PSYCHOLOGICAL ASPECTS OF ENTREPRENEURSHIP –
HOW PERSONALITY AND COGNITIVE ABILITIES INFLUENCE LEADERSHIP

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Abstract

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About 100 years after Schumpeter’s initial work on “The Theory of Economic Development”, research on entrepreneurship is still a growing and remarkably dynamic field that comprises various research streams and builds on theories from management, economics, psychology, and sociology. Even though previous theoretical work and empirical research suggest that a simultaneous consideration of organisational characteristics of the firm as well as individual characteristics of the entrepreneur would improve the understanding of firm performance, researchers lack to integrate findings from different research streams and levels and thereby miss essential insights into the complex interplay in regard to entrepreneurial activity.

This thesis therefore investigates which psychological personality traits and cognitive abilities enable entrepreneurs to successfully handle the demanding challenges of becoming and being an entrepreneur and how they interact with contextual factors.

In doing so, this thesis comprises two parts. Part I sets out the background, literature, and conclusions of the thesis. Part II presents the five publications, which address distinct research sub-questions and, in their synopsis, derive an answer to the main research question.

Applying different research methods, such as literature review, fsQCA or structural equation modelling, with samples from 131 to 3,342 CEOs, students, and individuals with other occupational background (depending on research question within the respective publication), this thesis makes three main contributions. Firstly, it demonstrates the additional gain in knowledge, when individual level variables and organisational level factors are combined to explain firm performance. Secondly, it advocates for a holistic view on entrepreneurs that includes downsides of entrepreneurial activity and considers effects of dark personality traits. And thirdly, it takes a developmental perspective and highlights the importance to consider personality and contextual factors when researching the development of entrepreneurial intentions.

Keywords: entrepreneur, psychological variables, personality, abilities, leadership, entrepreneurial orientation, entrepreneurial intention, SMEs
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Publications
List of publications

This dissertation is based on five peer-reviewed and published papers. Table 1 provides an overview of the five academic articles listing their status with year of publication, methods, authors, journals as well as information about the journals’ ranking in academia.

All five contributions have been published in different double-blind peer reviewed international scientific journals, which are listed in recognized major rankings in Great Britain (JCR; Clarivate Analytics 2017), Germany (VHB; German Academic Association for Business Research) and/or Finland (JUFO: Finnish Publication Forum under the auspices of the Federation of Finnish Learned Societies). These rankings reflect criteria for tenure or full professorship evaluation in the respective countries.

Three out of five articles are published in journals with an Impact Factor. Impact Factors indicate the frequency how often articles of a journal are cited within a given period of time (usually one year). Publication 2 is published in “Economic Research - Ekonomiska Istraživanja”, which currently holds an Impact Factor of 1.137. Publication 5 is published in a journal with an Impact Factor of 1.483 and Publication 4 is even published in a journal with an Impact Factor of 2.509.

The German VHB ranking distinguishes five levels of journals ranging from “D”, comprising “academic business research journals”, to “A+”, reflecting outstanding and leading international academic business research journals. The majority of journals is ranked as “C”. Only publication 2 is published in a journal without a VHB ranking. Publication 3 is published in “Journal of Promotion Management”, which is listed but did not get a VHB ranking as the journal received too little evaluations during the last round of journal evaluations contributing to the current VHB-JOURQUAL 3. One of the articles included in this dissertation is published in a “recognised academic business research journal” (“C” level). Two others are published in important and renowned business research journals (“B” level).

The Finnish classification system for academic journals is called JUFO and ranks journals from “1”, meaning basic level, to “3”, marking highest level. Journals that have been evaluated but did not meet all criteria of level 1 are clustered in a separate category “0”. The majority of journals is ranked as “1”. One article in this thesis is published at “0” level. Three publications are published in a journal on basic level (“1”). And publication 4 is published in a scientific journal on a leading level (“2”) that is awarded to a limited number of academic journals only.

Taking together all five papers in this dissertation are published in acknowledged academic quality journals. The selection of journals reflects a well-considered strategy to publish findings from entrepreneurship research in outlets with distinctive focus on the respective research question. The rights have been granted by publishers to include the papers in the dissertation.
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<th>No.</th>
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$^1$ JCR: ThomsonReuters (2017; Great Britain); VHB: German Academic Association for Business Research (JQ3; Germany); JUFO: Finnish Publication Forum under the auspices of the Federation of Finnish Learned Societies (Finland).
Author's contribution

All publications were written in cooperation with co-authors. The order of authors depicts their contribution to the article. The author of this thesis was the first (“leading”) author in four out of five papers. Her contribution in detail is listed below.

Publication 1


The author was mainly responsible for idea finding, executing the systematic literature review, including the systematic compilation and coding of the sample of relevant literature, analysing and interpreting the findings in the light of existing research from an interdisciplinary perspective, writing extensive parts of the manuscript as well as taking responsibility for the required revisions during the single review rounds with the journal. The co-authors’ major contributions included their far-reaching support in the execution of the systematic literature review and the analysis of the findings.

Publication 2


The author was mainly responsible for idea finding, developing the research plan as well as supervising data collection, executing the systematic literature review, data analysis, and interpreting the findings in the light of existing research, writing major parts of the manuscript as well as taking responsibility for the required revisions during the single review rounds with the journal. The co-authors’ major contributions included essential feedback during the writing of the manuscript and the peer-review process for the journal publication.

Publication 3


The author was mainly responsible for writing major parts of the manuscript, extending the literature base and discussion, as well as taking responsibility for the required revisions during the single review rounds with the journal. The co-authors’ major contributions included their far-reaching efforts with respect to idea finding, data collection, and analysis.
Publication 4


The author was mainly responsible for idea finding, developing the research plan as well as supervising data collection, executing the systematic literature review, analysing and interpreting the findings in the light of existing research, writing extensive parts of the manuscript as well as taking responsibility for the required revisions during the single review rounds with the journal. The co-authors’ major contributions included far-reaching efforts with regard to data analysis as well as essential feedback during the writing of the manuscript and the peer-review process for the journal publication.

Publication 5


The author was mainly responsible for idea finding, developing the research plan as well as supervising data collection, executing the systematic literature review, analysing and interpreting the findings in the light of existing research, writing major parts of the manuscript as well as taking responsibility for the required revisions during the single review rounds with the journal. The co-authors’ major contributions included far-reaching support with regard to data analysis as well as essential feedback during the writing of the manuscript and the peer-review process for the journal publication.
Nomenclature

Abbreviations

CEO  Chief executive officer  
EI   Entrepreneurial intention(s)  
EO   Entrepreneurial orientation  
fsQCA  fuzzy sets Qualitative Comparative Analysis  
I/O psychology  Industrial and organisational psychology  
SEM  Structural Equation Modelling  
SME(s)  Small- and medium-sized enterprise(s)  
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1 Introduction

1.1 Research Background and Motivation

Ten years after the global financial crisis, nine nations of the 14 OECD countries show total business creations trending upwards (OECD, 2017). By now, around 20 per cent of firms in most countries are less than two years old. Some nations such as Hungary, Poland, United Kingdom, and Brazil even have more than 30 per cent start-ups. Small and middle enterprises (SMEs), i.e. firms with less than 250 employees, account for over 99 per cent of enterprises in all OECD countries, with a predominance of micro-enterprises, i.e. firms with less than 10 employees. These current international data highlight the economic importance of start-ups and SMEs. The far-reaching impact of successful venture creations is described by Kelly, Bosma, and Amorós (2011): “Entrepreneurs create jobs. They drive and shape innovation, speeding up structural changes in the economy. By introducing new competition, they contribute indirectly to productivity. Entrepreneurship is thus a catalyst for economic growth and national competitiveness“ (p. 5).

Hence, much research effort is put into the explanation of entrepreneurial success. A firm’s performance can be measured via financial and non-financial performance indicators. Two of the key performance indicators for SMEs are innovation and growth (Harms, Reschke, Kraus, & Fink, 2010). Up to present, the connections between those performance indicators and various predictors (such as the companies’ underlying business model, their financial power, assets, strategic decisions, and management styles as well as their regulatory and social framework) have been pointed out.

Economic success of newly founded and small or medium enterprises (SMEs) is closely linked to the entrepreneur himself or herself, respectively. Owners and leaders in SMEs are the “source of action” (Rauch & Frese, 2000). In contrast to larger firms, where success is mainly determined by organisational variables, they strongly shape the firm's strategy, culture, and actions (Palmer, Niemand, Stöckmann, Kraus, & Kailer, 2019). In consequence, entrepreneurs play a crucial role for the survival and development of SMEs.

Thereby the explanation of entrepreneurial performance will be improved by taking an individual perspective into account. Since the 1960s entrepreneurship researchers integrate literature from economics and management with psychological theories, constructs, and methods. In the meantime, it is well established that entrepreneurs differ in essential characteristics from employed managers (Begley, 1995; Zhao & Seibert, 2006). Sound reviews on the psychology of entrepreneurship illustrate robust relationships between psychological traits and the intention to start a venture as well as its successful development (Fayolle & Liñán, 2014; Frese & Gielen, 2014). Individual traits such as need for achievement, locus of control, self-efficacy, risk-taking propensity, and social factors, such as family influence, educational influence, and work experience, are identified as important antecedents of entrepreneurial behaviour and success.
Although a broad literature basis exists for psychological aspects of entrepreneurship, the potential of a joint consideration of variables on organisational and on individual level still remains unexploited. Most of the studies about entrepreneurs’ ideal personality profile validate selected traits by their (isolated) contribution to firm performance. Organisational conditions, like entrepreneurial orientation (EO), as well as environmental prerequisites, like family background, are omitted. Moreover, recent psychological entrepreneurship research focusses on positive psychological characteristics traits following the idea of a challenging, but yet prosperous and satisfying occupation. In doing so, current developments that massively alter conditions for designing, launching, and running a new business are largely ignored.

Digitalisation, for example, is changing entrepreneurial activity in a rapid and transformative way. When “some or all of what would be physical in a traditional organisation has been digitized“ (Hull, Hung, Hair, Perotti, & DeMartino, 2007, p. 293), we are facing the emerging phenomenon of digital entrepreneurship, which especially attracts micro-entrepreneurs in an “unimaginable” way (OECD, 2017, p. 8). Digitalisation provides various opportunities to change and improve marketing, sales and distribution activities, the nature of products and services, stakeholder management, and internal tasks concerning operations (Hull et al., 2007). At the same time, digital entrepreneurs confront specific challenges. Kraus, Palmer, Kailer, Kallinger, and Spitzer (2019) point to three obstacles that digital entrepreneurs have to cope with in addition to the usual challenges of being self-employed. First, digital entrepreneurship comes along with particularly high uncertainty as not only the advancement of technology but also diverse future legal or tax regulations once the field of business is established are hard to predict. Second, digital entrepreneurs have to innovate and differentiate constantly. Third, as digital business is usually quite depersonalised, the establishment of trust among market participants is both notably important as particularly difficult and requires strong social skills and efforts of the entrepreneur. Whereas digitalisation creates completely new markets, products, and operations, it challenges the digital entrepreneur with uncertainty, pressure to innovate, and new ways to collaborate and attract potential customers while competing against business rivals. Changing markets, pressure to innovate, and high levels of uncertainty are antecedents of entrepreneurial burnout in turn (Palmer, Kraus, Kailer, Huber, & Oner, in press).

Occupational health risks among entrepreneurs on individual, venture, and societal levels are often neglected (Boles, Dean, Ricks, Short, & Wang, 2000; Lewin-Epstein & Yuchtman-Yaar, 1991). Though, as entrepreneurial activity demands high energy, long hours, and personal coping mechanisms, the occurrence of negative health consequences for the entrepreneurs, such as burnout, is obvious. Burnout describes “a state of exhaustion in which one is cynical about the value of one’s occupation and doubtful of one’s capacity to perform” (Maslach, Jackson, & Leiter, 1996, p. 20). Even though entrepreneurial burnout is a real-life phenomenon and numbers of entrepreneurs suffering from it are growing (Sheehan and St John, 2014 cited in Belaid & Dakoumi Hamrouni, 2016), surprisingly little research findings are at hand. Clinical psychologists concentrate on clinical samples with severely diseased patients from no specific background;
organisational psychologists rather focus on employees than on entrepreneurs. And occupational health psychology researchers do not study entrepreneurs quite as often as they do other occupations (Stephan & Roesler, 2010). Entrepreneurship researchers start to investigate entrepreneurs’ mental health (cf. Stephan, 2018), but are at the very beginning to understand the phenomenon of entrepreneurial burnout and other mental health problems.

Given current developments in entrepreneurship, the question is whether we have to detach from a too glorified picture of an enigmatic entrepreneur who passionately runs a growing business? A holistic understanding of entrepreneurship can only be achieved, when research includes uncomfortable or even negative aspects of becoming, being, and maybe failing to succeed as an entrepreneur. This not only holds true for influences on entrepreneurial activities on macro level (i.e. financial crises), but is also of high relevance on an individual level.

