

The Contribution of Psychological Entrepreneurship Research for Management Education

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Abstract

Turbulent environments should favor entrepreneurial organizations focusing on innovation. Observing that turbulence increasingly becomes the normal condition in economy suggests refocusing management education – away from the traditional form – that concentrates on the management of big companies towards a more entrepreneurial oriented design. The central thesis of this paper is that results of psychological entrepreneurship research are valuable for management education in today's turbulent environments, but that these results are only partially included in management education programs. Following a 6-phase model of entrepreneurship we identify the phases with a high importance of individual-level and interpersonal factors and with the highest overlap between the entrepreneurial process and the intrapreneurial process. For these phases we apply psychological research results for an intrapreneurship-focused model of management education. We use the three kinds of factors in our model: (1) Personality factors, (2) cognitive factors, and (3) social factors. All these factors influence the success of entrepreneurs and should be able to improve specific phases within the intrapreneurial process in companies. The six stages of the entrepreneurial process and the three psychological factors build the two axes of our model. Typical management education applications are embedded into the context of our model to show the applicability of the model in management education. The new ideas here are not the applications, but the usefulness of this model to include social psychological findings in the planning and building of a particular management education program and to give hints on what might still be missing in existing management education programs.

Introduction

In today's turbulent environments there is an increasing tendency to see change, flexibility and innovation as essential components of successful organizations. This might even be more important in times of tumultuous crises. Organizations need to run fast to keep up with the numerous and intensive changes taking place in their environments. They and

their managers must handle continuous innovations, not only to achieve superior economic results but merely to survive in an economic environment of continuous and often disruptive change (Daft, 2010: 370). If we take the uncertainty of organizational life seriously we need to rethink management (Stacey 2010) and management education. Increasingly companies need to be innovative, flexible and responsive to change, and their managers must shift their focus to innovation, flexibility and responsiveness. Entrepreneurial competence might be one of the most important competencies for managers and the concept of corporate entrepreneurship (or intrapreneurship) the basis for organizational success. Organization theory and design are giving guidelines as “associate a stable environment with a mechanistic structure and an unstable environment with an organic structure” (Daft, 2010: 233). The nowadays turbulent environments for most companies should therefore be a big advantage for entrepreneurial organizations focusing on innovation. This might need a refocus in management education – away from a traditional management education with its concentration on big companies to a management education which includes important parts of entrepreneurship education. There is common agreement that entrepreneurship is essential for international social and economic well-being as new ventures are the dominant source of job creation, market innovation, and economic growth in many societies (Aldrich, 1999; Bygrave & Zacharias, 2010: ixp, Baum et. al, 2007: xiii) and even more important in times of economic upheaval (Bygrave & Zacharias, 2010: ixp).

In entrepreneurship research there is an increasing focus on integrating a large body of information using a psychological focus (e.g. Baum, Frese & Baron, 2007), because “entrepreneurship is fundamentally personal” (Baum, Frese, Baron & Katz, 2007: 1) and “psychology researchers have much to offer the dynamic field of entrepreneurship research” (Baum et al., 2007: 2). In comparison to management, entrepreneurship is often seen as unusual because it requires the individual or small group to come into being. Therefore psychological processes are central to the process of entrepreneurship (Katz, 2007: 228). The central thesis of this paper is that results from psychological entrepreneurship research are valuable for management education in today’s turbulent environments, but that these results are only partially included in entrepreneurship education and even less in management education programs. Executive education

programs and MBA courses which ignore the importance of entrepreneurial competencies will not offer the appropriate learning for current challenges. The purpose of this paper is to develop a model to integrate psychological factors in management education to enhance the entrepreneurial quality of these programs to capture the complexity of real managerial life. To accomplish these objectives, the paper begins with a brief review of entrepreneurship education and the differences between entrepreneurship and intrapreneurship. The discussion then turns to process models of entrepreneurship and psychological entrepreneurship research. We then introduce a new model for management education – a process-oriented, psychological and entrepreneurial model of management education – to improve management education to cope with the complexity of real managerial life in today's turbulent environments. We then exemplarily describe applications of the model in management education, distinguished by the kind of factor.

