
The self-loving entrepreneur: dual narcissism and entrepreneurial intention

Urs Baldegger and Steffen H. Schroeder*

Institute for Entrepreneurship,
University of Liechtenstein,
Fürst-Franz-Josef Strasse 1, 9490 Vaduz, Liechtenstein
Email: urs.baldegger@uni.li
Email: Steffen.Schroeder@uni.li
*Corresponding author

Marco R. Furtner

Leopold-Franzens University of Innsbruck,
Innrain 52, 6020 Innsbruck, Österreich, Austria
Email: marco.furtner@uibk.ac.at

Abstract: This study investigates the effects between narcissism (narcissistic admiration and narcissistic rivalry), internal locus of control, and entrepreneurial intention. Via structural equation modelling we found that narcissistic admiration was a positive predictor of entrepreneurial intention, while narcissistic rivalry was a negative predictor of career motives and entrepreneurial intention. Furthermore, internal locus control was also positively associated with entrepreneurial career motives and intention. New thus we conclude that narcissism internal locus of control are essential for building entrepreneurship and are therefore important to personality research of entrepreneurs.

Keywords: narcissism; entrepreneurship; intention; career motive; locus of control.

Reference to this paper should be made as follows: Baldegger, U., Schroeder, S.H. and Furtner, M.R. (2017) 'The self-loving entrepreneur: dual narcissism and entrepreneurial intention', *Int. J. Entrepreneurial Venturing*, Vol. 9, No. 4, pp.373–391.

Biographical notes: Urs Baldegger is a Professor for Entrepreneurship at the University of Liechtenstein. Before that, he was Professor for Entrepreneurship at the HTW University Chur, Switzerland and Research Assistant and Lecturer at the University of St. Gallen, Switzerland, where he was also awarded his doctorate. Next to his academic career, he holds extensive experience as corporate consultant and member of the supervisory board of several companies. His research interests mainly lay in the fields of entrepreneurial leadership as well as in the intersection between management and psychology.

Steffen H. Schroeder is a PhD candidate at the University of Liechtenstein. After completing his Bachelor in Industrial Engineering and Master in Finance, he worked in private equity. Currently, he is a researcher at the University of Liechtenstein, where he focuses on leadership.

Marco R. Furtner is an Associate Professor at the University of Innsbruck. After being trained and graduation with a PhD as a psychologist in Vienna and Innsbruck, he gained valuable experience in both research and teaching. After his *venia docendi*, he focuses on research concerning personality traits, leadership and self-leadership at the University of Innsbruck.

1 Introduction

Over the past two decades, an active field of research regarding entrepreneurship has evolved (Brandstätter, 2011; Frese and Gielnik, 2014; Zhao and Seibert, 2006). Researchers have attempted to identify individual differences in personality traits that distinguish more entrepreneurial from less entrepreneurial individuals (Kroeck et al., 2010). Those traits interact with entrepreneurial intention (Frese and Gielnik, 2014). Frese (2009) points in the action-characteristics model of entrepreneurship towards the effect between personality and action characteristics linked by motives. Entrepreneurial intention, as an action characteristic, proves to be the best predictor for planned behaviour when the behaviour is very rare, difficult to observe, and potentially with unforeseeable delays (Souitaris et al., 2007). Personality characteristics, affecting the motivation and intention of entrepreneurs, are narcissism and locus of control (Mathieu and St-Jean, 2013).

Although narcissism was frequently studied in terms of business and organisational impacts, the personality construct found only little attention with respect to the creation and establishment of new ventures. In recent years, interest has grown in the study of narcissism and its characteristics (e.g., Miller et al., 2013). Raskin and Terry (1988) have already defined narcissism to be multi-dimensionally, and today still many researchers adopt a multi-faceted view on it (e.g., Besser and Priel, 2010; Miller et al., 2013). Integrating this research, Back et al. (2013) proposed and empirically found that narcissism can be divided into an assertive and an antagonistic orientation. The authors see the different forms of narcissism as the result of two different underlying tendencies, narcissistic admiration and narcissistic rivalry. Because of distinguishable behavioural paths and social outcomes, we argue that the narcissistic admiration and rivalry may also have distinguishable effects on entrepreneurial intention.

In contrast to narcissism, internal locus of control is historically used as a characteristic of entrepreneurs (Krueger et al., 2000) and one of the most studied personality characteristics regarding entrepreneurship research (Perry and Penner, 1990). However, it remains unexplained so far how locus of control affects the motives of potential entrepreneurs. Furthermore, there is no evidence in the current entrepreneurship literature how the construct interacts with narcissism, especially when it comes to entrepreneurial motivation and intention (Mathieu and St-Jean, 2013).

Personality characteristics like narcissism or locus of control play a crucial role in influencing motives and intentions (Krueger, 2009; Bird and Schjoedt, 2009). Especially in the early life of the venture and the open context, the characteristics of the entrepreneur are of importance as they are likely to influence ventures' culture, structure, and strategy (Schneider et al., 2008). In a later phase, the personality of the entrepreneur stays in a major connection with the strategy, the performance (Chatterjee and Hambrick, 2007) and the leadership of the firm (Higgs, 2009). Furthermore, narcissism mainly remains

unnoticed in the entrepreneurship literature. To examine how narcissism, locus of control, and entrepreneurial intention are related to entrepreneurial career motives, we distinguished the four motive factors challenge, autonomy, authority, and self-realisation used by Kolvereid (1996) and Souitaris et al. (2007).

In particular, this study focuses on the effects of narcissism and internal locus of control in the first stage of entrepreneurial behaviour: entrepreneurial career motives and entrepreneurial intention. The effects of narcissistic admiration, narcissistic rivalry, and internal locus of control will be examined in a student sample. Such a sample is ideal because the students are on the verge of choosing a career and hence motives and entrepreneurial intentions should be most salient in students.

2 Theoretical background

Research concerning personality characteristics, motivation, actions, and success of entrepreneurs has flourished in the last decade (Brandstätter, 2011; Carland et al., 2002; Frese and Gielnik, 2014; Rauch and Frese, 2007). Several researchers point from personality characteristics or motives of entrepreneurs directly to success in founding and running a venture (Beugelsdijk and Noorderhaven, 2005; Frank et al., 2007; Olakitan and Ayobami, 2011). Other researchers used the intention of entrepreneurs to justify entrepreneurial performance (Cassar, 2007; Segal et al., 2005; Zhao et al., 2010). Aggregating these findings in a meta-analysis, Frese (2009) proposes the action-characteristics model, placing action characteristics in the centre of interest. Frese and Gielnik (2014) assume that there are no direct paths to entrepreneurial success except from action characteristics. Action characteristics, for example entrepreneurial intention, are effects from personality characteristics of the entrepreneur, linked by motivational antecedents such as career motives (Frese and Gielnik, 2014). In this study, we follow the action-characteristics model of entrepreneurship by linking the personality characteristics of the dual narcissism, internal locus of control, and the action characteristic of entrepreneurial intention with the motivational antecedents of entrepreneurial career motives (Frese and Gielnik, 2014). The relevant entrepreneurial career motives by Souitaris et al. (2007) are represented by challenge, autonomy, authority, and self-realisation. Those motives give an explanation of how the individual wishes, for example, to have a challenging or exciting job (challenge); to have freedom and independence (autonomy); to have the power to make decisions (authority); and to have one's dreams come true or create something innovative (self-realisation) (Souitaris et al., 2007).