Besides mental health issues due to the challenging job characteristics of entrepreneurs, another research stream emerges presently from the nexus of entrepreneurship literature, leadership research, and personality psychology. Again, pointing to shady sides of business owners’ behaviour, ‘dark’ personality traits of entrepreneurs are discussed with regard to their impact on employees, firm performance, and well-being of the entrepreneur. Examples for dark, that is damaging or even harmful, characteristics are malevolent creativity or narcissism, Machiavellianism, and psychopathy. The latter three are often referred to as the “dark triad of personality” (Paulhus & Williams, 2002). Dark triad traits are widely studied in personality and occupational psychology (cf. Muris, Merckelbach, Otgaar, & Meijer, 2017; O'Boyle Jr, Forsyth, Banks, & McDaniel, 2012; Vize, Collison, Miller, Lynam, & Back, 2018). In this line of research, dark personality traits are associated with leadership behaviour (Gaddis & Foster, 2015). Furthermore, dark traits as well as leadership skills are conceptually linked to traits like autonomy and structural power, self-efficacy, risk-propensity, and stress tolerance (Davis, Bell, Payne, & Kreiser, 2010; Frese & Gielnik, 2014). These ‘lighter’ traits are in turn identified as relevant for entrepreneurial success. On this account, entrepreneurship research is called to broaden the understanding of entrepreneurial traits by taking ‘darker’ psychological traits into account.

The transferability of classical management literature on leadership to the unique context of entrepreneurship is in question as entrepreneurs are exposed to distinctive environmental conditions and hold a exceptional position that cannot be compared to the occupational circumstances of employed managers. But current literature on entrepreneurial leadership is quite scarce. Besides a mostly isolated research of psychological traits without an integration of organisational or environmental variables, the majority of studies focusses on firm performance and thereby neglects pre-launch and exiting phases in the entrepreneurial life. It seems self-evident that there is no ‘one size fits all’ set of entrepreneurs’ traits and skills, but rather different psychological characteristics are required from first entrepreneurial intention to business planning and creation to running a business with performance and growth intentions. Although, some
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Researchers are addressing the change of required psychological factors of the entrepreneur in the life cycle of a firm (Frese & Gielnik, 2014; Vecchio, 2003), evidence is limited and the entrepreneur’s crucial role as leader is often neglected in favor of more self-centered variables (i.e. locus of control, person-system fit). Per definition, micro-entrepreneurs (i.e. self-employed entrepreneurs without employees) seem to be excluded from the concept of classical leadership. Though, they have to motivate and influence themselves in order to perform and enjoy work, furthermore, they might have to manage collaborations with other freelancers or stakeholders. Therefore, they also rely on (self-)leadership skills (D’Intino, Goldsby, Houghton, & Neck, 2007; Furtner, Rauthmann, & Sachse, 2013).

Accordingly, the overarching objective of this thesis is the exploration of psychological traits, which enable entrepreneurs to successfully handle the demanding challenges of becoming and being an entrepreneur. In this respect, an interdisciplinary approach is applied. The combination of theories and constructs as well as methods from both entrepreneurship and psychology facilitates a comprehensive understanding of entrepreneurs’ leadership and entrepreneurial orientation. Thereby, this thesis shall identify measurable effects of specific psychological factors for well-being and performance, which can contribute to theory-building on the one hand and provide straightforward implications for entrepreneurs on the other hand.

1.2 Research Gaps and Objectives

On top level, three research gaps concerning entrepreneurial leadership are identified. First, entrepreneurship researcher should turn their attention to the complete life course of entrepreneurs. Beyond doubt, literature on the ideal entrepreneurial profile and mindset is fruitful to explain individual and firm performance of entrepreneurs in action. But what drives individuals to pursue a career as entrepreneurs (Publication 5)? And which antecedents are in action when entrepreneurs burn out and possibly develop intentions to turn over their firm (Publication 1)? Insights into pre-launch phases concerning the development of entrepreneurial intentions and the initial decision to realise them as well as knowledge about the downsides of entrepreneurial activities will complement the understanding of psychological drivers for developing a business venture.

Second, whereas theory-based articles in entrepreneurship literature frequently highlight the complex interplay of environmental, organisational, and the entrepreneurs’ individual factors in the prediction of firm performance, very few empirical studies test those joined effects. Wales, Gupta, and Mousa (2013), for example, assert that the moderating role of CEOs’ personality traits in the connection of entrepreneurial orientation and firm performance has so far remained almost unexplored. Entrepreneurs are innovators, decision-makers, strategists, networkers, and leaders at the same time and have thereby massively to rely on their skills, motivation, expertise, and values. As a matter of course, these individual assets emerge within a given context, such as family background, gender roles or access to information. In addition, the leverage of firm
founders or managers of SMEs on strategic alignments and operations is fundamentally strong. Obviously, an entrepreneur's individual psychological profile and context will influence his or her behaviour as CEO of the firm. Hence, organisational level factors and individual level variables should be researched simultaneously (Publication 1, 4, and 5).

Third, entrepreneurs’ unique position within their firms is characterised as one of exceptional power. Though, entrepreneurship research up to now blanks out the attractiveness of holding a powerful position and its potential to activate maladaptive personality traits. The dark triad of personality, for instance, is directly linked to power (Kajonius, Persson, & Jonason, 2015). Consequently, studying dark traits in the entrepreneurial context seems inevitable. Miller (2015) supports this assumption by requesting research that uncovers “the possible downsides of the entrepreneurial personality, if only to distinguish those entrepreneurs who contribute to our economic and social well-being from those whose economic contributions are negated by the harm they cause to their families and other stakeholders” (p. 5). When CEOs are the centre of authority within firms, especially the dark triad of personality seems a promising approach to explain reckless decisions and behaviour (Publication 3). The combination of power with the immense pressure to innovate that is immanent to start-ups and SMEs could furthermore explain, why some entrepreneurs use their creative potential for malicious behaviour (Publication 2).

In order to fill those identified research gaps, this doctoral thesis investigates psychological traits, which enable entrepreneurs to successfully handle the demanding challenges of becoming and being an entrepreneur. As running a business means holding a position of power, selected traits of the entrepreneurial mindset could be relevant in particular. In addition, this dissertation pursues the following objectives. The research conducted within the present dissertation aims at contributing to theory-building as well as providing empirical evidence for the field of psychological entrepreneurship.

Objectives of this dissertation regarding theory-building are:

- The link of theories and models from entrepreneurship, management, and psychology literature. For example, when the development of entrepreneurial intentions (Liñán & Chen, 2009) is studied, social learning theory (Bandura, 1977, 1986) helps to explain their emergence at younger ages (Publication 5).
- The integration of firm-level variables, such as entrepreneurial orientation or business strategy, with individual-level variables, such as psychological traits or demographic background, on theoretical basis as well as empirical studies (Publications 1 and 3-5).
- The consideration of the downsides of entrepreneurial activity, such as burnout (Publication 1).
- The directed investigation of darker traits, such as dark creativity (Publication 2), the dark triad of personality (comprising narcissism, Machiavellianism, and psychopathy; Publication 3), and dominance (Publication 4 and 5) as they are fostered by holding a power position.
The consideration of specific traits (e.g. dominance) in opposition to the study of broad and more general characteristics (e.g. extraversion), which is in line with the call of other researchers (Mussel, Winter, Gelléri, & Schuler, 2011; Rauch & Frese, 2007).

Objectives of this dissertation regarding research methods are:

- To advance present theory of entrepreneurship by contributing new aspects based on profound and analytical literature reviews and own conclusions supported by appropriate empirical analyses, in particular.
- To provide current data from proper empirical analyses with the appropriate sample size and state-of-the-art analyses (e.g. fsQCA in Publication 4) that secure external validity by sampling out of the target population of hypotheses.

The scope of this doctoral thesis is thereby to contribute to a more explicit and focused research attention on individual psychological factors in interaction with contextual factors, such as job characteristics, strategic orientation, and family background, aiming at a deeper understanding of successful entrepreneurship.

1.3 Research Questions and Linkage to Publications

Grounded on extensive and critical analysis of literature about the psychology of entrepreneurs and theories of the firm that emphasize the relevance of the entrepreneur’s psychological profile, three main research gaps were identified. First, little research in entrepreneurship includes the complete life course of entrepreneurs, like paying attention to the factors that encourage the development of entrepreneurial intentions at a young age, for instance. Second, up to now, streams of research remain largely isolated and thereby miss to offer insights into the complex interplay of environmental, organisational, and the entrepreneurs’ individual factors. And third, a strong focus on positive experiences in entrepreneurial activity hinders the pivotal consideration of dark traits in the entrepreneurial context in terms of a holistic approach to explain the phenomenon of entrepreneurship. The author of this thesis therefore concludes that integrative research on the entrepreneur’s crucial role as visionary, innovator, strategist, and last but not least leader is often neglected.

Mere compilations of isolated cognitive or personality traits, skills or motivations, which have proven to show bivariate correlations to either the entrepreneur’s job performance and career satisfaction or firm performance, are insufficient. Therefore, the leading research question within this dissertation is:

*Which psychological personality traits and cognitive abilities enable entrepreneurs to successfully handle the demanding challenges of becoming and being an entrepreneur and how do they interact with contextual factors?*
1.3 Research Questions and Linkage to Publications

To give consideration to the complexity of the overarching research question, sub-questions were developed. The five publications are gradually addressing these particular research sub-questions as follows.

Entrepreneurs act in the stress field between high pressure to innovate, perform, and grow on the one hand and great power and autonomy on the other side. Thereby entrepreneurship is highly demanding in several domains and requires a specific entrepreneurial profile to fight the challenges as well as individual coping skills. Based on previous research, we know about drivers for successful entrepreneurial performance. But entrepreneurship research can deepen its understanding of key characteristics when aiming at the specifically stressful conditions of entrepreneurial activity that might result in health issues or failure. Publication 1 therefore answers research sub-question 1:

*What are the antecedents and outcomes of entrepreneurial burnout as a manifestation of the downsides of entrepreneurial activity?*

Supported by findings of Publication 1 and in line with entrepreneurship literature personal autonomy, performance pressure, and firm-related stressors can have their flip side. Holding a position of power comes with the absence of supervisors, who could take corrective actions and act as personal adviser, and a great freedom of action. These unique job characteristics should attract individuals with higher scores on ‘darker’ psychological constructs. For example, the three dimensions of the dark triad of personality are related to power motives (Kajonius et al., 2015) and individuals scoring high on narcissism systematically prefer such jobs high in autonomy (Jonason, Wee, Li, & Jackson, 2014). Moreover, high pressure and the challenge to deal with various internal and external stressors might entice some entrepreneurs to take especially risky decisions and to display ruthless behaviour in order to succeed at any cost. Accordingly, research sub-question 2 reads as follows:

*Does the high power of CEOs and business owners in SMEs motivate entrepreneurs with higher scores on dark traits to bad business decisions?*

Publication 2 and 3 aim to answer the question. Publication 2 addresses dark creativity, which is defined as the use of original ideas to gain an unfair advantage through manipulation (A. J. Cropley, 2010) or even to deliberately damage others (Cropley, Kaufman, White, & Chiera, 2014). Creativity, in general, is an essential component in the entire entrepreneurial process and a crucial core competency for successful entrepreneurial performance (Palmer, Cesinger, Gelléri, Putsch, & Winzen, 2015) Previous research demonstrated that an entrepreneur’s creativity is positively related to firm-level innovation (Baron & Tang, 2011; Palmer, 2016). And D. H. Cropley (2010) discusses malevolent innovation as an outcome of individual dark creativity. Hence, the study in Publication 2 applies an experimental design and examines if a combination of creative potential with high power motive and holding a position of power, respectively, results in the performance of dark creativity.
The effects of narcissism, Machiavellianism, and psychopathy on firm performance are studied in Publication 3. Applying a combined approach in the explanation of entrepreneurial success, the dark triad of personality as a variable on the individual level is joined by entrepreneurial orientation as a firm level strategic approach that expresses a firm’s risk-taking, innovativeness, and proactiveness.

Dark creativity as well as the constructs comprised by the dark triad of personality are maladaptive in nature. Though, they can have severe consequences for the individual’s performance and popularity, high levels of these traits are presumably found very rarely. A ‘lighter’ trait on the spectrum is dominance, which is the ability to influence others. Dominance is a highly relevant personality trait for successful leadership and firm performance in general (Davis et al., 2010; Judge, Bono, Ilies, & Gerhardt, 2002). Therefore, Publications 4 and 5 address sub-question 3:

*In which way does dominance contribute to entrepreneurial activity?*

Again, the study in Publication 4 follows a two-level model with psychological traits of the entrepreneur on one hand and strategic variables on firm level on the other. Besides dominance, the entrepreneur’s self-efficacy is taken into account to explain firm performance. On firm level, entrepreneurial orientation is again considered as a relevant variable for entrepreneurial success. As Publications 1 to 4, this study concentrates on entrepreneurs in action, too.

In contrast, Publication 5 takes a developmental perspective on entrepreneurship and studies the assumptions that firstly, dominance not only contributes to firm performance, but also stimulates entrepreneurial intentions, which would expand the original model of entrepreneurial intention. Secondly, it is assumed that entrepreneurial family background (i.e. at least one of the parents is self-employed) has an indirect effect on entrepreneurial intention via its antecedents subjective norms, perceived behavioural control, attitudes towards entrepreneurship, and dominance, which would support previous findings highlighting the relevance of early exposure to an entrepreneurial mindset for the emergence of entrepreneurial intention.

