second model, mindfulness explains 1% of the changes in the mediating variable character; although this ratio was relatively small, it was statistically significant. In the final model, it was observed that the two mediating variables statistically significantly explained 63% of the changes in the independent variable (mindfulness) and dependent variable (entrepreneurship).

To test the mediating effect of a variable, it is suggested to run a Sobel analysis. The aim is to look at the significance of the difference between total effect and indirect effect (Here our result is: $c - c' = 0.464 - 0.225 = 0.239$). If the z value of the calculated difference is significant, this indicates that the mediating effect is also significant. The study results indicated that the difference between the total and indirect effect of the first mediating variable Temperament ($z = 6.60$, $p < 0.001$) was significant. According to this, only the temperament variable had a full mediating effect. Therefore, these findings supported the validity of Hypothesis 4 a, while disproving Hypothesis 4 b.

Discussions

According to our study results, mindfulness has a positive and significant effect on entrepreneurship and temperament, while temperament also has a mediating role on the relationship between mindfulness and entrepreneurship. The study results also indicated that while temperament - one of the two concepts we assumed to have a mediating effect - had a significant relationship with these two variables, character - the other mediating variable - did not have such a significant relationship with mindfulness and entrepreneurship. This could be considered as an indication that the study participants completed the study questionnaires/inventories in a conscious and thoughtful manner, rather than an uninterested and dismissive way.

The literature review we performed while formulating the research problem revealed a general lack of studies assessing the interaction between mindfulness and personality traits such as temperament and character. Numerous studies in the past have used different aspects of personality as independent variables. The general lack of consensus in the literature concerning the genetic and contextual basis of mindfulness have led to different assumptions regarding its relationship with personality. Previous studies on entrepreneurship that use personality as an independent variable generally assesses numerous factors that potentially affect

the relationship between variables. This suggests that different factors that interact with personality may also be used as independent variables (Steinmayr/Spinath 2008). As described in the literature section of this study, both mindfulness and personality are believed to have both a genetic and contextual basis and could consequently be used for predicting one another. The lack of any studies in the literature demonstrating how personality and mindfulness interact (and can predict one another) in shaping entrepreneurship behavior renders this topic even more interesting. Whether mindfulness is inherited, or whether it can be more beneficial and effective when taught through therapy, is still subject to debate within the literature. In addition, the fact that the results of health-related and random-controlled psychotherapeutic practices that use contextual (mediating) variables are often excessively positive suggests an emphasis on biased articles (Coronado-Montoya *et al.* 2016). Despite this suspicious situation with regards to the used of mindfulness in health practices, mindfulness is nevertheless portrayed as a learnable theme (Kabatt/Zinn 1994), and is described as a factor that supports entrepreneurship (Langer 1989; Rerup 2005). Through mindfulness practices, the factor of experience, which was previously considered as a necessary element for entrepreneurship (Sarasvathy 2004), might no longer be considered as an obstacle for entrepreneurs (in the sense that its lack may no longer be viewed as an impeding factor). For this reason, examining the concept of mindfulness in social psychotherapy practices as well as within the frame of entrepreneurship and leadership might assist in revealing different aspects of this concept. In addition, including themes relating to mindfulness in entrepreneurship training and courses might also contribute to the effectiveness of such educational activities.

Gaj (2013) demonstrated that, in the treatment of psychological disorders, mindfulness could have positive effects on both temperament and character. Since the study of Gaj (2013) considers psychological disorders from a genetic perspective, its objective was not to ensure the full recovery of cases, but rather to change their psychological perceptions. However, while the said study identifies a significant relationship between mindfulness and character among its cases, the present did not identify such a relationship between these two factors. This difference might have stemmed from the different characteristics and behaviors of the different study populations. Our study sample consisted of healthy individual exhibiting entrepreneurial behaviors. As discussed before, Johnston *et al.* (2008) observed a significant and positive relationship between temperament and entrepreneurship, while noting no similar relationship between other personality components; the findings of this study are parallel with our study results. It should also be kept in mind that while temperament is an inseparable aspect of entrepreneurship, temperament alone is not sufficient for creating an entrepreneur personality, which is more likely to be the product of a combination

of skills and characteristics that are shaped by contextual factors (Bolton/Thompson 2000:59).