The investigation of narcissism is an emerging field in organisational research (Blair et al., 2008; Higgs, 2009) and relatively new to the context of entrepreneurship (Engelen et al., 2013; Mathieu and St-Jean, 2013). People with narcissistic and entrepreneurial tendencies seem to share similar big five trait scores (Hodson et al., 2009). For example, both report being highly extraverted (Judge et al., 2002; Paulhus and Williams, 2002) and open to new experiences (Envick and Langford, 2000; Paulhus and Williams, 2002). With regard to further characteristics going beyond the properties of big five, similarities can be discovered in self-efficacy, innovation- and risk-orientation (Barry et al., 2007; Brandstätter, 2011; Chatterjee and Hambrick, 2007; Mathieu, 2013; Zhao et al., 2010).

In spite of the similarities between the personality profiles of individuals with narcissistic and entrepreneurial tendencies, only little research has linked narcissism to

entrepreneurial tendencies. There are only two published studies so far. Engelen et al. (2013) studied the positive consequences of narcissistic CEOs on the performance of the firm in terms of the entrepreneurial orientation. They acknowledge narcissism as a significant and influential personality trait of managers. Mathieu and St-Jean (2013) spotlighted narcissism and its positive relationship with entrepreneurial intention. The authors conclude that students who already started a business were more narcissistic than students who were not entrepreneurs. In the same context they note that individuals high on narcissism simultaneously have a high locus of control. The authors further found that risk propensity had the highest influence on entrepreneurial intentions followed by narcissism, and that locus of control's contribution was rendered non-significant in the model with these two variables. Thus, an effect between narcissism and entrepreneurial intention could be established. A major shortcoming of both studies is that narcissism was assessed as a unidimensional construct.

According to Raskin and Terry (1988), narcissism is not one homogeneous personality construct. Accordingly, a variety of researchers considers narcissism falling at least into two broad domains (Back et al., 2013; Besser and Priel, 2010; Miller et al., 2013). For example, Kernberg (1980) distinguished between benign versus malignant narcissism. This idea was picked up by Brown et al. (2009) who pointed to adaptive versus maladaptive aspects of narcissism. A relatively new model of narcissism picks up on these strings of research and tried to tie them together: the narcissistic admiration and rivalry concept (NARC) by Back et al. (2013). It is theorised in this model that the overarching goal of narcissists is to maintain a grandiose self. This can be achieved by two distinct strategies. On the one hand, the grandiose self-image can be maintained or increased by assertive self-promotion or self-enhancement (narcissistic admiration: strive for uniqueness, grandiose fantasies, charming behaviour). On the other hand, such an image can be preserved by self-defence or antagonistic self-protection (narcissistic rivalry: supremacy striving, devaluation, aggressive tendencies). Both strategies can be understood as the activation of two distinct domains, admiration and rivalry, in terms of affect, cognition, motivation and behaviour (Back et al., 2013).

Assertive self-enhancement, in the form of admiration, triggers affective-motivational, cognitive, and behavioural processes. The affective pathway is expressed by the strive for being a unique person, the cognitive pathway captures grandiose fantasies, and the behavioural pathway consists of interpersonal charm. Charm, as an outcome of admiration, can lead to desired social consequences, such as the attainment of social status, success, acquisition of leadership positions, and attractiveness. Individuals high on admiration assess themselves as grandiose (Wink, 1991), more intelligent and more attractive than others (Buffardi and Campbell, 2008), dream of fame and power over others (Brunell et al., 2008), and depend constantly on the admiration of their environment (Morf and Rhodewalt, 2001). Successful entrepreneurship is rewarded in the society, both with recognition as well as status and wealth (Eckhardt and Shane, 2003). We therefore hypothesise that admiration is positively associated with entrepreneurial career motives because of its implied hope for personal growth, prestige, and status (Brunell et al., 2008; Raskin et al., 1991). Furthermore, individuals high on admiration can build their own environment with authority over and autonomy from others (Bradlee and Emmons, 1992; Cheng et al., 2010; Judge et al., 2006). Such an environment, in turn, may make it more likely for a narcissistic person to obtain, positive consequences regarding their career motives (Brigham et al., 2007).

- H1 Narcissistic admiration is positively associated with the entrepreneurial career motives challenge, authority, autonomy and self-realisation.

Antagonistic self-protection, in the form of rivalry, is also believed to trigger affective-motivational, cognitive, and behavioural processes. On an affective-motivational level, rivalry is expressed by the pursuit of supremacy; on a cognitive level, by the devaluation of others; and on a behavioural level, by combative and aggressive tendencies towards others. Rivalry may result in the defence of the own superior status, especially when an individual high on rivalry is compared with a perceived social rival or with threat of failure. Moreover, devaluation of others and insensitivity develop with the self-defence. This may lead to irritable, hostile and socially insensitive behaviour, defined as aggressiveness (Back et al., 2013). The aggressiveness of individuals high on rivalry, in turn, may lead to negative social outcomes and social conflicts, resulting potentially in social rejection, failure of relationships, unpopularity, criticism, and a lack of trust from others (Back et al., 2013). Furthermore, rivalry is thought to be negatively associated with challenge and self-realisation because of the inherent fear of failure (Back et al., 2013).

- H2 Narcissistic rivalry is negatively associated with the entrepreneurial career motives challenge, authority, autonomy, and self-realisation.

Another personality construct associated with the entrepreneurship domain is locus of control (Wijbenga and van Witteloostuijn, 2007). It can be defined as a part of a person's personality (Levenson, 1974), capturing beliefs that a desired result or goal can be reached or an undesirable condition avoided by own efforts and actions (Rotter, 1966). According to Rotter (1966), locus of control falls into (at least) two components: whether individuals see actions and consequences as a result of own abilities and actions (internal locus of control) versus of circumstances or the environment (external locus of control).

Individuals high on internal locus of control can be characterised by high work motivation (Ng et al., 2006), rapid decision-making (Kaplan et al., 2001), a high level of job satisfaction (Judge et al., 2001), and a positive underlying mindset (Lam and Schaubroeck, 2000). Entrepreneurs and non-entrepreneurs have often been distinguished regarding their locus of control (Begley and Boyd, 1987) as the former usually have higher levels of internal locus of control (Lee and Tsang, 2001; Perry and Penner, 1990; Shaver and Scott, 1991).

Historically, internal locus of control was used as a plausible answer to justify entrepreneurial activities (Krueger et al., 2000). In the present day, the central role of locus of control is also confirmed by numerous meta-analyses dealing with personality traits of entrepreneurs (Frese and Gielnik, 2014; Rauch and Frese, 2007; Schlaegel and Koenig, 2014; Zhao et al., 2010). In particular, internal locus of control is crucial to the performance of entrepreneurs. For example, Lee and Tsang (2001) found that a high internal locus of control correlated positively with the growth of the new venture. Notably, though, such studies have mainly investigated entrepreneurs who are already active. The question may thus be raised whether a high internal locus of control is actually a personality trait which enables and motivates an entrepreneur to found a venture or whether it is an effect of previously achieved successes in the new venture (Schjoedt and Shaver, 2012). It is reasonable to assume that locus of control is, at least partly, influenced by the context of an individual, especially if it is an embossing and far-reaching context such as founding and running a business (Hansemark, 2003). Because of

that, we relate our perspective on locus of control to McAdams's (1992) work, viewing locus of control as a characteristic which is relatively stable, on a general level, but is nonetheless more contextualised than regular personality traits (such as the big five).

