HOW TO JUMP START PHD THESIS IN ENTREPRENEURSHIP RESEARCH: A PRACTICAL HEURISTIC FOR PHD INSTRUCTORS AND STUDENTS.

Sean Patrick Sassmannshausen: Schumpeter School Of Business And Economics, Wuppertal, Germany
Stefan Gladbach: Schumpeter School Of Business And Economics, Wuppertal, Germany

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"PhD programs that allow students to combine research training with working on their own research agendas from the beginning of their doctoral studies (as is generally the case in Australia, Canada, and Europe) might have an advantage over programs that require students to complete years of course work prior to embarking on their own research.”
(Nancy J. Adler & Anne-Wil Harzing 2009)

ABSTRACT

In this paper we define a “Ten Step Heuristic” that can help to systematically define research projects in Entrepreneurship. We particularly address PhD students and their instructors, but our road map might also be found useful by other scholars in the distinct field of entrepreneurship research. The paper is a “good practice report” based on our personal experience from ten years in PhD programs. Many partners have found the approach—especially the order of the various steps—contra intuitive at first sight, but our heuristic proofed to be advantageous whenever it was implemented. PhD students who follow our approach will not only create competitive research designs, but will also gain a deeper understanding of Entrepreneurship as a scholarly field of research.

1. INTRODUCTION

At many universities in the beginning of doctoral studies, PhD students face the challenge of identifying a promising research topic. They do not only need to be able to work on that topic but also want to emotionally commit to it. To our experience in ten years of Entrepreneurship Education, freshmen in PhD-Programs find it difficult to define a research question that – at the same time – has a promising potential in terms of scientific outcomes, is manageable in terms of research process, and is appealing to the candidate. Over the years, we have developed a set of ten questions which PhD students should answer in the early stage of their program. Step by step, students address these questions in weekly workshops. Between each workshop, there is time to reflect and to consult existing literature.

The benefit of this approach lays in systematically exploring the full range of Entrepreneurship in a first phase, then narrowing down the field, identifying research gaps, and being guided by the “state of the art” in Entrepreneurship Research. Instead of following a solely practical decision making process (which often starts from students’ questions like “is there data that I could easily access?”), students can follow a heuristic. The heuristic is designed to foster good scholarship: Find interesting topics first and care for practical problems (like data gathering) thereafter. In addition, the guideline saves time compared to random search for a research topic and provides solid insides in Entrepreneurship Research and research methods within only a few weeks.
After some remarks on method and existing literature (chapter 2) we will introduce each of the ten steps (chapter 3). We will address how this relates to the “rigor and relevance-paradigm” in chapter 4, where we will point out how young PhD students can learn to gain relevance in their research. In the final chapter 5 some closing remarks and conclusions are derived from the “Ten Step Heuristic”. These remarks link our “Ten Step Heuristic” with the development of Entrepreneurship as an independent field of research and with some considerations in the philosophy of science.

2. Motivation, Method, and Literature Review

The paper is a report on good practice. Therefore, it might not be regarded as “rocket science”, but rather a useful application in the field of Entrepreneurship Education, especially for those who run (or contribute to) or participate in PhD Programs in Entrepreneurship. The “Ten Step Heuristic” has proven to be useful at our school and might be considered helpful in other places, too. For this reason, we would like to share this practice.

The paper contributes to the rare literature on (or for) PhD programs in Entrepreneurship (e.g. Brush et al. 2003). Since structured reviews addressing the special needs of PhD students are so limited in number, we advise PhD students to read through a group of influential articles (reaching from “A” like in Aldrich & Baker 1997, Aldrich & Fiol 1994, or in Aldrich & Martinez 2001 to “Z” like in Zahra & Dess 2001) and to get their noses in some books, including for instance Schumpeter 1934, Casson 1988, Davidsson 2005, Davidsson (ed.) 2008, Landström 2005, and the Blackwell Handbook of Entrepreneurship (by Sexton & Landström (ed.) 2000).

The “Ten Step Heuristic” is not just an extension of the “six research specifications” introduced by Low & MacMillan (1988). There might be some similarities and interrelations, but after more than 20 years of Entrepreneurship Research have passed since Low’s & MacMillan’s constitutive contribution, it seems to be important to go beyond their six dimensions framework (see Davidson et al. 2001). Our road map is designed to guide researchers who have yet not defined their research interest and have little or no experience in Entrepreneurship Research. So this paper is complementary to the “six research specifications” (Low & MacMillan 1988) as well as to the twelve “topics to be covered by all good research” introduced by Hofer & Bygrave (1992). In fact, the checklist provided by Hofer & Bygrave (1992) is a reliable instrument to measure one’s personal success after working through the “Ten Step Heuristic”. Readers will find our contribution rather useful if they are facing the invaluable challenge of academic freedom. In contrast, PhD students will not benefit from this paper if they are in programs which ‘dictate’ decisions about research topics, questions and methods for PhD theses.