An overview of this thesis’ research sub-questions and corresponding publications as well as information about the underlying method and chapter information is presented in Table 2.
1.4 Dissertation Structure

Table 2: Chapter information, method, and sub-questions of the respective sub-studies

<table>
<thead>
<tr>
<th>Publication No.</th>
<th>Chapter</th>
<th>Study</th>
<th>Method &amp; Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading research question:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which psychological personality traits and cognitive abilities enable entrepreneurs to successfully handle the demanding challenges of becoming and being an entrepreneur and how do they interact with contextual factors?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-question 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What are the antecedents and outcomes of entrepreneurial burnout as a manifestation of the downsides of entrepreneurial activity?</td>
<td>1</td>
<td>4.1</td>
<td>Palmer, C., Kraus, S., Kailer, N., Huber, L., &amp; Oner, H. (in press)</td>
</tr>
<tr>
<td>Sub-question 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the high power of CEOs and business owners in SMEs motivate entrepreneurs with higher scores on dark traits to bad business decisions?</td>
<td>2</td>
<td>4.2</td>
<td>Palmer, C., Kraus, S., &amp; Ribeiro-Soriano, D. (accepted)</td>
</tr>
<tr>
<td>3</td>
<td>4.3</td>
<td>Kraus, S., Berchtold, J., Palmer, C., &amp; Filser, M. (2017)</td>
<td>Survey Study focussing on dark triad of personality</td>
</tr>
<tr>
<td>Sub-question 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.5</td>
<td>Palmer, C., Fasbender, U., Kraus, S., Birkner, S., &amp; Kailer, N. (in press)</td>
<td>Survey Study focussing on emergence of entrepreneurial intention</td>
</tr>
</tbody>
</table>

1.4 Dissertation Structure

This dissertation comprises two main parts: a compiling overview of the thesis in Part I and five publications presented in Part II. Part I introduces the overall topic under investigation as follows:

- Chapter 1 summarises the research background, presents gaps in previous research, and deduces objectives for this thesis, sets out the research questions, and illustrates how the publications provide to partial solution to the studied topic as well as how the articles are interlinked.
- Chapter 2 provides a more profound theoretical background to the dissertation topic.
- Chapter 3 concentrates on the research design strategy, introduces the applied research methods, and supplies information about sampling.
- Chapter 4 reviews the individual publications, their background and objectives as well as main results.
Chapter 5 relates the results of the publications to the common overall objective of the present doctoral dissertation, develops an answer to the main research question, synthesises the theoretical and managerial implications of the thesis, lists limitations, and reveals suggestions for future research.

Part II presents the five publications. Each publication addresses a distinct sub-question to derive an answer to the main research question (see Table 2 in chapter 1.3).
2 Theoretical Background

The inclusion of psychological theories, constructs, and methods in entrepreneurship research is by no means a new idea. Already in the 1960s and 1970s, researchers started to investigate what encourages individuals towards entrepreneurship. Individual traits such as need for achievement, locus of control, self-efficacy, and risk-taking propensity, as well as contextual factors, such as family influence, educational influence, and work experience, were identified as important antecedents of entrepreneurial behaviour and success (cf. Vij & Bedi, 2012). By now there are some sound reviews on psychological entrepreneurship research (cf. Cooper & Gimeno-Gascon, 1992; Frese & Gielnik, 2014; Rauch & Frese, 2000; Rauch, Wiklund, Lumpkin, & Frese, 2009; Ward, 2004). Besides literature reviews, meta-analyses are on hand, as well (Brandstätter, 2011; Collins, Hanges, & Locke, 2004; Zhao & Seibert, 2006).

Rauch and Frese (2000) presented “The Giessen-Amsterdam Model” of small business owners’ success (Figure 1). Postulated as an interdisciplinary model it presents different research fields dealing with entrepreneurial processes and success. In a nutshell, the authors regard individuals and their specific personality as the origin of all entrepreneurial actions and results.

Figure 1: “The Giessen-Amsterdam Model” of small business owners’ success (Rauch und Frese, 2000)

Although the Giessen-Amsterdam Model remains quite vague and may serve more as a taxonomy of entrepreneurial research than an empirically confirmed cause-and-effect
chain, it states the importance of psychological variables in explaining entrepreneurial venture.

Through the scientific study of individual, group, and organisational processes knowledge can be added about behaviour in organisational settings in a first step. In a second step, this increased knowledge can be applied to the enhancement of organisational effectiveness and individual wellbeing (Figure 2; Baron, 1987). However, findings from psychology should only be applied to entrepreneurial settings in combination with a profound knowledge of business research (Davidsson, 2016; Ferreira, Fernandes, & Kraus, 2017).

Figure 2: Organizational Behavior: A Working Definition (Baron, 1987)

2.1 Personality and cognitive abilities in entrepreneurship

As mentioned, psychological entrepreneurship research has a long tradition. In search for a ‘psychological profile of entrepreneurs’ different areas of psychology had been considered.

According to Shane and Venkataraman (2000) and Ward (2004) entrepreneurs must recognize, evaluate and exploit these ideas or opportunities to be successful. Thereby novel and valuable ideas are at the core of entrepreneurship. But entrepreneurs have to be capable of more than simply generating new ideas (Baron, 2000). In fact, they have to recognize new and valuable opportunities for products or services that can successfully be established in the market. This ability is called creativity or innovativeness, both in entrepreneurship and psychological literature. The construct of creativity is the human factor underlying ideas, concepts, and discoveries, which can serve as initial concepts for value-adding new approaches, products, and services in a business context (Palmer et al., 2015). Creativity is the individual’s psychological ability to recognize valuable opportunities under uncertainty and implement them as innovations in the market to prospectively realise entrepreneurial profits (Kirzner, 1999). Moreover, the design and realisation of creative strategic choices is critical for the firms’ survival (Gerry, Melin, & Whittington, 2003). Here, the impact of individual creative capabilities upon outcomes on firm level is stressed. The importance of entrepreneurs’ creativity for entrepreneurial
2.1 Personality and cognitive abilities in entrepreneurship

success has been shown in a multitude of (empirical) studies (cf. Baron & Tang, 2011; Krause, 2013; Palmer et al., 2015; Ward, 2004).

Furthermore, extensive research in entrepreneurship is focused on the entrepreneur’s personality. In psychology, the dominant personality model is the five factor model (or: big five model), which postulates five widely independent dimensions of personality: neuroticism (or positively labelled: emotional stability), extraversion, openness for experience, agreeableness, and conscientiousness. Each dimension comprises six sub-dimensions (or: facets) to describe less global personality traits, such as assertiveness (included in extraversion) or self-discipline (included in conscientiousness). Zhao and Seibert (2006) presented a meta-analysis that contains not only average values of the five dimensions for entrepreneurs but more interestingly reports differences between entrepreneurs and managers (Figure 3).

Figure 3: Results of Meta-Analyses (Zhao & Seibert, 2006)

<table>
<thead>
<tr>
<th>Trait</th>
<th>K</th>
<th>N</th>
<th>( \tilde{d} )</th>
<th>( \tilde{d}_r )</th>
<th>Lower</th>
<th>Upper</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>14</td>
<td>2,305</td>
<td>-0.32</td>
<td>-0.37</td>
<td>-0.54</td>
<td>-0.21</td>
<td>-0.82</td>
<td>0.07</td>
</tr>
<tr>
<td>Extraversion</td>
<td>9</td>
<td>1,476</td>
<td>0.20</td>
<td>0.22</td>
<td>-0.01</td>
<td>0.45</td>
<td>-0.28</td>
<td>0.72</td>
</tr>
<tr>
<td>Openness</td>
<td>10</td>
<td>2,115</td>
<td>0.30</td>
<td>0.36</td>
<td>0.19</td>
<td>0.52</td>
<td>-0.01</td>
<td>0.72</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>7</td>
<td>1,350</td>
<td>-0.14</td>
<td>-0.16</td>
<td>-0.27</td>
<td>-0.05</td>
<td>-0.30</td>
<td>-0.02</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>20</td>
<td>3,480</td>
<td>0.39</td>
<td>0.45</td>
<td>0.38</td>
<td>0.52</td>
<td>-0.07</td>
<td>0.97</td>
</tr>
</tbody>
</table>

Note. \( K \) = number of studies; \( N \) = total sample size; \( \tilde{d} \) = average observed effect size; \( \tilde{d}_r \) = average effect size corrected for reliability of the measure; CI = confidence interval; CRI = credibility interval.

Entrepreneurs differ significantly from those in managerial positions on four of the five big five dimensions, extraversion being the only dimension where no significant difference between managers and entrepreneurs appears. According to Zhao and Seibert’s findings, entrepreneurs are less neurotic. In other words: they are more emotionally stable, which helps to tolerate frustrations or criticism. Furthermore, entrepreneurs are less agreeable than managers, which goes along with more opportunistic behaviour of entrepreneurs. Moreover, entrepreneurs show higher values for openness, which is related to creativity. The largest difference between entrepreneurs and managers is found for conscientiousness. Further analyses revealed that especially achievement motivation, which is a sub-construct under the conscientiousness dimension, explains the difference between entrepreneurs and managers. And finally, findings for extraversion are mixed. Although, entrepreneurs tend to be more extraverted than employed managers, the effect was not statistically significant. The authors point out that the effect size for extraversion may be positive in a majority of studies. A closer look at the considered individual studies suggests considerable variability with regard to the reported differences in extraversion and, at the same time, identifies an important research gap for the field of
entrepreneurship. Amongst others, extraversion is related to the implementation of new ideas and important for employee-oriented leadership. Theory-based, but empirically explorative research about extraversion and its facets within entrepreneurial research is thereby stimulated to improve the field’s understanding about the effect of extraversion and its related traits.

The findings of this meta-analytical review on personality and entrepreneurial status are encouraging to study the entrepreneurial profile and at the same time call for more detailed research, e.g. the investigation of more specific traits than the big five dimensions, the inclusion of a process perspective of entrepreneurship or domain specific analyses.

Creativity or the big five of personality are only a selection of psychological variables worth to take into account in entrepreneurial research. Cognitive aspects like general mental ability, specific cognitive abilities, knowledge, experience or thinking styles are as well as promising as affective and motivational aspects (e.g. achievement motivation, motivation to lead) or interests. In addition, first researchers started to investigate if genetic differences between entrepreneurs and non-entrepreneurs can be found (Shane & Nicolaou, 2013; Shane, Nicolaou, Cherkas, & Spector, 2010). Though their findings might be discussed quite controversial and their applicability for real-life entrepreneurial research and consulting is not yet clear, it strengthens the idea of individual traits providing a base for organisational success. Furthermore, it contributes to the emerging interdisciplinary effort to identify relations between physiology and personality (e.g. Fisher, Heller, & Miller, 2013).

Above all, a theoretical and thereby also methodological shift has to be conducted. First, psychologically based research in entrepreneurship should stop focusing on only one or few traits on individual level and open up to a more integrated framework. Second, to explain entrepreneurial behaviour and its outcomes, individual level perspective and firm level perspective have to be merged. Of course, this simultaneous consideration of different variables needs advanced statistical methods to handle interdependent relations, mediators, moderators, and multi-levels and thereby address corresponding propositions.

### 2.2 Individual traits as success factors for organisational success

The differential validities of diverse psychological variables have been empirically shown in many studies and discussed in several reviews (cf. Collins et al., 2004; Cooper & Gimeno-Gascon, 1992; Frese & Gielnik, 2014; Gielnik, Frese, Graf, & Kampschulte, 2012; Gielnik, Krämer, Kappel, & Frese, 2014; Rauch & Frese, 2000; Rauch et al., 2009; Zhao & Seibert, 2006). Some of the variables studied are presented in Figure 4.
2.3 Leadership in SMEs

Figure 4: Individual traits as success factors for organisational success (own illustration)

Figure 4 also illustrates the aforementioned idea of connecting a process-based view on entrepreneurship with ‘psychological assets’ on the individual level. Several authors already pointed out that individual characteristics matter to a different degree in the course of the entrepreneurial process (Frese & Gielnik, 2014; Palmer, 2016; Palmer et al., 2015; Vecchio, 2003; Zhao & Seibert, 2006). If we streamline the entrepreneurial process to four phases – opportunity recognition, idea generation, idea implementation, and venture growth – not every psychological trait will be taken into action at every phase or in the same manner as in other phases before or after. For example, the generation of ideas is crucial for dynamic and innovative firms on competitive markets. In this phase, creativity skills are more essential than in any other phase. Also, openness for experience, one of the five personality dimensions and strongly correlated to creativity, fosters innovative ideas. Then again, creative thinking and openness to different experiences might hinder streamlined progress and thereby both traits will play a less important role in later phases of the entrepreneurial process.

Successful and growing ventures might at one point transform from small to medium or even large enterprises. This transition also influences the impact of the entrepreneur’s traits, motives, and behaviours. At the same time, growing firm size demands new abilities from owners: the adjustment of strategies and goals, the delegation of responsibilities and tasks, implementing and maintaining an effective organisation of the company, and professionalised leadership skills.

2.3 Leadership in SMEs

In I/O psychology, the shaping of organisations, their culture, and their environment by people within the organisation is described by the ASA theory from Schneider (1987, 2008). Due to their specific attributes (e.g. size, branch, image, culture) firms attract especially those applicants who appreciate these attributes and want to be part of the respective company (attraction). Eventually, those people fulfilling job demands and other requirements and fitting to the company’s culture remain within the firm (selection),
whereas others leave the company (*attrition*). The ASA cycle not only explains the process of personnel selection and on-boarding, but also the shaping of organisational culture and climate, processes and leadership styles (Smith, 2008). Or as Schneider (1987) puts it: „the people make the place“.