Mathieu and St-Jean (2013) found a significant positive correlation between locus of control and narcissism, though locus of control became non-significant in a model with narcissism and entrepreneurial intention. As such, we can expect a positive relationship between locus of control and narcissism, but there is no reported effect together with entrepreneurial intention and narcissism. We would expect that internal locus of control is a good predictor for entrepreneurial career motives in one model with narcissism. Additionally, internal locus of control has been shown to correlate positively with authority (Heaven, 1988) and autonomy (Judge and Bono, 2001). Furthermore, it seems to be associated with entrepreneurial intention (de Pillis and Reardon, 2007; Zellweger et al., 2011; Zhao et al., 2010). Together, we thus hypothesise:

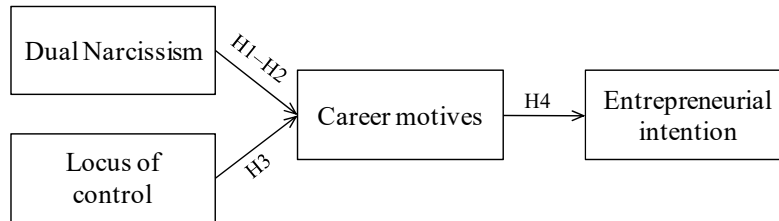
H3 Internal locus of control is positively associated with the entrepreneurial career motives challenge, authority, autonomy and self-realisation.

We proposed three hypotheses concerning the relations between narcissism, locus of control, and entrepreneurial career motives, but the link to entrepreneurial intention is still missing. Entrepreneurial intention fulfils the function of predicting an entrepreneurial action in the future (Krueger, 2009). Schlaegl and Koenig (2014) as well as Sieger and Monsen (2015) showed that the more desirable becoming an entrepreneur as a career choice is, the more likely individuals will report entrepreneurial intention. Therefore, career motives can be seen as drivers of intention (Souitaris et al., 2007). This link between personality traits, motives and intentions is further confirmed with empirical results for the association between entrepreneurial motives and intentions (Cassar, 2007; Pruett et al., 2009; Zellweger et al., 2011; Zhao et al., 2010). With regard to challenge and autonomy as career motives, research from Kolvereid (1996) and Souitaris et al. (2007) support the link to entrepreneurial intention, entrepreneurial behaviour, and the intention to get self-employed. Lockwood et al. (2006) as well as Feldman and Bolin (2000) see authority and the intention to have power over others as a significant predictor for entrepreneurship. Finally, self-realisation is reported to have a significant correlation with the intention to start a business (Cassar, 2007). Based on these findings, we hence propose a relationship between entrepreneurial career motives and entrepreneurial intention:

H4 The entrepreneurial career motives challenge, authority, autonomy and self-realisation are positively associated with entrepreneurial intention.

With the various established hypotheses, a research model of double-sided influence between dual narcissism, internal locus of control, entrepreneurial career motives, and entrepreneurial intention can be developed (see Figure 1). As can be seen, narcissism (both admiration and rivalry) as well as internal locus of control are shown as predictors of entrepreneurial motives (challenge, authority, autonomy, self-realisation), while those motives in turn predict entrepreneurial intention.

Figure 1 Model for testing relations between narcissism, locus of control, career motives and entrepreneurial intentions



3 Method

3.1 Data collection and sample

We used data from the ‘Global University Entrepreneurial Spirit Students Survey’ (GUESSS) 2013. The GUESSS project was initiated in 2003 by a German and a Swiss university as a biannual survey for students around the world. Based on the experiences gained since 2003, GUESSS 2013 was conducted to extend the current amount of knowledge in a scientifically sound and practitioner-oriented way (Laspita et al., 2012). In 2013, students in 26 countries got the invitation to participate in the GUESSS survey. In every country, an e-mail with a short introduction of the project and a link to the online survey was sent to students. We examined the data from the University of Liechtenstein and the University of Applied Science Fribourg (Switzerland) as narcissism was measured only in these two universities. The questionnaire has been sent to 1,963 students in Liechtenstein and Switzerland. In the online sample, 385 students completed the surveys indicating a response rate of 19.6%. The sample consisted of 62% undergraduate (Bachelor) as well as 38% graduate (Master and Doctorate) students in business administration. The majority (75%) was between the age of 20 and 35, with a mean age of 24.49 years ($SD = 3.76$, range: 18–39). The use of a student sample is sensible for our research question as students around 24–25 years are on the verge of choosing a career. Furthermore, entrepreneurial intentions have been repeatedly studied on students as an important group (Autio et al., 2001; Laspita et al., 2012; Liñán et al., 2011; Mathieu, 2013; Mathieu and St-Jean, 2013).

3.2 Measures

Internal locus of control

Internal locus of control was measured using three items from the internal locus of control scale (Levenson, 1974) on a Likert-scale.

Narcissism

The most widely used instrument to measure narcissism is the narcissistic personality inventory (NPI) (Raskin and Terry, 1988), but both psychometric problems (Rhodewalt and Morf, 1995) and substantive issues have been identified (Brown et al., 2009). Furthermore, Back et al. (2013) suggested the use of a new instrument for different

reasons. NPI items are not suitable to represent the NARC concept with admiration and rivalry. For example, there is an imbalance between items capturing self-confident, dominant, and grandiose narcissism and those peaking to rivalry (which is not well or at all represented). Indeed, the NPI does not distinguish between an assertive and antagonistic orientation (Back et al., 2013). Because of these shortcomings, the narcissistic admiration and rivalry questionnaire (NARQ) was developed by Back et al. (2013). Moreover, high correlations for the global factor of narcissism from the NARQ and from the NPI could be measured. The authors report satisfactory values for the internal consistency with Cronbach's alpha for the global factor narcissism ($\alpha = .74$), for narcissistic admiration ($\alpha = .76$) and for narcissistic rivalry. Furthermore they reported for large sample size a significant chi-square and other fit indices were good. We used all the 18 items from Back et al. (2013) to measure admiration (e.g., 'I will someday be famous'; 'I show others how special I am') and rivalry (e.g., 'I want my rivals to fail'; 'Other people are worth nothing').

Career motives

To measure entrepreneurial career motives, we used items by Souitaris et al. (2007) which were based on Kolvereid (1996). Souitaris et al. (2007) uncovered different dimensions of career motives from Kolvereid (1996). In this study we used four factors, which were measured by ten items. A satisfactory internal consistency for the factors challenge ($\alpha = .88$), autonomy ($\alpha = .79$), authority ($\alpha = .73$) and self-realisation ($\alpha = .81$) is reported. We used a Likert-scale from 1 (*not at all important*) to 7 (*very much important*). Sample items are 'To have a challenging job' or 'To have authority.'

Entrepreneurial intentions

We used six items to measure entrepreneurial intention (see Liñán and Chen, 2009). Sample items are 'I am ready to do anything to be an entrepreneur' or 'My professional goal is to become an entrepreneur.' The items have been measured with a Likert-type scale from 1 (*I strongly disagree*) to 7 (*I strongly agree*). The scale and modified versions have been used in a wide range of studies (Liñán et al., 2011) and show good psychometric properties. The authors reported a Cronbach's Alpha from .94. The scale and modified versions have been used in a wide range of studies (Liñán et al., 2011).

3.3 Data and analytical strategy

To test the proposed hypotheses in Figure 1, structural equation modelling (SEM) was applied (Bollen, 1989; Kline, 2011). The maximum-likelihood estimation procedure implemented in the software AMOS 21 (Arbuckle, 2005) was used to develop and test all structural models. The input for SEM is the empirical covariance matrix. SEM is a multivariate technique combining the properties of factor analysis, regression analysis, and path analysis, consequently enabling the definition and estimation of complex model structures (Ullman and Bentler, 2003). SEM thus has the potential to account for multiple influences which may simultaneously affect various outcome variables (Kline, 2011). Furthermore, if multiple valid indicators (manifest variables) exist, theoretically derived constructs can be modelled as latent or structural variables. Modelling latent variables is

desirable because measurement error is separated from true variance within the estimation process (Hair, 2010).

