



# The Non-existence of Failure

talents, education and exits of entrepreneurs

Matthijs Hammer

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## Title

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## Matthijs Hammer: an entrepreneurial and researching teacher

# Peter van der Sijde

Professor of organization, entrepreneurship and technology, VU University Amsterdam

It hard to characterize Matthijs Hammer. He was entrepreneurial in the true sense – he saw opportunities and not only that; he took them! But ... from all the meetings and conversations I had with Matthijs one thing stood out for me: he is a teacher. I always had the feeling that he was so committed to research because he wanted to improve himself as a teacher. So, for me Matthijs was an entrepreneurial and researching teacher.

### Meeting Matthijs

I first met Matthijs around the year 2001. He was busy finishing a project on coating technology (Matthijs was a chemist by training) and during that time we first spoke about his plans for a Ph.D. and the topic circled around “stakeholders” and “stakeholder management”. After that it took some time before we met again – of course we met many times at Saxion where we both worked – but we really met again when he joined the Small Business department. I think that around the time he joined that department I left Saxion. After I left, Matthijs embarked on his research career next to all his teaching duties (he was a very dedicated teacher) and hope that somewhere along the line he could write his Ph.D. thesis. Unfortunately, this was not to happen.

Although Matthijs started his research project after I left Saxion, our paths have crossed many times: sometimes he would ring me and we set up an appointment for a meeting, sometimes we met at a conference. The last time we met was at the farewell conference for Theodor van de Velde, together we did a workshop on “entrepreneurially doing a Ph.D.”.

### Matthijs’ research

The editors of this book have divided Matthijs’ work into four major topics. I think Matthijs would have appreciated these topics, because each topic is rooted in his love for working with young people (read: students) and teaching them about entrepreneurship. Looking back on his publications I think that one issue concerned him most: What makes a successful entrepreneur? Although entrepreneurship entered his professional life “only” about 15 years ago, he was fascinated about this. And how he could play a role in this as a teacher and to be a good teacher, he had to know about these things not only from studying the literature, but also by studying and researching it first-hand. This brought him to study entrepreneurship and entrepreneurial education – how can we best teach our future entrepreneurs, what are best practices in entrepreneurship education?

Students were the center of his attention:

- How can we best prepare students for a career as an entrepreneur (entrepreneurship education)? We had many conversations on this topic and especially how education could be improved – especially the Small Business curriculum. He initiated and embarked on many studies: e.g. what do students learn in a Summer School on entrepreneurship and how to teach entrepreneurship. Examples of this type of studies are incorporated in this book.
- How can we help students to make the right decision to become an entrepreneur and how can we equip them to become better entrepreneurs? Matthijs had an interest in how to spot entrepreneurial talent among students, but he also had an interest in the “other side” of entrepreneurship: failure and exit. The topics of failure and exit are (still) rather new topics on the entrepreneurship research agenda. Matthijs’ work contributes to this topic.
- Regional development. Saxion took the lead for an OECD-study – The role of the university in regional development – in 2005. A small team, of which Matthijs and I were members, was formed to manage the project and write the so-called “self-study” report. As a team we collected information on the region, invited experts from the University of Twente to participate in the study and together we produced a report on the Twente region. I think this sparked Matthijs’ interest in this topic and see thing also on a larger scale: the regional scale. This project connects him with the topic we talked about in the very beginning: stakeholders and stakeholder management. The study of the interface between higher education and the business world was one of the topics he published about.

Of course, there are crossovers between his topics and “spin-offs”. Matthijs was very well aware of the many spin-off which are created by Saxion as well as the University of Twente. One of our last conversations was about this topic and how his database of companies could be used for research.

### Matthijs as an entrepreneurship researcher

Above all else Matthijs was a networker, he always found opportunities to work with colleagues. He was always prepared to share his insights with his colleagues in Saxion and around the world.

# Entrepreneurial Education

# How Business Management benefit from Entrepreneurship

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*Abstract: In this paper, the dominating models of Business Management are listed and their effect on business is stated. It is argued that in the last decades, no new models enriched the toolkit for this field, although economy alters permanently. Because of her promising impact on economic growth, the characteristic of Entrepreneurship is examined. Theories are explored to find clues on how to benefit from this phenomenon. Based on field experiments, evidence is shown that Business Management can benefit from Entrepreneurship when adopting the learning methodologies applied. It will be for this reason that Entrepreneurship will emerge in all European curricula, as is included in the Budapest agenda for enabling teachers for Entrepreneurship Education.*

*Keywords: Business Management, Entrepreneurship Education, Effectuation*

## 1 Introduction

When scanning the list of compulsory academic learning books of Business Management and the literature list of those books, over time, just small changes show up. This phenomenon is contradicting to the turbulence and economic impact of the Business Management profession for it is directly involved to the economic system and underlay in many situations influences from politics of all levels; local up to world politics. When taking a holistic approach on an organization, the management of it, public or private, is responsible for the achievement of its goals. Therefore, a lot of research, consultancy and education is available for them. The date of the origin of the models used on strategic levels is decades before the last millennium change. On the operational level, many scholars and consultants do come up with new models and insights, however mostly based on case studies [1]. In this article first the evolution of existing Business Management models is studied where after the phenomenon of Entrepreneurship will be explored and benchmarked to the existing models. In the second section the use of entrepreneurship for Business Management will be discussed and both, scientific and practical evidence is provided for a new way to

support Business Management in their responsible task to develop our economic growth on a sustainable basis.

### 1.1 The lack of evolution of Business Management models

The demand of markets and society constantly changes. New canals of marketing are introduced (e.g. internet, social media), the management of personnel has become more faces (e.g. more participation and responsibilities) and the logistics (i.e. the distribution of information and goods) has changed significantly over the last decades (e.g. by the exploitation of the internet and its developments). Contradicting, Business Development seems to adopt only marginal changes to fulfil the changing requirements of the market. A reason for this can be found in the evolution of the organizational blueprint. From high tech firms it is known that the organizational blueprint of an organization barely changes over time [2]. This suggests that on the strategic level, the used insights and models scarcely evolve over time. The mainstream of business literature descends from the late last century. For example the models en insight of Abell [3], Deming [4], Mc Gregor [5], Mintzberg [6] and Porter [7] are still leading at academic courses. But is the fixation to the organizational blueprint at high tech companies a good reason not to evolve to new business insights, and get or keep the competitive advantage necessary for business survival? To keep up with the velocity of the economic development, Business Management seems to need an alternative route. A recent study on the achievement of business success of actual strategic management models, show that there are substantial limitations on them [8]. Most of the models are based on a causal construct, founded on uncertainty reduction by history-data processing. In their research Chandler, DeTienne [8] studied entrepreneurs when creating new ventures and found that they experienced limitations with the toolset of established models. In the next paragraph it is argued that there might be other routes to achieve more success in Business Management.

### The coming of entrepreneurship

When studying the economic system, besides the established firms, new ventures do call for their role as well. For decades, more and more evidence is found to support the assumption that new ventures, small businesses and entrepreneurship are a major factor on economic growth [9-14]. Therefore, the phenomenon of entrepreneurship is studied by many scholars. First scientists tried to identify what entrepreneurship was; was it a gift, talent, attitude or even a genome? At the end of the last century, the field of study was more from the social science and psychology. There was a strong belief among scholars that entrepreneurship was something with personal traits and the psychological mind-set of a human being. After the work of Scott Shane [15], which was the most quoted article of last

decade, the research on entrepreneurship shifted toward behaviour and economic [16]. Shane and Venkataraman proposed that entrepreneurs are human beings, following a process of opportunity recognition, preparation and exploitation [15]. Based on this finding, scientists tested and extended the entrepreneurial process. They now had a landmark from where further research on entrepreneurship was emerged and how it can be stimulated. From several scholars it is known that entrepreneurs differ in attitude and proceedings from managers [12, 17-20]. For this reason an anchor for fostering entrepreneurship can be found in the person of the entrepreneur [21-23] and in the process of entrepreneurship [15, 24, 25]. From these findings it can be deduced that an entrepreneur is a different person than a normal manager or professional. This should imply that there should be a difference in how an entrepreneur acts in a boardroom of an enterprise. Many scholars in the last decades tried to identify what the secret of the entrepreneur, or the entrepreneurial behaviour could be. First evidence of this was found by Saras Sarasvathy [26], which research initial met some scepticism. Later it became more common knowledge and their findings were used for further research. Sarasvathy discovered that enterprising persons think different then managers. In her research, she asked 34 successful enterprising managers of successful ventures, from different branches, states and sizes, to solve a business problem. As a research methodology she used the 'thinking aloud' technique, where it give an indication on what was happening in the mind of the entrepreneur, solving the business problem. From the transcripts of these sessions, a model of entrepreneurial thinking was build, known as effectuation. Effectuation is seen as the opponent from causation, which is the most common way of thinking in society. In figure 1, the significant differences between both are listed. The main different between the two approaches, is the underlying logic of thinking. Causation assumes that: 'to the extent we can predict the future; we can control it'. Effectuation assumes that: 'to the extent we can control the future; we don't need to predict it'. This different way of looking and approaching a situation was the main outcome of the research of Sarasvathy. Now we know that entrepreneurs work among the entrepreneurial process [15] and are thinking in a different way [26], the next question is in what way a business manager can benefit from it? Is it e.g. possible to get trained in this and can it be learned? In the next section these questions will be answered.

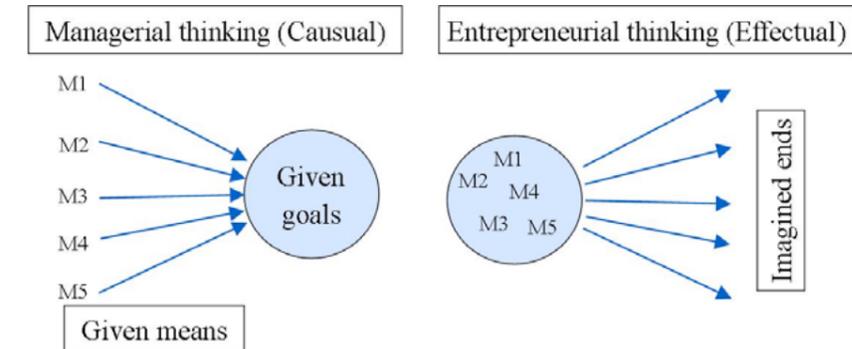


Figure 1  
The causal vs. Effectual reasoning

## 2 Can entrepreneurship be taught?

This question is difficult to answer. Of course, it is possible to study what an entrepreneur is and what he is doing. Though this is not a guarantee that there will be an effect on the behaviour of the student nor that a possible effect is shown because of the educational program. According to Bloom's taxonomy [27] the learning of the models and theories should be enough to be a good entrepreneur. However, studies that are more recent show that this is not sufficient [28]. The extended sustainability of knowledge and the initial change of behaviour can only be achieved by using multiple elements of pedagogy and andragogy. A second reason why established programmes do not meet the requirement for entrepreneurship is the assumed context of the venture. In the actual used business models the future is predicted, based on situations in the past [29]. More recent studies show that business is unpredictable (e.g. [30] and [31]). This means that a business manager cannot rely on statistics and benefits from the past. To be enterprising means that a change of attitude. Both, more aware of opportunities and the internal power to bring them to action [32] and reasoning, from causal to effectual [33], is needed. According to Gibb [34], the curricula of an academic programme need to be restyled from scratch. Students need to experience the real-life situations of an entrepreneur. Not only the success, but also the experience of failure contributes to a more successful entrepreneur [34, 35]. The circumstances of the entrepreneurial education exhibit similarities to processes in nature. When making a comparison to nature, interesting outlooks can help to understand more the complex impacts of these findings. The educational process of an entrepreneur for example, is like the one of a falcon, where the traditional education process is

comparable with that of a goose. In the recent history, geese were raised for the production of their liver. For this purpose, the farmer was deciding for the goose, what food, how much and when to eat, geese who behave 'difficult' lived shorter. The effect is that the farmer created an animal that was dependent of the decisions of others and could not make decisions for them. In opposite, the falcon only feeds the baby which is shouting the most for food. If a baby did not shout loud enough or not at all, he lived shorter. This creates the situation that only those who are aware of opportunities and are able to exploit them, will survive. This short parable poses that entrepreneurial behaviour can not only be stimulated in practice, but can also be influenced negatively by using the wrong pedagogic instruments.

### What is found in practice?

With this knowledge, several universities designed educational tracks to gather information on this topic [36-38]. Many of the programmes are longitudinally monitored on the program-students as well as a control group with the conventional programme. Both groups consist of technical and business students. Preliminary results from these experiments show that there tends a positive relation between the achieved increased Entrepreneurial Intention [36] and entrepreneurial self-efficacy [37-39] can be taught to academic students with positive effect on entrepreneurial behaviour and success. For this reason, the adaption of entrepreneurial education methods can be fruitful for business Management. In the last years, the European Commission acknowledged the importance of entrepreneurship in general and Entrepreneurial Education in particular. During 2004 and 2005, the OECD held an evaluation on the contribution of higher educational institutes toward the regional development, where Entrepreneurship came out as one of the most important elements [14]. In October 2006, the Norwegian government and the European Commission, established a framework to implement entrepreneurship throughout Europe [40]. Last year, this programme evolved to the Budapest Agenda on Entrepreneurship Education [41] where the roadmap for an European wide introduction on compulsory Entrepreneurship Education was focussed on teacher education. Later, in 2012, this Budapest agenda was extended to specific methods on how to realize this Budapest agenda [42].

### Conclusions

Based on the research described above, Business Management studies can benefit from entrepreneurship education methodologies. The current, old fashioned models, do not meet the actual business environment anymore. The adoption of an entrepreneurial approach of the learning process and the knowledge of entrepreneurial methodologies as effectuation seems to be practical aspects to start. Evidence from research on students as well as the actual policy of the

European Commission, indicates that this might be a good alternative to achieve or maintain an competitive advantage in business.

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# Teaching Teachers in Effectual Entrepreneurship.

RUUD KOOPMAN, MATTHIJS HAMMER, ARJAN HAKKERT

## Abstract

Entrepreneurship and entrepreneurship education is seen by all kind of people to be important for economic growth. Teaching entrepreneurship needs another approach. Active learning and the constructivism is mostly seen as essential. Other elements that are influencing the teaching process are the competences, the culture and the teacher. So the teacher must be capable of using other methods and theory as he is used to. Effectuation, constructivism and andragogy are the key elements for the training of entrepreneurial teachers. From that perspective there has been made an education program that will start in September 2013 for teachers at universities of applied science. Until that time there are being held some minor experiments on parts of the program.

## Background

Entrepreneurship is often seen as an important factor of economic growth. (Minniti & Lévesque, 2010; Thurik & Wennekers, 2004; Zalan & Lewis, 2010). Policy makers are consequently interested in this field. There is also an important link between entrepreneurial education and entrepreneurial activity (Raposo & do Paco, 2011). Apparently there seems to be consensus among policymakers, academics, researchers and economists that Entrepreneurship Education is probably the way to contribute to economic growth (Gibcus, Overweel, Tan, & Winnubst, 2010; Khan, 2011). Educating entrepreneurs needs different methods as the 'conventional' way of education, as demonstrated by Allen Gibb (1996) and Alain Fayolle (2006). In figure 1 the main differences between both learning methods are shown.

Figure 1. Conventional and enterprising teaching approaches

Conventional approach	Enterprising approach
Major focus on content	Major focus on process delivery
Led and dominated by teacher	Ownership of learning by participant
Expert hands-down knowledge	Teacher as fellow learner/facilitator
Emphasis upon 'know what'	Emphasis upon 'know how' and 'know who'
Participants passively receiving knowledge	Participants generating knowledge
Sessions heavily programmed	Sessions flexible and responsive to needs
Learning objectives imposed	Learning objectives negotiated
Mistakes looked down upon	Mistakes to be learned from
Emphasis upon theory	Emphasis upon practice
Subject/functional focus	Problem/multidisciplinary focus

(Gibb, 1996)

To establish an education process first there must be set a goal to reach. To reach that goal you have to know what situation you are in. That is the situation of the student, but also the culture he is living in. After that choices have to be made about setting up a teaching process which consists of the curriculum, methods, education activities and education tools. That teaching process is influenced by the teacher.

After the teaching process there should be an evaluation about the reached goals (Berghe et al., 1973; Gelder, Peters, Oudkerk Pool, & Sixma, 1972).

Walter and Dohse (2012) indicate that education methods (active modes) are (positive) influencing the entrepreneurial education. This is also supported by Neck & Green (2011) as they conclude that the education structure requires a new approach based on action and practice. Whereas Mathews (2007) argues that constructivism leads to learning that is action-based where learners construe or make interpretations of their world through interactions in the real-world. Walter and Doshe (2012) also conclude that regional context (culture) moderates the entrepreneurship education.