Leadership is much more visible and direct in SMEs than in bigger companies. For example, the business owner’s dominance in decision-making and his or her persuasive influence strongly shape the firm’s strategy, culture, and actions. CEOs are the “source of action” (Rauch & Frese, 2000) in SMEs. Hence, Frese, van Gelderen, and Ombach (2000) emphasize the equivalence between the individual and the organisational level in small scale businesses managed by the founder.

The concentration of power in the hands of SME leaders might be appealing for certain individuals. But above all, leadership in SMEs is highly challenging in several ways (Palmer et al., 2019). First, flat hierarchies result in a large span of control. Leadership processes have to be efficient, whilst the CEO should also serve as a motivating role model. Second, leaders in SMEs are usually strongly involved in operations. And third, different phases of the entrepreneurial process might require different leadership foci. For example, progressive expansion and a steadily growing number of employees requires the CEO to increasingly be employed with formal leadership and micro-politics.

Taking together, a large proportion of an entrepreneur’s daily tasks concerns leadership issues. Not only is his or her behaviour in daily operations closely linked to the entrepreneur’s psychological profile. In fact, strategic choices, the overall entrepreneurial orientation as well as the leadership of employees and management of stakeholders and shareholders, respectively, is related to the entrepreneur’s skills, traits, motives, and values.

### 2.4 Dark and light traits associated with leadership in SMEs

When entrepreneurial success is correlated to the person of the entrepreneur and his or her individual profile, entrepreneurial research is well advised to not only identify essential psychological variables but also consider their interplay with specific contexts of entrepreneurial activity or the entrepreneurs’ personal environment. For example, requirements for entrepreneurs’ cognitive abilities and knowledge are basically more field-specific (cf. leading a biotech firm or establishing a new consumer goods brand), whereas personality characteristics of CEOs are expected to have a more general effect on behaviour, leadership style, and individual as well as firm performance (Palmer et al., 2019).

These days, the psychological factors that drive entrepreneurial career or success are discovered to a great extent (Gorgievski & Stephan, 2016). In addition to these quite broad constructs, recent entrepreneurship psychology follows the call of Rauch and Frese (2007) to focus on more narrow traits as these finer features of each relevant characteristic is “situated in time, place, or role” (Barrick, 2005, p. 367). With regard to Brunswik’s
2.4 Dark and light traits associated with leadership in SMEs

lens model, diagnostic value and predictive accuracy of personality measurements is bound to the level of the criterion in question. This means that whenever the effect of psychological traits (e.g. agreeableness) on more specific behaviour (e.g. building sustainable cooperations) is of interest, more specific traits of the entrepreneur (e.g. trust) should be researched. Accordingly, specific traits, such as self-efficacy and achievement motivation (Brandstätter, 2011; Rauch & Frese, 2007; Stewart Jr. & Roth, 2007) or dominance (Palmer, Fasbender, Kraus, Birkner, & Kailer, in press; Palmer et al., 2019) have been identified as relevant personality characteristics of entrepreneurs.

Former research trends concerning behavioural traits of entrepreneurial activity and motives of entrepreneurs tended to generally focus on positive personality characteristics in people. This is mainly because entrepreneurial personalities tend to be associated with moral motives, optimism or self-efficacy, and with doing meaningful work that solves important societal questions (Hmieleski & Lerner, 2016). As these bright characteristics coexist with dark traits and both sides of the coin influence (sometimes dysfunctional) leadership behaviour (Tett & Burnett, 2003), current personality and leadership research takes dark personality factors, such as arrogance or distrust, into account.

Many cases are known where CEOs’ personality derailed and former successful and admired executives put whole brands or companies at risk, destroyed large numbers of jobs or even damaged the reputation of a whole industry. An exemplary case of derailment went public in September 2015 when Martin Shkreli, CEO of Turing Pharmaceuticals, dramatically increased the price for Daraprim from US$ 13.50 to US$ 750 per pill. And the case of Dick Fuld, CEO of Lehman Brothers, demonstrates how unethical and self-serving business decisions led to a global financial crisis in 2008 (Stein, 2013).

Therefore, in order to gain a comprehensive understanding of personality traits that are beneficial or harmful for entrepreneurial success, entrepreneurship research has to take dark personality traits into account (Grijalva & Harms, 2014). Whereas dark traits are comprehensively studied in psychology, the phenomenon is under-examined within organisational research in general (Janssen, van de Vliert, & West, 2004; O’Boyle Jr et al., 2012) and entrepreneurial research in particular.

An intensely investigated concept of dark traits is the dark triad of personality that includes three rather undesirable characteristics namely narcissism, psychopathy, and Machiavellianism (Paulhus & Williams, 2002). They share several characteristics such as self-promotion, duplicity, aggressiveness, as well as emotional coldness (Kraus, Berchtold, Palmer, & Filser, 2017). Per definition, these traits are harmful and malicious. Accordingly, meta-analyses reveal their toxic impact on performance variables. Landay, Harms, and Credé (2019) identified a weak negative association for psychopathic tendencies and leadership effectiveness and a moderate negative correlation for psychopathic tendencies and transformational leadership. O’Boyle Jr et al. (2012) report an increase in counterproductive work behaviour, such as abusive supervision or leadership derailment, correlated to higher values in all three components of the dark triad of personality. These relations were moderated by contextual factors, such as authority
and culture, which, again, proves the relevance to consider situative and environmental variables when clarifying real-life phenomena. However, results concerning the influence of dark triad traits on job performance are ambiguous and often only show weak negative and insignificant effects (cf. O'Boyle Jr et al., 2012). Recent findings from I/O psychology, though, make an important contribution to a more reflected understanding of the dark triad of personality’s mechanisms. Therefore, the relation between dark personality characteristics and job performance may be curvilinear (Gaddis & Foster, 2015). Focusing on top-level managers, narcissistic, Machiavellian, and (subclinical) psychopathic behaviour might be beneficial for leadership emergence. Furthermore, the three dark traits may contribute to an adequate psychological profile with regard to executive tasks, such as decision-making or attracting and motivating share- and stakeholders as well as employees, and to cope with stressful situations. Thereby dark traits would be related to successful job performance.

The results from a general perspective on leadership emergence and performance illustrate the complex nature of relationships between dark side personality characteristics and job performance outcomes (Gaddis & Foster, 2015) with regard to employed managers and CEOs in large firms. Starting and running an own business and therefore performing as micro-entrepreneur or CEO in a SME is even more challenging and comes along with high pressure and responsibility. In this sector, where autonomy and concentration of power is at maximum, personality traits can be Janus-faced. Ostensible positive traits, such as self-confidence or need for achievement, may in some cases devolve into malicious behaviour, while negatively connotated characteristics, such as narcissism or social dominance, may be beneficial to the entrepreneurial career (Miller, 2015; Palmer et al., 2019). Latest research findings underline these assumptions by showing that dark triad traits are positively related to character strengths, such as creativity, bravery, and leadership as well as assertiveness, in addition to motives for power, achievement, and self-enhancement (Kaufman, Yaden, Hyde, & Tsukayama, 2019). In sum, a clear distinction between ‘dark’, that is harmful, and ‘light’, that is conducive, personality traits of entrepreneurs is neither possible nor plausible. Rather personality traits in action can be understood as a continuum ranging from mainly detrimental to the individual itself or its social environment to generally effective for personal development, trustful social relations, and performance.

A psychological trait ‘lighter’ than those included in the dark triad of personality, but highly correlated to narcissism and psychopathy, is dominance. Dominance is displayed in assertive, forceful, and self-assured behaviour and includes the aspiration to have influence over others (Anderson & Kilduff, 2009). Thereby dominance as a personality trait is conceptually proximate to the power motive, which, in turn is of great interest in explaining successful leadership and strategy implementation in SMEs (McClelland & Boyatzis, 1982; McClelland & Burnham, 1976; Miller, 2015). Dominance incites entrepreneurs to direct people and processes in one’s own interest and thereby enables them to determine entrepreneurial processes. Hence, dominance is considered as intrinsic to entrepreneurs (Miller, 2015; Sexton & Bowman, 1985).
2.4 Dark and light traits associated with leadership in SMEs

Surprisingly, research on entrepreneurs’ dominance and its impact on SMEs firm performance is still in the fledgling stages. Indeed, entrepreneurship literature provides few comparisons regarding average values of dominance of entrepreneurs in contrast to other occupational groups (Brandstätter, 2011; Mieg, Bedenk, Braun, & Neyer, 2012; Neider, 1987; Zhao & Seibert, 2006). Here, entrepreneurs consistently report higher dominance scores than any other employment group, which strengthens the relevance of trait dominance in entrepreneurship.
3 Methods

3.1 Research Design Strategy

This thesis’ underlying research design strategy follows general practice in empirical research. After the research problem was identified, previously published literature associated with the research problem was reviewed and synthesized. Hereby research gaps were revealed and classified, which in turn directly led to the formulation of the leading research question and its sub-questions. This foundation part in the dissertational process was followed by the design of respective studies. With the objective to obtain an answer to the overarching research question, the three sub-questions were translated to five study designs and qualified co-authors were invited to benefit from their expertise in the respective field of research. With the exception of sub-question 1, which could be answered within one publication, each sub-question was addressed in two different publications. Hereby the respective publication could focus on different aspects of sub-question or test the assumption with different samples. Moreover, a separate literature review was conducted for each publication to guarantee that the theoretical frame within each study was comprehensive and based on current theory-building and research results. Hypotheses were specified as clearly and explicitly as possible, which made further design aspects obvious right away, regarding data collection, sampling, and statistical analyses. Knowing that many studies in entrepreneurship research are lacking reliability and validity (Chandler & Lyon, 2001), particular caution was exercised in the selection of the instruments used to collect data with regard to these two test quality concepts. Furthermore, control variables, such as age and biological sex of respondents or firm size, have been considered throughout all five empirical studies within this thesis. Data was checked for inconsistencies and preconditions for statistical tests were verified before actual analyses.

The publications within this doctoral dissertation are using several different approaches for research. Research design, sample, and statistical analyses within each article had been selected depending on the respective research (sub-)question. In line with triangulation research strategy (Jick, 1979), a multi-modal strategy is advised. The research sub-questions also call for a research design including different methods for data collection and analyses. In this respect, in-depth literature reviews (Publication 1 in particular and all other publications in their underlying theoretical foundation), behavioural measures (online experiment; Publication 2) and survey-based studies with large samples (Publications 3-5) were combined. This allows to build substantial knowledge with regard to the three sub-questions and moreover to answer the central research question of this dissertation. The author thereby combines insights from qualitative and quantitative research and applies state-of-the-art statistical analyses, such as fsQCA or SEM, which are still not widespread in entrepreneurship research (cf. Chandler & Lyon, 2001). A detailed description of the method and sample of each publication follows in chapter 3.2.
In addition, every publication transparently lists limitations, which reflects the critical appraisal of the respective study and its findings. A summarising evaluation of the limitations and potential biases regarding literature samples, sampling, measures and data quality, and research designs is given in chapter 5.4.

### 3.2 Data Collection and Method Description

Adjacent to Publication 1 about entrepreneurial burnout, which relies on a literature review, Publication 2 to 5 follow an empirical approach to answer the theoretically grounded research questions. Varying statistical methods were utilised to meet the respective hypotheses within the papers.

Table 3 provides an overview of methods and samples applied in publications within this thesis as well as the research hypotheses and corresponding results.
Table 3: Overview of methods and samples applied in publications within this thesis

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Study</th>
<th>( N )</th>
<th>Sample Type &amp; Origin of Sample</th>
<th>Analyses</th>
<th>Hypotheses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Palmer, C., Kraus, S., Kailer, N., Huber, L., &amp; Oner, H. (in press)</td>
<td>( 23^2 )</td>
<td>Articles published in journals listed in ScienceDirect, Emerald, Springer Link, EBSCO, Entrepreneurial Studies Source, and EconLit databases</td>
<td>Literature Review</td>
<td>( H1 ): Dark Creativity is positively correlated with benevolent creativity performance. ( H2 ): Power motive is positively correlated with dark creativity ( H3 ): Individuals in a powerful position are higher in dark creativity than individuals in a low power position. ( H4 ): Honesty-humility is negatively correlated with dark creativity. ( H5 ): Power motive, holding a powerful position, honesty-humility, and creative personality show incremental validity in the prediction of dark creativity over benevolent creativity.</td>
<td>( H1 ): supported ( H2 ): supported ( H3 ): rejected ( H4 ): supported ( H5 ): (partially) rejected</td>
</tr>
<tr>
<td>2</td>
<td>Palmer, C., Kraus, S., &amp; Ribeiro-Soriano, D. (accepted)</td>
<td>( 387 )</td>
<td>Mixed sample regarding occupational background (incl. students) from Germany recruited via snowball sampling</td>
<td>Quantitative: Regression</td>
<td>( H1 ): Dark Creativity is positively correlated with benevolent creativity performance. ( H2 ): Power motive is positively correlated with dark creativity ( H3 ): Individuals in a powerful position are higher in dark creativity than individuals in a low power position. ( H4 ): Honesty-humility is negatively correlated with dark creativity. ( H5 ): Power motive, holding a powerful position, honesty-humility, and creative personality show incremental validity in the prediction of dark creativity over benevolent creativity.</td>
<td>( H1 ): supported ( H2 ): supported ( H3 ): rejected ( H4 ): supported ( H5 ): (partially) rejected</td>
</tr>
<tr>
<td>Paper No.</td>
<td>Study</td>
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<td>Sample Type &amp; Origin of Sample</td>
<td>Analyses</td>
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| 3         | Kraus, S., Berchtold, J., Palmer, C., & Filser, M. (2017) | 131 | CEOss and business owners from Rhine Valley (Eastern Switzerland, Liechtenstein, and Western Austria) recruited via several different online platforms (e.g. commercial directories) | Quantitative: Moderated regression analyses | H1: Entrepreneurial orientation is positively associated with SMEs firm performance. H2a: Executive narcissism has a negative impact on the EO-performance relationship. H2b: Executive Machiavellianism has a negative impact on the EO-performance relationship. H2c: Executive psychopathy has a negative impact on the EO-performance relationship. | H1: supported  
H2a-c: rejected |
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<th>Paper No.</th>
<th>Study</th>
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<th>Sample Type &amp; Origin of Sample</th>
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<th>Results</th>
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</table>
*H1b*: Perceived behavioural control shows an indirect effect on EI via attitudes towards entrepreneurship.  
*H2*: Dominance shows an indirect effect on EI via attitudes towards entrepreneurship.  
Entrepreneurial family background positively stimulates …  
*H3a*: … subjective norms.  
*H3b*: … perceived behavioural control.  
*H3c*: … dominance.  
Entrepreneurial family background shows an indirect effect on EI via attitudes towards entrepreneurship …  
*H4a*: … and subjective norms.  
*H4b*: … and perceived behavioural control.  
*H4c*: … and dominance. | *H1a-b*: supported  
*H2*: supported  
*H3a-c*: supported  
*H4a-c*: supported |