In accordance with Kline (2011), a two-step SEM procedure was applied. In the first step, confirmatory factor analyses (CFAs) have been conducted to determine whether the intended constructs were indeed measured. CFA assumes each manifest variable to be a distinct indicator of an underlying latent construct, whereby different constructs are permitted to correlate with each other. The appropriateness of a specific CFA model was assessed by measures of global and local model fit. Measures of global fit indicate whether the empirical associations among the manifest variables are appropriately reproduced by the model (Kline, 2011). For a variety of these global fit measures, certain criteria have to be met to accept a model as plausible and parsimonious. Measures of absolute fit such as the root mean square error of approximation (RMSEA) can be interpreted as the amount of information within the empirical covariance matrix that cannot be explained by the proposed model (Steiger, 1990). The model may be classified as acceptable if only 8% or less of the information are not accounted for by the model ($RMSEA \leq 0.08$) (Browne and Cudeck, 1992). Furthermore, measures of incremental fit were employed: the Tucker-Lewis index (TLI) and the comparative fit index (CFI) (Tabachnick and Fidell, 2013). The rationale of these measures is that more complex (i.e., less restrictive) models are penalised by a downward adjustment, while more parsimonious (i.e., more restrictive) models are rewarded by an increase in the fit index (Hu and Bentler, 1998). As a reference for incremental fit measures, values ≥ 0.95 are indicative of good fit relative to the independence model, while values ≥ 0.90 but below 0.95 may be interpreted as an acceptable fit (Bentler, 1990; Byrne, 2010).

4 Results

4.1 Descriptive statistics, correlation analysis, and CFA

The sex distribution shows 54% male and 46% female respondents. Several studies found differences in narcissism regarding sex (men usually scored higher). Thus, we also tested for sex effects, but found no significant difference between female and male respondents. Further, results for CFA, Cronbachs alpha, and the examination of common method variance (CMV) are presented.

First, CFA were run for the construct narcissism as well as for career motives by AMOS 21. Based on less restrictive assumptions CFA is considered to be superior to more traditional criteria such as the internal consistency in the context of scale validation (Anderson and Gerbing, 1988; Bagozzi et al., 1991). Back et al. (2013) propose a second order construct with six different factors, two for each dimension (admiration and rivalry). Our model shows comparable psychometric properties and model fit indices. All factor loadings were significant at the .001 level and above .40. Though, as can be expected with large sample size, the chi-square statistic was significant ($\chi^2 = 226.998$, $df = 126$, $p < .001$), relative fit indices showed acceptable to good values (CFI = .945, TLI = .933, RMSEA = .063). Admiration and rivalry had a latent correlation of .74 (Back et al., 2013 found .61). In summary, the CFA confirmed the factorial validity of the NARQ as proposed by Back et al. (2013). Furthermore, the career motives also showed acceptable to good psychometric properties. There were ten indicators in the model measuring the four latent variables challenge, autonomy, authority, and self-realisation.

All factor loadings were above .50 and significant at the level .001. Though the chi-square statistic was significant ($\chi^2 = 155.998$, $df = 386$, $p < .001$), the relative fit indices showed acceptable to good values (CFI = .945, TLI = .933, RMSEA = .063). Together, the SEM results confirmed the psychometric validity of the construct.

Second, internal consistency was calculated for internal locus of control and entrepreneurial intentions. We can report good Cronbach alpha values for both scales: internal locus of control ($\alpha = .91$), and entrepreneurial intentions ($\alpha = .94$). These scale reliabilities all exceeded the .70 value recommended by Nunnally (1978), and are in line with past research (Kolvereid, 1996; Liñán et al., 2011; Souitaris et al., 2007).

Third, the data were collected from a single-source, and therefore we tested also for the presence of CMV using CFA. Because the exact source of any potential bias could not be identified with our data, we employed the Harman single-factor test as recommended by Podsakoff et al. (2003). The test involves a factor analysis to determine whether all factors load onto one single factor. Results showed that CMV did not account for associations between variables of interest. We further computed the correlations in a comprehensive analysis of dual narcissism, career motives, and entrepreneurial intention. The results can be seen in Table 1.

Table 1 Means, standard deviations, and correlations among dual narcissism, career motives and entrepreneurial intention ($N = 385$)

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.	8.
Narcissism	2.69	.76	1							
Narcissistic admiration	3.24	.91	-	1						
Narcissistic rivalry	2.15	.80	-	.58**	1					
Internal locus of control	5.45	.87	.27**	.35**	.11*	1				
Career motive challenge	6.09	.83	-.01	.06	-.10	.07	1			
Career motive autonomy	5.30	1.09	.22**	.27**	.11*	.36**	.27**	1		
Career motive authority	5.24	.90	.28**	.34**	.14**	.31**	.31**	.50**	1	
Career motive self-realisation	5.28	1.24	.14**	.23**	.01	.19**	.26**	.40**	.27**	1
Entrepreneurial intention	4.05	1.82	.28**	.33**	.16**	.37**	0.1	.61**	.33**	.39**

Notes: ** $p < 0.01$, * $p < 0.05$.

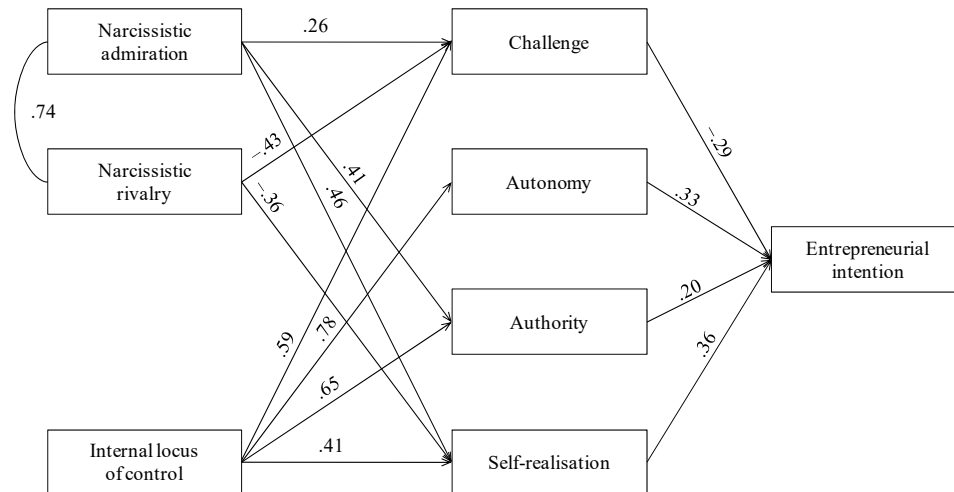
4.2 Hypothesis testing

Figure 1 provides an overview of the hypothesised effects which allows the identification of the predictive directionality between the constructs 'narcissism', 'locus of control', 'career motives', and 'entrepreneurial intentions' (Figure 2). The overall fit indices indicated an acceptable to good fit for the model (overall model fit: $\chi^2 = 1224.1$, $df = 564$, TLI = .907, CFI = .917, RMSEA = .055).