It is also argued that entrepreneurship needs other skills or competences (Binks, Starkey, & Mahon, 2006; Groen, Weerd-Nederhof, Kerssens-van Drongelen, Badoux, & Olthuis, 2002; Kutzhanova, Lyons, & Lichtenstein, 2009; Leitch, Hazlett, & Pittaway, 2012). Based on this, figure 2 is made, where the influences on the entrepreneurial teaching process are shown.

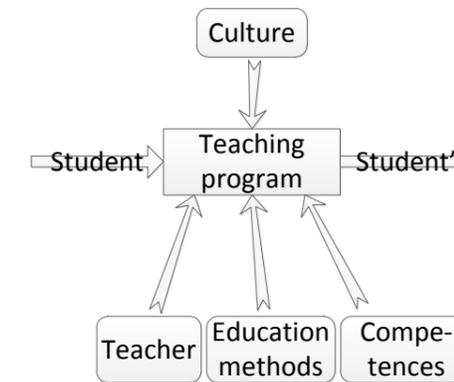
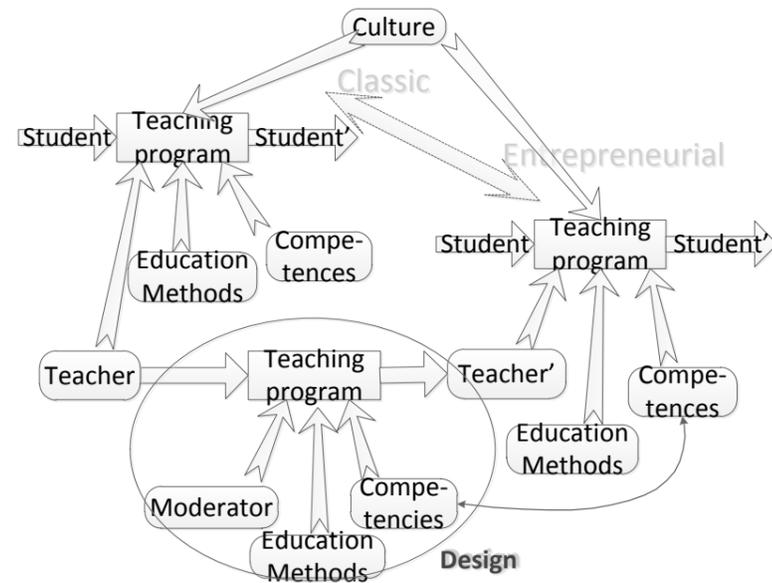


Figure 2. Influence on the entrepreneurial teaching process

As argued above teaching entrepreneurship needs a different teaching process. These differences are most influenced by the teacher, the education methods, the needed competences and by the culture of the society. As teachers are very important to the way students learn about entrepreneurship we focus in this program on the teacher. Because of the change in the education process of students, teachers need to change with it. This 'changing process' of teachers has the same structure as the education process of students. This leads to the model in Figure 3.



**Figure 3. Change from Classical- to Entrepreneurial Education**

In this figure is shown that the education process of students changes from classical to entrepreneurial teaching. This indicates a change for the teacher to be capable of teaching in that new situation. The authors place the teacher itself as a subject for change. This teaching program is the focus of the design in this paper. This leads to the following goal for the design:

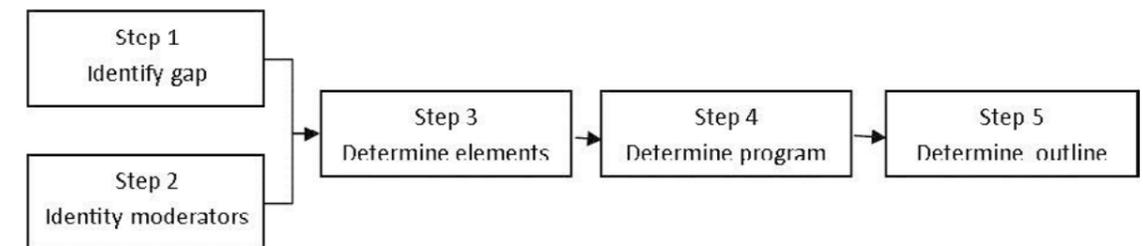
***Design an education model that educates teachers to change from a conventional approach to an entrepreneurial approach.***

For this design we define some preconditions which are considered as design requirements. For methodology we choose effectuation (Sarasvathy, 2009) which is accepted as a typical approach for an entrepreneurial attitude. That's why effectuation is the leading principle for this design. This doesn't mean that this is the only way. Most of the teachers were educated with traditional methods of venture creation. As this program is designed to add something to the 'classical teacher' we focus on effectuation. Another focus is that on entrepreneurial thinking (Koch-Polagnoli, 2010). Focusing on this means that the choice between entrepreneurial self-employment and professional self-employment has not been made. That makes the teaching program suitable for almost all kind of teachers and therefore useful for all kind of education processes. The program should fit into 6 days of training. The same amount of time can be used for preparation. The way the education is implemented in schools is open and should not be bound or limited by other programs.

Because the program is not realized at the time of submission, the authors present the design. The design is delivered as the design process, design of the program self and the realization design.

### Process design

To come to the design of the program, a design team was formed with teacher educators, a curricula designer and a specialist of the effectuation methodology. The team sequences a five step process (figure 4) after which the realization design was decided.



**Figure 4, design process**

In the first step, the team indicated the gap between the normal teacher and the entrepreneurial teacher (Teacher'). Considered that the normal teacher is known, the configuration of the entrepreneurial teacher is investigated as is the proposed result of the designed program. For this purpose semi structured interviews are conducted with experienced teachers of entrepreneurial teaching programs and entrepreneurial teachers. Both in programs based on the methodology of effectuation as one of the design requirements. Focuses in these interviews are the moderators of the teaching process: culture, knowledge, instructor and teaching methods. In the second step recent literature is studied to identify the latest insights of the moderators of the teaching process: the competences and educational methods. From there the competences and methods are chosen. In the third step the design team indicated the appropriate teaching elements and assembled them to individual program elements. In a design meeting several creative techniques are used for this purpose. In the fourth step, on another day, the individual elements are being put together to a program for teachers by linking the individual program elements. From this framework, the course outline was made in the fifth and final step. The result of this process is presented in the object design paragraph below.

### Object design

The teaching process for teachers is designed in such a way that teachers learn how to educate students in an entrepreneurial way. This is been done in groups of teachers, which is also called a community of learners (Duffy & Cunningham, 1996), that has been formed around the topic of entrepreneurial teaching.

The design team has indicated the appropriate program elements. These are a variation of knowledge and skills. The following elements are derived during the third step.

- Effectuation knowledge
- Effectuation skills
- Constructivism knowledge
- Constructivism skills
- Andragogy knowledge

The teaching method consists of active learning. This means that besides the 6 meetings there is also a large amount of time needed for preparation and practicing what is learned. The preparation is focusing on the individual situation of the participants. The trainings are held every 2 weeks so in between there is some time to practice with what is learned during the training. There is also some time then to prepare the next training. It is very important that each participant takes some time to exercise and prepare the training to make it most effective.

### Course design

The change to entrepreneurial teaching, as shown in figure 3 means that teachers need to know about theory and how it is used. After the knowledge about what effectuation is, all principles of effectuation are being used in individual assignments. In figure 5 this is shown in a scheme. As constructivism is the main teaching method, there is also quite some focus on that. Before they get to know about the theory of constructivism they first are going to work with it. This fits to the teaching method of constructivism (Mathews, 2007). Then after some theory, constructivism is being trained further. Also some knowledge about Andragogy is useful, these skills are incorporated in effectuation and constructivism. After each theory lecture the next session this theory is being tested. And at the end all the skills are examined.

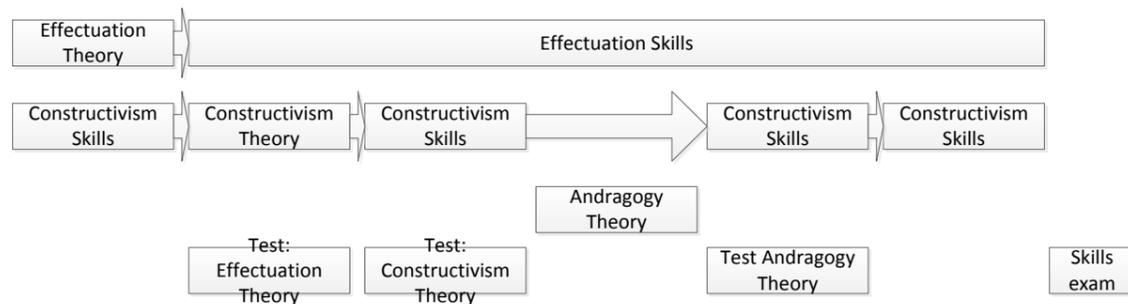


Figure 5 Course scheme

### Course outline

This is the further elaboration of the course design. Here we schedule the headlines of the teaching program. In figure 6 is this shown in a schedule.

The program starts with a preparation of a constructivism based lecture without any lecture on this item. Then the first session is being used to explain the theory of effectuation. This theory consists of the (research) history of effectuation, the 5 principles of effectuation and the influence of effectuation on entrepreneurship. The second part of this session goes about prepared lecture and what the effects of those are on the learning methods. Also the knowledge of the participants of constructivism are being discussed.

The second session starts with a preparation focusing on the bird in hand principle. Each participant should think about his (her) skills. During the training there is a multiple choice test about the theory of effectuation. Then there is a lecture about the theory of constructivism. The background, the characteristics and the applications of constructivism are being lectured. Then some exercise of

effectuation with the focus on the bird in hand, about their expertise and what they can learn other teachers about entrepreneurial education.

The third session starts with a preparation of focusing on the crazy quilt principle. What is the value of your network and can it be used in this program? During the training there is again a multiple choice test; this time about the theory of constructivism. And then a workshop about creating a lecture according constructivism. The third part is about how the network can be used to bring in entrepreneurial experience in this program. The fifth and sixth session have some time available for this.

The fourth session needs a preparation for the affordable loss principle; where the participants look for implementation they can do without changes outside their classroom for entrepreneurial education on their school. This time during the training there is a lecture about andragogy. This theory is focusing specially on the differences between young adults and children. What can be taught at what age? Then again a workshop about the issues that teachers see to implement an entrepreneurial lecture in their school and what can be changed to start such an education without a lot of investment; also focusing on the affordable loss principle.

The fifth session starts with a preparation for the lemonade principle; where the participants look for threats and opportunities to implement entrepreneurial education in their school. During the training there is a multiple choice test on andragogy. Then the participants are testing their constructivism oriented lectures that were prepared in session three. Effectuation is this time focusing on the lemonade principle. This time the focus is on the problems they face in their school and how to make use of that in their advantage. The use of creative techniques are important this time.

The sixth session starts with the preparation for the pilot in the plane principle; where the participants take a look at the future of the entrepreneurial education in their school. During this last training discuss with each other the lectures they tested and how there school can start an entrepreneurial education program. The outcomes are being used for the final skills exam, where each participant makes a curriculum (content and method) for his situation.

Figure 6. Course outline

Training	Preparation	Training Subject	Testing
1	Preparing a constructivism based lecture	Discussion about constructivism lecture Effectuation theory	
2	Bird in hand; what are your skills	Constructivism theory Effectuation; bird in hand	Test Effectuation theory
3	Crazy quilt; use your network	Preparing a constructivism oriented lecture Effectuation; crazy quilt	Test Constructivism theory
4	Affordable loss; implementing in lectures	Andragogy theory Effectuation; affordable loss	
5	Lemonade; what are the opportunities.	Testing their constructivism oriented lecture.	Test Andragogy theory

		Effectuation; lemonade	
6	Pilot in the plane; where to go to.	Constructivism and Effectuation; pilot in the plane	Skills exam

## Realization design

The authors are aware of the fact that for some teachers, a new world emerges. Thinking and acting in a new methodology needs time for relaxation. The program is designed to be executed in a two week sequence, preceded by two weeks of mental preparation. The group of learners should not exceed the number of 8 teachers, participating on a voluntary basis, generously facilitated in time. The facilitator of the course should be a practical expert on effectuation, constructivism and andragogy. For the meetings a spacious, non-traditional room is needed, with much light and fresh air, being unfamiliar to the learners and close to refreshments. A lesson should not exceed four hours of time. It is strongly recommended that after the course, progress and refreshment meetings are organized in a time frame of twice a year.

## Questions

Questions are about how to organize a constructive education in a school, where most of the teachers still give lectures in a classic way. We already experience some problems when students are educated for some time by a constructivist method and at some other time by a classic way. Is it possible to let both methods coexist?

Another question is about what methods of evaluation would fit to this design?

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## WHAT TO LEARN FROM ENTREPRENEURIAL SUMMER SCHOOLS? A LOGICAL TYPOLOGY

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*In the last decades, it seems to be a hype for every entrepreneurial university to organize a kind of a summer school for entrepreneurship. In the adverts of these events there are many promises, but what is it they actually do? The name 'summer (or winter) school' sounds universal. Contradictory, the programmes seem to be unique for each university. It is obvious that a short entrepreneurial support programme, like a summer school, is a popular instrument to contribute to the economic development of a region. Not every region has its own summer school yet. Governmental ambitions throughout Europe make that soon every region will have an entrepreneurship-stimulating instrument like a summer school. To learn from the established summer schools, a qualitative study of 38 of them was carried out in the United States and Europe. Comparison of the gathered data shows that there is a broad scope of goals and aims, as well as the size, cost, duration and financing. Noticeable differences found between Europe and the United States, as well as between the West, East and South of Europe. The findings of the study have resulted in a logical typology of entrepreneurial summer schools.*

**Keywords:** Entrepreneurship Education, Summer Schools

In the last decade, the premise that entrepreneurship has been an important factor in the economic development of a region, as affirmed by many scholars (Ahmad & Hoffmann, 2008; Gries & Naudé, 2009; Sijgers, Hammer, Horst, Nieuwenhuis, & Sijde, 2005). It has been shown that a high level of entrepreneurial activity contribute to innovation, competition, economic growth and job creation (Carree & Thurik, 2003). For this reason, politicians on European, national and regional level, started to encourage activities that promote and stimulate the start of new ventures. The aim is to create more starting ventures and therefore create more jobs, economic traffic and thus more welfare and less poverty. Especially after the abandon of the largest share of the manufacturing industry of a region to low-wage countries such as East Europe and Asia, Small and Medium Sized Enterprises (SMEs) seems to be the major economic factor. A large group of scholars presume that the start of a new venture is the result of the execution of a number of activities, which are framed to phases (Bhave, 1994). The process of entrepreneurship can be divided into four phases: The first phase is the development of the intention to start an enterprise (Krüger jr, Reilly, &

Carsrud, 2000; Shane & Venkataraman, 2000; Shapero & Sokol, 1982). The second one is the recognition of the opportunity, with the result of the conceptualisation of a business concept. The third phase is the preparation of the opportunity where resources are assembled and the blueprint of an organization is fixed (Baron & Hannan, 2002). The process ends with the exploitation of the opportunity, plans are executed and the exchange with the market begins. After this phase, the process starts all over again from the second phase (Shane, 2000). Within a region, an overwhelming arsenal of instruments is deployed to stimulation of entrepreneurship. In the last years, the summer school has become a more and more popular instrument. In literature, there is a lack of empiric data on this phenomenon. From experience of the authors, it seems that not a single summer school of entrepreneurship is the same. A recent request from local authorities to establish a summer school for the region evoked the demand to structuralize the framework of design criteria for summer schools. Presumably existing summer schools do have *raison d'être* and therefore they might open up directions for a kind of classification. In this paper, we evaluate the existing summer schools with the intended purposes to reveal common structures or dimensions, to achieve more understanding of it. With these data, a typology is proposed, to help authorities decide what criteria their summer school of entrepreneurship must meet.

### Empirical study

Our research is based on an empirical study among existing summer schools. The collated data were collected through an internet search among all possible forms of summer schools in the field of entrepreneurship. For practical reasons, the internet search was carried out in the English language. The authors are aware of the fact that this might result in biased outcomes because the sample may not cover the population; however, for the purpose of this study a clear research scope is considered more important than the size of the sample. Search engine Google was used to find the internet appearance and with that, the gateway to other information of current and past Summer Schools of entrepreneurship. The results of this search and the expressions used on the search engine are shown in table 1. The time frame of the collated data was the period between the first of June and the fifteenth of August 2011.

Table 1. Search expressions and results

Search expression	Search Results
Summer school	18.000.000
entrepreneurial summer school	2.430.000
entrepreneurial summer school	817.000
Summer school entrepreneurship	521.000
summer school entrepreneurship	3.960.000
summer school business plan	262.000.000

From the summer schools that were found, available data were put together. Missing data were completed by a call for information to the concerning host. In cases that no entity was identified or no information was found, the summer school involved was taken out of the research. Before data processing, all records with insufficient data were removed. A data set was marked as complete when sufficient information was gathered to make a proper distinction between the different programmes. For the distinguished

ones, scholars in educational science often use the 'curricular cobweb' of *van den Akker* (2003). He identified a reduced number of practical distinguishing aspects to characterize an educational programme in order to match design requirements with development aspects. These aspects are: time, location, grouping, materials & resources, learning activities, content, aims & objectives and assessment (Akker, 2003). For this research, this model was modified with elements of entrepreneurship. An overview is given in table 2.