Notes. * Publication is a literature review; therefore, *N* is the number of articles considered.
3.2.1 Sampling and Data Collection

To secure external validity of the findings, caution was exercised with regard to sampling. All samples are of a remarkable size and comprise 131 to 3,342 adults. Great importance was attached to gain most representative random samples possible. Depending on the respective research sub-question of each article the target population was identified. For example, Publication 5 researches the development of entrepreneurial intention at a younger age. Accordingly, data was collected from students with an average age of 25.98 years. Moreover, the sample was not limited to business or entrepreneurship students as this would bias the findings. A broad set of study fields and degree programmes was represented including students from law and economics, engineering, social sciences, arts and humanities, mathematics and natural sciences, as well as others (e.g. health sciences). In contrast, samples of Publications 3 and 4 include CEOs and business owners of SMEs only as these publications aim to answer research questions within an organizational context and in later phases of being an entrepreneur. As the research focus was not limited to specific types of firms, respondents from various firm types (e.g. firm age, size) were included. All four samples in the empirical publications stem from the DACH region (i.e. German, Austria, Switzerland, and Liechtenstein), which allows an integration of the findings as they are homogenous with regard to their regional background.

All four data sets are based on online data collection and anonymously participation. However, different methods have been applied to address potential participants. In Publication 2 a snowball sampling approach was used and the link to the study was sent via a mailing list of students at a German university and posted in social networks. In contrast, to collect data of entrepreneurs and CEOs in Publications 3 and 4 samples were drawn from company databases. And in Publication 5 data was collected via the sub-samples from Austria and Liechtenstein of the Global University Entrepreneurial Spirit Students Survey (GUESSS) 2016.

More specific information about sample sizes and characteristics for each quantitative study is given in chapter 3.2.3.

3.2.2 Literature Review (Publication 1)

In order to gain a replicable, transparent outcome of the results found, the suggestions of Tranfield, Denyer, and Smart (2003) and Bouncken, Gast, Kraus, and Bogers (2015) were followed.

The necessity for the review on entrepreneurial burnout was already stated in chapter 1. As entrepreneurs (i.e. founders, owners, and CEOs) are the target group for the review, journals, which are listed in entrepreneurship and management literature databases (namely: ScienceDirect, Emerald, Springer Link, EBSCO, Entrepreneurial Studies Source, and EconLit database) were scanned for related articles. To assure no articles were excluded of the review due to a too narrow search strategy, key words were composed of the main terms ‘entrepreneurship’, ‘entrepreneur’, ‘burnout’ and extended
3.2 Data Collection and Method Description

through ‘self-employment’ and ‘small and medium-sized enterprises’ (SMEs). Also, no constraints were made to the publication date or geographical classification. The initially retrieved 16,683 references were furthermore narrowed down on the basis of several criteria. First, only peer-reviewed English written academic journals were considered. Second, if the journal did not provide full-text access, the authors crosschecked with other databases providing access to academic articles, e.g. researchgate. Third, only appropriate articles were selected. Titles, abstracts, and bodies of the articles were examined for the chosen necessary key words. Applying this selection method, 78 articles passed this screening process. In a final step, a more comprehensive analysis was performed by additionally examining the body of the remaining articles according to the relevant research topic. This proceeding ensured to get a holistic view of the current state of research following the standards of an evidence-informed literature review and lead to a total of 23 academic articles that were selected for a detailed literature review.

Presentation of the findings was split in two parts. At first, an overview was given regarding applied methodology and publication dates of the articles retrieved. In doing so, a table with the cornerstones and main findings of all articles was included. In the second step, the research angles identified in the sample were clustered in nine categories, which allowed a structured presentation of the separate findings. Subsequently, in order to gain a deeper understanding of the phenomenon of ‘entrepreneurial burnout’ the current state of research was discussed in a more general way. Based on a fundamental overview of the literature currently available about the development of the research topic and its implementations, the findings and other worthwhile determinants and outcomes for future investigation were theoretically integrated in an overarching research map of entrepreneurial burnout.

3.2.3 Quantitative Studies (Publications 2-5)

Following, the statistical methods to test the hypotheses in the publications underlying this thesis are described. Data checks and further statistical analyses to verify preconditions for statistical tests are not discussed in this chapter but can be retraced in the respective papers. In line with common practice in entrepreneurship, management, and psychological research, level of significance was set to 5% (“significant”) and 1% (“highly significant”), respectively.

**Correlational and Regression Analyses**

Hypotheses in Publications 2 and 3 were tested by correlational and regression analyses.

Publication 2 describes an online experiment where participants were randomly assigned to either a high or low power condition (role of marketing director vs. marketing intern) and had to show actual creative performance to test the role of power in an unethical marketing task. In addition, they had to fill in questionnaires about their personality (honesty-humility and creative personality) and power motive and answer manipulation checks. Besides bivariate correlations for clarifying relationships between two variables
(H1, H2, and H4) and a t-test to check differences in mean values (H3), a hierarchical regression analysis was conducted to test the incremental validity of single predictors taken into account (H4) and at the same time detect suppressor effects of variables added per step. By choosing a stepwise method only variables with a significant beta weight are considered in the regression model. Though this might limit overall variance explained compared to the enter method, it guarantees to interpret only significant predictors and above all to identify their specific contribution to the criterion (here: dark creativity) whilst considering other relevant (i.e. significant) variables. The sample consisted of \( N = 387 \) German individuals after excluding participants who refused to work on the unethical marketing task measuring dark creativity or gave implausible answers to control variables. Participants were on average 27.14 years old (\( SD = 11.32 \)) and mostly female (76.7%). The sample was mixed regarding occupational background of the participants. Although a majority of 73.9 per cent was pupil, student or trainee, mean professional experience was 4.97 years (\( SD = 10.01 \)).

In Publication 3 the impact of CEOs’ dark triad of personality on the relationship between entrepreneurial orientation and firm performance in SMEs was investigated. External addresses of CEOs and company owners were identified via several different online platforms (e.g. commercial directories). Using a key informant approach (Kumar, Stern, & Anderson, 1993) a total of 1,078 CEOs and company owners within the Rhine Valley was contacted via e-mails containing a cover letter as well as the link to the self-completion questionnaire. After sending a reminder 196 questionnaires were returned. After excluding incomplete surveys, 131 complete questionnaires could be considered for quantitative analyses. To test the hypotheses a moderated regression analysis was conducted. In doing so, different models have been tested gradually. In model 1 the impact of different control variables was examined. Model 2 tested the universal impact of EO on firm performance. Model 3 checked for direct effects of the moderating variables narcissism, Machiavellianism, and psychopathy. Finally, the hypothesised moderating effects of narcissism, Machiavellianism, and psychopathy on the relationship between entrepreneurial orientation and firm performance were operationalised in model 4 by considering three two-way interaction terms.

**fuzzy sets Qualitative Comparative Analysis (fsQCA)**

To examine the interplay of entrepreneurial orientation and psychological traits in explaining firm performance (Publication 4) a fuzzy sets Qualitative Comparative Analysis (fsQCA) was applied. Whenever theory implies that an independent variable may have a positive influence on the dependent variable in some conditions and a negative one in others, the joint investigation of some configurations of variables that lead to a specific output may be advisable. As data within this study were within a Likert-type continuous interpretation, the transformation of a Qualitative Comparative Analysis’ causal principle to continuous variables by introducing fuzzy sets was allowed. Whilst fsQCA is a rather new technique in entrepreneurship research, it seems to be a promising statistical method, not least because it allows to infer causal relationships. It was conducted with R using the package *QCApro* (Thiem, 2018). Again, the original sample
3.3 Concluding Remarks regarding Measurement, Reliability, and Validity

had to be reduced due to inconsistencies or missing data. With finally $N = 723$ CEOs of small firms ($< 30$ employees) in Austria (identified via Austrian company database AURELIA) an absolutely adequate sample size was accomplished. Respondents were on average 49.00 years old ($SD = 10.28$; range: 22-81), mostly male (81.1%) and founded a firm in 78.3% of the cases.

**Structural Equation Modelling (SEM)**

Publication 5 expands our understanding about the effectivity of trait dominance for entrepreneurial activity from Publication 4 by taking a developmental perspective. The central research question in Publication 5 is the development of entrepreneurial intentions as precursor of starting a business and in what way the emergence of entrepreneurial intentions is determined by dominance and parental entrepreneurship in addition to classical antecedents of entrepreneurial intentions. A path model is presented and according direct and indirect effects are tested by structural equation modelling based on maximum likelihood estimation using *MPlus version 7.31* (Muthén & Muthén, 2015). It was controlled for participants’ age and sex regressed on the endogenous variables (i.e. EI, attitudes toward entrepreneurship, subjective norms, perceived behavioural control, and dominance). Data was collected with the *Global University Entrepreneurial Spirit Students Survey (GUESSS) 2016* for Austria and Liechtenstein yielding a sample of 3,342 students with an average age of 25.98 years ($SD = 4.74$; range: 18-36) and mostly female (66%). The sample reflects various occupational interests, different levels of experience, and balanced regional specifics as participants were studying very differently degree programmes ranging from Bachelor degrees to PhD programmes from 24 universities all over the two countries.

3.3 Concluding Remarks regarding Measurement, Reliability, and Validity

Theory building in entrepreneurship progresses by testing theorised relationships and thereby requires a strong methodological foundation (Chandler & Lyon, 2001). Subsequent to the development of a research design that matches the actual research question with regard to sampling and sample sizes, data sources, measures, and testing procedures, typical indicators for the quality of quantitative research such as data source, reliability and validity should be reported.

The quantitative studies in this doctoral thesis are based on primary data that was collected via online surveys. This type of *data source* is prone to socially acceptable answers, memory gaps, and common method bias. The latter occurs, when data for dependent variables as well as for independent variables come from the same respondent. For example, information about entrepreneurial orientation and SME performance in Publication 4 was given by the CEO, who also provided a dark triad self-report. To limit common method bias the use of multiple sources would be advised. Correspondingly, archival objective performance data of the SME and a third person’s rating of the entrepreneurial orientation could be combined with the CEO’s self-rated dark triad of
personality. However, financial key performance indicators leave no scope for individual interpretations, which is why net margin and growth were assessed in Publication 4 as SME performance indicators.

To establish reliability the use of multi-item measures and checks for internal consistency are advised. Moreover, if already validated instruments are at hand that apparently match the research question and design, these measures should be used to ensure high quality of the quantitative study. The statistical analyses in this thesis are based on the application of already proven scales and measures. Moreover, internal consistency (i.e. Cronbach’s alpha) was reported for every scale. For scales where no modifications were made (e.g. deleting items due to low factor loadings when checking for scale’s construct validity, cf. Publication 4), internal consistencies could also be evaluated in comparison to the reliability reported in the instrument’s manual or alternative studies.

The validity concept has different aspects and either refers to content validity, substantive validity or structural and external validity (Chandler & Lyon, 2001). Content validity is mostly construed as face validity and describes the extent to which measures are representative for the concept intended to quantify. As apparently relevant items in questionnaires are more likely to be accepted and thereby honestly answered by respondents, special attention was paid to select measures that are adequate for the respective sample, both content-related and with regard to the background of entrepreneurs. Substantive validity (or: construct validity) comprises convergent and discriminant validity of a construct and tests if the intended construct is actually measured. Publications 3, 4 and 5 report results from factor analyses to check for construct validity of used measures. Findings from empirical studies show external validity when they can be generalised to and across other settings, people, and times. External validity can be established by using already published scales, pursuing consistent research streams, and adequate sampling (Chandler & Lyon, 2001). As mentioned, all studies in this thesis used existing scales and sampling was carefully executed with regard to sample size, random sampling, and representativeness. In addition, the studies are following a clear research strategy with an overall research question and three research sub-questions (see chapter 1.3) and are theoretically embedded in entrepreneurship literature on the nexus with current findings from psychology.
4 Review of the Publications

The following chapters 4.1 to 4.5 present the background and objectives as well as main results and contributions of the individual publications within this doctoral thesis. In the subsequent chapter 4.6 the (main) contribution of the articles as a whole is considered.