Entrepreneurship education

A classic question in interviews of self-made entrepreneurs is “Can entrepreneurship be taught?”. The classic answer of them is typically no. On the other hand there is increasing evidence that entrepreneurship can – at least partially – be taught as entrepreneurship education is one of the most rigorously evaluated arenas of educational outcome assessment. Following Katz (2007: 209) “the fact is that training and education in entrepreneurship represents one of the earliest and most significant successes of the modern postsecondary educational system”. But how can psychological entrepreneurship research improve management education? First we have to define entrepreneurship and possible differences to corporate entrepreneurship. A generally accepted process and people oriented definition of entrepreneurship (Baum et al., 2007: 6; Baron & Shane, 2009: 4-5) is offered by Shane and Venkataraman (2000: 218) and summarized by Baron and Shane (2009: 5): “Entrepreneurship, as a field of business, seeks to understand how opportunities to create something new (e.g., new products or services, new markets, new production processes or raw materials, new ways of organizing existing technologies) arise and are discovered or created by specific individuals, who then use various means to exploit or develop them, thus producing a wide range of effects.” Accepting this definition, the interest of entrepreneurship research are explanations for why, when, and how some

people discover and exploit opportunities which also is an evidence of the above discussed need for a psychology-centered research (Baum et al. 2007: 6-7).

Entrepreneurship education is, according to Katz (2007: 209), a key factor in business education and economic development. Entrepreneurship education is education and training for the profession of entrepreneurship. The aim is to make a person a more competent and more professionalized entrepreneur, not to develop the individual into a native entrepreneur (Katz 2007: 211). There are four major types of structures in entrepreneurship education (Katz 2007: 213): academic programs, training programs, peer coaching, and individual coaching. This paper concentrates on academic programs, which from our point of view should at least partially include elements of the other three structures. There is common agreement that a set of five educational practices define the fundamental approach to the discipline “entrepreneurship education”: business plans, networking, getting and giving help, team entrepreneurship, and leveraging academic knowledge (Katz 2007: 220). Two of these five elements are “truly distinctive of the discipline” (Katz 2007: 220): business plans and leveraging academic knowledge. For the purpose of our paper leveraging knowledge (together with the non-distinctive practices networking, getting and giving help, and team entrepreneurship) is most interesting from a (social) psychological perspective which fits to the “concept of the embedded entrepreneur” (Katz 2007: 221), where entrepreneurial teams (instead of the solitary entrepreneur) are the norm (Stewart 1989).

Intrapreneurship and Management Education

The term entrepreneurship is sometimes also used to represent an important function within an existing organization (Stevenson & Jarillo, 1990). Even before the implementation of entrepreneurship as research field Miles and Snow (1978) noted that the “entrepreneurial problem” faced by many companies was to address what new directions and what new businesses they should consider. Since then corporate entrepreneurship has been seen as an important strategic activity within existing firms and in 1985 the new word “intrapreneurship” was coined. Pinchot (1985: xi) describes intrapreneurs as “those who take hand-on responsibility for creating innovation of any kind within an organization” linking the term intrapreneurship with innovation (Lumpkin, 2007:

237). Organizations often use teams to create innovation. This seems highly compatible to the above described concept of the embedded entrepreneur, which according to Katz (2007: 221-222) is a key idea of contemporary entrepreneurship education.

One important part of the above specified definition of entrepreneurship is to understand how opportunities are discovered or created by specific individuals. Recognizing opportunities for creating something new can occur within existing organizations as well as outside them. All organizations have to seek innovation as innovation is essential for gaining and sustaining competitive advantage. So it seems clear that at least some processes of entrepreneurship are similar for intrapreneurship. "Individuals can act entrepreneurially in several different contexts, including large, existing companies" (Baron & Shane, 2009: 7). Therefore we conclude that results of psychological entrepreneurship research can be successfully applied to intrapreneurship.

Process Models of Entrepreneurship and Psychological Entrepreneurship Research

After identifying similarities between the task of opportunity recognition in entrepreneurship and intrapreneurship it is important to consider other possibly essential tasks in the intrapreneurship process. Therefore we draw from a process perspective of entrepreneurship following Baron (2007) who suggests that research adopting a multilevel process perspective is needed in that field as entrepreneurship can be viewed as a continuing evolving process "which unfolds over time and which moves through distinct but closely interrelated phases" (Baron & Shane 2008: 13). The relative importance of specific variables may fluctuate across different phases of the process and may also be different between intrapreneurship and entrepreneurship. This process perspective of entrepreneurship has gained increasing acceptance as it is seen as both useful and accurate (e.g. Baron & Shane 2008: 13-15; Baron 2007: 19; Baron & Markman 2005; Shane 2003: 3; Jack & Anderson 2002).