Hypothesis 1 stated that there are significant positives paths between admiration and career motives. Three of four paths supported the hypothesis and showed significant results. Admiration was a significant positive predictor for challenge ($\beta = .26$, $p < .001$), authority ($\beta = .41$, $p < .001$), and self-realisation ($\beta = .46$, $p < .001$). On the other hand, rivalry was a significant negative predictor of challenge ($\beta = -.43$, $p < .001$) and self-realisation ($\beta = -.36$, $p < .001$). As such, Hypothesis 2 was partly supported as rivalry was a negative predictor for the career motives. All links between locus of control

and career motives were significantly positive ($\beta = .41 - .78, p < .001$), as suggested by Hypothesis 3. Further, there were positive paths from career motives to entrepreneurial intention for autonomy ($\beta = .33, p < .001$), authority ($\beta = .20, p < .001$), and self-realisation ($\beta = .36, p < .001$), but not for challenge ($\beta = -.29, p < .001$).

Figure 2 Full path model: estimated standardised path coefficient



Notes: All path coefficients are significant at the .001 level. Non-significant paths are hidden.

5 Discussion

We were able to support Hypothesis 1 and could partly support Hypothesis 2. We found significant effects between dual narcissism and career motives. On the one hand, admiration showed positive relations to entrepreneurial career motives. On the other hand, rivalry revealed negative effects for two of the four career motives. We could also find support for the association between internal locus of control and entrepreneurial career motives (Hypothesis 3). The career motives authority, autonomy, and self-realisation revealed significant positive effects on entrepreneurial intention, whereas the career motive challenge exhibited a significant negative effect. Therefore, we could partly support Hypothesis 4. Simultaneously, a positive correlation between admiration and rivalry was found. We can thus conclude that narcissism may come with an assertive and an antagonistic orientation (Back et al., 2013). However, it is obvious that admiration and rivalry should be considered separately.

Admiration was a positive predictor of the career motives challenge, authority, and self-realisation. The positive association with challenge can be explained by the narcissistic desire for special social recognition and status (Brunell et al., 2008). Furthermore, narcissists crave for power and the ability to influence others (Higgs, 2009). This could explain the positive relationship of admiration and authority. Narcissists strive for recognition and be favourably perceived by their peers (Rosenthal and Pittinsky, 2006). Self-realisation, associated with success, corresponds with this claim and the

desire for recognition. Furthermore, the positive associations of the admiration can be explained by the possibility of the entrepreneur to build his or her own context of admiration (Brigham et al., 2007; Morf and Rhodewalt, 2001). In this context they are the unlimited emperors with social admiration or at least professional respect by their peers.

The SEM model also showed a significant negative association of the antagonistic orientation on the career motives challenge and self-realisation. Usually, antagonistic narcissists avoid direct confrontation with perceived rivals or with challenging tasks, accompanied with the inherent risk of failure (Back et al., 2013). Both career factors are able to regress the failure directly, making the narcissist accountable. Therefore, antagonistic narcissists may avoid challenges and self-realisation. The SEM model further showed that internal locus of control also predicted career motives. Thus, various studies found internal locus of control to be a good predictor for entrepreneurial activities (Perry and Penner, 1990; Wijbenga and van Witteloostuijn, 2007). Our results are, however, not in line with Mathieu and St-Jean (2013) as we found significant correlations between internal locus of control and narcissism, especially high with admiration.

The results of the path analysis from entrepreneurial career motives on the entrepreneurial intention demonstrate a relationship between the connected concepts. Overall, we were able to strengthen the relationship between motives and entrepreneurial intention (Krueger, 2009). With our results we are also in line with the action-characteristics model by Frese and Gielnik (2014). Specifically, we were able to find support for the proposed theories linking dual narcissism, internal locus of control, and entrepreneurial intention with the motivational antecedents of entrepreneurial career motives to each other (see Figure 1). For challenge as a career motive we found a negative association. This negative effect could be explained by item content (Souitaris et al., 2007). For autonomy, authority, and self-realisation, a positive association with entrepreneurial intention was observed. The reason, why an individual scores high on autonomy may strive for freedom and self-determination has been confirmed by several studies (van Gelderen and Jansen, 2006; Niemiec and Ryan, 2009; Ryan and Deci, 2006). An entrepreneurial career implies these properties. Furthermore, an entrepreneur has authority with hiring and leading new employees (Souitaris et al., 2007). Although the motive to lead is not the central motive to start a business, the significant positive relation between authority and entrepreneurial intention could be explained by this (Cassar, 2007). Finally, self-realisation within the entrepreneurial career motives is characterised by three items addressing creativity and realisation of dreams (Souitaris et al., 2007). The entrepreneurial intention could close the gap between the creativity, the business idea, and actual realisation of that idea. It is therefore not surprising that self-realisation serves as a good predictor of entrepreneurial intention.

5.1 Theoretical and practical implications

This study has several theoretical and practical implications. To our knowledge it is the first study using dual narcissism in the entrepreneurship domain. We think that this differentiated perspective on narcissism matches the psychological view of entrepreneurs or future entrepreneurs. With our results we would like to foster research in personality characteristics of entrepreneurs in general and narcissism in entrepreneurs in particular. We touch upon an underdeveloped field of research in the entrepreneurship domain which requests further attention. Similarly, a further validation of the relatively newly developed NARQ was carried out in this study. We were able to establish admiration and

rivalry in a CFA with high factor loading and high values for Cronbach's alpha. With pointing towards an effect between personality characteristics and action characteristics, we finally also supported the action-characteristics model in entrepreneurship (Frese, 2009; Frese and Gielnik, 2014) and the link between characteristics, motives, and intention with empirical evidence.

On the other hand, the results of this study are valuable for practice as well. First, we may be able to better understand the great and glorious entrepreneurs of our time (e.g., Steve Jobs), what drives their thinking, and why they act the way they do. Second, with the concept of narcissism and internal locus of control, as well as the career motives we know which individual characteristics are important when people intend to become an entrepreneur. Entrepreneurial education, for example, can be geared towards fostering those characteristics or it can establish a context where the desirability of the characteristics meets feasibility (Krueger, 2009). Third, the research on how personality characteristics can affect the intention in particular and entrepreneurship in general can improve the counselling of future student generations of choosing an entrepreneurial or an organisational career.

5.2 Limitations and future directions

While GUESSS provides a unique opportunity to analyse a large data set, we acknowledge some limitations of this data. First, we do not have data from every participant in the GUESSS study. Data were only available from students of Liechtenstein and partly of Switzerland. In addition, the sampling procedure was not adequate to gain a sample representative of the countries surveyed. Also, because we do not have information on the participating students' motivation to answer, we cannot address the issue of non-response biases.

Second, it would be advisable to explore more broadly the influence of several organisational as well as individual factors (Brandstätter, 2011). For example, the individual factors optimistic orientation or overconfidence may be important when considering effects of narcissism (Hmieleski and Baron, 2009). Additionally, future research should include different traits associated with entrepreneurial behaviour and macro level factors (Mueller and Thomas, 2001). Lee et al. (2011), for example, were able to show that work environments influence entrepreneurial intentions based on a sample of IT professionals in Singapore, and Crant (1996) found the a positive association between entrepreneurial intentions and the proactive personality scale using a sample of students. We also see further directions in the connection of narcissism with the size of the company or the planned behaviour, because of the narcissistic strive for power and success (Rosenthal and Pittinsky, 2006).

Another approach would be to introduce the concept of narcissism not only to the entrepreneurial domain in founding and running a venture, but also in the domain of corporate entrepreneurship and the context of established companies. Several authors can support the argumentation that individuals working in innovative environments will be equipped with particular personality characteristics (Yang and Wang, 2010; Williamson et al., 2013). Dual narcissism might, for example, have effects on the creativity of innovative behaviour of engineers in research and development (Wales et al., 2013).

Finally, the cross-sectional nature of our study offers only a snapshot of variable interrelations at one given time point. To fully understand the process model outlined in Figure 1, longitudinal data are required, and future research should fill this gap.