Table 2. Items of data collection

Variable	Interpretation	Unit
<b>Duration</b>	The time period of execution	Days
<b>Location</b>	The region of the execution	Continent
<b>Target group</b>	The population which the programme is aiming for	Nominal
<b>Aim</b>	To what phase of the entrepreneurial process is the programme aiming?	Phase in the Entrepreneurial process
<b>Theme</b>	The specific topic of entrepreneurship in the programme?	Nominal
<b>Funding</b>	Type of basic funding of the programme.	Nominal
<b>Costs</b>	The participation fee	Euro's
<b>Host</b>	Type of organisation of the host	Nominal
<b>Assessment</b>	What is the type of assessment at the end of the programme?	Ordinal
<b>Reward</b>	Is there a reward when after succession?	Closed

From *van den Akker's model*, the materials & resources, learning activities and the content are taken out. From the research method used, these data were nearly found were as the number of completed data sets would reduce too much. Therefore, the item 'theme' is introduced to identify if there is a specific topic to be addressed. Furthermore, the way of funding, the attendance fee and the type of host organisation is stated. The final characteristic is the attribute of rewarding as entrepreneurs favour (Driessen, 2005).

## Findings

From the data sets acquired, we searched for patterns of characteristics. In table 3, the variables and their frequencies are put together. We will start with the evaluation of the single variables; after which the remarkable combined findings are discussed. Based on the grouping of the variables, the most common types of summer schools are listed. At the end of this paragraph, a typology of summer schools will be proposed, to help authorities identify their criteria for building their summer school of entrepreneurship.

Table 3. Variables and their frequencies

Variable	Unit frequency			
	<b>Duration</b>	<b>1-7 days</b>	<b>8-21days</b>	<b>&gt;21days</b>
	20	7	11	
<b>Location</b>	<b>United States</b>	<b>N &amp; W. Europe</b>	<b>S. Europe</b>	<b>E. Europe</b>
	7	24	3	3
<b>Target group</b>	<b>Non-student</b>	<b>Student</b>		
	8	30		
<b>Aim</b>	<b>O. recognition</b>	<b>O. preparation</b>	<b>O. exploitation</b>	<b>Exit</b>
	3	33	2	0
<b>Theme</b>	<b>Non</b>	<b>Social Entr.</b>	<b>High Tech.</b>	
	24	7	7	
<b>Funding</b>	<b>Non</b>	<b>Public</b>	<b>Privat</b>	
	22	11	5	
<b>Costs</b>	<b>€0</b>	<b>€1 - €150</b>	<b>€151 - €500</b>	<b>&gt; €500</b>
	18	5	3	12
<b>Host</b>	<b>Non University</b>	<b>University</b>		
	3	33		
<b>Assessment</b>	<b>Non</b>	<b>Attendance</b>	<b>Plan</b>	<b>Pitch</b>
	16	6	12	4
<b>Reward</b>	<b>Non</b>	<b>Yes</b>		
	25	13		

## Single findings

Regarding the duration, we distinguish three groups: 1-7, 8-21, over a period of more than 21 days. Based on this scale, we can see the largest group in 1-7, over a period of 8-21 days which is the smallest group. This can be explained by for the approach of the summer school: a short course during the summer or summer-long schools. The latter and the fast 1-7 days group had both a full programme every day. When looking to the location, there are far more summer schools in Western Europe, which can be caused by the chosen methodology. Other regions can have summer schools in their native language and therefore advertise this on the internet. These findings may also indicate that in Western Europe there is still a more international focus, whereas in the south the focus is on French and Spanish and in the East on Russian. Most summer schools conducted by a university are addressed to their own students, the ones with the ambition to start an enterprise. The summer schools that target entrepreneurs are the summer schools that are mostly concentrated on enhancing entrepreneurial skills and expanding the business (eventually seeking investors). A clear sign is given in the aim of the programme, where most are only focusing on the opportunity preparation, flanked by some elements of opportunity recognition and exploitation. About a third of the programmes have a theme, where forms of social entrepreneurship and a high tech context were the only two that were mentioned. The funding of the programme was mostly provided by the schools' internal hosts. Remarkably there was a broad range of attendance fees. We identified four groups; free, two mid-range groups (to state the gap to the top of the fees, which was more than 25 % of the programs, mostly the longer ones) and the top, expensive group. The maximum fee paid was 7000 euros. As expected the vast majority of the summer schools is hosted by a

research university or University of Applied Sciences. With regard to the assessment and reward, there is a full overlap. Only half of the assessed schools is rewarded with a price or study-credits. It can be argued when attending; you should be a better entrepreneur, which can be seen as a reward. These situations were indicated as not rewarded.

### Remarkable combined findings

When combining the findings above, more aspects that are remarkable were detected. From the high tech summer schools, they all assessed, 80% funded by the public and free of attendance fee or a small fee. This contradicts the notion that the social entrepreneurship summer schools are all non-funded and that their attendance fee is predominantly expensive (> 500 Euro). The summer schools from the United States of America are all for students and mostly concern a long duration, expensive or free, assessed (various assessments) and rewarded. On the other hand, the Northwestern European schools mostly concern short periods (1-7 days). In Eastern Europe, the target group consists only of students and no one is rewarded, but some are assessed. The Eastern European summer schools are neither assessed nor rewarded and the attendance fee is high. The vast majority of the non-student summer schools are not assessed and not rewarded. The regular (most common) summer school is for students, hosted by a university, free of attendance fee, aiming at opportunity preparation, located in Northwestern Europe, assessed on the basis of the business plan and not rewarded.

### Proposed typology

From the findings we can extract four types of characteristics which can be influenced by the designer of the programme and can determine which programme the participants are going to take part in. The first type is the focus (aim) of the programme; on what phase of the entrepreneurial process the programme is focussed. This is in line with the theory on the entrepreneurial process (Shane, 2000). The second type is the rewarded assessment; on what how and on what aspects will the attendant be assessed and is there a tangible reward to distinguish the results. The third type is the target group. From research it is known that the failure rate of students is much higher than those of non-students and the latter is often more experienced (Bosma, Praag van & Witte de, 2000). The last type is the theme of the summer school. As shown in the findings, there is a difference in audience, programme and organisation if the summer school is on social entrepreneurship, high tech, or has no theme. The typology is summarized in table 4.

Table 4. *Typologies of entrepreneurial summer schools*

Typology	Use
Focus	It can be determined on which phase of the entrepreneurial process the program is focused. This affects the content and outcome of the summer school
Assessment & reward	For attendants it is most helpful knowing what to deliver and stay focussed on the objectives set.
Target group	The distinction between students and non-students effects on the attendance fee, program content, assessment and reward.
Theme	Shaping a specific context for the summer school is affecting the program on given examples, assessments and costs.

### Conclusions and recommendations

In the setting of entrepreneurial summer schools, many universities offer a summer school of some kind. The variation between the programmes is extensive. When taking a closer look some patterns can be seen. Assessing these patterns among educational principles some useful information for policy makers or authorities can be highlighted. The use of the typology for entrepreneurial summer schools gives them a powerful tool to establish a more precise instrument to stimulate entrepreneurship and so contribute to economic development. The chosen methodology implies that the sample was not representative for the whole population of entrepreneurial summer schools. It is therefore highly recommended that further research is executed in other languages. It is also recommended to study the effects of the different configuration of summer schools.

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## Using Pull Strategy for Curricula Design on Entrepreneurship Education.

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### Abstract

Universities are deeply involved in stimulating their students in entrepreneurship where they focus on designing programs based on existing knowledge from pedagogics and didactical concepts. Although the Total Entrepreneurial Activity is increasing, the results are not satisfying in all cases. The question arise were improvements can be made in curriculum design approaches. Exploring recent developments in curriculum design and engaged scholarship anchor points may be found. The start of a traditional journey starts at the development of the adolescent (push approach). In this paper the start is from the other end, the terminal station of the educational process, the profession of the student (pull approach). The journey among the developments show that an anchor point for an alternative approach can be the context of the curriculum to be designed. Where the macro level is common over years, the micro (personal) level is starting attracting scholars attention. From the perspective of the meso level, a new context emerge. Engaging this context into the design process, better programs can be developed as technical start-up programs implicate. The questions addressed opens a new insights in the dynamic of the different professional domains. With these specific characteristics, the elements of a curriculum can be adopted to this and specific programs can be designed.

### Introduction

In the last decade, the premise that entrepreneurship is an important factor on the economic development of a region is affirmed through many scholars (Ahmad and Hoffmann, 2008, Thurik and Wennekers, 2004, Minniti and Lévesque, 2010, Zalan and Lewis, 2010) It has be shown that a high level of entrepreneurial activity contribute to innovation, competition, economic growth and job creation (Carree and Thurik, 2003). For this reason, politicians on European, national and regional level, started to encourage activities promoting and stimulating the start of new ventures (Sijgers et al., 2005, Khan, 2011, Audretsch, 2004, Raposo and Paco, 2011).

Based on GEM-data it is known that since several years the Total Entrepreneurial Activity (TEA) is increasing worldwide and that a positive relation with the growth of the economy is found (Bosma and Levie, 2009). The support given to entrepreneurs in starting can be divided in hard support, as tax reduction and provision of infrastructure and soft support as, coaching and training (Koopman, 2013). Communities as well as universities designed programmes to support the starting entrepreneurs to contribute to the economic grow in both elements of

support, likely to have double chances achieving their objectives. A main stream of scholars finds that the support of person, the entrepreneur, has a positive impact on the development of entrepreneurship (Zalan and Lewis, 2010, Raposo and Paco, 2011) and helps to avoid Entrepreneurial Failure (Parsa, 2005). This can be one of the arguments that Entrepreneurship Education has been implemented widely in education programs at universities.

For the design of these educational programmes, available tools techniques are used but over time they seem not to fit the need of entrepreneurs and insights from non-traditional perspectives are added to the toolbox of the curricula designers (Honig, 2004, Gibb, 1993, Gibb, 2002, Hammer, 2012). These developments can be described as 'push' approach to design programs for Entrepreneurship Education. In the last years, scholars debate on new insights on Entrepreneurship as experiencing the limitations of the program designs in the last decade (Blenker et al., 2011). Based on these insights, new perspectives of educational programs emerge by change the focus to a more 'pull' approach'. The question arises: how do pull approaches look like and effect the existing curricula design protocols?

### Background

The design for an educational program or curricula is described in the science of Educational Design Research (van den Akker et al., 2006). In this domain, the pedagogy and andragogy are leading constructs were the aim is to help the development of a child or adult, among their natural development. Given their development stage, a program is designed. A often used model for this type of design is the Curricular spider web of (van den Akker, 2003) as shown in figure 1. In this model the key elements of a curriculum are mentioned and need to be addressed have an internal consistency (van den Akker, 2003). Once a curriculum design is chosen, major changes only affect the content, aims and objectives and learning activities.



Figure 1, Curricular Spiderweb (van den Akker, 2003)

Leading researches on entrepreneurship education as Allan Gibb (2002) added more diversity and dynamics on the education of entrepreneurs; remaining the existing design processes. Other researchers as Walter and Dohse (2012) argue that that education methods as active

modes, are positively influencing the entrepreneurial education. Neck & Green (2011) conclude that the education structure requires a new approach based on action and practice. Whereas Mathews (2007) argues that constructivism leads to learning that is action-based where learners construct or make interpretations of their world through interactions in the real-world. Walter and Doshe (2012) also conclude that regional context (culture) moderates entrepreneurship education. Other scholars argued that entrepreneurship needs other skills or competences (Groen et al., 2002, Kutzhanova et al., 2009, Binks et al., 2006, Leitch et al., 2012). Based on this, figure 2 is made, where the influences on the entrepreneurial teaching process are shown (Koopman et al., 2013).

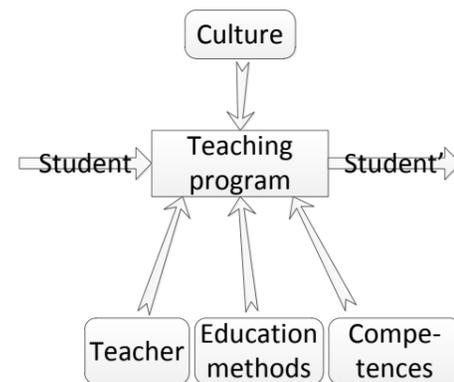


Figure 2, Influences on teaching program

Over time of their natural development, pupils and students focus on a variety of personal and professional interests and develop their own learning style. When debating entrepreneurship education, the only variety in design criteria seem to be determined by the elements of the spider web sometimes a thematic issue as social entrepreneurship or high tech (Hammer and Thuijs, 2013). In the paragraph below, each of the elements of the model from figure 2 will be discussed to identify possibilities to justify the diversity of high school and university students.

### Exploring developments

In this paragraph developments of the five influences on a teaching program are briefly discussed. The first and most important element of the model is the student. As it is the objective of the teaching program, an entrance selection or assessment can influence there the outcome. For curricula design, the student is the starting point and therefore not further discussed in this paper as a variable. The second element is the teacher. In another paper of this conference the teacher can be seen as a dependent variable in a soft support system and development options in that direction are widely debated (Koopman, 2013). Therefore this paper will not have the focus on this. The education methods, as third element, is addressed by Mathews (2007) where he advocates more constructivism to entrepreneurial programs. On the field of competences, Allan Gibb (2002) and more recently the QAA (2012) defined a detailed set of skills and competences.

Late research on the context is done by Per Blenker et al (2012) where he argued that the entrepreneurship education need to be adopted for context, culture and circumstances, down to a personal level. This might assume that there are more levels which can be taken into account considering curriculum design. An important general aspect of the findings of this

research is that there should be a fit between the need (what the student / entrepreneur wants) and the supply; the programme offered. The programs need to be designed for the use of the most important stakeholders.

Since the publication of the book 'Engaged Scholarship' of Andrew van der Ven (2007), the concept of stakeholder involvement into academic research is used more often. In this book Van der Ven empathises that research questions to solve field problems, need more involvement of the users. When applying these principles on support program design, successful examples can be seen in high tech start-ups incubators; getting co-immersed with the entrepreneurial community result in a valuable payoff.

In this paragraph the latest developments on the five influences on teaching programs were discussed. It is argued by Blenker (2012) that the involvement of the stakeholders and end users can bring fruitful insights on the curriculum design. This approach can be described as 'pull' strategy for curricula design. In the paragraph below this is discussed more in detail.

### Evolving the pull strategy

In this paragraph emerging questions of the pull strategy on curricula design for entrepreneurship education will be asked and addressed. Based on the findings of Blenkers (2012) the question arise:

*on what levels the stakeholders can be involved to the design process?*

For the answer of this question the curricula design literature can shed some light on this. It is argued by Susan McKenny (2006) that: "Curriculum concerns may be addressed at various levels: macro (system / nation), meso (school / institution) and micro (classroom / learner) (P.68)". Applying this to the context of a training program and combining this with the findings of Blenkers (2012), the micro level (the learner context) is identified, leaving the meso and macro level to be discussed. To start at the other end of the spectrum, the macro level it is assumed that the biggest entity is useful to position. This can be described as the geographical/cultural context. These aspects can be determined from national or regional development agenda's and cultural habits. The meso level of the context can then be the professional domain you are educated in; positioned between personal and national level. Pupils or students in a technical profession, have other patterns and values of thinking in doing then students in economics, arts, social or healthcare. The different professional domains do have their own dynamics and culture background. Therefore the premise emerge that they differ on values of entrepreneurship. Claiming this premise, the next question can be ask:

*how can the meso-level context be engaged into the curriculum design process?*

The answer can be found in studying successful examples of this type approach, even if they were not aware of this mechanism. With the exception of the technical start-ups, the distinguishing on the meso-level context in practice is not applied broadly. Nevertheless those type of programmes have a higher survival rates and can be determined as more successful (Bruneel et al., 2012). By studying these type of programmes, the specific demands and needs from the technical-oriented entrepreneur is distinguished by applying the elements of engaged scholarship (Van de Ven, 2007). Although the ice looks thin, a new road for curriculum development on entrepreneurship education.

## Implications

The use of a pull strategy for curricula design in entrepreneurship education is argued in this article. There is evidence on a micro level of context involvement. Evidence on a meso level is limited to the domain of high tech start-ups. Therefore further research is suggested with design teams, involving the meso level context.

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## The Vocabulary at Entrepreneurial Education for Non-Business Teachers and Students

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### Abstract

As entrepreneurship is seen as very important for economic growth the education of entrepreneurship is getting more interest, not only from business oriented schools, but also from non-business schools. It is widely recognized that entrepreneurship education needs other approaches of teaching. To teachers this means that they have to change they educate. In 2013 we started an training program for teachers to teach in a more entrepreneurial way. This program is designed around constructivistic teaching and action learning, which is widely seen as an appropriate way of teaching entrepreneurship.