The entrepreneurial process cannot be divided into neat and easily distinguished stages as all processes are, in a sense, continuous in nature, but for the purpose of systematical analysis it is useful to divide them into specific phases (Baron & Shane 2008: 13; Baron

2007: 21). To divide this process into different stages is even more important for the purpose of this paper as it assists in examining the similarity between the intrapreneurial process and the entrepreneurial process and helps to identify the importance of specific (social) psychological variables across different phases of these processes.

According to Baron (2007: 21) the three major phases of the entrepreneurial process are: *prelaunch* – the period which includes the activities prior to the launch of a new venture; *launch* – the period of the actual launch and the initial period of operation; and *postlaunch* – the period after the initial startup. These major phases can be further divided into smaller stages on the basis of the specific activities performed (Baron 2007: 22). This basic model with three stages is too inaccurate for the purpose of our paper; therefore we apply a more detailed six-stage model.

The key phases in the entrepreneurial process are according to this six-stage model (Baron & Shane 2008: 13-15; Shane 2003): opportunity recognition; evaluation and decision; resourcing; launching; building success; and harvesting. These phases can roughly be specified as follows:

- Opportunity recognition: generation of an idea for a new product or service and/or recognition of an opportunity;
- Evaluation and decision: deciding to proceed;
- Resourcing: assembling the resources needed to launch a new venture;
- Launching: launching the venture;
- Building success: running and growing the business;
- Harvesting: harvesting the rewards.

Most researchers agree that there are three major levels of variables that play a role in the different phases of the entrepreneurial process: individual-level factors, interpersonal factors and societal-level factors (Baron 2007: 20; Baron & Shane 2008:15-19).

Individual-level factors relate to the “behavior, cognitions, characteristics, knowledge, skills, and abilities of specific entrepreneurs” (Baron 2007: 24). Interpersonal-level factors are “variables that influence entrepreneurs’ relations with others” (Baron 2007: 26). Among

these factors social capital and social competence seem to have a high importance for entrepreneurs (Baron: 2007: 25-27). Societal-level factors are macro-level variables and include government policies, economic conditions, technology and other societal conditions (Baron: 2007: 27; Baron & Shane 2008: 16-18). Societal-level factors are beyond the scope of (social) psychology, therefore this paper will focus individual-level and interpersonal factors.

From an individual-level perspective research focuses mainly on cognition, on personality, and on emotional and practical intelligence. Baron (2007: 25) summarizes the importance of individual-level factors: “[...] it is clear that individual-level variables play an important role in entrepreneurship and should be included in efforts to develop an accurate and comprehensive model of the entrepreneurial process”. This focus on the individual level of entrepreneurship” highlights the importance of psychological research for the field of entrepreneurship (see also Baum et al. 2007).

Sometimes entrepreneurs may formulate ideas for new products, services or processes in isolation, but usually idea generation and virtually everything else they do involves direct and/or indirect interactions with other persons (Baron 2007: 25). Social interaction is the main focus of social psychology, so the findings of social psychology can shed important light on questions about the important interpersonal factors of entrepreneurship (Baron, Byrne & Branscombe 2006: 555).

Following the above considerations about different individual factors we decided to split the individual factors into personality trait factors and cognitive factors and therefore use the following three kinds of factors proposed by Baron, Byrne and Branscombe (2006: 555-561) for our model: (1) Personality trait factors, (2) cognitive factors and (3) social factors. Personality traits and cognitive factors are individual-level factors; social factors are partly interpersonal and partly societal factors. All these three factors influence the success of entrepreneurs and are within the scope of (social) psychology (Baron, Byrne & Branscombe, 2006: 557-559).

A process-oriented, psychological and entrepreneurial model of management education

We have now built the basis for the two axes of our model: the six stages of the entrepreneurial process and the three (social) psychological factors. Next we have to investigate (1) the stages of the entrepreneurial process with high similarities to the intrapreneurial process and (2) the stages of the entrepreneurial process with a high importance of (social) psychological factors.