Moreover, student samples, as in this study, are often used when examining the formation of entrepreneurial intentions because students are on the verge of choosing a career (e.g., Kuckertz and Wagner, 2010; do Paço et al., 2011). We therefore argue that students are an extremely important group to study, especially because possession of a university degree has been shown to be positively associated with entrepreneurial activity and intentions (Hisrich et al., 2007). Nevertheless, the debate whether students samples are indeed representative of ‘people in general’ continues (Robinson et al., 1991). In our case, students need not be representative of people in general, but only of people who plan or intend to become entrepreneurs. Future research should try to employ non-student samples to replicate our findings (Chen et al., 1998).

6 Conclusions

We established for the first time empirically a relationship between dual narcissism, entrepreneurial career motives, and entrepreneurial intention. We found a significant positive effect from admiration on career motives and entrepreneurial intention and a negative effect for rivalry. These results highlight the importance to consider personality effects in general and the effects of dual narcissism in particular. We can thus point towards the need for future investigation on narcissism and entrepreneurship.

References

- Anderson, J.C. and Gerbing, D.W. (1988) ‘Structural equation modeling in practice: a review and recommended two-step approach’, *Psychological Bulletin*, Vol. 103, No. 3, pp.411–423.
- Arbuckle, J. (2005) *Amos 6.0 User’s Guide*, SPSS Inc; Amos Development Corporation, Chicago.
- Autio, E., Keeley, R., Klofsten, M., Parker, G. and Hay, M. (2001) ‘Entrepreneurial intent among students in Scandinavia and in the USA’, *Enterprise and Innovation Management Studies*, Vol. 2, No. 2, pp.145–160.
- Back, M.D., Küfner, A.C., Dufner, M., Gerlach, T., Rauthmann, J.F. and Denissen, J.J.A. (2013) ‘Narcissistic admiration and rivalry: disentangling the bright and dark sides of narcissism’, *Journal of Personality and Social Psychology*, Vol. 105, No. 6, pp.1013–1037.
- Bagozzi, R.P., Yi, Y. and Phillips, L.W. (1991) ‘Assessing construct validity in organizational research’, *Administrative Science Quarterly*, Vol. 36, No. 3, pp.421–458.
- Barry, C.T., Grafeman, S.J., Adler, K.K. and Pickard, J.D. (2007) ‘The relations among narcissism, self-esteem, and delinquency in a sample of at-risk adolescents’, *Journal of Adolescence*, Vol. 30, No. 6, pp.933–942.
- Begley, T.M. and Boyd, D.P. (1987) ‘A comparison of entrepreneurs and managers of small business firms’, *Journal of Management*, Vol. 13, No. 1, pp.99–108.
- Bentler, P.M. (1990) ‘Comparative fit indexes in structural models’, *Psychological Bulletin*, Vol. 107, No. 2, pp.238–246.
- Besser, A. and Priel, B. (2010) ‘Grandiose narcissism versus vulnerable narcissism in threatening situations: emotional reactions to achievement failure and interpersonal rejection’, *Journal of Social and Clinical Psychology*, Vol. 29, No. 8, pp.874–902.
- Beugelsdijk, S. and Noorderhaven, N. (2005) ‘Personality characteristics of self-employed; an empirical study’, *Small Business Economics*, Vol. 24, No. 2, pp.159–167.
- Bird, B. and Schjoedt, L. (2009) ‘Entrepreneurial behavior: its nature, scope, recent research, and agenda for future research’, *Understanding the Entrepreneurial Mind*, pp.327–358, Springer, New York.

- Blair, C.A., Hoffman, B.J. and Helland, K.R. (2008) 'Narcissism in organizations: a multisource appraisal reflects different perspectives', *Human Performance*, Vol. 21, No. 3, pp.254–276.
- Bollen, K.A. (1989) 'A new incremental fit index for general structural equation models', *Sociological Methods & Research*, Vol. 17, No. 3, pp.303–316.
- Bradlee, P.M. and Emmons, R.A. (1992) 'Locating narcissism within the interpersonal circumplex and the five-factor model', *Personality and Individual Differences*, Vol. 13, No. 7, pp.821–830.
- Brandstätter, H. (2011) 'Personality aspects of entrepreneurship: a look at five meta-analyses', *Personality and Individual Differences*, Vol. 51, No. 3, pp.222–230.
- Brigham, K.H., De Castro, J.O. and Shepherd, D.A. (2007) 'A person-organization fit model of owner-managers' cognitive style and organizational demands', *Entrepreneurship Theory and Practice*, Vol. 31, No. 1, pp.29–51.
- Brown, R.P., Budzek, K. and Tamborski, M. (2009) 'On the meaning and measure of narcissism', *Personality and Social Psychology Bulletin*, Vol. 35, No. 7, pp.951–964.
- Browne, M.W. and Cudeck, R. (1992) 'Alternative ways of assessing model fit', *Sociological Methods & Research*, Vol. 21, No. 2, pp.230–258.
- Brunell, A.B., Gentry, W.A., Campbell, W.K., Hoffman, B.J., Kuhnert, K.W. and DeMarree, K.G. (2008) 'Leader emergence: the case of the narcissistic leader', *Personality and Social Psychology Bulletin*, Vol. 34, No. 12, pp.1663–1676.
- Buffardi, L.E. and Campbell, W.K. (2008) 'Narcissism and social networking web sites', *Personality and Social Psychology Bulletin*, Vol. 34, No. 2, pp.1303–1314.
- Byrne, B.M. (2010) *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*, Multivariate applications series, Routledge, New York.
- Carland, H., Carland, J.W. and Hoy, F. (2002) 'Who is an entrepreneur? Is a question worth asking', *Critical Perspectives on Business and Management*, Vol. 2, No. 2, pp.26–67.
- Cassar, G. (2007) 'Money, money, money? A longitudinal investigation of entrepreneur career reasons, growth preferences and achieved growth', *Entrepreneurship & Regional Development*, Vol. 19, No. 1, pp.89–107.
- Chatterjee, A. and Hambrick, D.C. (2007) 'It's all about me: narcissistic chief executive officers and their effects on company strategy and performance', *Administrative Science Quarterly*, Vol. 52, No. 3, pp.351–386.
- Chen, C.C., Greene, P.G. and Crick, A. (1998) 'Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?', *Journal of Business Venturing*, Vol. 13, No. 4, pp.295–316.
- Cheng, J.T., Tracy, J.L. and Henrich, J. (2010) 'Pride, personality, and the evolutionary foundations of human social status', *Evolution and Human Behavior*, Vol. 31, No. 5, pp.334–347.
- Crant, M.J. (1996) 'The proactive personality scale as a predictor of entrepreneurial intentions', *Journal of Small Business Management*, Vol. 96, No. 34, pp.42–50.
- de Pillis, E. and Reardon, K.K. (2007) 'The influence of personality traits and persuasive messages on entrepreneurial intention: a cross-cultural comparison', *Career Development International*, Vol. 12, No. 4, pp.382–396.
- do Paço, A.M.F., Ferreira, J.M., Raposo, M., Rodrigues, R.G. and Dinis, A. (2011) 'Behaviours and entrepreneurial intention: empirical findings about secondary students', *Journal of International Entrepreneurship*, Vol. 9, No. 1, pp.20–38.
- Eckhardt, J.T. and Shane, S.A. (2003) 'Opportunities and entrepreneurship', *Entrepreneurship: Past Accomplishments and Future Challenges*, Vol. 29, No. 3, pp.333–349.
- Engelen, A., Neumann, C. and Schmidt, S. (2013) 'Should entrepreneurially oriented firms have narcissistic CEOs?', *Journal of Management*, in press.
- Envick, B.R. and Langford, M. (2000) 'The five-factor model of personality: assessing entrepreneurs and managers', *Academy of Entrepreneurship Journal*, Vol. 6, No. 1, pp.6–17.
- Feldman, D.C. and Bolino, M.C. (2000) 'Career patterns of the self-employed: career motivations and career outcomes', *Journal of Small Business Management*, Vol. 38, No. 2, pp.53–67.