During this training program we had several results, but also found out that non-business teachers and students have other experiences and use other words to describe entrepreneurship. To find the right language and therefore the right teaching program, it is valuable to find out the vocabulary that people use when they describe entrepreneurship.

To find out about the vocabulary in different disciplines we used the principles of effectuation and causation to develop a discussion scheme that can be used for interviewing people from different disciplines to extract the used entrepreneurial vocabulary, without the need to use economic vocabulary.

The entrepreneurial vocabulary can be used in the teaching programs for entrepreneurial students. That vocabulary can also be used to get a better understanding among different (business and non-business) students to help them to learn more from each other. Besides that, the entrepreneurial vocabulary can also be used to discuss about that vocabulary and develop a more complete and nuanced view of entrepreneurship. With the right vocabulary the model for entrepreneurship education can be tailor-made.

Keywords: Entrepreneurship, education, teacher, non-business students

### Introduction

As entrepreneurship is often seen as an important factor of economic growth, a lot of universities and schools are focusing on entrepreneurship and entrepreneurial education (NIRAS Consultants, 2008, COSEPUP, 1995). Educating entrepreneurs needs different methods as the 'conventional' way of education, as demonstrated for example by Allen Gibb (1996) and Alain Fayolle (2006), but is still very young (Barr et al., 2009).

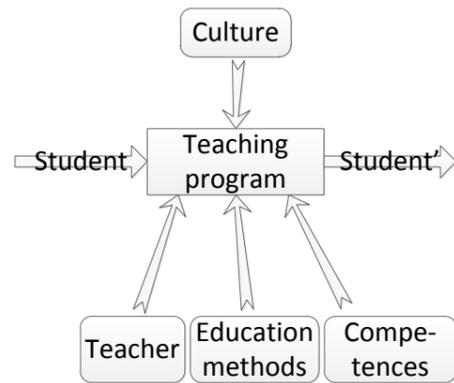
### Theoretical background

There is a need to be aware of the differences between the education of, entrepreneurship, enterprise and small business management (Gorman et al., 1997). Although they have a lot in common they are not the same and they need different approaches in teaching strategies and proposed curricula (Gorman et al., 1997). Entrepreneurship has a positive influence on the economic growth (Acs and Szerb, 2010, Rocha, 2012, Fritsch, 2011), while entrepreneurial education has a positive influence on the entrepreneurial activity (Raposo and Paco, 2011). That is a reason why politicians are interested in entrepreneurship although they are not clear about the outputs of entrepreneurship education (Pittaway and Cope, 2007). Perhaps they mix up the three previous mentioned elements (entrepreneurship, enterprise and small business management). Nevertheless entrepreneurial education is seen as an important contribution to economic growth by politicians, researchers and economists (Gibcus et al., 2010, Khan, 2011). The education of entrepreneurs is something that has to follow a different method from the conventional methods of education (Gibb, 1996, Fayolle, 2006, Blenker et al., 2012a). This is visualized by Allen Gibb (2010) (by a static person and a running person)

and by Hammer (2012) (with the metaphor of the goose and the falcon). Goose are jointly developed in groups and the teachers decides what to learn, when to learn and how much to learn, as the result are goose. Obverse, falcons are being taught to behave more individual and be aware of the opportunities were total different life strategies emerge.

When fostering the teaching process, an apposite model must be appointed. Recent research on entrepreneurship education identify some major aspects to include. For entrepreneurial education, active education methods and practice have a positive influence (Walter and Dohse, 2012, Neck and Greene, 2011). A constructivistic teaching method results in action-based learning, which has nowadays been recognized as the preferred way of teaching entrepreneurship (Jacobsen, 2012, Pittaway et al., 2009) and has a positive effect on entrepreneurial action (entrepreneurship related human capital, new business creation) (Gielnik et al., in press, Martin et al., 2013). The students then make their own interactions with the own world (Mathews, 2007). Entrepreneurship also needs other skills or competences (Binks et al., 2006, Groen et al., 2002, Kutzhanova et al., 2009, Leitch et al., 2012, Rasmussen and Sørheim, 2006). Blenker et al. (2012b) argued that the entrepreneurship education need to be adopted for context, culture and circumstances, down to a personal level. The construction process of education starts most times with an education goal. Then you have to identify the actuality of the learning situation, the student and the culture. After this the teaching process, the curriculum, methods, education activities and education tools can be developed. The teacher is of significant influence of that teaching process. At the end the teaching process should be evaluated in respect of the reached goals (Berghe et al., 1973, Van Gelder et al., 1972, Gorman et al., 1997). This leads to the general teaching process as shown in Figure 1 (Koopman et al., 2013).

**Figure 1 The teaching process**

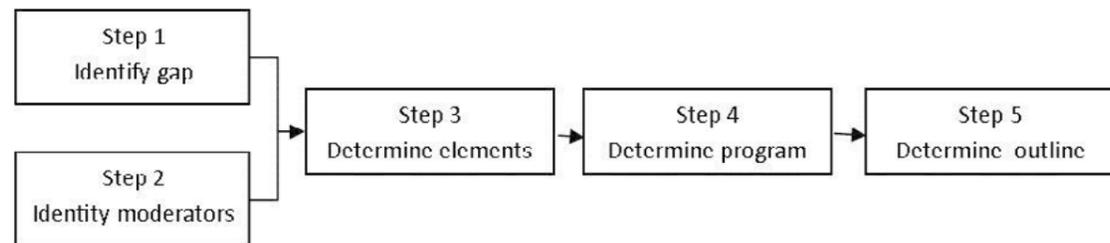


(Koopman et al., 2013)

**Research project**

Based on the teaching process described in the theoretical part of this paper, a research project started by the Saxion university in cooperation with the University of Twente and Twente Knowledge Park. It was funded by a regional economic development program to valorize the knowledge of universities to the region (2012). Aim of the research project was to integrate principles of entrepreneurship in an entire university learning system. According to the described teaching process (Koopman et al., 2013) a teaching program for entrepreneurial education was designed for all university faculties. The design process used is shown in figure 2.

**Figure 2 Design process**



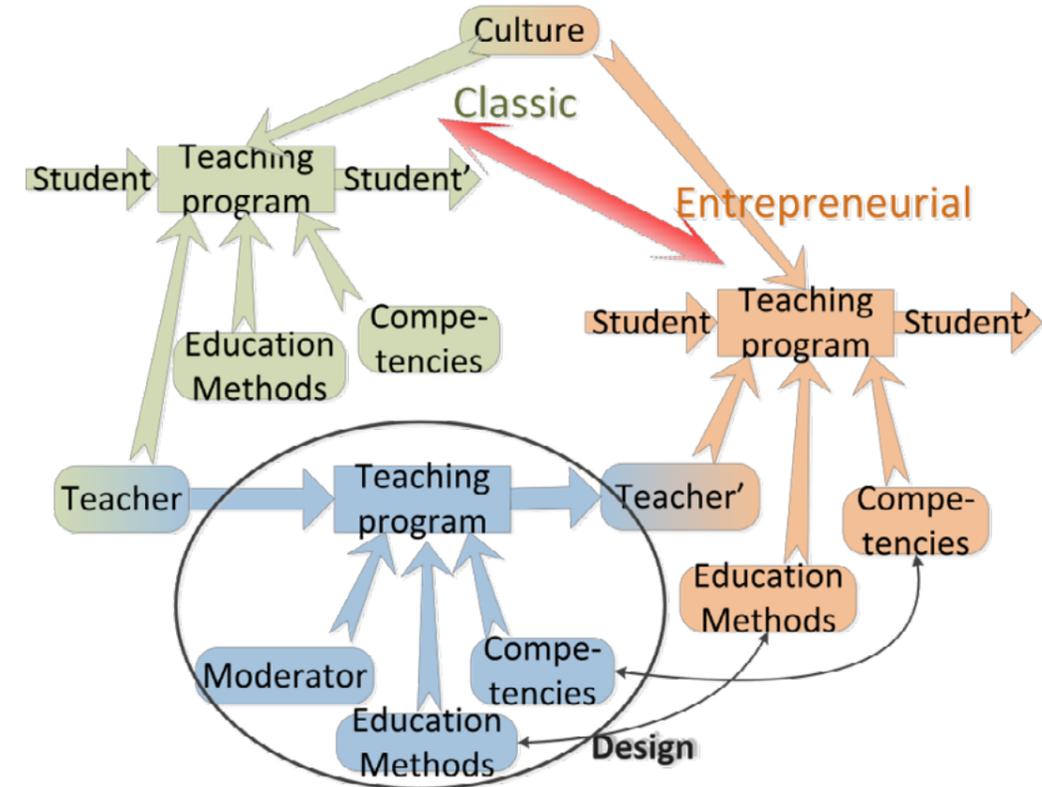
The identified gap from the first step of the design process, is the absence of an entrepreneurial teaching program for teachers, which is the aim of the research project. The moderators are identified from the teaching process being used. These moderators are described below:

- *Culture*. At the university of Twente and Saxion University, each faculty has its own culture from direct vicinity of the field. Since the field is not the subject to change, it was untouched in the project.
- *Competences*. In the last decade many studies on entrepreneurship and enterprising competences are conducted with a wide range of results. For this research project it was agreed that the competences should be in line with the faculty involved. Where specific entrepreneurial or enterprising competences were needed, those as published by the Quality Assurance Agency for Higher Education (QAA) of United Kingdom (QAA, 2012).

- *Education methods*. Several researchers have published about the education methods in an entrepreneurial way (Gibb, 1996, Sarasvathy, 2009, Raposo and Paco, 2011, Mathews, 2007, Leitch et al., 2012, Béchard et al., 2007, Blenker et al., 2011). A more constructivist method and action-based education, based on andragogical principals.
- *Teachers*. The teacher is indicated as an important mediator of the teaching process. When a change is wanted, teachers should also change their contributions (Blenker et al., 2011). How the teachers should change is not well known. And beyond that, most professors of entrepreneurship will stick to writing a business plan as it is in their syllabi (Honig, 2004). This makes that the main focus of the research project is on teaching educators for entrepreneurship education.

For the development of the program to teach the entrepreneurship educators/teachers, the general teaching process is used three times. This leads to Figure 3, where the teaching program for teachers is the focus of the design. In that figure three times the general teaching process of Figure 1 is seen.

**Figure 3 Teaching teachers in entrepreneurial teaching**

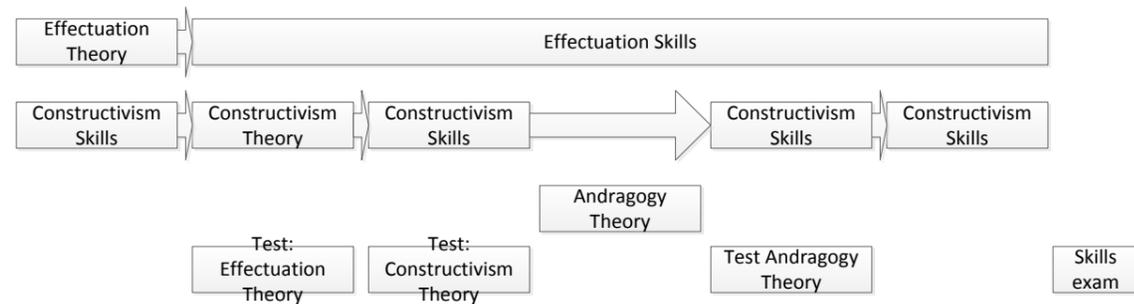


(Koopman et al., 2013)

The three general teaching processes of Figure 3 are used for: the classic teaching program, the entrepreneurial teaching program and the program for the educator's development. The educator's development program, we designed, focuses on the development of teachers, to enable them to teach more entrepreneurial.

The design and teaching team of the program was formed by an educational specialist and two senior lectures in entrepreneurship. Although the teaching methodology was constructivistic, on forehand an outline was made which is shown in Figure 4

**Figure 4 Course scheme**



(Koopman et al., 2013)

Before and after each teaching session with the educators, the design team discussed the meeting involved and adapt the content to the situation emerged during the former session. During the session the outcome of the program tended to be the development of enterprising program in each faculty. The program started with the descry of the vision of the different faculties on entrepreneurship. After discussion, bottom-line, the individual visions where in line with the one of the university. After the agreement on the shared vision a fuzzy discussion started on the competences, needed for the entrepreneurial programs. Between two sessions it became clear to the designers team that the form and tongue of what a competence is, was interpreted different over the faculties, although the ones from the QAA (2012) seem very clear to the designers. To find a way to go from the vision to learning activities, it was agreed that the educators would identify 'aspects' on what they found it was entrepreneurial.

In the next sessions, the educators tried to identify where in their existing curriculum, where some entrepreneurial aspects were introduced, the different aspects where visible. They also indicated if and how it was tested by the students. Some of the teachers managed to change their program and reported an improvement in their goals. The underpinning of the results of these improvements are still in research. For this paper we focus on another result of the program, which is more an unexpected and not so welcome result, but still very interesting to find out more about.

**Questions**

The teachers-program, as described, started in 2013. Several teachers from non-business schools participate in this teachers development program. The first results of the training program are showing up. At the same time there are several questions that came in front. First of all the teachers of different disciplines used another vocabulary; healthcare teachers for example doesn't talk about 'entrepreneurship' but prefer 'innovation'. They also do not talk about 'risk taking' because they deal with people; 'we don't do that'. This vocabulary, which is assumed to be depending on the discipline, makes it difficult to do research in entrepreneurship in different disciplines. Second this makes the use of 'standard' entrepreneurial competences and education methods difficult. That's why it is interesting to do research at this topic. But using

entrepreneurial vocabulary, like the classification of the GEM-data that Wennkers ((2014 [to be published]) used, at this research will again distract non-business teachers and students. That's why generic principles are needed to extract the vocabulary for a specific branch. One of the well-known principles of entrepreneurship are the five effectual principles of Sarasvathy (2009). That's way it would be interesting to know;

**1a If, and how, the effectual principles can be used as generic principles for researching the vocabulary of non-business teachers and students?**

To provide some of an answer to the question above, the authors used the five principles of effectuation to develop an discussion scheme, as presented in Figure 5, for interviewing people from different disciplines.

**Figure 5 Discussion scheme for entrepreneurship**

Principles of entrepreneurship	Causal strategies	Effectual strategies
Starting point of entrepreneurship	Start with the opportunity	Start with who you are, what you know, whom you know
Investment risk attitude	Investing based on expected return	Invest what you can afford to lose
Attitude to others	Competitive analysis	Build self-selected network of stakeholders
Contingencies for entrepreneurship	Avoid contingencies	Leverage contingencies
Control mechanism to the future	The future are inevitable trends	The future comes from what people do

With this discussion scheme the authors want to get insights in the use of entrepreneurial vocabulary by several disciplines; what are the words that are being used if they talk about risk, whether it is expected return or affordable loss driven. This discussion scheme is used in interviews. First the person is subsequently asked about the each of principles of entrepreneurship. Then they are asked about whether they use of causal and effectual strategies within their discipline. The result of these interviews should give insights in the use of specific vocabulary among the disciplines. A sub question is:

**1b Is this a good approach? Are there other approaches, what could help the authors in answering their question one above?**

People have different orientations for entrepreneurship. This orientations should be measured to improve teaching methods and curriculum development (Bolton and Lane, 2012). This is also recognized by Brand et al. (2006) when they conclude that non-business students 'have particular experiences and skills on which the entrepreneurship courses have to build'.

But they also conclude that it could be beneficial to combine business and non-business students in a course. Because the education methods and the competences also make use of that same vocabulary it is important to know;

## 2 Is changing the vocabulary in the education methods and competences enough to reach non-business teachers and student? Or do teachers need to learn how to cope with the ‘standard’ entrepreneurial vocabulary to change their attitude towards enterprise and entrepreneurship?

To address this question two, the authors are open for all available help and suggestions for an approach for solutions.

Teaching students in an entrepreneurial way needs a change in the teaching program. One of the changes that is needed is the teacher. The program we developed to do change the teacher, has several results already, but also made clear that non-business teachers (and students) use another vocabulary. This makes entrepreneurial education difficult for non-business teachers and students. We make use of the effectual principles to extract the vocabulary for a specific branch in entrepreneurship and enterprise.

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**TOWARDS A 21<sup>ST</sup> CENTURY READY CURRICULUM**

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**ABSTRACT**

Entrepreneurship and entrepreneurship education is generally viewed upon as being important for economic growth in the 21<sup>st</sup> century. Teaching entrepreneurship however seems to need another approach than regular education to fulfill the professional and ever changing needs. In this perspective active learning and constructivism is generally seen as essential. Other elements that are influencing the teaching process are focus on competences, culture, the needs of the student and the curriculum. This emphasizes' the design of the curriculum must address these changing demands of society. Effectuation, constructivism and andragogy are the key elements for the curriculum to meet the criteria for delivering sustainable and flexible professionals to society. Derived from the latest insights on Entrepreneurial Education, practical implications for higher education programs are designed and tested in a specific entrepreneurial region.