In our opinion, the challenge of identifying and properly defining a research question is a challenge that should not be taken away from PhD students. Academic freedom seems to be something we have to fight for. Contemporary evaluating criteria for academics and therewith pressure to publish journal papers of limited length create a tendency towards solely quantitative, positivistic and fragmented research (see Wicks 2004, Nkomo 2009, p. 108). Unfortunately, to some extend this is also true for Entrepreneurship Research (Gartner 1995, p. 68; see Gartner 2001, Harrison & Leitch 1996). Under these conditions, it seems more important than ever for scholars to develop a holistic view on epistemology and the subject they study (Rebernik & Mulej 2000 address the need of a holistic view on entrepreneurship, see Hindle 2004, p. 583, who argues that entrepreneurship may be “insolubly holistic in nature”). PhD Programs offer this opportunity for candidates to first see the full picture of Entrepreneurship before narrowing it down to a well-defined thesis in a second step. Knowing about epistemology and the full picture of Entrepreneurship is a precondition for a productive and creative use of academic freedom as well as for the ‘mass production’ of successful journal papers during a later stage of academic career. Therefore, we think it is important that scholars learn how to define one’s own research program in Entrepreneurship from scratch (but of course building on existing literature). We accept as true that ‘dictating’ research topics and methods can save time and direct resources to core areas of an institutions interest (e.g. entrepreneurial finance). But at the same time ‘dictating’ research topics and methods is putting at risk the quality of PhD education and the ability to make best use of academic freedom.

The “Ten Step Heuristic” might not only be useful for PhD candidates, but also more generally help various researchers who are in the process of identifying new research challenges or are facing a temporary lack of creativity. In the next chapter with each of the ten steps, some exemplary details will be provided together with some references to the existing literature. To some of these contributions we refer to as ‘mile stones in Entrepreneurship Research’. Epistemological considerations are not addressed in this paper as part of the “Ten Step Heuristic” because most universities run special PhD seminars on that topic.
3 Results and Implications: The “Ten Step Heuristic”

“Like the elders of any tribe, academic elders pass on the wisdom and “tricks” of the culture to the next generation.” (Adler & Harzing 2009, p. 87)

It is important to note that the ten questions should be asked and answered in the given order. It is important not to change the list to its reverse order. This would put the advantages of the heuristic at risk. To each question, we conduct a workshop where we brainstorm input on potential answers. Since we discuss approximately two questions per workshop, the whole process takes about four to five days within just a couple of weeks. Step 1 to 5 are opening up the field of Entrepreneurship Research. From Step 6 on, the process is changing to decision of personal addiction or technical requirements. After making each set of questions as broad as possible in the group, each student is asked to narrow down his or her answer individually according to his or her personal preferences, prior knowledge and future interests. Some literature is provided before sessions start to support preparation and to develop skills in reading critically; some literature is provided after the according sessions to support a phase of reflection on every decision question. In face-to-face meetings with the PhD instructors, PhD students discuss the outcome from personal reflection. The ten questions a PhD student (or other researchers in the need to identify and define research projects) should systematically address are summarized in the following figure and will be addressed in more detail in the subsequent chapters 3.1 to 3.10.

![Diagram of the Ten Step Heuristic]

**Figure 1:** The “Ten Step Heuristic” to jump-start PhD-theses and other research in the field of Entrepreneurship

**3.1) Step 1, Entrepreneurship Phenomenon: What phenomenon in the field of Entrepreneurship do you want to address?**


At this stage, instructors need to ensure that PhD students understand the difference between a phenomenon and a theoretically grounded definition. A definition of entrepreneurship—for instance when defined as the discovery (or creation), evaluation and exploitation of commercial opportunities (Venkataraman 1997, Shane & Venkataraman 2000, 2001)—could apply to various kinds of “real world” phenomenons in Entrepreneurship, such like starting a company, corporate entrepreneurship, or
even becoming a franchisee. Even a person running a “Mom and Pop” corner store might be regarded as someone who still exploits a sustainable opportunity that he once discovered many years ago (see Bygrave 1995, who objects that those businesses should not be part of what Entrepreneurship Research examines). However, in contrast you might also find start-ups which are not based on an opportunity, but rather on necessity. Therefore, two elements of the same entrepreneurial phenomenon (starting a business) may not be applicable to a single definition of entrepreneurship (utilizing an opportunity), but a single definition can be applicable to a broad variety of phenomenons. In general, a phenomenon is built on a group of elements who are somehow similar in their empirical attributes. A theoretical definition can sometimes be applicable for a much broader set of elements than a just a single phenomenon, but at the same time not for each and every single element within a phenomenon.

3.2) Step 2, Level of Analysis: What level of analysis are you interested in?

At least two dimensions are under consideration here, later we can even add more dimensions. First, the phenomenon of Entrepreneurship can affect elements of certain levels on a hierarchical scale, e.g. the personal level, organizational (often i.e. firm) level, regional level, industry level, environmental level, national economical level, and international economical level. In a second dimension, levels are not reflecting hierarchies of elements but of dynamic processes, reflecting initial conditions, processes, context, and outcomes (Aldrich & Martinez 2001). Students should reflect what level they want to address and instructors should advise them to consider multi level analysis, combining at least two or three levels in both dimensions. A study that would not cover a wide span of levels but only a single level (for instance only initial conditions) and not relating its findings with other levels (for instance processes and outcomes) will remain descriptive or explorative in nature at its best. The same holds true for studies examining only outcomes without relating them to any of the previous levels. (Readings: Low & MacMillan 1988, p.151f., Davidsson & Wiklund 2001, Busenitz et al 2003, p. 278f., West 2003, Aldrich & Martinez 2003 and – as just one example of a multi-level/multi-dimensional study – Groen 2005).