4.1 Publication 1: Entrepreneurial burnout: a systematic review and research map

Background and objectives

Publication 1 addresses the sub-question “What are the antecedents and outcomes of entrepreneurial burnout as a manifestation of the downsides of entrepreneurial activity?” in order to systematically analyse and discuss the current state of research about entrepreneurial burnout and identify critical psychological factors that are conducive to entrepreneurial burnout. Furthermore, the second objective of this publication was to develop a research map on the topic of entrepreneurial burnout by integrating findings from the comprehensive overview with further determinants and outcomes of the phenomenon.

Main results and contributions

Literature on entrepreneurial burnout can be categorised according their research angle in nine clusters: (1) stress, (2) role stressors, (3) fit, (4) self-employed vs. organisationally employed individuals, (5) social entrepreneurship, (6) internal and external environment, (7) big five of personality dimensions, (8) passion, (9) work-related behaviour and experience patterns. Despite their focus on the phenomenon of entrepreneurial burnout, all researchers agree to two conclusions. First, intending or already pursuing an entrepreneurial career is indeed demanding in several domains and can be perceived as exceptionally stressful. And second, the development of a successful business depends on the well-being of the entrepreneur. Well-being, in turn, is strongly tied to personality. Correspondingly, much research about entrepreneurial burnout considers personality characteristics, either as broad dimensions (e.g. neuroticism) or by taking specific personality facets (e.g. passion) into account. Entrepreneurs would be well advised if they honestly und continually reflect in what way their skills, goals, and motives, and moreover their resilience and ability to work under high pressure match their work conditions.

The systematic literature review not only integrates previous research about factors resulting in entrepreneurial burnout, but also depicts outcomes of failed adjustment to the peculiarity of an entrepreneurial career. The findings from previous entrepreneurship research were integrated with current conclusions from health and I/O psychology. This theory-building procedure resulted in an overarching research map of entrepreneurial burnout, which provides a structured overview of antecedents and outcomes to the phenomenon and is shown in Figure 5. Antecedents can be clustered in six categories.
from more external factors such as conditions on macro level, the specific nature of entrepreneurial activity one has to deal with, and work conditions, to personal drivers, such as individual characteristics, health-related predispositions, and demographic factors. Relating to potential outcomes of entrepreneurial burnout, three clusters were identified. First, entrepreneurial burnout can have direct effects on the entrepreneur’s job satisfaction, achievement potential and effectiveness, and organisational commitment. In addition, an entrepreneur’s burnout can have social outcomes, when it comes to spill-over effects on his or her environment (e.g. colleagues, friends, family). Subsequently, direct outcomes of burnout will affect performance. Thereby, the second cluster of burnout-related consequences contains performance reduction both on individual and on firm level, which in turn can result in turnover intentions. The third group of outcomes compasses severe, long-term mental as well as physical health issues as subject to personal, health and situational context burnout might be the first step of other mental or physical challenges.

Figure 5: Research map of entrepreneurial burnout
4.2 Publication 2: Exploring dark creativity: The role of power in an unethical marketing task

**Background and objectives**

Publication 2 investigates the sub-question "Does the high power of CEOs and business owners in SMEs motivate entrepreneurs with higher scores on dark traits to make bad business decisions?". More precisely, this study concentrates on dark creativity. In a first step the relation of dark creativity to the more general and typically positively connotated concept of creativity is examined. Following, the hypotheses that high levels of power motive and holding a position of power, respectively, activates dark creativity is tested. As self-administered surveys might be biased due to social desirability when unethical intentions are measured, real performance of (dark) creativity was assessed via an online experiment instead of relying on survey data.

**Main results and contributions**

Dark creativity, that is the use of ideas to gain an unfair advantage or even to deliberately hurt others, is overlapping with benevolent creativity. With regard to the key hypotheses that (a) power motive and (b) holding a position of power are positively related to dark creativity, only the first assumption could be confirmed. Performance in the dark creativity task within the experiment was not significantly higher for participants holding a position of power. In addition to the two operationalisations of power (power motive, holding a position of power) and scores of baseline benevolent creativity, self-rated honesty-humility, and role identification within the experiment were assessed. From these theoretically reasoned variables only benevolent creativity, power motive, and role identification predicted dark creativity in a hierarchical regression analysis.

To sum up, general creativity and dark creativity are overlapping constructs. Moreover, dark creativity is pushed by power motive, but independent from holding a position of power. Although, the sample of Publication 2 is not limited to self-employed and CEOs of SMEs, the findings can be translated to entrepreneurial setting. General creativity is the personality trait underlying innovation and therefore an essential prerequisite for successful entrepreneurs (Palmer, 2016). One of the key characteristics of their jobs are the exceptionally high degrees of freedom, they are facing. In other words, entrepreneurs have great autonomy and hold powerful positions, which enable them to influence the strategic development and organisational culture and climate within their firm. At the same time, few controlling authorities are present (and not seldom intervene too late). In line with the ASA (attraction, selection, attrition) theory (Schneider, 2008), these unique job characteristics should attract individuals with high power motives. However, some of the entrepreneurs might abuse the opportunities to act out their strong power motive. This study’s findings thereby highlight the especially toxic combination, when creative potential and identification with one’s job is combined with a high drive for power and finally results in dark creativity.
4.3 Publication 3: Entrepreneurial Orientation: The Dark Triad of Executive Personality

Background and objectives

Publication 3 is the second study building on the sub-question “Does the high power of CEOs and business owners in SME motivate entrepreneurs with higher scores on dark traits to bad business decisions?”. In this paper the focus is on the dark triad of personality, which comprises narcissism, Machiavellianism, and (subclinical) psychopathy. Up to date, very few studies in organisational research examine narcissism, Machiavellianism, and psychopathy concurrently (O’Boyle Jr et al., 2012). And for the differentiated field of SMEs, the outcomes of dark personality characteristics are completely understudied. To fill this gap, Publication 3 investigates the moderating role of the dark triad traits with regard to the relationship between EO and SMEs’ performance and thereby comes up to the complex interplay of the entrepreneur’s personality and company-wide strategy.

Main results and contributions

So far, few studies have investigated the relationship between psychological traits and entrepreneurial orientation. In this context, Publication 3 contributes to research on the mechanics underlying strategy formulation which forms entrepreneurial orientation. Even though correlations between the three dimensions of the dark triad of personality and entrepreneurial orientation were positive, they were small and non-significant. The empirical relation to firm performance was significant for narcissism and psychopathy, only. Moreover, executive narcissism, Machiavellianism, and psychopathy do not moderate the EO-performance relationship as the corresponding interaction terms show only insignificant negative effects.

Though this finding contradicts the central hypothesis of Publication 3, it sheds light on the contextual conditions of SMEs. For example, an alternative explanation for the insignificant moderation of the dark triad dimensions on the EO-performance relationship may be grounded in the sample that was studied. With the majority of respondents being business owners or shareholding CEOs, it is plausible that executives who founded their company feel particularly responsible. As a result, they may reflect on decisions several times before they implement them, thus distinguishing them as more conservative risk-takers by trend. In addition, other entrepreneurship researchers point to regional differences in the entrepreneurial profile. For instance, extraversion – the big five personality dimension the dark triad, and especially narcissism, is associated with – shows a weak correlation with self-employment status in Germany compared to medium correlations in UK or USA (Obschonka, Schmitt-Rodermund, Silbereisen, Gosling, & Potter, 2013). As this study’s sample was limited to SMEs in the Rhine Valley, a replication with executives from other regions could confirm the moderating effect of dark traits on the EO-performance link.
4.4 Publication 4: The interplay of entrepreneurial orientation and psychological traits in explaining firm performance

4.4 Publication 4: The interplay of entrepreneurial orientation and psychological traits in explaining firm performance

Background and objectives

Publication 4 is building on the sub-question “In which way does dominance contribute to entrepreneurial activity?”. In doing so, the measure of entrepreneurial activity of interest is firm performance. The main objective of this paper is to investigate the influence of entrepreneurs’ dominance on firm performance in consideration of self-efficacy and entrepreneurial orientation. Thereby a two-level model with a combination of individual level and firm level variables is tested. Moreover, with the application of fsQCA, a rather new technique in entrepreneurship and innovation research, which is increasingly diffusing, has been chosen. This analysis allows causal interpretation of the findings and at the same time enables the identification of alternative configurations of variables that lead to higher firm performance.

Main results and contributions

Empirical analyses in Publication 4 confirm the central assumption that individual traits of the entrepreneur or manager of an SME play a major role for success. Besides self-efficacy, SMEs leaders' dominance contributes to firm performance.

By the use of fsQCA it was possible to achieve a remarkably clear picture of the interplay of psychological traits and dimensions of entrepreneurial orientation. In total, five alternative combinations of entrepreneurial orientation (i.e. innovativeness, proactiveness, and risk-taking), dominance, and self-efficacy contribute to firm performance of young firms (< 12 years). Interestingly, in every identified combination, at least one individual level condition benefits (presence) or contradicts (absence) firm performance in combination with at least two firm level condition, which supports the idea of an interplay of firm level and individual level characteristics in explaining firm performance. Another important finding derived from the identified paths to firm success is that personality traits can have both positive and negative impacts on firm performance depending on alternative variables taken into account and firm context (e.g. innovativeness or age of firm).

For established firms two different combinations have been revealed. Innovativeness and avoidance of risk-taking are success factors in both joint conditions. However, the two combinations show different patterns regarding individual-level aspects depending on proactiveness. When proactiveness is present, the entrepreneur’s dominance and self-efficacy are of no relevance. In contrast, absent proactiveness can be compensated by a concurrently presence of the two psychological traits. The latter finding highlights another important conclusion: Strategic decisions (e.g. little proactiveness) can be compensated by individual-level aspects.
4.5 Publication 5: A chip off the old block? – The role of dominance and parental entrepreneurship for entrepreneurial intention

**Background and objectives**

Publication 5 is the second study building on the sub-question “In which way does dominance contribute to entrepreneurial activity?”. Whilst the other papers in this thesis focus on decision-makers, who already run a business, this publication focusses on the emergence of entrepreneurial intention. Based upon the importance to take a life-span perspective on entrepreneurial intention and activity, previous insights into the relevance of (future) entrepreneurs’ dominance are complemented by taking a developmental perspective. In this connection, an early exposure to entrepreneurship by family background is taken into account as well.

With reference to theories of entrepreneurship and personality development, the study builds upon linking the model of entrepreneurial intention with social learning theory and the framework of the theory of planned behaviour. However, in line with previous entrepreneurship research but contrary to Ajzen’s initial model, attitudes towards entrepreneurship is integrated as a mediator between the other antecedents and EI. Hence, the central assumption in this publication is the stimulating effect of family business background on the development of EI, and relevant traits for attitudes towards entrepreneurship, respectively.

**Main results and contributions**

Structural equation modelling confirmed subjective norms, perceived behavioural control, and dominance as antecedents of EI. Moreover, the theoretically grounded realignment of the EI model was supported as attitudes towards entrepreneurship mediated the relationship between subjective norms, perceived behavioural control, and dominance with EI. Most interestingly, dominance showed an even stronger direct effect on attitudes towards entrepreneurship than perceived behavioural control. Supported by this finding, it can be concluded that individual personality traits are significant for the development of EI (and their antecedents). Especially dominance is a major factor impacting “entrepreneurs' states of mind that direct attention, experience, and action towards a business concept, set the form and direction of organizations at their inception” (Bird, 1988, p. 442).

Further exploration of the beneficial parameters for the development of EI revealed the far-reaching influence of an early exposure to the entrepreneurial mindset. Individuals with an entrepreneurial family background showed higher scores in EI and its antecedents. This finding is in line with previous research emphasizing the general importance of parental role models in the motivation of children to take over family businesses (Tarling, Jones, & Murphy, 2016). Parental entrepreneurship not only directly affects prevailing antecedents of the EI model (subjective norms, perceived behavioural,
attitudes towards entrepreneurship), but also dominance and finally, though, indirectly via attitudes towards entrepreneurship, EI itself.

### 4.6 Overview of the Publications

Table 4 below illustrates the objectives, main findings, and main contributions to the thesis reported in each publication. The objectives were derived from the research question and sub-questions of the thesis.