A good basis to investigate the intrapreneurial process is the “entrepreneurial orientation” concept (Lumpkin & Dess 1996; Lumpkin 2007: 247). Intrapreneurship as basis for effective innovation requires an entrepreneurial skill set and an entrepreneurial mind-set (McGrath & MacMillan 2000). Entrepreneurial orientation (EO) is a firm-level construct and refers to the practices and processes that managers and employees “[...] engage in to identify and create venture opportunities” (Lumpkin 2007: 247). EO has five dimensions: autonomy, innovativeness, proactiveness, competitive aggressiveness, and risk taking (Lumpkin 2007: 247). As EO is a firm-level construct it is beyond the scope of our paper to elaborate these dimensions, but each of these dimensions can be assigned to individual roles: product champions, organizational learning, opportunity recognition, “exit” champions, and real option analysts (Lumpkin 2007: 238). Each of these roles is related to intrapreneurship and innovation (Lumpkin 2007: 248-257) and can help to investigate the importance of the six entrepreneurial stages for intrapreneurship.

Product champions foster innovation and launch intrapreneurial ventures. They “[...] are especially important during the time after a new project has been defined but before it gains momentum. [...] They do this by procuring resourcing and stimulating interest [...]” (Lumpkin 2007: 250). This highlights the importance of the “resourcing” stage for intrapreneurship. *Organizational learning* is seen as a basis for creativity and innovation. “The more elements of creativity and innovation a [...] firm expresses – that is, the higher or more intense its capacity for organizational innovation – the more opportunities it may identify” (Lumpkin 2007: 252; Barringer & Bluedorn 1999). This shows the importance of “opportunity recognition” for entrepreneurial firms, which is further emphasized by the fact that Lumpkin (2007: 253) explicitly adds an additional role named *opportunity recognition*,

“which plays a key role in the success of new venture initiatives (Lumpkin 2007: 253). The roles *exit champions* and *real option analysis* highlight the importance of the “evaluation and decision stage” in intrapreneurship. Therefore the main focus of this paper will be the three intrapreneurial phases “Opportunity recognition”, “Evaluation & Decision”, and “Resourcing”.

If entrepreneurship is seen as a process with different stages, and if a wide range of different variables influence entrepreneurs’ behavior, cognitions, and performance throughout this process, the following key assumption can be derived: the impact of specific variables may change considerably over the different phases of this process (Baron 2007: 30). This paper focuses so far on the phases “Opportunity recognition”, “Evaluation & Decision” and “Resourcing”. It is now important to consider the importance of above defined (social) psychological variables – personality traits, cognitive factors and social factors for these phases.

According to Baron, Byrne and Branscombe (2006: 556) there is some evidence that personality traits (e.g. high extraversion) play a role in the decision to become an entrepreneur (e.g. Baron & Markmann 2005; Ciavarella et al. 2004) but not in the success of entrepreneurs. This evidence together with the high stability of personality traits (Myers 2010: 571; McCrae & Costa 1994; Vaidya et al. 2002) shows that personality factors are not a feasible starting-point for entrepreneurial management education interventions.

Cognitive and social factors play not only a role in the decision to become an entrepreneur, but also influence entrepreneur’s success (Baron, Byrne and Branscombe (2006: 557-559). Therefore cognitive and social factors build the basis of our process-oriented, psychological and entrepreneurial model of management education. Will these factors be important for all three phases which are focused in our model? There is evidence for the high importance of cognitive and social factors in the stage “Opportunity Recognition”, for the high importance of cognitive factors in the stage “Evaluation and Decision”, and for the high importance of social factors in the stage “Resourcing” (Baron & Shane 2008; Baron 2007).

Based on the above examined process models and results of (social)psychological research, a process-oriented, psychological and entrepreneurial model of management education (see figure 1) can be developed. The focus of this model is on the following three stages of the above examined 6-stage model: opportunity recognition; evaluation and decision; and resourcing; and on two of the above described factors: cognitive factors, and social factors as well as partially on the third factor personality traits. This model enables to focusing (social) psychological management education interventions.