Exemplary Hierarchical Levels of an organizational scale:

- international economic level
- national economic level
- regional economic level
- local economic level
- industry level
- organizational/firm level
- Entrepreneurial team level
- Entrepreneur at individual level

Exemplary levels of research into entrepreneurial dynamics:

- Level of initial conditions
- Processes Level
- Level of surrounding conditions
- Level of outcomes (results)

Figure 2: Exemplary two dimensional matrix to organize and combine levels of analysis when starting out dynamic entrepreneurship research.

More dimensions can be added to this model. For instance, it might be suitable to add a disciplinary dimension (see e.g. Herron et al. 1991 and 1992 or Wortman 1987). Research on Entrepreneurship can be undertaken from a solely economical, psychological, sociological, anthropological, or political perspective. It could also reflect merely managerial research. Within each dimension, there are again more levels, for instance the economic approach consist of Neoclassical, Austrian, Institutional,
Evolutionary reasoning and so forth. A multi-level approach would combine different perspectives: For instance a study on a managerial level combined with an economic approach on an institutional level (“Ordnungsoekonomik”, to be precise), and some elements from the level of political analysis could help to understand “rent seeking” processes in start-up support programs. Such a multi-level approach would be sufficient to examine all three parties involved: Entrepreneurs, politicians, and agents of start-up support agencies.

3.3) Step 3, Life Cycle: What phases in the entrepreneurial life cycle do you want to examine?

In Entrepreneurship Research, different phases of the entrepreneurial process can be under examination, from idea generation, business planning, launching, establishing and growing a new venture to exist or sustaining a business or the succession of a family business. Before selecting a phase of interest, researchers should answer the question to what life cycle concept they refer to? Some life cycle models distinguish early stage phenomena like idea creation and business planning, prototype development, the stages of legally starting the venture, market entry, and the later stages of growth and exiting (or retaining) the business. Others refer to the model of opportunity recognition (or creation), development, evaluation and exploitation, others are based on technological life cycles or market cycles. Students should know the different models and take a decision on the stages they are interested in. Models can also be recombined.


Instructors should point out that researching the transition from one stage to another can be extremely rewarding (e.g. like executed by Delmar & Shane 2004 and Delmar & Shane 2004a). For instance it could be examined why so many participants in business plan completion never enter the start-up stage, thus never walking the walk after talking the talk, while other entrepreneurs still do. By the way: A longitudinal research design that tries to follow businesses from early stage to exit might be of great academic value, but—for reasons of duration—might not be applicable for PhD students.

![Life cycle model identifying typical activities, measurements and decisions that are characteristic of certain stages in the entrepreneurial process (figure taken from Wilkinson & Hindle 2006).](image-url)
3.4) Step 4, Research Topic: Which topic / subsequent field in entrepreneurship research are you interested in?

Entrepreneurship research often combines common research fields with the phenomenon of entrepreneurship. Titles of articles published in the field of entrepreneurship often reflect this recombination of Entrepreneurship Research with existing fields of research by combining the word ‘entrepreneurship’ with a second research topic in a way that indicates a certain research context like in: entrepreneurship and finance, entrepreneurship and venture capital, entrepreneurship and networks, entrepreneurship and social capital, entrepreneurship and strategic alliances, strategic entrepreneurship, international entrepreneurship, entrepreneurship education, social entrepreneurship, entrepreneurial psychology, entrepreneurship and economics, and so forth. Step 4 is interrelated with the disciplinary dimension in the previous step. PhD students should build on their existing knowledge and consider their future (academic) career options when narrowing down potential areas. Writing a thesis that is at the interface of entrepreneurship and a second field of your choice might increase your ‘academic employability’. A PhD student who for instance is publishing a thesis on entrepreneurship and marketing might later on apply for academic positions in entrepreneurship as well as for positions in marketing.

However, if Entrepreneurship is to be regarded “as a distinctive field of research” (Low 2001, p. 17, see Venkataraman 1997, Shane & Venkataraman 2001) we will need at least some scholars who take courage to focus on the core of Entrepreneurship (whatever this might be in your eyes) – without adding a justifying little phrase “…and something” behind the term ‘Entrepreneurship’. Dealing with the framework of opportunity recognition or creation, evaluation and exploitation (see Sarasvathy et al. 2005 for a review) can be one way to write a thesis at the very core of our field. Three more examples will be provided by the next step (see Landström & Sexton 2000 for some more suggestions on further research in entrepreneurship).

3.5) Step 5, Entrepreneurship Theory: What entrepreneurship theory or construct do you want to contribute to?