- Frank, H., Lueger, M. and Korunka, C. (2007) 'The significance of personality in business start-up intentions, start-up realization and business success', *Entrepreneurship & Regional Development*, Vol. 19, No. 3, pp.227–251.
- Frese, M. (2009) 'Toward a psychology of entrepreneurship – an action theory perspective', *Foundations Trends Entrepreneurship*, Vol. 5, No. 6, pp.437–96.
- Frese, M. and Gielnik, M.M. (2014) 'The psychology of entrepreneurship', *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 1, No. 1, pp.413–438.
- Hair, J.F. (2010) *Multivariate Data Analysis*, Prentice Hall, Upper Saddle River.
- Hansemark, O.C. (2003) 'Need for achievement, locus of control and the prediction of business start-ups: a longitudinal study', *Journal of Economic Psychology*, Vol. 24, No. 3, pp.301–319.
- Heaven, P.C. (1988) 'Locus of control and attitudes to authority among adolescents', *Personality and Individual Differences*, Vol. 9, No. 1, pp.181–183.
- Higgs, M. (2009) 'The good, the bad and the ugly: leadership and narcissism', *Journal of Change Management*, Vol. 9, No. 2, pp.165–178.
- Hisrich, R., Langan-Fox, J. and Grant, S. (2007) 'Entrepreneurship research and practice: a call to action for psychology', *American Psychologist*, Vol. 62, No. 6, pp.575–589.
- Hmieleski, K.M. and Baron, R.A. (2009) 'Entrepreneurs' optimism and new venture performance: a social cognitive perspective', *Academy of Management Journal*, Vol. 52, No. 3, pp.473–488.
- Hodson, G., Hogg, S.M. and MacInnis, C.C. (2009) 'The role of dark personalities, big five personality factors, and ideology in explaining prejudice', *Journal of Research in Personality*, Vol. 43, No. 4, pp.686–690.
- Hu, L. and Bentler, P.M. (1998) 'Fit indices in covariance structure modeling: sensitivity to under parameterized model misspecification', *Psychological Methods*, Vol. 3, No. 4, pp.424–453.
- Judge, T.A. and Bono, J.E. (2001) 'Relationship of core self-evaluations traits-self-esteem, generalized self-efficacy, locus of control, and emotional stability-with job satisfaction and job performance: a meta-analysis', *Journal of Applied Psychology*, Vol. 86, No. 1, pp.80–92.
- Judge, T.A., Bono, J.E., Ilies, R. and Gerhardt, M.W. (2002) 'Personality and leadership: a qualitative and quantitative review', *Journal of Applied Psychology*, Vol. 87, No. 4, pp.765–780.
- Judge, T.A., LePine, J.A. and Rich, B.L. (2006) 'Loving yourself abundantly: relationship of the narcissistic personality to self- and other perceptions of workplace deviance, leadership, and task and contextual performance', *Journal of Applied Psychology*, Vol. 91, No. 4, pp.762–776.
- Judge, T.A., Thoresen, C.J., Bono, J.E. and Patton, G.K. (2001) 'The job satisfaction-job performance relationship: a qualitative and quantitative review', *Psychological Bulletin*, Vol. 127, No. 3, pp.376–407.
- Kaplan, S.E., Reneau, J.H. and Whitecotton, S. (2001) 'The effects of predictive ability information, locus of control, and decision maker involvement on decision aid reliance', *Journal of Behavioral Decision Making*, Vol. 14, No. 1, pp.35–50.
- Kernberg, O. (1980) *Internal World and External Reality*, Jason Aronson, New York.
- Kline, R.B. (2011) *Principles and Practice of Structural Equation Modeling*, Guilford Press, New York.
- Kolvereid, L. (1996) 'Organizational employment versus self-employment reasons for career choice intention', *Entrepreneurship Theory and Practice*, Vol. 20, No. 3, pp.23–31.
- Kroeck, K.G., Am, B. and Reynolds, P.D. (2010) 'Entrepreneurship and differences in locus of control', *Journal of Applied Management and Entrepreneurship*, Vol. 15, No. 1, pp.21–49.
- Krueger, N. (2009) 'Entrepreneurial intentions are dead: long live entrepreneurial intentions', in *Understanding the Entrepreneurial Mind*, pp.51–72, Springer, New York.
- Krueger, N., Reilly, M.D. and Carsrud, A.L. (2000) 'Competing models of entrepreneurial intentions', *Journal of Business Venturing*, Vol. 15, Nos. 5–6, pp.411–432.

- Kuckertz, A. and Wagner, M. (2010) 'The influence of sustainability orientation on entrepreneurial intentions – investigating the role of business experience', *Sustainable Development and Entrepreneurship*, Vol. 25, No. 5, pp.524–539.
- Lam, S.S. and Schaubroeck, J. (2000) 'Locus of control in reactions to being promoted and to being passed over: a quasi experiment', *Academy of Management Journal*, Vol. 43, No. 1, pp.66–78.
- Laspita, S., Breugst, N., Heblich, S. and Patzelt, H. (2012) 'Intergenerational transmission of entrepreneurial intentions', *Journal of Business Venturing*, Vol. 27, No. 4, pp.414–435.
- Lee, D.Y. and Tsang, E.W. (2001) 'The effects of entrepreneurial personality, background and network activities on venture growth', *Journal of Management Studies*, Vol. 38, No. 4, pp.583–602.
- Lee, L., Wong, P.K., Foo, M.D. and Leung, A. (2011) 'Entrepreneurial intentions: the influence of organizational and individual factors', *Journal of Business Venturing*, Vol. 26, No. 1, pp.124–136.
- Levenson, H. (1974) 'Activism and powerful others: distinctions within the concept of internal-external control', *Journal of Personality Assessment*, Vol. 38, No. 4, pp.377–383.
- Liñán, F. and Chen, Y. (2009) 'Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions', *Entrepreneurship Theory and Practice*, Vol. 33, No. 3, pp.593–617.
- Liñán, F., Urbano, D. and Guerrero, M. (2011) 'Regional variations in entrepreneurial cognitions: start-up intentions of university students in Spain', *Entrepreneurship & Regional Development*, Vol. 23, No. 3, pp.187–215.
- Lockwood, F., Teasley, R., Carland, J.C. and Carland, J.W. (2006) 'An examination of the power of the dark side of entrepreneurship', *International Journal of Family Business*, Vol. 3, No. 1, pp.1–20.
- Mathieu, C. (2013) 'Personality and job satisfaction: the role of narcissism', *Personality and Individual Differences*, Vol. 55, No. 6, pp.650–654.
- Mathieu, C. and St-Jean, É. (2013) 'Entrepreneurial personality: the role of narcissism', *Personality and Individual Differences*, Vol. 55, No. 5, pp.527–531.
- McAdams, D.P. (1992) 'The five-factor model in personality: a critical appraisal', *Journal of Personality*, Vol. 60, No. 2, pp.329–361.
- Miller, J.D., Gentile, B., Wilson, L. and Campbell, W.K. (2013) 'Grandiose and vulnerable narcissism and the DSM-5 pathological personality trait model', *Journal of Personality Assessment*, Vol. 95, No. 3, pp.284–290.
- Morf, C.C. and Rhodewalt, F. (2001) 'Unraveling the paradoxes of narcissism: a dynamic self-regulatory processing model', *Psychological Inquiry*, Vol. 12, No. 4, pp.177–196.
- Mueller, S.L. and Thomas, A.S. (2001) 'Culture and entrepreneurial potential: a nine country study of locus of control and innovativeness', *Journal of Business Venturing*, Vol. 16, No. 1, pp.51–75.
- Ng, T. W., Sorensen, K.L. and Eby, L.T. (2006) 'Locus of control at work: a meta-analysis', *Journal of Organizational Behavior*, Vol. 27, No. 8, pp.1057–1087.
- Niemiec, C.P. and Ryan, R.M. (2009) 'Autonomy, competence, and relatedness in the classroom: applying self-determination theory to educational practice', *Theory and Research in Education*, Vol. 7, No. 2, pp.133–144.
- Nunnally, J.C. (1978) *Psychometric Theory*, McGraw Hill, New York.
- Olakitan, O.O. and Ayobami, A.P. (2011) 'An investigation of personality on entrepreneurial success', *Journal of Emerging Trends in Economics and Management Sciences*, Vol. 2, No. 2, pp.95–103.
- Paulhus, D.L. and Williams, K.M. (2002) 'The dark triad of personality: narcissism, machiavellianism, and psychopathy', *Journal of Research in Personality*, Vol. 36, No. 6, pp.556–563.