Studies in the literature are generally performed in Western cultures characterized by an emphasis on individuality; the results of most of these studies describe mindfulness as a tool that can be used by the individual to gain a positive perspective towards life. Our study, on the other hand, was conducted in a society with a more collectivist culture, where religious beliefs have a far greater influence on individuals. In fact, the prophet of the study participants' faith was also an entrepreneur dealing with commerce. This might have encouraged the study participants to be even bolder and determined from an entrepreneurial standpoint, and thus more willing to benefit from entrepreneurial opportunities. However, before reaching a conclusion, it might be necessary to form a model that assesses whether entrepreneurship is affected more by mindfulness or religious influences. In addition, studies conducted in the West show mindfulness as affecting all dimensions of personality, which is in contrast with the finding of the present study. This suggests that religion may also play a role in shaping the effects of mindfulness.

As discussed before temperament and character are generally considered as the two main components of personality (Kedia/Cloninger 2013) that is based on psychobiology. Other researchers suggest, without rejecting the relationship between temperament and personality, that temperament and character also form the basis of the affective, activational, and attentional aspects of personality. Such relationships suggest a strong biological link. However, personality in its usual definition refers to a broader concept that encompasses various other factors such as beliefs, social cognition, morality, skills, etc. (MacDonald 2012). In other words, we believe that there are different approaches for defining temperament, and that these should also be taken into consideration in future studies.

Conclusion

One of the most notable features that distinguished this study from others was its use of mindfulness as an independent variable rather than a contextual variable, and its evaluation of the genetic aspects of the relationship between mindfulness and entrepreneurship. The literature on mindfulness, temperament, and character generally evaluates the use of these concepts within the frame of therapies for health and psychological disorders; however, there are very few studies assessing the effect of these concepts on the different dimensions of entrepreneurial behaviors which are, ultimately, the driving force of economies. One advantage of this study is its contribution to the knowledge on the relationship between mindfulness, temperament, character, and entrepreneurship. However, the study results were obtained exclusively from a sample in the province of Konya. In addition, the relevant study results were collected in different time periods (as rec-

ommended by the literature). We believe that these two factors (i.e. the limited study sample and cross-sectional study design) limit the generalizability of the study results. In addition, we believe that the study model could be further enriched through the addition of other personality traits (such as balance, introversion, extroversion, awareness, openness to experience, adaptability, etc.).

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References

- Adan, A. /Serra-Grabulosa, J.M. /Caci, H. /Natale, V. (2009): A Reduced Temperament and Character Inventory (TCI-56), in: *Personality and Individual Differences*, 46, 687-692.
- Albert, M. N. /Couture, M. M. (2013): The Support to an Entrepreneur: From Autonomy to Dependence, in: *SAGE Open*, 3, 2, 1-9.
- Baron, R. M. /Kenny, D. A. (1986): The Moderator Mediator Variable Distinction in Social Psychological Research, in: *Journal of Personality and Social Psychology*, 51, 6, 1173-1182.
- Baron, R.A./Henry, R.A. (2010): How Entrepreneurs Acquire the Capacity to Excel: Insights From Research On Expert Performance, in: *Strategic Entrepreneurship Journal*, 4, 49-65.
- Baysal, Z. N. /Demirbaş, B. (2012): A Study of the Relationship between the Mindful Attention Awareness of Candidate Primary School Teachers and their Reflective Thinking Tendency, in: *Journal of Research in Education and Teaching*, 1, 4, 12-20.
- Bishop, S. R. (2004): Mindfulness: A Proposed Operational Definition in: *Clinical Psychology Science and Practice*, 11, 3, 230-241.
- Boettke, P.J./ Coyne, C.J. (2009): Context Matters: Institutions and Entrepreneurship Foundations and Trends in Entrepreneurship, 5, 3, 135-209.
- Bozkurt, Ö. /Erdurur, K. (2013): Effect of Entrepreneurs Personality Characteristics in Entrepreneurial Tendency: A Study on Potential Entrepreneurs, in: *Journal of Entrepreneurship and Development*, 8, 2, 57-78.
- Bolton, W. K. /Thompson J. L. (2000): *Entrepreneurs, Talent, Temperament, Technique*. Oxford: Butterworth Heinemann Press.
- Brandstätter, H. (2011): Personality aspects of entrepreneurship: A look at five meta-analyses, in *Personality and Individual Differences* 51, 222-230.
- Carlsson, B./Braunerhjelm, P./McKelvey, M./Olofsson, C./Persson, L./Ylinenhää, H. 2013: The evolving domain of entrepreneurship research, in *Small Business Economics*, 41, 913-930.
- Chiesa, A. (2012): Difficulty of Defining Mindfulness, in *Mindfulness*, 4, 255-268.
- Cloninger, C. R. (1994): Temperament and Personality, in: *Current Opinion in Neurobiology*, 4, 266-273.