A single Entrepreneurship Theory in terms of a normal science paradigm (Kuhn 1962) does not exist (see Harrison & Leitch 1996 for discussion), yet not even a unifying definition has occurred. (Even though Shane’s & Venkataraman’s (2001) definition gains much attention, there still is criticism and conceptual extension, e.g. by Kumar (2006)). This situation continues since many decades, even so some leading scholars in the field have called for such a unifying framework. Bygrave & Hofer (1991, p. 16) have put forward the search for a deterministic Entrepreneurship Theory, following the role model of theories in physics: „With that kind of predictive power, we would have the key to economic growth! Need we say more!! Entrepreneurship would be the giant of the business sciences, perhaps of all the social science!” (Bygrave 1995, pp. 258f., see Bygrave 1989, Bygrave 1993, Bygrave & Hofer 1991, Fallgatter 2004, and Aldrich & Baker 1997 for a reflection).

It can be doubt that such a single Entrepreneurship Paradigm will ever emerge, due to several reasons. Entrepreneurship is an interdisciplinary field; from which discipline should our framework origin (Fallgatter 2004)? However this decision would be taken, wouldn’t such a decision exclude other disciplines with their fruitful contributions? Would the establishment of a dominant paradigm therefore support or hinder the future development of the field? Entrepreneurship deals with unforeseeable creativity, unpredictable novelty and unanticipated innovation. Could a deterministic theory ever apply to such an ambiguous context? Can deterministic theories altogether apply to social science? As Landström (2005, p. 21, see Landstöm 2000) pointed out: „Entrepreneurship is an inherently complicated and ambiguous phenomenon, and the content of the concept changes over time. Because the phenomenon in itself is complicated, ambiguous and tends to vary, it is reasonable to expect that our definitions of the concept will also be ambiguous and changeable.” Gartner (2001, p. 34) argues that “[t]here is no theory of entrepreneurship that can account for the diversity of topics that are currently pursued by entrepreneurship scholars.” And last but not least, would a paradigmatic theory of entrepreneurship foster or hinder entrepreneurship education and entrepreneurship itself? (the phenomenon called “entrepreneurship”), which exists out there in the field? We know from other context, that sometimes our well-intended, sophisticated theories can destroy good managerial practice (Ghoshal 2005). PhD students should reflect arguments for and against a normal science paradigm in Entrepreneurship Theory. For example, they can outline the contrary positions of Bygrave and Gartner in a group work and then debate in the class room on the pros and cons of the two contrary positions, one group representing Bygrave’s position, the other one taking a stand for Gartner.
Entrepreneurship is still a young field of science (Low 2001). Most leading researchers have entered from other fields (e.g. Aldrich from social science, Audretsch, Davidsson, and Turik from economics, Bygrave from physics, Freese from psychology, Gartner from business administration, Hisrich from marketing, Reynolds from engineering, just to name a few). (See Landström (2005) for a reflection on the phenomenon of academic mobility in the case of Entrepreneurship Research.) Based on bibliometric analyses in a special issue of Entrepreneurship Theory and Practice, Gartner et al. (2006) have noted: “[...] we have observed: entrepreneurship researchers borrow heavily from their home disciplines and retain their academic loyalties to these disciplines.” Therefor again, a single dominant normal science paradigm is yet not expected to get established because of the heterogeneous body of entrepreneurship faculty. Even Bygrave (1995) acknowledged: “We do not want to erect a wall around our field with notice that trespasser should keep out. Rather, we need a fuzzy boundary around the field that posted with welcome signs for scholars who share our beliefs and want to join us and labor in the field of entrepreneurship.”

We agree and we believe that at this stage scientific pluralism (Feyerabend 1975) is much more productive than a normal science status with a strong paradigm (Kuhn 1963) never called for such a paradigm, his work was not meant to be normative but rather solely descriptive). Scientific pluralism can hinder the establishment of normal science status and still boost advances in Entrepreneurship Research. As Gartner (2001, p. 34) mentioned: “The conundrum, as I see it, is that the totality of current academic research does not espouse (nor can it espouse) an entrepreneurship theory, per se; rather entrepreneurship research espouses a diverse range of theories applied to various kinds of phenomena. There is no theory of entrepreneurship that can account for the diversity of topics that are currently pursued by entrepreneurship scholars. […] I do not see a way for scholars to generate a theory of entrepreneurship based on so many different research topics that seem to constitute the field of entrepreneurship. All of the disparate findings that compose our field are unlikely to be connected into a coherent whole.”

However, under the aegis of scientific pluralism scientist need to take responsible decisions on research design. “Anything goes” (Feyerabend 1993, p. 93), but anything does not go at the same time in the same paper or thesis. For Feyerabend, the notion of “anything goes” only addresses pluralism in choice of method and framework. It is a misinterpretation that this notion would be directed against methodological rigorness once someone has chosen or developed a method or has selected or created a framework (Feyerabend 1993 pp. 93f). Hence, decisions need to be taken regarding the framework and the methods. PhD students could either develop their own framework in terms of a new Entrepreneurship Theory, or they could contribute by researching within a given framework, contributing to its validity, reliability, and extension. We suggest the latter: Leave the development of new theories and concepts to the more senior researchers and thereby stick to your last, gain a deep understanding of the existing literature and the structure of the field, demonstrate your ability to contribute to an existing stream of research, achieve solid research results, and save time and reduce risk of failure. The same opinion applies to methods: PhD students may either choose from the broad variety of existing methods (qualitative or quantitative or—preferred—a mix of both — e.g. developing a questionnaire for empirical research based on previous in depth qualitative research) or develop new methods. We suggest leaving the development of methods to the most senior researchers. In a PhD thesis, it is by all means sufficient enough to demonstrate the ability to make best use of existing methods. (We will not address the matter of methods here, see below Step 7. PhD candidates are advised to consult the existing literature on methodological issues and to participate in course work.)