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**INTRODUCTION**

Entrepreneurship is often seen as an important factor of economic growth (Thurik and Wennekers, 2004). Consequently, policy makers are interested in this field. There is also a strong relation between entrepreneurial education and entrepreneurial activity. Apparently there seems to be consensus among policymakers, academics, researchers and economists that Entrepreneurship Education is probably the most effective way to contribute to economic growth (Gibcus, Overweel, Tan and Winnubst, 2010), as long as these entrepreneurs stay in the region or country. Many scholars and educational professionals have designed programs for supporting the entrepreneurial spirit or education of new, young entrepreneurs. Different approaches for supporting entrepreneurship and entrepreneurship education can be identified. First of all there is the positivistic approach, which is dominant in the traditional sciences. This approach of entrepreneurship led to the development of models, concepts and classifications for entrepreneurship. Most of them are however limited to a specific field of application.

In a second approach, derived from social sciences, most attention is on entrepreneurship as a cognitive development of an individual (Baron, 2008). Others take a perspective of a process model for entrepreneurship and describe an entrepreneur as someone moving along the entrepreneurial process of value creation (Shane and Venkataraman, 2000). And as a fourth approach, Zull (2002) gives a biological perspective to an entrepreneur and describes the neurological processes associated with entrepreneurial activities. It is argued broadly among scholars that entrepreneurship need other skills, methodologies and teachers (Koopman, Hammer, and Hakkert, 2013). Despite, or due to the extensive variety of research, it is still difficult for educators and curricula designers to make an effective program based on it. In this article the foundational theory of Dewey (1938) is used as a methodological framework, and therefore it has a design approach. Based on theories, practices and experience, some practical elements for entrepreneurial curriculum design are described and elaborated upon.

**The fast changing society**

Throughout history, our development and understanding of the world around us has been progressive but slow. Mankind could survive and function well with the knowledge learned

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from his parents and grandparents. We lived in small communities where everybody knew each other and everybody needed one another. Most of the history of mankind has been like this. Since the scientific and industrial revolution the world became more complex, but in essence information remained scarce and was the privilege of the rich and educated. Yet, in our current world now connected to internet, with virtually unlimited access to information, our development has shifted rapidly from evolution to revolution. It seems apparent that the technology running our world today has been developed during just one life time. Since 1995 fiber optic has been linking our continents together and giving us access to internet, a huge source of information with no limit. Transmitters and powerful small batteries were the major innovations which made this happen. In former times, just one generation ago in Europe, access to knowledge was exclusive to people who worked in government, councils, churches and schools. It gave them status, power and responsibility. They could use this power for good and for bad. Nowadays anybody connected to the internet has access to data from all around the world. This virtually limitless access to information comes with responsibility: People need to be educated and trained to interpret data, in order to distinguish facts from fake and to make their own well based decisions. Developments in social, moral and economic spheres are moving faster than ever before. There is no longer a shortage of information, but instead an overkill of information. People can be drown in it. It also means that we must be aware of the global social and economic developments like:

- No job for life.
- International competition.
- Education needs to prepare students for jobs that don't exist yet.
- Students need to be prepared to solve problems we don't know to be problems yet.
- So many and also fast technical innovations that when following a technical education at the university of applied science, facts learned during the second class, will be outdated before graduation.
- The amount of information worldwide doubles every two years: Facts become outdated quickly.
- Shortening Time to Market of inventions.

Through the development of global competition, the standards expected of young people are changing, providing both opportunities and threats for the individual. The conclusion of the ideas above may very well be that the "learning ability" for individuals and industry is the core competence to achieve sustainable competitive advantage and therefore survival. It invites everyone to adapt Life Long Learning as a way of life. Creativity as problem solving mechanism will also become more and more relevant. The development leads to questions like:

- Does education keep-up with the needs and the revolution of time-shift? And how?
- Which qualities should young people have in order to be able to survive in our rapidly evolving modern society?

Before designing a curriculum toward a more entrepreneurial, the dynamics of the profession must be taken into account of.

This leads to determine whether the students' future is into a steady or explorative dynamic. Two types can be determined (QAA, 2012):

- Professions in which merely recapturing skills are needed;
- Professions in which merely creative and entrepreneurial skills are needed.

For example, a doctor needs to know the right procedures and practice them in case someone needs instant help. An entrepreneur or project leader however often has to improvise and make decisions based on limited data. Compare the doctor's skill training with raising little ducks against training students for modern life: it is better to be raised like a falcon, continuously looking for new opportunities and flying solo from its nest (strong responsibility for self-development and wellbeing).

#### Characteristics of Entrepreneurship Education

From a literature review deduced on the characteristics, many specified elements are suggested and researched (Koopman and Hammer, 2014). Acquisition of entrepreneurial competences through a traditional teacher focused educational approach is not possible (A. A. Gibb, 1993). Students need to feel and experience. Identified characteristics of entrepreneurship education are (Rasmussen, Mosey, and Wright, 2011):

- Emotional involvement of students / pupils.
- Use of contests, competitions and games.
- Importance of Ideas : they should lead to concepts.
- Informal and flexible conceived learning sessions.
- Substantive focus on the : "Why", "how" and "who" more than "what".
- Interactivity among students, with teacher and coach.
- Teacher as coach and facilitator.
- Learning by working under pressure.
- Learning by doing, making mistakes and discovering.
- Learning from several people (teachers, peers, etcetera).
- Problem-oriented and multidisciplinary approach.
- Students generate self-knowledge through exchange of ideas, discussions.
- Work towards achieving a goal.
- Working in groups.
- Becoming a direct contributor of entrepreneurs.

It is to be expected that the learning style of an entrepreneur and anybody in practice who sets goals for himself can be characterized as having high Self-Discipline. An effective way to teach or guide that person would be the coaching manner. The learner mandatory has to take self-responsibility (Koopman *et al.*, 2013). Another important aspect is that the curriculum design need to have a 'pull approach' to focus more on the applicability of the program for the purposed field of profession (Hammer and van der Meer, 2013). For an optimal effect the design of education programs and the teaching style have to be congruent with the students learning style (Kolb and Kolb, 2005). A maximized effect will be achieved by congruency in the educational style, -system, the programs, the teacher's style, student learning style and goals

to be met. Based on Kolb (2005) in table 1 the characteristics of the entrepreneurial programs are shown.

**Table 1. Characteristics of an entrepreneurial program**

TEACHING FOCUSED PROGRAM	STUDENT LEARNING FOCUSED PROGRAM
Lectures teacher focused static and firm teaching goals uniform fosters passiveness students are guided learning routes prescribed teachers provide the answers teachers are leading	to acquire knowledge student focused dynamic and flexible learning goals individual  fosters students activity, creativity, serendipity students discover learning routes facultative offered teachers pose questions teachers guiding and coaching opportunity for learning is important testing is important library and study facilities are important ability to ask questions is important regardless of location time independent individual study variable sequence variable content scope for development of student specialization Applicable for develop entrepreneurial skills, Life Long Learning, on-the-job self-supporting attitude, and creativity skills.
teaching is important lectures / lessons are important rooms / classrooms are important supply is important	
location scheduled time defined uniform study progress fixed order fixed content, facts based training protocols to develop recapturing skills Applicable for management and technical skills to study languages, mathematics,	

#### MATERIALS AND METHODS

The actual research method of this paper is the design and validation of practical instruments to help students preparing for their future challenges. An explorative design was used to capture the empirical observations of senior lectures and curriculum designers. The research was conducted at the Saxion University of Applied Sciences in the Netherlands, at the undergraduate program of Small Business and Retail Management. In total 264 students of this program, distributed over two cohorts were involved in this study in the time period 2007 – 2014.

#### Data collection

The students were exposed to a broad variety of entrepreneurial learning components, as indicated in the literature. A team of senior lectures, study counselors and curriculum designers appointed the several instruments and interventions to the groups or individual students. During the study, it was compulsory for the students to hold their Individual Development Plan (IDP) up-to-date and discuss this with their study counselors. They also asked to hold a diary on a monthly basis. At the end of the study program, their IDP and achieved knowledge, skills and behaviours were assessed formally and summatively. Both, the IDP's and summative assignments were empirically scanned for common patterns using Content Analysis (General Accounting Office, 1989). With this data, concepts are designed by curriculum designers and tested in case studies.

#### RESULTS

At Saxion University we offered the two cohorts of students entrepreneurial learning, in addition to regular classes. The

main reason we use this approach is because 80% of their future work content will consist of creative and entrepreneurial issues as indicated by the QAA (2012). As it is claimed e.g. by Gibb (2007), knowledge gained during their studies will be outdated soon, especially in technical fields. As entrepreneurs or enterprising manager, knowledge therefore is not enough; project management and entrepreneurial skills need to be developed as well (Hammer, 2012). These skills cannot be acquired by attending lectures alone (Gibb, 2007).

Therefore, we taught our students concepts such as Life Long Learning (Longworth and Davies, 1996), and problem solving instead of reproducing facts and simply answering the questions asked. Using this concept, students may develop Applicable Approved competences. We encourage them to ask questions, seek for and find answers in theory and practice, assess the answers, conclude the findings. We are encouraging our students to choose and acquire their own projects; therefore they may develop their own unique and outstanding resume. Thus by the end of their Bachelor degree, students will be adequately prepared, competent and confident for the work they will be doing, thereby finding their key to success and sustainable happiness. From the assignments and IDP's collected and the content analysis procedures, it was found that students tend to rank their skills in a way on operationalized development can be obtained. Based on these findings, four levels of 'qualities of approved skills or competences were identified. The skills and competences can be shown at different levels:

#### 1 to 4, Level A: Applicable

Awakening, Recognizing, Acknowledging, Knowledge are typical phases to pass in gaining a theoretical basis. Methods like attending classes, lectures, seminars, study in the library and research on the internet are all means to gain a theoretical basis.

#### 5 to 8, Level AA: Applicability Approved

Theory used in practice. Students have reached levels like: Being capable, being able to apply and to perform. In practice, students have competence to select appropriate theories for the experienced situation and are able to interpret and apply these.

#### 9-12, Level AAA (pronunciation: "triple A"): Advanced Applicability Approved

Multiple Practice Experienced Levels of overall reflection, competent, innovative and excelling are in reach when one successfully applies theory and practice in several different locations and of situations.

For the description of the qualifications of young professionals, the concept of *Applicability Approval* (short: App) is used. An App can have multiple forms and can be gained when demonstrating a skill or competence in an appropriate context. Certificates collected may be helpful in demonstrating that a certain level is reached and therefore can be a valuable app (Vloon, 2013). App's can have multiple forms as certificate, newspaper article, price, formal

document, acknowledgement-letter, enquiry results, prototype-product, draft article, publications, described situations of professional achievement, etcetera. The collection of apps from a student is called the App-store, from which a résumé can be constructed for a specific goal. When applying for a job, it is clear that the resume is the most important document in selection process. Of course the level is determined by the grade of the diploma, but if the competition for a job is more or less between equals, the resume will define the conclusion. In the two cases below, the impact and usefulness of the App concept is demonstrated clearly.

#### Case 1

A student was asked; "Due to the production increase, by how many square meters should our stores expand their work floors?" Answer after students research: "Zero, but instead reorganize the production line". In his resume he wrote:

*At company XX, I performed a logistic study concerning shop floor management. As a result the production flow was improved, resulting in a significant improvement in profitability.*

#### Case 2

A student was asked to carry out an employee satisfaction research. The basis of the questionnaire was drawn up by the company itself. The result of his research was that the questionnaire drawn up by the company did not lead to reliable results. He designed a new survey. The Executive Board loved it and asked him to perform the survey (on a commercial basis) at all the branches in The Netherlands. The results will be used in redefining the Human Resource Management strategy. At his resume he wrote:

*At company YY, I did a successful redesign of the employee satisfaction survey. This new survey has been implemented by the company in all its stores in the Netherlands and led to new insight for the Human Resource Management.*

Based on the Apps, education can be also about the personality of the young professionals: they are stimulated to be enterprising. Therefore the conviction is: "EAT to succeed". Entrepreneurial success starts with Endurance, Ambition and Talent to combine with Effort, Affection and Time (to be invested).

### DISCUSSION

The thoughts about "EAT to succeed" are not really new. They are based on Socratic principles. Nowadays, this learning principle is generally supported in neither schools or in universities. A cause of this might be because of the way schools and universities are evaluated. Inspections are focused on traditional ways of teaching, controlling and assessing, assuming that schools and teachers are totally in control (and therefore totally responsible) for the student learning process. Instead, in the 'EAT to Succeed' paradigm, a teacher could help students to find their own qualities and intrinsic motivations, but students themselves would have to do the job (EAT). The more we try to regulate the worse this effect could

be. It is generally agreed that traditional education, with lecturer centered education models are not effective to cope with the challenges of the exponential times we are living in. And we also know that this EAT-way of educating was not properly and successfully implemented.

Questions might be:

- What is more effective, more regulation and control or more belief in the professionalism of teachers?
- What do teachers and students really need to perform more effectively and efficiently? Same type of discussions is experienced in other professions as: craftsmen and healthcare.

#### Conclusion

Especially in technical fields, most of the knowledge gained by students during their studies will be outdated before their graduation. This is why emphasize that only teaching knowledge cannot be sufficient. The 21<sup>st</sup> century puts everyone under pressure, as things are evolving so quickly. Competences, Entrepreneurial skills need to be developed. This would help everyone to face changes and adapt accordingly. "Project Management" allows such professional skills to be developed. Therefore, instead of preparing students to reproduce facts and answer questions, teach them concepts as Life Long Learning, and problem solving. By using this concept, students may develop Applicable Approved Competences. Encourage them to be proactive, ask the right questions, seek for and find answers in theory but also in practice, assess the answers, conclude the findings and formulate coherent advice. Also encourage students to involve themselves in their education, choosing the projects they are going to work on.

This helps them to prepare their own unique and outstanding resume. By the end of their Bachelor degree, students thus will be adequately prepared, competent and confident for the work they will be assigned to, thereby finding their key to success and sustainable happiness. Maximum effect would be achieved by allowing congruence with the educational style, the programs, the teachers' style, student learning style and goals to be met. Moreover, the school's own learning strategy is a core part of the process. Managing the programs and giving adapted accreditation system allows educational systems to reach sustainable development. Success is achieved via high levels of motivation: "EAT" motivating factors such as Endurance, Ambition, and Talent, combined with Effort, Affection and Time willing to invest, are high effective motivators.

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## Bridging the Gap between High School and University Business Schools

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### Abstract

Since the start of this millennium, the attention and perceived importance of entrepreneurship and as a logical consequence entrepreneurship education, evolved enormously. Several scholars studied and introduced educational principals to help society developing and benefit from entrepreneurship. Predominantly there is research on higher education institutes, high schools, secondary education, primary education or kindergarten, as isolated entities. Optimisations of programs are established and improved on a continue basis. Often university programs are translated for other groups, below in the educational pipeline, taking into account the known pedagogy and dynamics of that group. Many article report great successes on students' motivation and developed skills and competences. Given the low performance figures of high school students entering the higher education program, it is indicated that the connection of the two program types is far from optimal. It is seldom questioned what and how this is connecting to the education program further on in the educational pipeline. This results in a gap between high school and higher education in respect to entrepreneurship education. This paper wants to explore the possibilities to bridge the gap between high school and higher education in respect to the entrepreneurship education. Therefore it is focusing on the business schools established in both. Case study based, challenges, questions and problems are addressed.

**Keywords:** Secondary Education, curriculum design, business school, Gap

### Introduction

It can be observed from young children, when a toy does not meet the expectations, it get bored or frustrated and moves on to the next toy, game, movie, website or Facebook-post. The same can be observed when learners are in an educational program and there are problems with the interconnection the program of with the successor program. When learners finished high school or secondary education successfully, they start as a nascent student in higher education. The young students complain often because elements of the business school are overlapping their experience and knowledge or are too difficult because of unaware deficiencies (Asselt, 2007). Higher education teachers, on their turn, complain because some students have good previous knowledge and skills and others haven't, or in a different way (Asselt, 2007). Also the scope of the educational programs differs; from business-plan oriented to personal development and real start-up experience (Hammer and Thuijs, 2013). And it differs per high school, so the input at the university varies. As a result, dissatisfied and demotivated students and teachers meet in the business school classroom (Asselt, 2007). Despite that the individual programs are motivating have successful learning outcomes, the combination or sequential execution reveal room for improvement. In a specific European country, in average about 50% of the first year university business school students switch their study career (Terlouw, 2009). This is a loss of time and effort of the students, teachers and taxation money. Though this is a problem applying in all domains of education, the European Union invests in Entrepreneurship Education to overcome this problem, as a side-effect of being prepared for the 21<sup>st</sup> century (European\_Commission, 2006, European\_Commission, 2011). As a result of this politic involvement, Entrepreneurship Education is an emerging topic and applied or start to be applied in a great number of educational programs. Educators and curriculum designers in this field are therefore not fixed to dominant models and learning paradigms as e.g. in history, language, physics of mathematics. The Entrepreneurship Education curricula show a broad variety on educational paradigms and models (Hytti and O'Gorman, 2004, Hytti, 2002, Blenker et al., 2012, Brand et al., 2007, Fayolle, 2006). This could imply that the teachers on this topic are more open for and used to changes in their program, learning outcome and didactical paradigms. The Entrepreneurship Education modules and courses are there for selected by the authors to start with the challenge to reduce the gap between secondary and higher education in the Eastern part of the Netherlands.