- Colzato, L. S./Öztürk, A./Hommel, B. (2012): Meditate to Create: The Impact of Focused-Attention and Open-Monitoring Training on Convergent And Divergent Thinking, in *Frontiers in Psychology*, 3, 116.
- Corbett, A. C. /McMullen, J. S. (2007): Perceiving and Shaping New Venture Opportunities through Mindful Practice, in: Zacharakis, A. /Spinelli Jr., S. (Ed.): *Entrepreneurship: The Engine of Growth*, Volume 2, Process, Westport, CT: Praeger Perspectives, 43-64.
- Coronado-Montoya S./Levis A.W./Kwakkenbos L./Steele R.J./Turner E.H./Thombs B.D. (2016): Reporting of Positive Results in Randomized Controlled Trials of Mindfulness-Based Mental Health Interventions, in *PLoS ONE* 11(4): e0153220. doi:10.1371/journal.pone.0153220
- Costa, P. T. Jr. /McRae, R. R. (1992): *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI)*. Odessa, Florida: Psychological Assessment Resources, Inc.
- Eisenberg, N. /Cumberland A. /Spinrad T.L. (1998): Parental Socialization of Emotion, in: *Psychological Inquiry*, 9, 4, 241-273.
- Eisenberg, N. (2012): Temperamental Effortful Control (Self-Regulation), in: *Encyclopedia on Early Childhood Development*, <http://www.child-encyclopedia.com/temperament/according-experts/temperamental-effortful-control-self-regulation>.
- Feldman, G. /Hayes, A. /Kumar, S. /Greeson, J. /Laurenceau, J. (2007): Mindfulness and Emotion Regulation, in: *Journal of Psychopathology Behavior Assess*, 29, 177-190.
- Gaglio, C.M. /Katz, J. A. (1986): The Psychological Basis of Opportunity Identification: Entrepreneurial Alertness, in: *Small Business Economics*, 16, 2, 95-111.
- Gaj, N. (2013): Relationship among Temperament/Character Variables, Emotional Dysregulation and Mindfulness in Borderline Subjects in Treatment with Dialectical Behavior Therapy (DBT) in a Day-Hospital Setting, in *The First International Conference on Mindfulness*, ICM Rome, May 8-12, 2013.
- Gartstein, M.A. /Rothbart, M.K. (2003): Studying infant temperament via the Revised Infant Behavior Questionnaire, in: *Infant Behavior and Development*, 26, 64-86.
- Gordon, J.M./Schaller, T.K. (2014): The role of mindfulness in entrepreneurial market analysis, in *Journal of Research in Marketing and Entrepreneurship*, 16, 1, 7-25.
- Gorgievski, M.J./ Stephan, U. (2016): Advancing the Psychology of Entrepreneurship: A Review of the Psychological Literature and an Introduction, in *Applied Psychology: An International Review*, 2016, 65 (3), 437-468.
- Hanh, T. N. (1976): *The Miracle of Mindfulness: A Manual for Meditation*. Boston: Beacon.
- Hayes, A. F. (2013): *An Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-based Approach*. New York, NY: Guilford Press.
- Haynie, J. M. /Shepherd, D. /Mosakowski, E. /Earley, P. C. (2010): A Situated Metacognitive Model of the Entrepreneurial Mindset, in: *Journal of Business Venturing*, 25, 217-229.
- Hitt, M. /Keats, B. /DeMarie, S. (1998): Navigating in the New Competitive Landscape: Building Strategic Flexibility and Competitive Advantage in the 21st Century, in: *Academy of Management Executive*, 12, 4, 22-42.
- ILO (2011): *Building Business and Entrepreneurship Awareness*: International Labour Office; Geneva, ILO.