A number of conceptual frameworks in Entrepreneurship have emerged during the last decades. A dominant Entrepreneurship theory does still not exist. But as a result of academic pluralism, we own a considerable amount of non-exclusive Entrepreneurship Theories. This demonstrates how “hard cores” in science (Lakatos 1970) can emerge from years of pluralistic approaches to science. Theoretical frameworks in Entrepreneurship include for instance the constructs of Entrepreneurial Orientation (Covin & Selvin 1986, 1988, 1991, 1993), Entrepreneurial Management (Stevenson 1983/2006, Stevenson & Gumpert 1985, Stevenson & Jarillo 1990, Brown et al. 2001) and Entrepreneurial Effectuation (Sarasvathy 2001, Sarasvathy 2004, Sarasvathy & Dew 2008), just to name three examples. This is a different story than those theoretical frameworks provided under Step 4, where we have considered frameworks and research topics which do not originate from the field of Entrepreneurship Research, but rather have been imported from other fields for combination with Entrepreneurship (e.g. social science in the case of Entrepreneurship and social capital, or strategic management in the case of Entrepreneurship and strategic alliances). Frameworks considered under Step 4 have usually—before they had been adopted to Entrepreneurship Research—been out there for
many years, and have been tested and improved over and over again, like for example in the case of network theory (Kilduff et al. 2006).

By contrast, theoretical constructs which have just emerged from Entrepreneurship need different scientific treatment. For instance they need to be tested for validity and reliability of scales. Some measurement instruments still need to be improved or tested under different cultural or circumstantial influences. Some constructs (like entrepreneurial management) need to be linked with more levels of analyses, e.g. linking the measurement scale of entrepreneurial management with firm performance or outcomes on an industry level or a regional economic level (for example see Kuhn et al. 2010). Our field needs what we call “creative replication” of previous research (see Davidsson 2005, chapter 9).

In addition, it might be a fruitful approach to combine external frameworks with Entrepreneurship Theories. Combining considerations from Step 4 with those from Step 5—i.e. combining theoretical frameworks from other fields with constructs that emerged within the field of entrepreneurship—could lead to promising PhD-theses which for instance would examine “the role of networks in entrepreneurial management”, “the influence of strategic alliances on entrepreneurial orientation”, or “the challenge of entrepreneurial finance within an effectual approach to entrepreneurship”.

Taking into account the current status of reviews and textbooks on Entrepreneurship Theory (not on Entrepreneurship in general) it might be quite difficult to systematically identify all the current constructs in Entrepreneurship theory, especially for new PhD students. Here, we have limited our exemplary sample to three constructs (entrepreneurial orientation, management, and effectuation). Only very few publications address the need of a broad systematic review (e.g. Low & MacMillan 1988, Brush et al. 2003, Acs & Audretsch (ed.) 2005, Landström 2005, and a series of journal papers with a clear focus on reviewing the field called “Foundations and Trends in Entrepreneurship”, edited by Acs & Audretsch (2005-2010). Therefore it currently remains an individual challenge for PhD instructors to clearly and systematically communicate the distinctive constructs which already exist in Entrepreneurship Research.

3.6) Step 6, Empirical Objects: What “real world objects/matter” do you want to examine?

After all those theoretical considerations, it is time to take a break, take a deep breath and then take on the next big challenge. Contemporary research needs to combine theoretical reasoning with empirical analyses. Within the five previous steps, PhD students have defined their research interest. It may surprise some readers that the process didn’t start with an empirical observation. Often, the starting point for defining a research interest is such an observation: Students read about venture capital, or some social enterprise, or the biography of an entrepreneur. Thereby they get interested in this particular topic (e.g. VC, social entrepreneurship, entrepreneurial personality etc.). Students try to craft a research design around that particular interest. We believe that students who follow this simple evolutionary approach are victims to mere chance. They might end up lucky, but they might also get hit by contretemps, unable to complete research. And they may miss opportunities for promising research just because they weren’t aware of the full range of chances for developing meaningful research which existed in the first place.