### Theoretical background

In this paragraph first a brief overview of the applied theories on Entrepreneurship Education is given. In the second part the pedagogical approached, theories and methodologies are discussed which are used to address the questions raised in this paper. Since the last years Entrepreneurship Education is adopted in the educational world to be a 'standard' module or subject (Twente, 2015). This paper make use of the education process model, as described by Koopman et al (2013) to identify anchor points for intervention design addressing the questions addressed. Entrepreneurship Education has its own set of competences and skills (Groen et al., 2002, Kutzhanova et al., 2009, Leitch et al., 2012, QAA, 2012). Next to the different skills an competences, Entrepreneurship has other characterizing elements of Education. In respect to the educational methods, there is a high tendency for action learning and practical orientation (Neck and Greene, 2011, Neck et al., 2014), constructivism (Walter and Dohse, 2012) and regional context, even up to personal level (Blenker et al., 2012, Walter and Dohse, 2012). Scholars as Saras Sarasvathy (Sarasvathy, 2008) and Allan Gibb (Gibb,

1996, Gibb, 2007) describe an overall perspective of education methods. The last element of Koopman's model is the teacher. The role of the teacher in Entrepreneurship Education is touched widely in literature (Blenker et al., 2011, McMullan and Long, 1987, Koopman et al., 2013) and even there is an online journal for them (Winkel, 2014), though specific characteristics were not described.

Within the scientific field of education research, the traditional role of the researcher is balancing between participant and observer (Brands et al., 1974). This approach is favoured because the daily education practice is the base of empiric evidence. On the other hand, innovation in education is often initiated by new theoretical knowledge, the so called 'tacit knowledge' (Sternberg and Horvath, 1999). The authors want to use both of these approaches. Therefore the interactive research model of Ellström (2008) will be used in this paper (see figure 1 below). The interactive research is defined as an approach "where researchers, funding agencies, and 'user groups' interact throughout the entire research process, including the definition of the research agenda, project selection, project execution, and the application of research insights" (Ellström, 2008, 3).

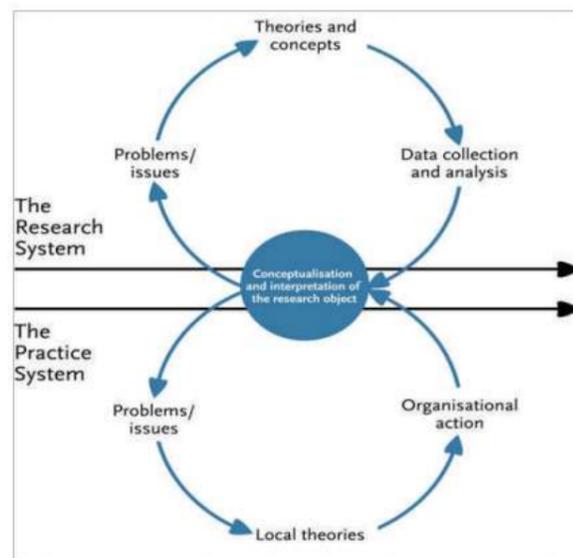


Figure 1, The interactive research model of Ellström (2008)

To prevent the research from a theoretical or practical bias, there are two separate research systems and collective learning cycles: a theoretical one and a practical one. However are connected as shown in figure 1 above. In the model therefore there are two basic elements:

1. A set of three tasks:
  - a. Provide a contribution to the approach of a practical problem.
  - b. Valid scientific knowledge creation (theories, concepts).
  - c. Stimulation of the participants for joint learning.
2. Knowledge creation by co-operation between of researchers and practitioners, to solve a practical problem.

Searching for causes of the gap between secondary and higher education, two main factors identified (Asselt, 2007, Terlouw, 2009, Bos et al., 2007): (a) Domain specific causes (e.g. subjects, modules) and (b) general causes (e.g. study and profession choice, future expectations).

Since the assumption of this paper is a transfer from entrepreneurship Education to Entrepreneurship education, the focus will be on the second, general cause. Studies on these causes make use of variables, where 'attitude toward the new situation' is the most dominant. Research show that students do have a limited or even wrong pictures of the study / profession they choose (Asselt, 2007). An answer to the question of this paper seem to be easy with these outcomes: design authentic situations for secondary school students, before they choose for or enter higher education. However, other research show that the use of authentic situations show no result on this. Jeremy Roschelle (1989) show in her research that enquiry based science instruction is not improved when making use of authentic museum context. In an attempt to solve the problem from an empiric approach, the Activity Theory as described by Engeström (1999) is used. The Activity Theory try to understand the mental capabilities of an human being by analyzing the cultural and technical aspects of human actions. The actions are described by six related elements:

- Object: Object refers to the objectiveness of the reality; items are considered objective according to natural sciences but also have social and cultural properties.
- Subject or internalization: Actors engaged in the activities; the traditional notion of mental processes.
- Community or externalization: Social context; all actors involved in the activity system.
- Tools or tool mediation: The artifacts (or concepts) used by actors in the system. Tools influence actor-structure interactions, they change with accumulating experience. In addition to physical shape, the knowledge also evolves. Tools are influenced by culture, and their use is a way for the accumulation and transmission of social knowledge. Tools influence both the agents and the structure.
- Division of labor: Hierarchical structure of activity, the division of activities among actors in the system.
- Rules: Conventions, guidelines and rules regulating activities in the system.

The relations between the elements are shown in figure 2 below.

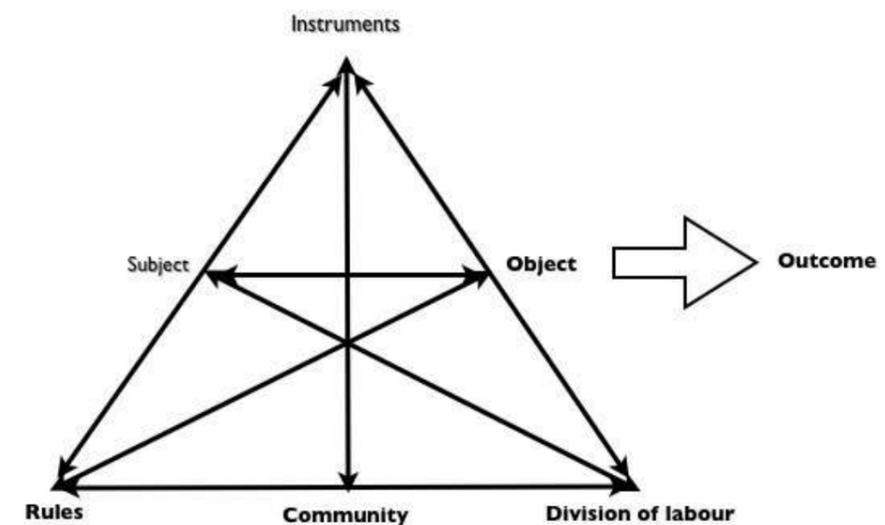


Figure 2, Activity model of Engeström (1999)

### Questions, challenges and problems to be asked and addressed

Given the theoretical background, the emerging questions and challenges are projected below. A major challenge is the great variety of programs of the high schools and the freedom these high school have in de design of these programs. A second challenge, at the other end of the gap, is to find a methodology or didactical instruments, to have all students in the same program, leading to a sort of generic level in the end. This challenge becomes even bigger, taken into account that on the high school, some learners have shown more progress than others. In tertiary education the difference between students may even become bigger.

In the given situation, the high schools involved, do have a business school where students, preparing for an higher-education program or a profession in the economic domain may attend. The groups of schools are directed by the 'Carmel foundation', what is explaining the name 'Carmel' on the figures below. It is not part of their regular program and when passing the tests, they get extra certificates. Students are only allowed on the program when being motivated. In this Business School, the program is focussed skills, as can be seen in figure 3 below. The teaching method is project based and with a high interaction of local companies. Nevertheless, first results do show a better understanding of 'the profession to aim for', but no clear results on the grades and drop-out rate of higher education.



Figure 3, Design of the business school

According to the theories described above, a second, additional program is designed, focussing on additional knowledge. This program is called the 'Business Academy' and is only for those students who show excellent results in the normal program. The program is shown in figure 4 below.



Figure 4, Design of the Business Academy

The Business Academy started this year and can only be entered when attending the business school as well. To integrate the extra knowledge, the theory of the Business Academy is integrated in the practical assignment, all secondary school students must hand-in before their theoretical exams (in Dutch: Profiel WerkStuk). First experiences in the academy show that students must work very hard. Furthermore, it is not clear for the students what benefit they might have in higher education for all the extra work, since in higher education all students are treated to be equal in skills and knowledge; they sit in the same classroom with the same timetable. Although they have had two additional programs as can be seen in figure 5.

From the universities perspective, many high schools do have different business schools, with different outcomes. In the example above, the Saxion university has 60 high schools (from

where Carmel is only one) from where the students are coming from, all different. The task of the university is to lead the students to one minimum level of the diploma requirements. Students know this and do not see their benefits to perform higher on secondary education.

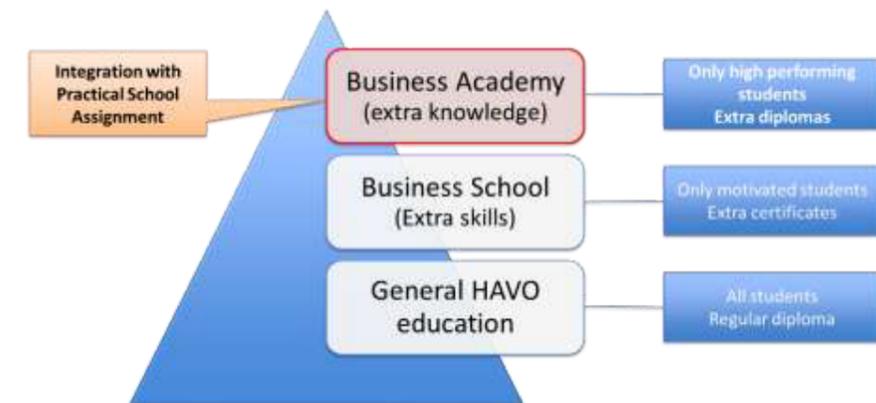


Figure 5, Overview of the extra programs in secondary education at the Carmel schools

For these reasons, the questions below are asked by the authors, to help them in the next step of their research:

- 1) **What systematic construct (typology, methodology, taxonomy ...) could help to map the variety of high school business schools?**  
Is the approach of Carmel of perspective? Too complex or even to general?
- 2) **How can motivation and passion be continued when going from the high school business school to the university business school?**  
When students discover, they are all treated equal after all, why putting-in so much effort; it is not effecting their grades directly.  
What could be done by universities to value the extra skills and knowledge in their programs?

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## DEMYSTIFYING THE VOCABULARY FOR CREATIVITY AND INNOVATION EDUCATION

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### ABSTRACT

*This paper is fostering the reasons why creativity and innovation is a minor topic in higher education curricula though actual concepts as 21<sup>st</sup> Century Skills and Entrepreneurship claim the opposite. Research show that the difference on vocabulary among professions can be addressed as a major reason. By analyzing the training of professional educators and having in-depth interviews with professional teachers, insights obtained of the vocabulary used. With the findings, design requirements for educational programs for innovation and creativity can be identified. The paper want to contribute to the profession specific vocabulary on creativity and innovation.*

**Keywords:** Creativity, Innovation, Education, Entrepreneurship, Vocabulary.

### 1. INTRODUCTION

Since the beginning of this century, policymakers, industry and universities spread-out the awareness that society is moving beyond technological developments. After the early warnings of Alvin Toffler (1981) and Herbert Simon (1965, 1996), society tried to find solutions for the increasing speed of technological developments and the question on how to prepare new generations for the increasing complexity of society. As a successor of the Tofflers Third Wave (Toffler et al., 1981), several organisational scientists as Maynard (1996) and Arthur (1996) tried to describe the fourth wave of industrial revolution. The knowledge and skills for adolescents of this fourth-wave future has become known as '21st century skills' (Brown, Green, & Lauder, 2001; McLarty, 2000). However, according to a literature study form Voogt and Rablin (2010), more than a decade scholars, practitioners, consultants and teachers have tried to grab this phenomena and failing a general, accepted and implementable concept for use in schools, colleges and universities. As a main problem, the used vocabulary was mentioned. Though from most studied documents was found that 'creativity, critical thinking and problem solving' were the common skills. From an economic perspective, the World Bank identified entrepreneurship as an antecedent of economic growth and development and has to be stimulated for continuations of this growth (Audretsch & Thurik, 2001; Baumol, 1996; Ilmakunnas & Kannianen, 2001; King & Levine, 1993; Wennekers & Thurik, 1999). Major governmental and non-governmental organisations transformed these scientific insights into policy papers, where entrepreneurship and entrepreneurship education were chosen as the solution for future economic developments (Borzaga & Defourny, 2001; European Commission, 2006; Sijgers, Hammer, ter Horst, Nieuwenhuis, & van der Sijde, 2005; Verheul, Wennekers, Audretsch, & Thurik, 2002). Entrepreneurship is meant here in the sense of

'opportunity-driven' entrepreneurship and not 'necessity-driven', where the dominant model of entrepreneurship is that of value creation (Shane, 2000; Shane & Venkataraman, 2000). For the education of entrepreneurship a large group scholars became active in this field. Publications of leading researchers and governmental organisations show an accepted overlap of competencies for entrepreneurship as 'creativity, endurance, goal orientations and self-efficacy' (Bécharde et al., 2007; European Commission, 2006, 2011, 2014; Fayolle, 2006; Gibb, 1993; Hytti & O'Gorman, 2004; Man, Lau, & Chan, 2002; QAA, 2012; Rae & Carswell, 2001). As was addressed for the 21<sup>st</sup> Century skills by Voogt et al (2010), for the entrepreneurial competences the vocabulary is a problem for adopting entrepreneurial learning in other domains than the business (Koopman & Hammer, 2014). As well as from entrepreneurship education and the 21<sup>st</sup> Century skills, creativity is mentioned as one of the most important competencies, where creativity classes are not very frequently scheduled (Fasko, 2001). As from both fields of research is reported, the proper use of vocabulary is an important aspect for disseminating skills and competencies. In this research we want to explore the possibilities for identifying appropriate vocabulary for teaching creative competences, where the authors could not find major scientific evidence of the operationalization. For the reason that the innovation process, as used by the OECD (2005) has similarities with Shane's entrepreneurship model of value creation (Shane & Venkataraman, 2000) and that there is significant more literature about entrepreneurship than on the 21<sup>st</sup> Century Skills, for this study the perspective of entrepreneurship education is used to foster the possibilities to identify the proper vocabulary. For the research the authors use the data of an Teacher-education program on entrepreneurship education as is described below. The authors assume that the vocabulary used in a specific profession can be grabbed from the teachers of this profession.

### 2. THEORETICAL BACKGROUND

Within the field of entrepreneurship education, there need to be a distinguishing between the education of, entrepreneurship, enterprise and small business management because of a different approaches in teaching strategies and proposed curricula (Gorman, Hanlon, & King, 1997). Entrepreneurship has a positive influence on the economic growth (Thurik & Wennekers, 2004; Wennekers & Thurik, 1999), while entrepreneurial education has a positive influence on the entrepreneurial activity (Gibcus, Overweel, Tan, & Winnubst, 2010; Raposo & do Paco, 2011). The education of entrepreneurs is something that has to follow a different method from the conventional methods of education (Blenker, Korsgaard, Neergaard, & Thrane, 2011; Gibb, 1996). This is visualized by Allen Gibb (2010) (by a static, inactive, person and a running, active, person) and by Hammer (2012) (with the metaphor of the goose and the falcon). Goose are jointly matured in groups and the teachers decides what to learn, when to learn and how much to learn. This results in behavioural aspects of goose. Obverse, falcons are being taught to behave more individual and be aware of the opportunities were total different life strategies emerge, as can be observed in the behaviour of a falcon or eagle. Research on entrepreneurship education identify some major aspects to include. For entrepreneurial education, active education methods and practice have a positive influence (Neck, Greene, & Brush, 2014; Walter & Dohse, 2012). A more constructivistic teaching method is resulting in forms of action-based learning, which has nowadays been recognized as the preferred way of teaching entrepreneurship

(Jacobsen, 2012; Pittaway, Missing, Hudson, & Maragh, 2009) and has a positive effect on entrepreneurial action (Gielnik et al., in press; Martin, McNally, & Kay, 2013). The role of the teacher is of great importance for the learning outcome.(Gelder, Peters, Oudkerk Pool, & Sixma, 1972). With the other aspects of culture, education methods and competences (van den Akker, 2003), the model as shown in figure 1 is used for the research of this paper.