A process-oriented, psychological and entrepreneurial model of management education						
Phases / Factors	P1 Opportunity recognition	P2 Evaluation & Decision	P3 Resourcing	P4 Launching	P5 Building Success	P6 Harvesting
F1 personality factors						
F2 cognitive factors	++	++	+		(+)	
F3 social factors	++	+	++		++	

++ -> high focus for management education interventions
 + -> partial focus for management education interventions

Figure 1: A process-oriented, psychological and entrepreneurial model of management education

This model is a good basis to strengthen the entrepreneurial orientation of management education programs and therefore to improve intrapreneurship and innovation. The next chapter shows the application of this model in management education and some of the benefits.

Application of the Model in Management Education

Discussing the application of the model in management education needs to be done in the context of the recently arising question of the success of business school education. Criticism particularly on the overemphasis of analysis (Porter & McKibbin 1988; Mintzberg & Gosling 2002; Mintzberg 2004) and the missing attempt to alter the students' attitude (i.e. the focus on know-how enhancement rather than personal development) have led to program modifications in some business schools, mainly by changing to a multidisciplinary design or by implementing a clinical component. These program modifications are associated with a claim to focus on changing how people think (Pfeffer & Fong 2002).

They are experience-driven attempts to improve the educational outcome, because research, as well as professional practice, shows that the effect of business schools is small (Pfeffer & Fong 2002.). This approach seems to follow the principles of solution focused therapy: If it works, do more of it. If it does not, try something else (De Shazer 1988; 1997; Lueger & Steinkellner 2011). The applications presented here are not revolutionary. New is, that they are embedded in the context of a social psychologically oriented model. This model's benefit is to give hints on what might still be missing in a particular program. This chapter exemplarily describes applications of the model in management education, distinguished by the kind of factor.

Personality factors (F1) are classified as permanently stable (Myers 2010: 571; McCrae & Costa 1994; Vaidya et al. 2002). These factors cannot be modified by training or education, but it is possible to enable a person to better cope with his or her given personality traits. Research (e.g. Baron & Markmann 2005; Ciavarella et al. 2004) shows that some traits enlarge the probability of becoming an entrepreneur: Entrepreneurs are more likely to have an internal locus of control, they have, on average, a higher risk-taking propensity, a higher ambiguity tolerance, their motivation is driven by the need to achieve, and they usually are above-average self-confident. Research (e.g. Markman & Baron 2003) also shows that successful entrepreneurs excel in factors like self-efficacy, perseverance, and passion. Interventions that enable a person to better cope with a lack of these traits focus on three approaches: Presenting theories on traits and behavior (by lectures on leadership and on social psychology), enabling self-awareness (by action components like outdoor experiences), and giving feedback and facilitating feedback by others (within the conceptual framework of goal-setting and feedback; Latham 2002).

Successful entrepreneurs are characterized by **cognitive factors (F2)** like the absence of counterfactual thinking, a lower predisposition to cognitive biases (like optimistic bias, planning fallacy, and affect infusion), a better handling of sunk costs, and the excellence in recognizing opportunities (Baron 1998; 2000; 2004; Baron, Byrne & Branscombe 2006: 558-559; Forgas 1995). Probably the most powerful interventions to develop these cognitive attributes are effectuated in a program's clinical component, in the seldom case that there is one. Didactic elements – we call it “competence development” – like outdoor

experiences (which we call “leadership lab”), and goal-setting and feedback uncover cognitive biases and the negative effects of counterfactual thinking, and some influence may also be achieved by lectures on social psychology.

The most important of the **social factors (F3)** that encourage the decision to become an entrepreneur is the role model: Individuals who have contact to a relative who is an entrepreneur are more likely to become entrepreneurs themselves (Shane 2003). A feasible method to create this social factor artificially in education is to establish informal contact to existing entrepreneurs (e.g. fireside chats). Research (Baron & Markman 2003) shows that successful entrepreneurs differ from their unsuccessful fellows by social skills like social perception, persuasiveness, adaptiveness and expressiveness. Other individuals usually have a good first impression of them. Social perception can be trained by imparting a research-based concept and by exposing the students to personal experience, which can be integrated into lectures of social psychology. Persuasiveness, adaptiveness and expressiveness can be developed by exposing the students to a situation as close as possible to professional practice, which requires the integration of a clinical component into the program. Outdoor trainings are also likely to enhance social skills. Unbiased (and non-sugarcoated) feedback on leadership skills unsupported by institutional power and on a person’s first impression may require more exotic seminars, like leadership training with horses.