In case the previous steps have directed towards a study on the phenomenon of new venture creation (step 1) and the transition from the phase of planning the venture to entering the market (step 3), a real world object that would combine individual and firm level (step 2) could for instance mean: “Entrepreneurs who are in the process of launching their first venture”. However, this definition of an object is much too broad. It is important to narrow down this phenomenon. For instance, research could be limited to entrepreneurs who are scientists at non-private universities in a certain state of Germany (or the US, or Australia, or any other country), and who are spinning off technology based ventures in the year 2009, whereby the construct of “technology based venture” is indicated by the use of patents. Now the sample under examination is much more well-defined. The thread of heterogeneity in your data is significantly reduced (Davidsson 2008, Davidsson 2005, chapter 5) and the outer conditions at the macroeconomic and the institutional levels are standardized. The likelihood that empirical variance in entrepreneurial outcomes has been influenced by variables under examination—and not by uncontrolled randomness—has increased (see Gartner 1995, p. 71). This also means that the precise definition of the research object will allow formulating precise—and thus testable—hypotheses in the further progress of a PhD study.
3.7) Step 7, Motivation: What is your personal philosophy about you doing research?

"Instead of socializing doctoral students into the current chase for A-listed journal publications, why not attempt to fuel their natural desire to make a difference?" (Adler & Harzing 2009, p. 88).

Most researchers have their personal motivation for conducting research. For instance, some want to provide results with strong practical implications; others care more about theory development. Most are primarily interested in the object they study. To them, methods are nothing more than means to an end; others again love to face the challenge of methodological development. Some get their motivation from the object they study (a trend recently surveyed in social entrepreneurship) or from the theory of their belief (a trend recently surveyed in effectuation). Both situations (being obsessed by the object of study or the theory of belief) can lead to a lack of critical thinking. A reflection on the personal motivation can help avoiding this human weakness. Some researchers are motivated by the end of the mean: to obtain a doctoral degree. This can lead to brisk progress, but also a lack of thoroughness. Whatever a student’s philosophy is, he or she should make it explicit. Personal goals and motivations should influence the research design in a positive way while consciously avoiding possible negative consequences.

A research design that is not aligned with the personal motivation can be a pain; a pain that will probably stick to the PhD student’s neck for many years. Not to mention that the experience of “academic freedom” is hardly to be made if someone works on a research project he or she can’t identify with. We know that some PhD instructors argue that life isn’t fair and that they can’t execute their obligations from third party funding if they leave such decisions to their PhD students. Not the personal motivation—they argue—but rather the imperatives of the research institution determine research designs (see Wicks 2004, Rynes 2007 (Editor-in-Chief Academy of Management Journal) and Nkomo 2009 for discussion). Such thinking may apply for professional research associates in post PhD positions. They earn their money by executing research of all kind, it’s their job. PhD students in contrast should be encouraged to follow a more idealistic road, since most of us take their PhD only once and feel emotionally committed to this process.

3.8) Step 8, Literature Review: Do you really know the literature in your field of interest?

Students are asked to read through the existing literature according to their interests as indicated by answers to question 1 to 7. “Reading” in science means to first generate economies of overview and then to critically read and interpret the literature in order to identify weak spots and research gaps. A first step is to realize how much contributions already exist and to find technics to deal with the amount of existing literature. Besides searching online data bases like Ebsco Host, PhD students should physically go to the library and spend some time on a discovery journey. The literature can be brought to a certain order to gain maximum insights in minimum time. Therefore, students start to read publications on the development of the field (including articles on theory development and methodological challenges) and review articles, starting with the older contributions working their way to the present. In a second step, meta-analyses are under consideration. In a third step, the vast majority of remaining articles are screened. In many cases, the number of available publications is so big that it is just impossible to read them all. For instance, approx. 1,500 articles have been published on entrepreneurship and networks (Sassmannshausen 2010). Students can identify the most cited publications using Google Scholar. All other articles can be screened by the abstract. If the article seems to be an important contribution, the introduction and conclusion should be read. Then it can be decided whether or not to read the full paper.

Reading needs guidance and support of experienced instructors who know the literature. To train students’ abilities in the art of critical readings, instructors should discuss some of the readings with their scholars in small group settings. Only thereafter students should spell out and write down their research question. Just writing it down can already be an iterative process of several hours spend on narrowing down, making it precise, fighting with heterogeneity, taking into account literature that has not been evaluated earlier etc. And still, a research question will not be finalized in just a few hours. Instead, the formulation will be revisited several times during weeks of the research process.

3.9) Step 9, Methodological Choices: What methods are applicable to address the issue you have chosen?

The aim of a study should determine the use of research methods—and not the other way around. We will not go into detail here. We have already referred to methodological literature and course work. (A
very useful textbook is Blumberg et al. 2008: It comes with a CD that—amongst other content—contains decision trees which help to select adequate quantitative methods.) The number of methods is almost without limits. Some debate over qualitative or quantitative research. We argue that this is not an “either/or-option”. Scholars could rather start out conducting qualitative research to gain an understanding of the empirical object under examination (including the identification of a set of influential variables) and to explore the boundaries of the phenomenon. Thereafter well-grounded quantitative research can produce insights especially about how the various variables—which have been identified by the qualitative approach—interact in total. PhD students should use the opportunity to demonstrate their skills in both approaches. To show that a candidate really understands the methods seems to be more important than questions of sample size and other common methodological issues. Good qualitative studies are in no means inferior to quantitative work. However, it is sometimes harder to get them published, especially by so called ‘leading’ journals.