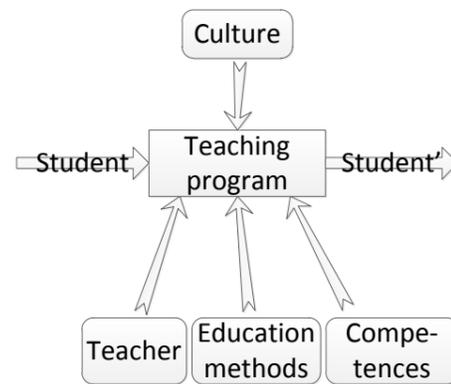


Figure 1 The teaching process (Koopman et al., 2013)

### 3. METHODOLOGY

To demystify the vocabulary the results of a research project on teaching educators on entrepreneurship is used as an input. That project identified educators from non-business faculties, who are willing and feeling competent to teach their young professionals. Because educators from different faculties participated, the vocabulary issue emerged. After the project, educators from the physiotherapy faculty participated in the research for this paper. The educators were asked to give explanations on different topics. For data collection notes by the researcher as well as audio-recordings were made, from where they were transcribed. Some of these topics discussed were strongly related to entrepreneurial decision making and other were strongly not-related. To distinguish between entrepreneurial decision making (addressed as effectual) and non-entrepreneurial decision making (addressed as causal), the principles of effectuation (Sarasvathy, 2009) were applied. An expert team on effectuation and entrepreneurship education designed the questions and topics for this research. as presented in the discussion scheme in figure 2, for interviewing people from different disciplines. With this discussion scheme the authors want to get insights in the use of entrepreneurial vocabulary by several disciplines; what are the words that are being used if they talk about risk, whether it is expected return or affordable loss driven. This discussion scheme is used in interviews. First the person is subsequently asked about the each of principles of entrepreneurship. Then they are asked about whether they use of causal and effectual strategies within their discipline. The authors choose these principle while Saras Sarasvathy because of the strong relation with the concepts of Herbert Simon (Sarasvathy, 2001, 2003). From the transcripts and the researchers notes, the expert team mentioned acquired their findings.

Principles of entrepreneurship	Causal strategies	Effectual strategies
Starting point of entrepreneurship	Start with the opportunity	Start with who you are, what you know, whom you know
Investment risk attitude	Investing based on expected return	Invest what you can afford to lose
Attitude to others	Competitive analysis	Build self-selected network of stakeholders
Contingencies for entrepreneurship	Avoid contingencies	Leverage contingencies
Control mechanism to the future	The future are inevitable trends	The future comes from what people do

Figure 2 Discussion scheme for entrepreneurship

### 4. RESEARCH PROJECT

For a better understanding of the findings, the initial research project to teach non-business educators on entrepreneurship is described in this paragraph. Based on the teaching process described above, a research project started by the Saxion university in cooperation with the University of Twente and Kennispark Twente. It was funded by the regional economic development program to valorise the knowledge of universities to the region (RvO, 2012). Aim of the research project was to integrate principles of entrepreneurship in an entire university learning system. According to the described teaching process (Koopman, Hammer, & Hakkert, 2013) a teaching program for entrepreneurial education was designed for all university faculties. The design process used is shown in figure 3.

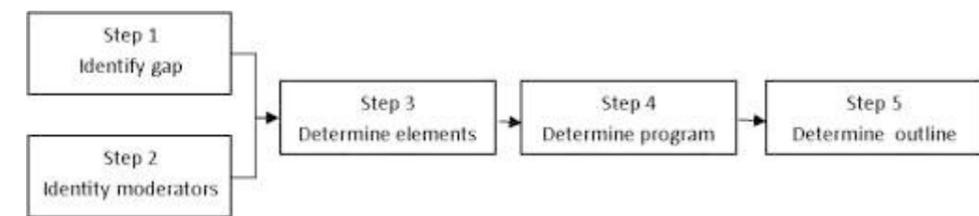


Figure 3 Design process

The identified gap from the first step of the design process, is the absence of an entrepreneurial teaching program for teachers, which is the aim of the research project. The moderators are identified from the teaching process being used. These moderators are described below:

- *Culture*. At the university of Twente and Saxion University, each faculty has its own culture from direct vicinity of the field. Since the field is not the subject to change, it was untouched in the project.
- *Competences*. In the last decade many studies on entrepreneurship and enterprising competences are conducted with a wide range of results. For this research project it was agreed that the competences should be in line with the faculty involved and therefore the broad accepted from the QAA were used (QAA, 2012).

- *Education methods.* Several researchers have published about the education methods in an entrepreneurial way (Blenker et al., 2011; Gibb, 1996; Sarasvathy, 2009). A more constructivist method and action-based education, based on andragogical principals.
- *Teachers.* The teacher is indicated as an important mediator of the teaching process. When a change is wanted, teachers should also change their contributions (Blenker et al., 2011). How the teachers should change is not well known. Also most professors of entrepreneurship will stick to writing a business plan as it is in their syllabi (Honig, 2004). This makes that the main focus of the research project is on teaching educators for entrepreneurship education.

For the development of the program to teach the entrepreneurship educators, the general teaching process, as from figure 1, is used in three loops. This results to Figure 4, where the teaching program for teachers is the focus of the design.

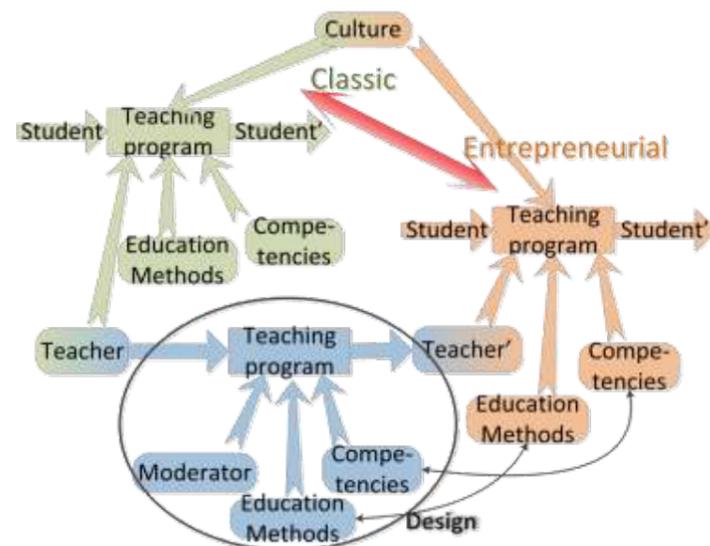


Figure 4 Teaching teachers in entrepreneurial teaching

The three general teaching processes of figure 3 are used for: the classic teaching program, the entrepreneurial teaching program and the program for the educator's development. The educator's development program, we designed, focuses on the development of teachers, to enable them to teach more entrepreneurial.

Before and after each teaching session with the educators, the design team discussed the meeting involved and adapt the content to the situation emerged during the former session. During the session the outcome of the program tended to be the development of enterprising program in each faculty. The program started with the descry of the vision of the different faculties on entrepreneurship. After discussion, bottom-line, the individual visions where in line with the one of the university. After the agreement on the shared vision a fuzzy discussion started on the competences, needed for the entrepreneurial programs. Between two sessions it became clear to the designers team that the form and tongue of what a competence is, was interpreted different over the faculties, although the ones from the QAA (2012) seem very clear to the designers. To find a way to go from the vision to learning activities, it was agreed that the educators

would identify 'aspects' on what they found it was entrepreneurial. In the next sessions, the educators tried to identify where in their existing curriculum, where some entrepreneurial aspects were introduced, the different aspects where visible. They also indicated if and how it was tested by the students. Some of the teachers managed to change their program and reported an improvement in their goals. The underpinning of the results of these improvements are still in research. For this paper we focus on another result of the program, which is more an unexpected and not so welcome result, but still very interesting to find out more about.

The teachers-program started in 2013. Teachers from non-business schools participate in this teachers development program. The results of the training program caused some questions. First of all the teachers of different disciplines used another vocabulary; healthcare teachers for example doesn't talk about 'entrepreneurship' but prefer 'innovation'. They also do not talk about 'risk taking' because they deal with people; 'we don't do that'. This vocabulary, which is assumed to be depending on the discipline, makes it difficult to do research in entrepreneurship in different disciplines. Second this makes the use of 'standard' entrepreneurial competences and education methods difficult. That's why it is interesting to do research at this topic. But using entrepreneurial vocabulary, like the classification of the GEM-data that Wennkers ((2015 [to be published]) used, at this research will again distract non-business teachers and students. That's why generic principles are needed to extract the vocabulary for a specific branch.

## 5. FINDINGS

The findings of the research show that non-business teachers, do use a different language, when talking about the same innovative and creative entrepreneurial decision making. The professionals of physiotherapy identified personal growth and self-management as signs of opportunities. Risk was experienced as something external from themselves. The attitude towards others showed a negative relation to entrepreneurial behaviour as well as dealing with contingencies. The control mechanism for the future showed a strong relation in respect to the health development of the patient. Creativity showed to be connected to technological development and 'above disciplinary' reasoning.

## 6. CONCLUSIONS

From the findings it can be concluded that non-business professions do not meet the assumptions of business-oriented professions in respect to entrepreneurial decision making. Among its elements is show a jugged-profile. This profile can be transformed to educational design rules for causes for these profession.

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## EXPLORING THE ROLE OF EFFECTUATION IN TECHNOLOGY ASSIGNMENTS IN UNDERGRADUATE ENGINEERING COURSES

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*Abstract: This paper explores to what extent effectuation principles are used in a given technical educational setting. A problem however is that we are currently hampered to observe these principles in the classroom so it is difficult to determine the effectiveness of the program. Therefore first a suitable measurement instrument is identified, adapted to the specific context and tested. Although it was expected that the project managers should show a higher level of effectuation than the team members, the instrument used show that no significant change could be detected. This was in contradiction with empirical observations of the research team. An important result of the study is found in the discussion section where suggestions are made for both, the measuring instrument and the technology assignment to enable students more to apply elements of effectual entrepreneurship.*

Keywords: *Effectuation, Technology Assignment, Entrepreneurship Education*

### 1. Introduction

Since the believe that entrepreneurs think differently than managers (Busenitz & Barney, 1997; Stewart, Watson, Carland, & Carland, 1998), scholars and politicians increased their interest in this field (Ahmad & Seymour, 2008). They are able to envisage opportunities in situations where other people do not recognize them (Stewart & Roth, 2007). Because of this characteristic, entrepreneurs have been regarded as the source of innovation and economic renewal (Minniti & Levesque, 2010; Schumpeter, 1934; Thurik & Wennekers, 2004). The region of east Netherlands identified and adopted the entrepreneurship concept as a joint competitive advancement (Sijgers, Hammer, ter Horst, Nieuwenhuis, & van der Sijde, 2005). More specific they concentrate on entrepreneurship and creativity in the domain of ‘Living Technology’ (Saxion, 2014). Since the

last decades, every university, high school and even primary schools do have a sort of business school or course to let the adolescents benefit from these characteristics (Blenker et al., 2012; Brand, Wakkee, & Veen, 2007; A. A. Gibb, 1993; Allan A. Gibb, 2007; Hytti, 2002). Predominantly entrepreneurship education is offered in the business and economic sectors of education (Hytti & O’Gorman, 2004). Recent development in the entrepreneurship education show that entrepreneurship could and should be educated in a more broader perspective to enable more young professionals getting more innovative (Koopman & Hammer, 2014; Matlay, Heinonen, Hytti, & Stenholm, 2011; QAA, 2012). Entrepreneurship can be seen through many lenses and described from many perspectives (Bygrave, 1993; Bygrave & Hofer, 1991; Rae, 2007; Shane & Nicolaou, 2014; Shane & Venkataraman, 2000). According to Neck et al (2014) an action based learning setting was chosen. Within the technology faculty, a large group of engineering students sign-up for a project week, where students are challenged to do something that required them to engage the firm’s problem with fresh attitudes and come up with an innovative solution. For that they are assumed to go beyond standard solutions and using at least certain principles of effectuation. A rather practical approached is introduced by Sarasvathy (Sarasvathy, 2001). She argues that entrepreneurial behaviour in principle differs from the way managers behave. The distinction between the two opposites is found in the way the two handle problems. This distinction translates to the dichotomy of effectuation versus causation. Similarly, Boisot and MacMillan (2004) use the distinction between plausible and probable worlds. Sarasvathy (2001) positions managers in the realm of causation. They are believed to apply causal reasoning when solving problems. Whenever they observe a problem, a goal situation is defined and a path is plotted backward from the goal situation to the present situation. Each step along the way is made using causal reasoning. Probability dictates causality. At the opposite side, entrepreneurs are said to operate using the logic of effectuation. Not a target situation is specified. Instead entrepreneurs explore possible steps ahead from their current situation, using available means. In contrast to probability, entrepreneurs reason from the notion of plausibility; imagining future situations that might be achievable. Five principles typify entrepreneurial behaviour (Sarasvathy, 2008). The notion that entrepreneurs start their problem solving from the means they have available is referred to as the “bird in hand” principle. The second principle is the “affordable-loss principle”. Instead of focusing on predicting maximal revenues and foreseeable risks, entrepreneurs decide on what they are willing to lose when pursuing a new

activity. Third, the “crazy-quilt” principle refers to the build-up of relationships with stakeholders. The creation of a network aims to reduce uncertainty and remove barriers. The fourth principle is called the “lemonade” principle. Instead of ignoring or restricting unexpected and disturbing events to occur, entrepreneurs consider these to be opportunities for new ventures. The fifth and last principle is the “pilot-in-the-plane” principle. Instead of aiming to control future developments, entrepreneurs seem to argue that they do not need to predict future situations if they are able to control the future. Reversely, managers are said to operate under the mechanism of predicting the future so they can control it. Following this reasoning, the objective of entrepreneurial teaching could be described as ‘delivering learners that behave in accordance to the five principles of effectuation’. In order to meet this objective, an entrepreneurial teaching program could incorporate these skills. In the sections below, first the methodology is described. In the findings section, the results are presented. After the conclusion, limitations and discussion sections, the recommendations for further research are given.

## 2. Methodology

In this section the used methodology is described. The used methodology consists of three steps. In the first step of the research, by a systematic literature review a suitable measurement instrument was identified. In the second step, the instrument found was adapted to the specific context of measurement. In the third and last step the instrument was tested to measure the existence of the five principles of effectuation in an educational assignment context.

### 2.1 Instrument selection

The first step of the research is a systematic literature, held in November 2013, using the ‘Science Direct’ and Research Gate’ databases. For the search strings the words *Effectuation*, *Measuring*, *Teaching* and *Learning* were used in all possible combinations. The words *Entrepreneur* and *Entrepreneurial* were not used. As a result two publications appeared in almost every search: Two papers of Chandler et al (2007; 2011). In both articles effort was made to measure the degree to which effectuation. The setting was not within the field of education but in an business setting as “entrepreneurs in early-stage ventures” were questioned. The article of 2007 described doing a pilot study of 180 firms and a second study among 196 firms. In this first article they reached the conclusion that: “effectuation consisted of several sub dimensions” but

that they we were “unable to establish that the five independent factors are a sub dimension of the larger construct called effectuation”. In the article of 2011, Chandler et al developed two new studies for usage for start-up/young firms in electrical measurements industry (42%) and in the surgical and medical devices industry (58%) and carried out in semi-structured interviews. The article discusses 2 sets of questions of which the last set is showing high results in the factor analyses per construct within effectuation: Causation, Experimentation, Affordable loss, Flexibility and Pre-commitments. In the next step, described below, the questionnaire of Chandler et al (2011) will be adapted to the context of the research.

### 2.2 Instrument adaption

As discussed in the previous paragraph, the questionnaire of Chandler et al (2011) will be adapted to the specific context of the research. The first adaption has to deal with the language. The questionnaire was therefor was translated in the Dutch language. The second adaption has is dealing with the context of the research. In order to determine whether a question from the original questionnaire should be (1) included, (2) adapted, or (3) removed, we applied the following three criteria. First, the original questionnaire focuses on organizations and not on specific projects. Hence, a long-term horizon applies to most questions. Because of the limited timeframe of the student project week, questions have been altered to reflect the short-term perspective applicable to the context. We labelled this as the *time criterion*. Second, the Chandler et al (2011) questionnaire specifically targets established businesses. Student teams were formed at the start of the project week. In contrast to established businesses, these teams need to be considered inexperienced and young. Questions were adapted to reflect this. This was labelled as the *age criterion*. Third, the original context differs from the student project week relating to the investment value. Where firms invest actual resources in terms of man-hours, money and materials, students only have time to consider. The perception of risk, which holds a central position in the concept of effectuation, is expected to be different. The questionnaire has been altered to reflect the difference in investment value between firms and students. The third criterion was labelled the *investment criterion*. In the paragraphs below, first a description of the educational setting is given, where after the process of contextual adaption of the questionnaire is given.