- Perry, R.P. and Penner, K.S. (1990) 'Enhancing academic achievement in college students through attributional retraining and instruction', *Journal of Educational Psychology*, Vol. 82, No. 2, pp.262–271.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003) 'Common method biases in behavioral research: a critical review of the literature and recommended remedies', *The Journal of Applied Psychology*, Vol. 88, No. 5, pp.879–903.
- Pruett, M., Shinnar, R., Toney, B., Llopis, F. and Fox, J. (2009) 'Explaining entrepreneurial intentions of university students: a cross-cultural study', *International Journal of Entrepreneurial Behavior & Research*, Vol. 15, No. 6, pp.571–594.
- Raskin, R. and Terry, H. (1988) 'A principal-components analysis of the narcissistic personality inventory and further evidence of its construct validity', *Journal of Personality and Social Psychology*, Vol. 54, No. 3, pp.890–902.
- Raskin, R., Novacek, J. and Hogan, R. (1991) 'Narcissistic self-esteem management', *Journal of Personality and Social Psychology*, Vol. 60, No. 6, pp.911–918.
- Rauch, A. and Frese, M. (2007) 'Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success', *European Journal of Work and Organizational Psychology*, Vol. 16, No. 4, pp.353–385.
- Rhodewalt, F. and Morf, C.C. (1995) 'Self and interpersonal correlates of the narcissistic personality inventory: a review and new findings', *Journal of Research in Personality*, Vol. 29, No. 1, pp.1–23.
- Robinson, P., Huefner, J. and Hunt, H. (1991) 'Entrepreneurial research on student subjects does not generalize to real world entrepreneurs', *Journal of Small Business Management*, Vol. 29, No. 2, pp.42–50.
- Rosenthal, S.A. and Pittinsky, T.L. (2006) 'Narcissistic leadership', *The Leadership Quarterly*, Vol. 17, No. 6, pp.617–633.
- Rotter, J.B. (1966) 'Generalized expectancies for internal versus external control of reinforcement', *Psychological Monographs*, Vol. 80, No. 1, pp.1–28.
- Ryan, R.M. and Deci, E.L. (2006) 'Self-regulation and the problem of human autonomy: does psychology need choice, self-determination, and will?', *Journal of Personality*, Vol. 74, No. 6, pp.1557–1586.
- Schjoedt, L. and Shaver, K.G. (2012) 'Development and validation of a locus of control scale for the entrepreneurship domain', *Small Business Economics*, Vol. 39, No. 3, pp.713–726.
- Schlaegel, C. and Koenig, M. (2014) 'Determinants of entrepreneurial intent: a meta-analytic test and integration of competing models', *Entrepreneurship Theory and Practice*, Vol. 38, No. 2, pp.291–332.
- Schneider, B., Smith, D.B., Taylor, S. and Fleener, J. (2008) 'Personality and organizations: a test of the homogeneity of personality hypothesis', *Journal of Applied Psychology*, Vol. 83, No. 3, pp.462–470.
- Segal, G., Borgia, D. and Schoenfeld, J. (2005) 'The motivation to become an entrepreneur', *International Journal of Entrepreneurial Behavior & Research*, Vol. 11, No. 1, pp.42–57.
- Shaver, K. and Scott, L. (1991) 'Person, process, choice: the psychology of new venture creation', *Entrepreneurship Theory and Practice*, Vol. 16, No. 2, pp.23–25.
- Sieger, P. and Monsen, E. (2015) 'Founder, academic, or employee? A nuanced study of career choice intentions', *Journal of Small Business Management*, in press.
- Souitaris, V., Zerbinati, S. and Al-Laham, A. (2007) 'Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources', *Journal of Business Venturing*, Vol. 22, No. 4, pp.566–591.
- Steiger, J.H. (1990) 'Structural model evaluation and modification: an interval estimation approach', *Multivariate Behavioral Research*, Vol. 25, No. 2, pp.173–180.
- Tabachnick, B.G. and Fidell, L.S. (2013) *Using Multivariate Statistics*, Pearson, Boston.

- Ullman, J.B. and Bentler, P.M. (2003) 'Structural equation modeling', in Weiner, I.B. (Ed.): *Handbook of Psychology*, John Wiley & Sons, Hoboken.
- van Gelderen, M. and Jansen, P. (2006) 'Autonomy as a start-up motive', *Journal of Small Business and Enterprise Development*, Vol. 13, No. 1, pp.23–32.
- Wales, W.J., Patel, P.C. and Lumpkin, G.T. (2013) 'In pursuit of greatness: CEO narcissism, entrepreneurial orientation, and firm performance variance', *Journal of Management Studies*, Vol. 50, No. 6, pp.1041–1069.
- Wijbenga, F.H. and van Witteloostuijn, A. (2007) 'Entrepreneurial locus of control and competitive strategies – the moderating effect of environmental dynamism', *Journal of Economic Psychology*, Vol. 28, No. 5, pp.566–589.
- Williamson, J.M., Lounsbury, J.W. and Han, L.D. (2013) 'Key personality traits of engineers for innovation and technology development', *Journal of Engineering and Technology Management*, Vol. 30, No. 2, pp. –57–168.
- Wink, P. (1991) 'Two faces of narcissism', *Journal of Personality and Social Psychology*, Vol. 64, No. 4, pp.590–597.
- Yang, Y.-J. and Wang, C.-C. (2010) 'Creativity among R&D professional: supervisory support and personality traits', *Asian Journal of Technology Innovation*, Vol. 18, No. 1, pp.229–248.
- Zellweger, T., Sieger, P. and Halter, F. (2011) 'Should I stay or should I go? Career choice intentions of students with family business background', *Journal of Business Venturing*, Vol. 26, No. 5, pp.521–536.
- Zhao, H. and Seibert, S.E. (2006) 'The big five personality dimensions and entrepreneurial status: a meta-analytical review', *Journal of Applied Psychology*, Vol. 91, No. 2, pp.259–271.
- Zhao, H., Seibert, S.E. and Lumpkin, G. (2010) 'The relationship of personality to entrepreneurial intentions and performance: a meta-analytic review', *Journal of Management*, Vol. 36, No. 2, pp.381–404.