Table 4: Objectives and main findings of the publications and their main contribution to the thesis

| **Sub-question 1:**
| What are the antecedents and outcomes of entrepreneurial burnout as a manifestation of the downsides of entrepreneurial activity? |
| **Publication 1: Entrepreneurial burnout: a systematic review and research map** |
| **Objectives** | • Comprehensive systematic review of current literature on entrepreneurial burnout  
• Identification of critical psychological factors that are conducive to entrepreneurial burnout  
• Development of a research map of entrepreneurial burnout |
| **Main findings (excerpt)** | • Nine research clusters within the field were identified  
• Common understanding that entrepreneurial activity is demanding in several domains and can be perceived as stressful, which in turn can cause severe health issues, such as burnout  
• Theoretical integration of findings from literature review with knowledge from health and I/O psychology unfold six classes of antecedents and three clusters of outcomes of entrepreneurial burnout |
| **Main contribution to thesis** | • Psychological characteristics (personality, cognition, motivation, values, personal goals, work-related behaviour, and experience patterns) are highly relevant to explain adjustment of entrepreneurs to the demanding occupational environment they engage in  
• Typically positively connoted personality characteristics can derail in practice |

| **Sub-question 2:**
| Does the high power of CEOs and business owners in SMEs motivate entrepreneurs with higher scores on dark traits to make bad business decisions? |
| **Publication 2: Exploring dark creativity: The role of power in an unethical marketing task** |
| **Objectives** | • Clarify the relation between creativity and dark creativity  
• Investigate the effect of power (holding a position of power and high power motive, respectively) on dark creativity |
### Review of the Publications

<table>
<thead>
<tr>
<th>Main findings (excerpt)</th>
<th>Main contribution to thesis</th>
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<td>• Assess real performance via an online experiment instead of relying on biased survey data</td>
<td>• General creativity and dark creativity are overlapping constructs</td>
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<td>• Dark creativity is pushed by power motive, but independent from holding a position of power</td>
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<td></td>
<td>• Power motive, which is immanent to entrepreneurs, triggers the use of creative potential for dark purposes</td>
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### Publication 3: Entrepreneurial Orientation: The Dark Triad of Executive Personality

#### Objectives
- Research the dark triad of personality in SME context
- Combine individual level variables (dark triad of personality) with firm level factors (entrepreneurial orientation) in the explanation of firm performance to consider the complex interplay across different levels
- Investigate the moderating role of executive personality with regard to the EO-performance relationship

#### Main findings (excerpt)
- Executive narcissism, Machiavellianism, and psychopathy only show insignificant negative effects on the EO-performance relationship

#### Main contribution to thesis
- Executives’ psychological profile is attributed to firm’s strategic orientation
- Entrepreneurs’ dark triad of personality traits show varying correlations to EO and firm performance, but does not moderate the relationship between the latter two

### Sub-question 3: In which way does dominance contribute to entrepreneurial activity?

### Publication 4: The interplay of entrepreneurial orientation and psychological traits in explaining firm performance

#### Objectives
- Investigate the influence of entrepreneurs’ dominance on firm performance in consideration of self-efficacy and entrepreneurial orientation
- Testing a two-level model with a combination of individual level and firm level variables
- Application of fsQCA to allow causal interpretation of the findings and identify alternative configurations of variables that lead to higher firm performance

#### Main findings (excerpt)
- SMEs leaders’ dominance contributes to firm performance.
- Combinations of entrepreneurial orientation, dominance, and self-efficacy contribute to firm performance of SMEs
- Combinations of entrepreneurial orientation, dominance, and self-efficacy contributing to firm performance of SMEs differ for young vs. established firms

#### Main contribution to thesis
- Confirmation of the central assumption that individual traits of the entrepreneur or manager of an SME play a major role for success
- Entrepreneurs’ dominance is an essential individual factor for firm performance
Personality traits can have both positive and negative impacts on firm performance depending on alternative variables taken into account and firm context (e.g. innovativeness or age of firm).

Strategic decisions (e.g. little proactiveness) can be compensated by individual-level aspects.

Publication 5: A chip off the old block? – The role of dominance and parental entrepreneurship for entrepreneurial intention

Objectives
- Taking a developmental perspective on the emergence of entrepreneurial intention
- Investigate the effect of individual dominance and entrepreneurial family background on entrepreneurial intentions (EI)
- Linking the EI model with social learning theory and the framework of the theory of planned behaviour

Main findings (excerpt)
- Structural equation modelling confirms subjective norms, perceived behavioural control, and dominance as antecedents of EI
- Attitudes towards entrepreneurship mediated the relationship between subjective norms, perceived behavioural control, and dominance with EI
- Entrepreneurial family background leads to higher scores in EI and its antecedents

Main contribution to thesis
- Individual personality traits are significant for the development of EI (and their antecedents)
- Dominance has a strong direct effect on attitudes towards entrepreneurship and thereby indirectly contributes to the development of EI
5 Conclusion

Entrepreneurship research has a long tradition of interdisciplinary collaboration. To live up to this approach, this thesis integrates theories from business and psychology and applies quantitative as well as qualitative methods in order to answer the overarching research question:

“Which psychological personality traits and cognitive abilities enable entrepreneurs to successfully handle the demanding challenges of becoming and being an entrepreneur and how do they interact with contextual factors?”

This dissertation aims at the research gap identified (see chapter 1.2) and thereby provides new findings based on literature reviews and empirical data that can stimulate further research and be used for entrepreneurial training and practitioners. After answering the research question in the following, this chapter proceeds by deriving implications for theory (chapter 5.2) and practice (chapter 5.3), and closes with a brief summary of limitations as well as suggestions for further research (chapter 5.4).

5.1 Answering the Research Question

Considering its complexity, the leading research question in this thesis draws upon three research sub-questions. The five publications are gradually addressing these particular research sub-questions and thereby allow to answer, which psychological characteristics promote the entrepreneurial career and firm performance with regard to contextual factors.

The first sub-question reads: “What are the antecedents and outcomes of entrepreneurial burnout as a manifestation of the downsides of entrepreneurial activity?” Publication 1 includes a comprehensive and systematical review of the corresponding literature on entrepreneurial burnout. Based upon identified research clusters and complemented by implications from health and I/O psychology as well as the author’s own ideas a research map was developed. It not only sorts and summarises previous findings but also contains paths for future research on entrepreneurial burnout. Accordingly, the antecedents for entrepreneurial burnout can be clustered in six categories from more external factors such as conditions on macro level, the specific nature of entrepreneurial activity one has to deal with, and work conditions, to personal drivers, such as individual characteristics, health-related dispositions, and demographic factors. The spectrum of factors contributing to entrepreneurial burnout highlights the necessity to end research with isolated variables and indeed focus on the joint impact of combinations of influencing variables. On the outcome part, entrepreneurial burnout can lead to changes in three different fields. Besides its effect on job satisfaction, effectiveness, organisational commitment, and the entrepreneur’s social environment, entrepreneurial burnout can diminish individual and firm performance and nurture turnover intentions, and cause severe mental and physical health problems. But above all, this publication demonstrates the stressful working context of entrepreneurs and the risk to come down with burnout as
a reaction of the extraordinary pressure to perform. With regard to the leading research question in this thesis, Publication 1 supports the assumption of psychological characteristics (i.e. personality, cognition, motivation, values, personal goals, work-related behaviour, and experience patterns) being highly relevant to explain adjustment of entrepreneurs to the demanding occupational environment they engage in.

The second research sub-question reads: “Does the high power of CEOs and business owners in SMEs motivate entrepreneurs with higher scores on dark traits to bad business decisions?” and was addressed by Publication 2 and 3. Deduced from current business and psychological literature on dark traits at the workplace, dark creativity – that is the cognitive ability to use one’s creative potential for malicious purposes – and the dark triad of personality – which comprises narcissism, Machiavellianism, and (subclinical) psychopathy – were identified as dark traits of relevance. Publication 2 affirms the far-reaching, sometimes detrimental consequences of power. However, besides general creative potential and role identification, unethical behaviour at work (measured as dark creativity) may less depend on holding a powerful position, but more on one’s power motive. Publication 3, at first, provides proof that executives’ psychological profile is attributed to firm’s strategic orientation and strengthens the importance to simultaneously research predictors for firm performance on individual as well as on organisational level. Furthermore, entrepreneurs’ dark triad of personality traits show varying correlations to EO and firm performance. The main hypothesis that entrepreneurs’ dark triad of personality traits moderate the relationship between EO and firm performance was not supported, though. In conclusion, it appears that it is in fact a strong power motive that motivates or legitimates individuals to use their abilities for evil purposes. To what extend dark triad traits hinder CEOs to successfully transform EO into firm performance is not fully clear and requires future research.

The third research sub-question reads: “In which way does dominance contribute to entrepreneurial activity?” and was likewise addressed by two publications. Publication 4 investigated the influence of entrepreneurs’ dominance on firm performance in consideration of self-efficacy and entrepreneurial orientation. Results from the fsQCA support the central assumption that individual traits of the entrepreneur or manager of an SME play a major role for success. In doing so, strategic decisions (e.g. little proactiveness) can be compensated by individual-level aspects. Moreover, personality traits can have both positive and negative impacts on firm performance depending on alternative variables taken into account and firm context (e.g. innovativeness or age of firm). Therewith, dominance can either be beneficial or detrimental for firm performance of young firms, whereat the latter condition may be ascribable to indirect effects via risk-taking on the organisational level. Whereas findings in Publication 4 describe the effect of entrepreneurs’ dominance (and self-efficacy) in the interplay with organisational strategy with the aim to identify combinations relevant for success, Publication 5 focusses on the prior step in the entrepreneurial process by taking a developmental perspective and aims at the prediction of entrepreneurial intention. Supported by results from a large sample and SEM, dominance has a strong direct effect on attitudes towards entrepreneurship and thereby indirectly contributes to the development of EI. Thereby,
dominance is a personality trait not only relevant for CEOs as it helps them to lead their firms successfully in terms of firm performance, but already plays an important role in the preceding development of entrepreneurial intention.

The joint reflection of the thorough studies in reply to the three research sub-questions allows an elaborated answer to the overall research question underlying this thesis. First of all, the assumption that becoming and being an entrepreneur comes along with demanding challenges is affirmed across the five publications in this thesis. Entrepreneurs have to take and implement decisions under a high level of uncertainty, align firm strategy to current developments and characteristics of the firm, and bear responsibility for their employees and the survival of the firm. In most cases, this endeavour is associated with long working hours and a variety of coordination processes within the firm but also with external business partners. And in almost every SME, it is the entrepreneur him- or herself who has to master all of these tasks almost on his or her own. This highlights why the psychological profile of an entrepreneur plays such a major role in the prediction of entrepreneurial success.

In sum, individual traits are significant for the development of entrepreneurial intention (and their antecedents) and firm performance, but are also accountable for entrepreneurs’ burnout or malicious behaviour. The five publications in this thesis underline the Janus-faced character of traits such as creativity, dominance or the dark triad of personality and individual motivators such as power and job identification. On the same time, they reveal situational and contextual conditions that interact with these traits. Thereby this thesis contributes to a better understanding which personality traits and cognitive abilities are critical for firm performance in SME. Moreover, research within this dissertation project provides insight into the effects of specific combinations of these psychological variables with contextual factors on entrepreneurial activity.

5.2 Theoretical Implications

Given the three research sub-questions and five publications, this thesis provides numerous implications for research.

Recently, entrepreneurship literature starts to disengage from a glorified image of the entrepreneur and paves way for the complete picture of entrepreneurial activity that also includes struggle, failure, and health problems. Accordingly, first reviews consider mental disorders and resilience in entrepreneurship (Wiklund, Hatak, Patzelt, & Shepherd, 2018). Publication 1 adds a research map with antecedents and outcomes of entrepreneurial burnout in order to extend knowledge about the antecedents and extensive consequences and implications of this increasingly prevalent phenomenon. As the sound and systematical literature review shows, identified research clusters in entrepreneurship research on entrepreneurial burnout do not completely cover the antecedents and outcomes outlined in the research map provided in Publication 1. Thus, this paper points to research gaps with regard to entrepreneurial burnout. For example, knowledge about the influence of culture (a macro level factor) on the occurrence of
entrepreneurial burnout is as limited as insights in the potentially varying effects of the firm’s type of business. In order to clarify the general burnout risk of entrepreneurs and, moreover, to gain insights into its symptoms and triggering as well as buffering factors, entrepreneurship researchers should be stimulated to study this phenomenon in collaboration with scientists from health and I/O psychology. In doing so, their research focusses on interactions burnout antecedents and, in particular, provide a broader empirical basis, especially in terms of sample size and entrepreneurial backgrounds in order to enable to generalise findings.

Up to now, research on dark traits is very scarce in entrepreneurship research and the few papers available deal more conceptually with the entrepreneur’s potential dark side than empirically investigate relationships of dark traits with firm performance. Results from Publication 2 and 3 in this thesis provide a basis for this still neglected, but highly interesting field of research. The main conclusion to be drawn is: the simple assumption that dark traits directly result in bad outcomes will not hold true. Rather, the effects of dark traits depend on moderators within the entrepreneur (e.g. power motive or commitment at work, Kraus et al., 2017) as well as external moderators (e.g. regionality or firm size, Palmer et al., 2019). This deduction is in line with Kaufman et al. (2019) who concludes that dark traits do not exclusively result in derailment, adverse effects, and transgressive psychosocial outcomes, but may be adaptive in some contexts. In order to develop theories about the dark side of an entrepreneur’s personality researchers should therefore put effort in the identification and explanation of moderators. Furthermore, as Publication 3 demonstrates, they should also pay attention to facets of dark personality as differential validities are to be expected for different characteristics. However, an isolated study of single facets or variables is not recommended as it may blur the actual effects in interaction with other relevant variables. For example, in Publication 3, all three dimensions of the dark triad of personality were positively (but insignificant) correlated to firm performance when considered on their own. Though, only narcissism was positively (but again insignificant) associated with firm performance when their contribution was tested in combination with control variables and EO.

Additional support for a distinct consideration of lower-level variables is provided in Publication 4. Here, entrepreneurial orientation is not analysed as a compound variable, but moreover treated as a multi-dimensional concept which is represented by its three facets innovativeness, proactiveness, and risk-taking. Results from fsQCA show that there is notably no path in which all three EO dimensions are present. Four of the five identified paths to firm performance in young firms and both paths for established firms even contain absence of at least one dimension. Taken together, new statistical methods, such as fsQCA, add substantial information to established concepts in entrepreneurship – or might even question them.