Besides the common general literature and text books on methods, there are some articles and books that especially address methodological challenges in Entrepreneurship Research. Typical challenges are such like: the definition of statistical groups (e.g. who is an entrepreneur?), problems with official statistics on the number of start-ups (over- and under-coverage, i.e. the establishment of the legal body of companies are registered, but not every company that is registered really is starting operations), the challenge to find and measure appropriate variables of “entrepreneurial success”, the special need for case study research in Entrepreneurship or the problems that occur when using methods that are based on a statistical average (not saying that such research shouldn’t be done, but it should be execute with care, and its limitations should be well reflected) and so forth. We recommend paying attention to those publications. (Readings: e.g. Van de Ven & Ferry 1980, Carland et al. 1984, Bygrave 1989, Gartner 1989, Hofer & Bygrave 1992, Chrisman 1994, Johannisson 1995, Davidsson &Wiklund 2000, Chandler & Lyon 2001, Gartner & Birley 2001 and the subsequent articles in their JBV special issue on qualitative research, Storey 2002, Hindle 2004, Davidsson 2005, Wilkinson & Hindle 2006, Gartner 2007, Davidsson (ed.) 2008).

3.10) Addressing Organizational Tasks: Asking practical questions!

Only now, after working through all the previous questions, students should address two groups of practical question: (1) urgent technical and (2) important strategic questions. The first group consists of questions such like: Where to get data from (make or buy-decision)? How much time and resources to spend? How to fund and execute empirical research? Sometimes, entrepreneurial spirit (e.g. the ability to work around bottle necks) is needed to find convenient answers to such questions. Practical issues have been real obstacles only in sporadic cases. Thus the need to redefine a project will hardly ever occur since in most cases small adjustments of the research question will already allow to continue with the PhD research process. (Curran & Blackburn 2001 provide valuable recommendations on how to address practical problems in research on Entrepreneurship and SME.)

The second group of questions addresses some more important strategic considerations: Who will benefit from (or be interested in) the results? What publication strategy could work well with the thesis? Which journals would care? In how many subsequent articles can the research be divided for multiple journal publication? Students will notice that those strategic questions can be easily answered after following the “Ten Step Heuristic”. If not, then it is likely that something went wrong on your way. In this rare event, especially Step 1 to 6 need to be revisited. In general, students have worked successfully through the “Ten Step Heuristic”, if they can provide answers to all twelve areas that are included in a checklist for good research practice provided by Hofer & Bygrave (1992), p. 92.

4. STEP ZERO – ADDING A “SECOND LOOP TO MATTER MORE”

“…much academic research is rigorous but irrelevant”
(Adler & Harzing 2009, p. 80)

The “Ten Step Heuristic” is not a replacement for other guidelines. It’s complementary to existing conventions. We especially agree with the notation that scholarly research should – in the best case – be rigor and relevant (Vermeulen 2005, Tushmann & O’Reilly III 2007). The scholarly contributions of doctoral students do not need to remain “insignificant” (Vermeulen 2007, p. 754). Our systematic approach to defining research questions can help to add significant impact to the findings of a PhD-thesis. Davidsson (2002) has described how Entrepreneurship Research can gain relevance and impact.
For the purposes of relevance and impact, in some cases a “Step Zero” needs to be implemented before taking on with the following ten steps: PhD students who have no entrepreneurial family background, have never been entrepreneurs, have never met and talked with “real” entrepreneurs, or worked inside a start-up or VC company, should “add a second loop to matter more” (Vermeulen 2007, p. 754). This loop consists by making hands-on contact talking with entrepreneurs and/or hands-on experience working with (or for) entrepreneurs/start-ups.

We all have witnessed rare cases of young researchers presenting self-humiliating papers at conferences, stating totally unrealistic assumptions about (and implications for) ‘the reality of Entrepreneurship’. They build their ‘holistic’ picture solely upon statistical measurements from just one single (but somehow significant) sample. (Not to mention a missing methodological consciousness for a typical lack of normal distribution in our samples). But locked inside their ivory tower (locked by well-intended instructors who want them to rapidly produce positivistic papers), they have never met, spoken or worked with a ‘real’ entrepreneur in person. And the empirical results and their interpretation of data seem somewhat wrong-headed to those who know Entrepreneurship from firsthand. In such situations, we have always felt both sorry and angry. Sorry for the candidate and angry because obviously no instructor took care of correcting specified misperceptions. Entrepreneurship is about exceptional actions. Thus, Entrepreneurship should not be defined by a statistical average; indeed, the ‘average’ start-up and the ‘average’ entrepreneur maybe are the least interesting ones. Much more can be learned from the actions outliers took, than from the practice of the average. We recall Gartner’s notation (1995, p. 75): “there is no average in entrepreneurship”! (See e.g. Bruyat & Julien (2000) for a discussion of the advantages and disadvantages of both, positivism or constructivism, in the field of entrepreneurship research.)