Fig. 2 shows how some program elements may influence cognitive and social factors.

	Content	Competence Development			Clinical Component
	Lecture of Social Psychology	Action component Leadership Lab	Goal-setting & Feedback	Leadership Training with Horses	Change Project / Establishing a Business
F1 Personality factors *	Coping with personality factors	Coping with personality factors	Coping with personality factors	Coping with personality factors	Coping with personality factors
F2 Cognitive factors	P1 (Opp. Recog.) P2 (Eval. & Dec.) Example: Cognitive Biases	P2 (Eval. & Dec.) Examples: Planning Fallacy; Affect Infusion; Less counterfactual thinking	P2 (Eval. & Dec.) Examples: Self-Image; Less counterfactual thinking		P2 (Eval. & Dec.) P3 (Resourcing) Examples: Normative-rational dimension (risk propens., planning fallacy); Less counterfactual thinking; Coping with sunk costs
F3 Social factors	P1 (Opp. Recog.) P2 (Eval. & Dec.) Example: Social group effects	P1 (Opp. Recog.) P3 (Resourcing) P5 (Build. Succ.) Examples: Adaptiveness Persuasiveness	P2 (Eval. & Dec.) P5 (Build. Succ.) Example: Public Image	P5 (Build. Succ.) Examples: First impression Leading without institutional power	P3 (Resourcing) P5 (Build. Succ.) Example: Socio-cultural dimension (social skills)

* Personality factors cannot be influenced by intervention, but coping with personality factors can

Fig. 2: Possible influence of some program elements on cognitive and social factors

Examples for content-based interventions

Lecture on social psychology

As mentioned above, traditional management education content was subject to critical comments by management scientists. The main criticism pertained to the overemphasis on analysis at the expense of leadership skills. Hence some business schools added leadership and social skills training. We suggest introducing another area of knowledge: lectures in social psychology. It should cover the main research areas of the field, including perception and social cognition (e. g. schemata, attribution), social groups and social influence, and attitude and behavior (e. g. stereotypes). The ideal instructor has experience in management research as well as in psychological research and professional experience as manager or entrepreneur. If the lecture includes experiments involving the students, effects can be expected on both cognitive and social factors. In respect to cognitive factors students experience that they are subject to cognitive biases like the fundamental attribution error, the confirmation bias or the self-serving bias. This may help to avoid unrealistically optimistic evaluations and decisions (P2). In respect to social factors they experience that they and others are influenced by social group effects like

conformity, group think or diffusion of responsibility; this may lead to better evaluations and decisions (P2), but additionally improve the ability to recognize opportunities (P1), as other individuals (i.e. possible clients) are also affected by these group effects.

Examples for didactic-based interventions (competence development)

Leadership Lab

A leadership lab is experience where the participants have to fulfill tasks without having full information and without having routine. This situation is very similar to management or entrepreneurial decision making. The task may be the preparation of a formal dinner for a group of guests who are important for the personal advancement of the participants. This task requires a division of labor, good cooperation, and management without fruitless discussions. More advanced forms involve outdoor experiences like crossing a river over a self-built rope bridge or abseiling into a canyon. Some of these leadership adventures have become so popular that they were adapted for TV shows, where naturally the main intention is entertainment rather than leadership development. This might cause some bias against this form of training, which of course has to be based on research findings and embedded into a conceptual framework that is designed to promote leadership skills. Expectable effects on social factors include adaptiveness and persuasiveness, thus effectuating opportunity recognition (P1), resourcing (P3) and building success (P5). Interventions influencing cognitive factors like planning fallacy or affect infusion have an impact on evaluation and decision (P2).