Above all, Publication 4 reinforces the approach of an integrative view on factors determining firm performance. In view of a firm’s success, a single person's characteristics influence the effectiveness of strategic decisions aligned to EO. Psychological variables, such as dominance and self-efficacy, can even compensate for
lacking dimensions of strategic orientation. A valuable framework, which enables us to include knowledge about the individual level in the understanding of actions on the organisational level, has been offered with the process model of the behavioural theory of the firm (cf. Palmer et al., 2019). Surprisingly, however, research streams in entrepreneurship are followed rather separate so far. For instance, reviews of the psychology of entrepreneurs mostly stem from psychologists who do not refer to theories from entrepreneurship and management. And only very few studies test the joint effects of individual level variables and factors on firm level. Theory-building in entrepreneurship should therefore by all means aim at integrative models, which simultaneously consider individual characteristics and organisational attributes.

Further, taking a developmental perspective on the entrepreneur’s engagement is a highly promising approach in order to improve our understanding of the emergence of entrepreneurial intention and its antecedents. Again, contextual as well as psychological variables contribute significantly to entrepreneurial activity in Publication 5. The identified path for dominance on entrepreneurial intention is thereby even stronger than the path for perceived behavioural control, which supports the enhancement of the usually studied EI model. Besides, the application of a state-of-the-art method (SEM) questions the original EI model in another way. Attitudes towards entrepreneurship is not an isolated third predictor as in the original EI model, but a powerful mediator between subjective norms, perceived behavioural control, and dominance on the one hand and entrepreneurial intention on the other hand. Further studies should test if this finding is limited to young samples (cf. Liñán & Chen, 2009; Rauch & Hulsink, 2014) or applies to older individuals as well. Finally, results from Publication 5 stimulate further research on demographic factors. Children of entrepreneurs benefit from an early exposure to the entrepreneurial mindset and the opportunity to experience life of an entrepreneur from early childhood on. In consequence, they develop more favourable attitudes towards entrepreneurship, higher subjective norms, higher perceived behavioural control, higher dominance, and finally entrepreneurial intention in contrast to children without an entrepreneurial family background. In contrast, the latter group of children seems to be influenced by their age and sex regarding the development of entrepreneurial intention. Hence, future research should take parental entrepreneurship and especially biological sex and the wider concept of gender into account to, firstly, improve our understanding of the mechanisms underlying the development of EI and the factual choice to pursue an entrepreneurial career and, secondly, enhance the recently slightly blurred debate in women’s entrepreneurship research thus better understanding the impact of the traditional shaping of entrepreneurship as a male career (Ahl 2006; Henry et al. 2016) on EI and its antecedents.

5.3 Managerial Implications

Answering the research question directing this dissertation yields implications for practitioners right away as it highlights the relevance of the entrepreneur’s psychological profile. Above all, the guiding principle for a science-practitioner transfer based on the
integrated findings of the five publications states: entrepreneurs should be aware of their own specific impact on firm performance.

Palmer et al. (Publication 4; 2019) illustrate how firm performance is related to an alignment of strategy and the executive’s personality. With regard to EO, CEOs in young SMEs can decide between alternative paths towards firm success. But as the strategic orientation of the firm should be complemented by either present or absent dominance and self-efficacy, they should initially be aware of their psychometric profile. In other words, entrepreneurs should acquire knowledge about one’s own strengths and weaknesses. A profound assessment and interpretation of the pertinent psychological and contextual variables should be implemented in entrepreneurship training and education. In doing so, the assessment could either be provided by public institutions (e.g. universities, labour offices) or private organisations (e.g. start-up initiatives, inter-trade organisations, chambers of commerce).

In addition to a general understanding of one’s role within the firm, the results of the assessment can be used to detect personal risks, such as a tendency to show anti-social behaviour or too high risk affinity, which in turn can cause harmful spill-over effects on organisational level and, finally, reduce firm performance. For example, high organisational commitment and dedication to work certainly have their good aspects, but can also have harmful outcomes, such as unethical behaviour at work (Publication 2; Palmer, Kraus, & Ribeiro-Soriano, accepted) or mental and physical health problems (Publication 1; Palmer et al., in press). In reaction to these insights, newer types of assessments of the entrepreneurial profile not only test for personality but also focus on the special importance of self-organization among entrepreneurs by including checks for nutrition and stress as well as sports activity and recreation (Berset, Baumgartner, Krause, Weibel, & Zäch, 2017). In this connection, it is important to reflect one’s profile and its fit to the firm’s strategy and character from time to time. Whilst basal personality traits are mostly stable (De Fruyt et al., 2006), certain facets may change over time as they are modifiable through training or external events. Alike the entrepreneur’s possibly changing profile, attributes of the firm can change as well. Growth, for instance, leads to a higher number of employees, which in turn affects internal processes and required leadership.

The assessment of the entrepreneur’s psychological profile as well as social factors and experience determining his personality, values, and motives, is not limited to CEOs already running a SME. Moreover, when SME hire executives, they are well advised to check potential candidates for more than previous success. Though they should prefer candidates who support proactive, innovative, and risk-taking business strategies, potential risk for derailment should be carefully evaluated. Especially, when applicants are highly charismatic and self-confident, a closer look at malicious traits, such as the dark triad of personality or an extraordinary strive for power, is recommended. But these personality checks not only improve hiring decisions. A clear profile of a CEOs strengths and weaknesses as well as a fit analyses to firm strategy also can be used by investors or other business partners to decide on future investments or collaborations.
When the beneficial contribution of selected personality traits to firm performance is discussed within entrepreneurship literature, the commonly derived implication for practitioners is quite simple: train them! However, entrepreneurship researchers as well as entrepreneurs have to be aware that modifications of psychological variables are only possible to a certain extent. Furthermore, the possibility to change traits is determined by the trait and its initial magnitude. However, in contrast to the assumption of stability with regard to psychological traits (cf. De Clercq, Hofmans, Vergauwe, De Fruyt, & Sharp, 2017; De Fruyt et al., 2006), behaviour and evaluation of situations can be trained. Thus, intervention programs against burnout, which train coping strategies, for example, proved to be effective (Awa, Plaumann, & Walter, 2010). However, the consideration of an interplay between individual predispositions and organisational becomes apparent again: a combination of both person- and organisation-directed interventions had longer lasting positive effects than solely person-oriented burnout prevention programs.

As the majority of SMEs, especially the smaller ones, will most likely not (or not yet) have a department for personnel development, the CEOs bear high self-responsibility to reflect and train their personality and seek for support outside (e.g. coaching). Returning to the relevance to align firm strategy with the executive’s profile, CEOs could alternatively cooperate with employees, board members, or other management team members that are specifically and deliberately selected to assist in promoting the CEO’s ideas and strategic decisions (Palmer et al., 2019).

The findings in this dissertation not only affect training of entrepreneurs in action, but also could contribute to an improved entrepreneurship education by ameliorating and tailoring entrepreneurship education and programmes providing start-up support. Knowledge about psychological variables in general is as relevant to teach as it is to emphasize the far-reaching impact of the entrepreneur’s personality on firm performance. Moreover, in addition to accentuating the complex interplay between strategy, performance and people within the firm’s context, entrepreneurship education has to open up to the downsides of entrepreneurship as well. Thereby, training programs for prospective entrepreneurs could already contain information about how to detect early signs of exhaustion and burnout. Research following a developmental approach to explore the intention to start and run a business, underlines the beneficial effect of an early exposure to the entrepreneurial mindset (Palmer, Fasbender, et al., in press). To compensate for missing parental self-employment and also in regard to the gender gap in entrepreneurship the involvement of (female) capable role models for successful entrepreneurial activity in entrepreneurship education at an early stage is highly recommended.

Finally, connecting entrepreneurship research with a psychological perspective has implications on societal level as well. First, while being self-employed or leading a successful SME should not forfeit its attractiveness for future entrepreneurs, the open dealing with downsides of entrepreneurship, such as high workload and responsibility or leaders’ derailment, in public is advised. If the entrepreneurship community would destigmatise burnout, for instance, many individual health problems and also lots of
struggling within firms could be avoided as concerned CEOs could step out and ask for help. Second, implementing entrepreneurship education already in school curricula and thereby join theoretical knowledge with practical experience (e.g. internships) and the exposure to role models would stimulate the development of entrepreneurial intentions.

5.4 Limitations and Suggestions for Future Research

The five publications in this thesis come with a number of limitations, which should be targeted in future research. First, the literature samples used in the papers cannot be exhaustive for the respective research question due to several reasons. Latest literature, for example, could not be reviewed and integrated, which can be illustrated on Publication 1. The literature search was executed in early 2017. Obviously, subsequently submitted or already published studies are missing. Furthermore, a selected set of keywords was used and search was limited to peer-reviewed English written academic journals with a full-text PDF access only. Thereby, regional studies published in national language as well as (edited) books and papers without free access (e.g. via journal’s provision of full-text PDF or article databases, such as researchgate) are not considered. Also, publications on burnout from other disciplines, such as health sciences or organisational psychology, have been excluded from this literature search. However, literature search in Publications 2 to 5 has not been limited to entrepreneurship journals. Nevertheless, these papers might be prone to restricted literature base as well.

Second, four of the five publications are of an empirical nature and thereby come with their own challenges regarding sampling. As per usual in entrepreneurship literature, only successful, i.e. surviving, entrepreneurs were included in the samples. Thereby it will certainly have come to a limitation of variance as failing or already dropped out entrepreneurs are not considered. Future research would improve our understanding of the interplay of individual-level variables with organisation-level factors by studying unsuccessful CEOs in order to identify significant drivers for failure on and across both levels. Of particular interest in this regard is study 2. Here, 50 participants refused to work on the unethical marketing task measuring dark creativity and therefore had to be excluded from statistical analyses. It would be interesting to learn, why these participants decided to end the experiment prematurely and if they differ in the studied personality variables from those participants who took part in the dark creativity task. Other issues relate to the composition of the sample. Samples of Publications 3 and 4 comprise various types of firms. As Publication 4 shows, different effects of the studied psychological and organisational variables are to be expected depending on firm type (here: age of firm). Future research should consequently investigate how factors such as age, size, region, sector, internationality (e.g. nationally operating vs. born globals), digitalisation level etc. moderate expected relationships between predictor variables and firm performance. All samples in the four empirical publications hail from the DACH region (i.e. German, Austria, Switzerland, and Liechtenstein). Publication 3, for example, focusses on executives from the Rhine Valley. As previously mentioned, regional differences have
been identified in the entrepreneurial profile (Obschonka et al., 2013). Hence, international samples should be used in future studies in order to replicate findings.

The third bundle of limitations concerns measures and data quality. All four quantitative studies in this thesis are subject to key informant bias as data was collected from just one source. To eliminate this bias, predictor and criterion variables should be obtained from different sources (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), such as other-ratings of employees, colleagues, or business partners of the executives. Further on, when traits such as narcissism, Machiavellianism, psychopathy or dominance and power motives are measured via self-report, social desirability might influence the scale values. However, this response style has no effect on the predictive validity of personality measures and can therefore be neglected (Salgado, 2005). As within Publications 2 to 5 in this thesis, the impact of the entrepreneur’s psychological profile is currently mostly studied with cross-sectional data. Following a life-span perspective on entrepreneurship, longitudinal data would allow to investigate the development of entrepreneurial intention as well as the interplay of organisational level and individual level variables throughout the transition processes, which occurs between the establishment of a venture and the managing of an established firm.

Fourth, limitations apply to the research designs of this thesis’ publications. Though specific traits (e.g. dominance) were studied in contrast to broad and more general dimensions (e.g. extraversion) and thereby concrete outcomes could be explained more precisely, future research should be expanded on facet level. By testing the assumed differential effects of sub-facets underlying dominance (i.e. person-oriented vs. goal-oriented dominance, Palmer, 2015) and the dark triad of personality, entrepreneurship research would gain a deeper understanding about the drivers for entrepreneurial intention, entrepreneurial orientation, and firm performance. In addition, the set of psychological variables was limited throughout the studies. Therefore, from a competence-based view on entrepreneurial performance, further research could consider a broader dimension of general leadership skills. By adding more factors, such as traits, skills, values and competencies, to the individual level and also by taking into account more factors on the organizational level (e.g. collaboration) the understanding of contributing factors for firm performance could be improved.
References


Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits,


Publication I

Palmer, C., Kraus, S., Kailer, N., Huber, L., & Oner, H.
Entrepreneurial burnout: a systematic review and research map

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Publication II

Palmer, C., Kraus, S., & Ribeiro-Soriano, D.
Exploring dark creativity: The role of power in an unethical marketing task

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Economic Research - Ekonomski Istraživanja
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Publication III

Kraus, S., Berchtold, J., Palmer, C., & Filser, M.
Entrepreneurial Orientation: The Dark Triad of Executive Personality

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Journal of Promotion Management
Vol. 24, pp. 715-735, 2017
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Publication IV

Palmer, C., Niemand, T., Stöckmann, C., Kraus, S., & Kailer, N.

*The interplay of entrepreneurial orientation and psychological traits in explaining firm performance*

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Vol. 94, pp. 183-194, 2019
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Publication V

Palmer, C., Fasbender, U., Kraus, S., Birkner, S., & Kailer, N.
A chip of the old block? – The role of dominance and parental entrepreneurship for entrepreneurial intention

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