We therefore strongly recommend ensuring that young researchers get into contact with entrepreneurs, learn about their spirits and fears, share their workload etc. In a word: send them to the field! Participating in consulting / coaching entrepreneurs together with a senior consultant and/or writing a case study (conducting the interviews, joining entrepreneurs in meetings inside and outside their start-up, observing them while they execute tasks, structuring the case etc.) together with a senior researcher are two valuable approaches to provide firsthand real world experience. It takes no more than one to three month to gain deep personal insights, but it adds a lot of understanding, esp. in those research students who never have been in contact with Entrepreneurship before joining the academic career path (see Bjerke 2007 for an extensive discussion on “understanding entrepreneurship”). Vermeulen (2007)—in his paper on rigor and relevance in the “Academy of Management Journal”—called this approach of close exchange with practitioners “the second loop to matter more”.

To sum it up: In general, in our opinion, all PhD students should at least make some little experience in qualitative research before moving on with quantitative research designs. They should also gain firsthand insights into entrepreneurial activities. Assisting in consulting, coaching or in case study projects, or conducting semi structured interviews (for the purpose of their own research) are just a few promising approaches which only consume little time at the beginning of a PhD process.

5. CLOSING REMARKS AND CONCLUSION

We would like to address a number of issues in a closing remark: First, we have found this “Ten Step Heuristic” a useful road map. It was successfully tested at our school. It helps not to miss important decisions early on and not to act unaware of the structure of the field. This heuristic assists in narrowing down research interests and provides structural guidance. Applied in various places and programs, it would help to establish some common mental constructs that might be referred to as “hard cores” of research in terms of Lakatos (1970) and therefore add to the academic viability of Entrepreneurship Research (see Fallgatter 2004). However, it is not designed to take away the need (or burden) of individual decision making from doctoral students. It’s rather designed to train young scholars in making best use of the freedom of academic decisions and to encourage instructors not to further reduce academic freedom, but to pass it on to the next generation of bright scholars.

Accordingly, reading through this article, some may have noticed with surprise that we didn’t discuss theoretical sound definitions of Entrepreneurship, and how PhD students can select the ‘right’ definition. Shouldn’t students define what is meant by the term “Entrepreneurship” as used by their theses? Yes, clearly they should. However, we do not intend to predetermine PhD students’ decisions on what entrepreneurship definition is the best for their purpose. After working through each of the ten steps, the question should be easily answered either by selecting an applicable definition from those hundreds of entrepreneurship definitions that are already out there, or—in case none of these
definitions suites well—by creating a new definition. Consequently there is no single step that suggests how to make a decision on choices of theoretical entrepreneurship definitions. (Step 5 was on testable constructs and theories in entrepreneurship, not on definitions!) The preference for a certain definition is usually resulting from the whole process of the Ten Step Heuristic. Or like Gartner et al. (2006, p. 327) have coined it: “Entrepreneurship scholarship is what entrepreneurship scholars pay attention to.”

Second, if one reads through the list of references, he or she will notice that most of the literature—literature that might be regarded as “mile stones” defining the aim and scope of the field—was not published in our leading journals of entrepreneurship research (such like Journal of Business Venturing) but rather in other leading management journals like Academy of Management Review, Academy of Management Journal and Journal of Management. On one hand side, it is notable that Entrepreneurship as a distinctive field of research gains so much attention by leading management journals (see Busenitz et al. 2003). On the other hand, it is a challenge to our dedicated entrepreneurship journals: Shouldn’t they contribute more to the theoretical foundations and development of our field? (This seems to be true especially for the Journal of Business Venturing, were as Entrepreneurship Theory & Practice has made some more fundamental contributions to theory development).

Third, this paper has some limitations. It does not refer to all literature that might be regarded ‘mile stones in Entrepreneurship Research’. PhD instructors may feel free to extend the list (Brush et al. 2003 suggest some lists of literature for course work in PhD programs; the lists are organized by disciplines). PhD instructors may also feel free to change the order of some of the ten steps (but not to the reverse order of the whole process!) or to add additional steps. As reported earlier, this contribution reflects experience from a ‘good practice’, and a good practice might not be mistaken for ‘(the one and only) best practice’. It is a heuristic that can (and often will) lead to good results, but it is not a logical determinism that will always and under all circumstances produces best results.

Fourth, this road map is designed to help PhD students, not to rule them. Students may take detours or decide for a different route. We allow for detours and different routes, because we believe that this will help to achieve a “critical mess” (Gartner 2004, p. 199, see Gartner 2006a and 2006b) in Entrepreneurship Research. In his work and much to our surprise, Gartner does not quote Paul Feyerabend. However we do so, believing that scientific pluralism improves the critical power of science (Feyerabend 1975, 1979, 1984, 1999). In our opinion, scientific pluralism does so especially in a multi-faceted area of interest like entrepreneurship, which involves entrepreneurs’ “rule breaking behavior” (Knyphausen-Aufseß et al. 2006) and which might only be tackled down successfully by interdisciplinary efforts (Herron et al. 1991 and 1992, see Harrison & Leitch 1996). It might surprise some readers that we agree with Lakatos and Feyerabend in the Conclusion of the same paper, but we assume that there is some truth in both points of view. (Maybe this is the reason why Feyerabend and Lakatos battled each other so hard (see Feyerabend 1999).)

So, where ever the journey of researching entrepreneurship will take you: Have fun and enjoy while being productive in either way, following Lakatos or Feyerabend!

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