Goal-setting and feedback

Management education programs, as well as single seminars, typically start with the participants' self-introduction, which usually includes a statement on their motivation and their expectations. This has become so much a routine that it is not reflected any more. Consequently, in many cases it is just a kind of a mantra, and to a certain extent simply a waste of time, particularly when no one comes back to the statements in the course of the program. If it is taken out of routine, goal-setting can be a very powerful medium of intervention. This can be achieved when the right questions are asked, when there is time for reflecting the questions, when in the course of the program these questions are renewed, and when there is feedback. Good questions are like: What is my best

professional quality? What is my personal strength that helps me to do the things the way I perform them? Which is my most important professional development theme? The individual answers to these questions should set the tone for the program's competence development part, which can be organized as afternoon sessions every two or three months, where the topics are revisited, possibly modified, and exposed to feedback by fellow students and trainers (see also Steinkellner & Czerny 2010; Steinkellner, Czerny & Lueger ND). Goal-setting and feedback may effectuate cognitive factors as well as social factors, help to better cope with personality factors, and thus may improve evaluation and decision (P2) and building success (P5).

Leadership training with horses

It is difficult to give an unbiased and realistic feedback on a person's individual leadership skills (i.e. leadership unsupported by institutional power) and on the first impression that he or she induces. Feedback tends to be sugarcoated, because nobody wants to offend a colleague or fellow student, and the feeling of being offended might also provoke excuses or ignorance, which is counterproductive to the aim of feedback. Leadership training with horses is an unusual attempt to provide realistic and neutral feedback. The students – in the best case without any horse experience – face the challenge to motivate horses to follow them with or later without a lead rope through barriers or over unfamiliar terrain. Animals do not understand the idea of institutional power and they do not reflect the psychological aspects of their behavior, so they give a very direct feedback – they follow you, if they trust your leadership skills, or they don't – and humans usually are not offended by an animal's reactions. Understanding (and developing) one's own impression to others and individual leadership power adds to the ability to build success (P5).

Examples for interventions within a clinical component

Some of the most interesting and productive interventions are those within a clinical component of a management education program. Like in medicine education, where the integration of a teaching hospital is state-of-the-art, a clinical component in management education creates a situation as close as possible to professional practice, e.g. a change project in an existing organization or the establishment of a new enterprise. Fictional business plans may produce some advances, but major developments of both social and

cognitive factors need real cases. That is the motivation for a clinical component. Certainly a reality-based clinical component is difficult to arrange, so consequently it is rarely found in business school education.

We suggest working with projects based on real entrepreneurial ideas of the students. Interventions in the course of the entrepreneurial project are made by the supervising scientific staff by asking critical questions, by giving feedback, or by suggesting the next steps. Some interventions concern the normative-rational dimension of the project (like strategic issues or financials), others apply to the socio-cultural dimension (like the organization's inherent rules, mental blockades or resistance against change). Interventions in the normative-rational dimension influence cognitive factors, for example risk perception and risk propensity can be questioned, and planning fallacy can be uncovered. The disutility of counterfactual thinking becomes visible, and coping with sunk costs is trained. These interventions may reduce the probability of evaluation and decision errors (P2), and they may have a positive influence on resourcing abilities (P3). Interventions in the socio-cultural dimension influence social factors; for example the overcoming of resistance against change will train social perception as well as social adaptiveness and persuasiveness, a good prerequisite for resourcing (P3) as well as for building success (P5).

In this chapter we embedded typical management education applications in the context of our social psychologically oriented model. As we mentioned above the applications presented here are not revolutionary. The new idea is that this model helps to include social psychological findings in the planning and building of a particular management education program, and can give hints on what might still be missing in existing management education programs.

Conclusion

We want to close with a critical reflection on the limits of this work: The significance of this paper is limited as it is primarily based on conceptual research. Even if the authors' first experiences with the application of this model in (re-)designing management education programs are promising, it has to be admitted that so far there are no empirical studies

focusing on the application of this model. Therefore further evidence is needed to underline the proposed improvement of management education.

This paper suggested improvements in management education to strengthen the entrepreneurial orientation and to improve intrapreneurship and innovation. It illustrated the importance of the entrepreneurial component of management education and developed a process-oriented, psychological and entrepreneurial model of management education. The examples of management education methods in this paper were intended to outline and illustrate the applicability of this model for management education programs. This shows that this model helps to include social psychological findings in the planning and building of a particular management education program, and can give hints on what might still be missing in existing management education programs. As this paper has argued, results of psychological entrepreneurship research can help to improve management education in a competitive environment.

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