- Johnston, K. /Anderse, B. /Davidge-Pitts, J. /Ostensen-Saunders, M. (2008): Identifying Student Potential for ICT Entrepreneurship, in: *Journal of Information Technology Education*, 8, 29-43.
- Kabat-Zinn, J. (1994): *Mindfulness Meditation in Everyday Life*. New York: Hyperion Books.
- Karelaia, N. /Jochen, R. (2014): Improving Decision Making Through Mindfulness in: Reb, J. /Atkins, P. (Ed.): *Mindfulness in Organizations*, Cambridge University Press, 163-189.
- Kedia, S./Cloninger, C.R. (2013): Structural and Functional Neuroanatomy Personality, in: Arciniegas, D.B./Anderson, C.A./Filley, C.M. (Eds) : *Behavioral Neurology & Neuropsychiatry*, Cambridge University Press.
- Kisfalvi, V. (2002): The Entrepreneur's Character, Life Issues, and Strategy Making: a Field Study, in: *Journal of Business Venturing*, 17, 489-518.
- Langer, E. J. /Piper, A. I. (1987): The prevention of mindlessness, in: *Journal of Personality and Social Psychology*, 53, 280-287.
- Langer, E. J. (1989): *Mindfulness*, Reading, MA: Addison Wesley.
- Lynch, T. R./Chapman, A. L./Rosenthal, M. Z./Kuo, J. R./Linehan, M. M. (2006): Mechanisms of Change in Dialectical Behaviour Therapy: Theoretical and Empirical Observations, in *Journal of Clinical Psychology*, 62, 4, 459- 480.
- MacDonald, K. (2012): Temperament and Evolution, in Marcel Zentner (Ed.): *Handbook of Temperament*, New York: Guilford Press.
- McClelland, D. C. (1961): *The Achieving Society*. New York: Van Nostrand-Rheinhold.
- McMullen, J./Shepherd, D.A. (2006): Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur, in: *Academy of Management Review* 31,132-152.
- Pepping, C. A. /O'Donovan, A. /Davis, P. J. (2013): The positive effects of mindfulness on self-esteem, in: *The Journal of Positive Psychology*, 8, 5, 376-386.
- Rerup, C. (2005): Learning from Past Experience: Footnotes on Mindfulness and Habitual Entrepreneurship, in: *Scandinavian Journal of Management*, 21, 451-472.
- Rothbart, M. K. /Derryberry, D. /Hershey, K. (2000): Stability of Temperament in Childhood: Laboratory Infant Assessment to Parent Report at Seven Years, in: Rothbart, M. K./Bates, J. E. (2006): Temperament, in Damon, W./ Lerner, R. (Series Eds.)/Eisenberg, N. (Vol. Ed.): *Handbook of Child Psychology*, Vol. 3: Social, Emotional, and Personality Development, New York: Wiley, 99-166.
- Rothbart, M. K. /Rueda, M. R. (2005): The Development of Effortful Control, in: Mayr, U. / Awh, E. / Keele, S. (Ed.): *Developing Individuality in the Human Brain: A Tribute to Michael I. Posner*, Washington, D.C.: American Psychological Association, 167-188.
- Sakai, J. (2013): Study reveals gene expression changes with meditation. Available at:<http://news.wisc.edu/study-reveals-gene-expression-changes-with-meditation/#sthash.AVqzDsM7.dpuf> (accessed 12.1.2017).
- Sarasvathy, S. D. (2004): The Questions We Ask and the Questions We Care About: Reformulating Some Problems in Entrepreneurship Research, in: *Journal of Business Venturing*, 19, 5, 707-717.
- Silberman, J. (2007): Mindfulness and VIA signature strengths, in: *Positive Psychology News Daily*, <http://positivepsychologynews.com/news/jordan-silberman/20070327179>.

- Steinmayr, R. /Spinath, B. (2008): Sex differences in school achievement: What are the roles of personality and achievement motivation?, in: *European Journal of Personality*, 22, 185–209.
- Thompson, E.R. (2009): Individual Entrepreneurial Intent: Construct Clarification and Development of an Internationally Reliable Metric, in: *Entrepreneurship Theory and Practice*, May, 669–694.
- Thornton, P.H./ Ribeiro-Soriano, D./ Urbano, D. (2011): Socio-cultural factors and entrepreneurial activity: An overview, in *International Small Business Journal* 29, 2, 105–118.
- Tok, E. S. /Arkar, H. (2012): Comparison Psychobiological Personality Model and 5 FP Theory in Turkish Sample, in: *Anatolian Journal of Psychiatry*, 13, 262-269.
- Wahba, J. S./McCroskey, J. (2005): Temperament and brain systems as predictors of assertive communication traits, in *Communication Research Reports*, 22, 157–164.
- Walach, H. /Buchheld, N. /Buttenmuller, V. /Kleinknecht, N. /Schmidt, S. (2006): The Freiburg Mindfulness Inventory (FMI), in: *Personality and Individual Differences*, 40, 1543-1555.
- Weick, K.E./Sutcliffe, K. (2001): *Managing the Unexpected: Assuring High Performance in an Age of Complexity*. San Francisco: Jossey Bass.
- White, R.E./ Thornhill, S./ Hampson, E. (2007): A biosocial model of entrepreneurship: the combined effects of nurture and nature, in *Journal of Organizational Behavior*, 28, 451–466.
- Zohar, D./Marshall, I. (2001): *Spiritual Intelligence*, Bloomsbury Publishing, London.
- Zunino, D. (2013): Is Entrepreneurship Genetic? in: *Advances about the Interaction between the Genetic Effect and the Environment*, DRUID, Aalborg, Denmark.