### The educational setting

In this paragraph the educational setting is described. The students are all undergraduate students of one University of Applied Sciences, with a regional focus of their educational programs. The research is carried out on the event of a technology assignment. The aim of the technology assignment is to challenge students in working on multi-disciplinary teams and to assess their skills in innovative problem solving. The technology assignment needed to be carried out as projects during an international project week. In that week 996 students of 8 different educational programs (programs in engineering and economics) of the Saxion University combined with international students from other Universities of Applied Sciences and pupils from regional secondary education institutes, were divided in 123 groups. In each group, educational staff appointed a project leader. The students were asked to solve real existing technology-based problems or innovation demand. Regional companies provided and introduced the problems and in some cases the teams or project managers were invited to the company to see the real life situation and discuss with the employees of that company. One problem or innovation demand was appointed to multiple groups (at the most three) to introduce an element of competition.

All teams on one assignment were linked to one tutor. The tutor was their guide in the process and would also act as an extra channel to keep in touch with the company. The results of the technology assignment were assessed and graded by both, a representative of the company involved and an assessor of the university. Although the students were offered several workshops about creativity, teamwork and project management, no extra information about entrepreneurship was provided. The table 1 below provides an overview of the educational programs from which participating students originated. Per educational program the total number of students and percentages, and number of project leaders and percentages are listed. Most students study Mechanical Engineering. This is approximately more than twice than any other study submitted to the international week. The highest number of project managers is evenly distributed to the amount of students that they deliver. Although the number of mechatronics students is about average, this program provides relatively few project managers. In contract, Industrial Engineering students, making up 20 % of the project, only form 4,5% of the student population. Finance, Economics & Management students were not assigned as project managers.

The group classified as other, concerns a large percentage of the participants. Students from this category were Dutch students from preparatory education school (50%), German students from preparatory education school (45%), and Aruban students from preparatory education school (5%). No information on project managers from these groups was available.

Total	Team members	%	Project leaders	%	Total	%
Electrical Engineering	108	12,6%	3	2,4%	111	11,3%
Industrial Product Design	107	12,5%	20	16,1%	127	13,0%
Mechatronics	92	10,8%	2	1,6%	94	9,6%
Industrial Engineering	19	2,2%	25	20,2%	44	4,5%
Applied Physics	90	10,5%	10	8,1%	100	10,2%
Mechanical Engineering	202	23,6%	53	42,7%	255	26,0%
Biology & Medical Laboratory	0		1	0,8%	1	0,1%
Finance, Economics & Management	83	9,7%	0		83	8,5%
Other *	154	18,0%	10	1,0%	164	16,8%
Total	855	100,0%	124	92,9%	979	100,0%

\* Other: preparatory education school NL, DE, Aruban, unknown

Table 1: Overview of Population: participants per educational program

Most students study Mechanical Engineering. This is approximately more than twice than any other study submitted to the international week. The highest number of project managers is evenly distributed to the amount of students that they deliver. Although the number of mechatronics students is about average, this program provides relatively few project managers. In contract, Industrial Engineering students, making up 20 % of the project, only form 4,5% of the student population. Finance, Economics & Management students were not assigned as project managers. The group classified as other, concerns a large percentage of the participants. Students from this category were Dutch students from preparatory education school (50%), German students from preparatory education school (45%), and Aruban students from preparatory education school (5%). No information on project managers from these groups was available.

### Process of contextual adaption of the questionnaire

In this paragraph the process of the contextual adaption of the questionnaire is described. The process starts with the original questionnaire of Chandler et al (2011, p382). Because most of the

students are Dutch, the original questionnaire was translated into the Dutch language. This translation follows the original English text as closely as possible. After translating, the questions were evaluated whether they fit our educational settings. For that reason we tested each question for the three criteria: time, age and investment, as described in more detail above. After assessing the questions, one of the following possible actions were performed: the translated question was kept “*as is*” (status Translated), the question does not fit at all and is ‘*removed*’ (status Removed) or the question is ‘*adapted*’. In some situations, questions were added, in order to require more information out of the questionnaire. The main objective was to include translated questions as much as possible. When the adoption process was finished, a research expert and an educational expert reviewed all questions for omissions and design flaws. After the contextual adaption, the questionnaire was used to measure as described in the paragraph below.

### 2.3 Instrument testing

In this paragraph the methodology used to test the adapted instrument is described. During the project week the students concentrated on their given assignment and the turbulent setting of it. A lot of pressure is created to simulate real industry circumstances. For this reason the instrument was tested two weeks after the assignment. This timeframe is also chosen to mimic the retrospective aspect of the research from Chandler et al (2011). Because of the size of the population of the assignment the new developed questionnaire was transformed into a digital version. The questionnaire was then used in an online survey program Netq (NetQuestionnaires, 2014). In accordance with Chandler et al (2011) we used a 5 point Likert scale. The questionnaire was sent only to students of Saxion University of Applied sciences. For the reason that the category “Other” existed for 95% out of preparatory education school. They participated in the project week with the aim to get to know Saxion, and received no training in the participating studies. Students received an explanatory mail of the purpose of the questionnaire and a web link to arrive on the webpage of the questionnaire. Two reminders were sent on a weekly based interval to increase response in total students were able to respond for a period of 4 weeks. Eight weeks after the assignment the data collection was closed and analysed with a statistical program, SPSS, version 21. The results of the research are presented in the next section below.

### 3. Findings

In this section the results of the research are presented. First the results of the contextual adaption are presented. In the second paragraph the statistical results of the questionnaire are given.

#### 3.1 contextual adaption of the questionnaire

In this paragraph the results of the contextual adaption are presented per question of Chandler’s questionnaire. Questions 1 and 3 were removed, using the time criterion. The long run notion in question 1 and the focus on the building up of a company in question 3 emphasized the long-term perspective, contrasting our application context. The time criterion was used to adapt questions 5, 7, and 14. The competitive analysis asked for in question 5, is not required for the technical assignment of students. Instead the usability of the solution, and client focus were of importance. Therefore we adapted the question, and asked whether a target group for the solutions was selected before the solution was developed. The focus on a business model in question 7 did not fit the project’s focus on experimentation with different product. Instead we asked whether multiple solutions were developed (completely) and one was chosen. Question 14 was altered. The idea of emerging opportunities did not fit the context of the student project. The new question asked whether the design evolved with the views of the firm’s representative during the project week. We changed questions 8, 9 and 10 because these did not meet the age criterion. Both questions 8 and 9 focus on realized products or services. During the project week, the stage of finished product or service could not be reached. We therefore altered both questions asking for stepwise or creative improvements. Question 10 was altered because of its strong focus on reaching a stable business model. During the project week no stable situation for a business model is achievable. Instead, we questioned the students to indicate to what extent multiple development strategies were used simultaneously. The investment criterion led us to change questions 11, 12, 13, and 18. Question 11 was changed, asking students to indicate to what extent other activities suffered from participation to the project. Additionally, we asked students to indicate whether they kept track of their time spend on the project in the revised question 12. Question 13 was altered and asked about whether unpromising developments during the project were stopped in time. Finally, revised question 18 asked students to indicate whether the client approved the chosen solution.

Four new questions were added to the original questionnaire. In order to measure the level of experimentation, three new questions were added. First, we asked to what extent student experimented with existing solutions. Second, students were asked to indicate the extent to which they experimented with existing solutions outside their field of expertise. The third question on experimentation asked for the degree to which students needed to work outside their own field of expertise and experimented with new knowledge. Finally, we added one question pertaining to the degree of pre-commitments. For this, we wanted to know to what extent students had collected information from sources outside of school and test the feasibility of their solutions. We therefore asked them to provide an indication of the amount of time spend contacting potential suppliers. In table 2 below, the adapted instrument is presented.

Factor		Witteveen/Faber (2014)
Causation	A	We bedachten/gebruikten een strategie die het best gebruikt maakte van middelen en mogelijkheden.
Causation	B	We bedachten vooraf een manier om voortgang te meten.
Causation	C	We bedachten vooraf een doelgroep voor het ontwerp.
Causation	D	We wisten van te voren waar we uit wilden komen
Experimentation	E	We hebben meerdere oplossingen (volledig) ontwikkeld en er 1 gekozen.
Experimentation	F	We verbeterden stapsgewijs ons ontwerp.
Experimentation	G	We hebben ons ontwerp een aantal keren volledig herzien.
Experimentation	H	We hebben meerdere ontwikkel-werkwijzen naast/door elkaar gebruikt.
Experimentation	I	We hebben een combinatie van bestaande technologieën gebruikt.
Experimentation	J	We hebben een bestaande oplossing uit een ander gebied toegepast.
Experimentation	K	We hebben obv huidige kennis een oplossing gevonden.
Affordable loss	L	Andere activiteiten dan de LED-week zijn niet in gedrang gekomen.
Affordable loss	M	We hebben meer tijd in het project gestoken dan volgens de planning aangegeven.
Affordable loss	N	We hebben tijdig ontwikkelingen die niet werkten, stop gezet.
Flexibility	O	We lieten het ontwerp meegoeien met de inzichten van bedrijfsbegeleiders
Flexibility	P	We ons aangepast aan de beperkte/beschikbare middelen.
Flexibility	Q	We hebben ingespeeld op de ontwikkelingen die we in de week tegenkwamen.
Flexibility	R	We hebben zo lang mogelijk alle wegen naar een oplossing open gehouden.
Pre-commitments	S	We hebben de klant van te voren naar hun mening over een ontwerp gevraagd.
Pre-commitments	T	We hebben van te voren nagegaan of leveranciers willen/kunnen leveren.
Pre-commitments	U	We hebben potentiële leveranciers uit een netwerk gecontacteerd.

Table2, the adapted instrument

### 3.2 statistical results of the instrument testing

In this paragraph the statistical results of the returned questionnaires are presented. First the general response is evaluated, were after each of the effectual constructs are analysed. In table 3 the response rates are presented. The total response of 129 out of 815 (15,8%). It shows that the study Mechanical Engineering has the highest response as might be expected being the largest group in the queried population. The same applies for the study Industrial Product Design in the second place. The special position of Industrial Engineering has diminished as the relative large percentage of project managers is not there in the response any more. The total absence of response from students from Finance, Economics & Management is rather disappointing.

	Team member		Project manager		Total	
Electrical Engineering	11	11,7%	1	2,9%	12	9,3%
Industrial Product Design	21	22,3%	8	22,9%	29	22,5%
Mechatronics	12	12,8%	1	2,9%	13	10,1%
Industrial Engineering	1	1,1%	4	11,4%	5	3,9%
Applied Physics	14	14,9%	3	8,6%	17	13,2%
Mechanical Engineering	26	27,7%	18	51,4%	44	34,1%
*Optional	9	9,6%		0,0%	9	7,0%
Grand Total	94	100%	35	100%	129	100%

\* Optional: no study information was provided.

Table 3, the response rates per educational program per role

Given the returned data we constructed a table (table 2 above) where our questions are coupled to the constructs that Chander et al (2011) found, plotted scored frequencies and calculated means and standard deviations for descriptive statistics. For the construct *Causations* it seems for question A till D most of the respondents scored Neutral, Agree or Totally agree. Two exceptions are question B and C where Totally disagree and Disagree is a relative large part of the response. Looking to the means and standard deviations of the total population we see averages between 2.5 and 3,5 out of five but also rather high standard deviations (between 0.96 and 1,4) thus indicating a relative high spread. Team members and project leaders do not differ much from each other, but whenever project leaders score higher, there is also higher variance.

For the construct *Experimentation* we observed that most students responded Neutral till Totally agree, but not for exception: question G where the highest score is Neutral, and J where 20

responses are Disagree. Looking to the means and standard deviations of the total population we see slightly higher averages than with the construct Causation: between 2.5 and 3.9 out of five and again also relative high standard deviations (0.96 – 1.4) thus indicating a relative high spread. Between team members and project leaders there is an alternating pattern which of the groups score higher in means (3 out of 7 times the project leader scores higher) but the project leaders among themselves score more variance (5 out of 7 times higher). For the construct *Loss* we observed that most students responded Neutral till Totally agree, except for the question where we asked whether they put in extra time: 90 students responded from Disagree till Neutral. Looking to the means and standard deviations of the total population we see relative high averages for 2 of the 3 questions and again also rather high standard deviations (1,04 - 1,3). Between team members and project leaders, one can see that project leaders think they put in more time and stopped unpromising solutions earlier than team members.

For the construct *Flexibility* we observed that most students responded Neutral till Agree. Two questions scored slightly lower: These were the question where we asked to what extent the students let the clients view be a part of the new solution, and the question where we asked to what extent they kept their options open. Nonetheless when looking to the means and standard deviations of the total population, the team leaders and team members we see relative high averages (3.25 -3.82) and again rather high standard deviations (0.881 – 1.199). For the last construct *Pre-commitment* we observed that most students responded rather low: when asked whether they looked at potential suppliers. Averages were 1.97 and 2.11. Clients were involved slightly more. Once again: standard deviations were relatively high. After analysing the means and standard deviations, Cronbach's alphas were made per construct, as is shown in table 4 below.

	Total	Project Leader	Team Member
Causation	0,460	0,460	0,462
Experimentation	0,617	0,553	0,650
Affordable loss	0,045	0,187	0,063
Flexibility	0,527	0,261	0,635
Pre-commitments	0,750	0,826	0,697

Table 4, Cronbach's alphas per construct

When applying the generally advised rule of thumb of a minimal value of 0,7 only the construct *Pre-commitments* is positive (but in a denying way) and the construct *Experimentation* comes close. When reversing certain questions and or leaving certain questions out the Cronbach's values improve a little but not significantly.

### Conclusions

From the results of the research, it can be concluded that the identified, adapted and tested instrument, did not identify causal or effectual phenomenon or behaviour of the students. From empirical observations of the research team, effectual reasoning and behaviour in many team was observed. Next to effectual, causal as well. Therefore it cannot be concluded if the instrument failed or no effectual dominance was present. In the limitation and discussion section below, some reasons for this could be found. In the recommendation section the authors tried to valorise their findings for further research and benefit of other scholars.

### Limitations

From the chosen design, the research has some mentionable limitations. The first is the choice of the initial instrument. At the time of the research design, Chandler's et al (2011) questionnaire was under researched and not many experiences from other scholars were available. It is known that the dynamics of experienced entrepreneurs is different from unexperienced students, since effectual behaviour was registered by Sarasvathy (2001) at expert entrepreneurs. Another limitation is the relatively low response rate of less than 16%. It cannot be reproduced what effect this has on the initial outcome. The low response rate may be caused by the time and for of data collection, which is also a limitation of the research.

### Discussion

From the conclusion and limitations, the authors tried to learn lessons from this research. First of all, the design of the technology assignment may not be optimal for effectual exercising. Though universities are happy to get real and practical assignments from industry anyway, they might not be so critical of the design. It can argued whether all students did have a fair chance to show, learn or practice effectual behaviour. Partly this may be caused by the short time of the assignment, one week, were companies do not want to give assignments far away from their own

predicted outcomes or dare to let students get to far out of the box. Instructions to this respect to the companies may help. A next element are the means available for the students; they may be too limited and claimed as fixed or the students. Instructions to the student on this could prevent for this. Because of the build-in pressure, students may get a fall back to causal behaviour, as it is what was toughed dominantly before the assignment. In the limitations, the instrument as such was already addressed as a possible weak element. Looking in the recent literature, more scholars find difficulties in reliable results with the Chandler et al (2011) questionnaire. At the AOM conference of 2014 some unpublished but promising work was presented. This gives confidence for the near future to have a reliable instrument to measure effectuation in a general perspective. This implies that measuring results are dominantly caused by the assignment and not by the bias of the instrument. At last some general comments on the construct of effectuation can be given. Effectuation is according to Sarasvathy (2001) observed at expert, serial entrepreneurs. Especially the reflection of previous experience is lacking by young students. Furthermore, effectuation is observed at new venture creation, where values (affordable loss) are important. It can be debated that young students, fulfilling an assignment for a given problem with assumed solutes, may not come up with other behaviour than causal. The ‘control vs prediction’ aspect relies on well-developed reflecting skills as well, where students may not have the mental development at that stage. Therefore a reconsideration of the adaption of the concept of effectuation may be opposed, when redesigning the technology assignment. In other words, is effectuation a concept which can help students being more innovative or can achieve more innovativeness in a project group? The authors agreed on the opinion that is can. In the paragraph below, recommendations are given for further research on this, as they will apply in the next year’s technology assignment.

### Recommendations

In order to improve the research some recommendations are given in this paragraph. First of all a more sophisticated initial instrument should be used. The measurement should be done more closely to the end of the assignment and not by internet, to increase the response rate. In the design of the assignments, room for effectual behaviour, or at least for some principles, should be created. Finally the training for the students should be more dedicated to the individual principles of effectuation which wanted to practice in the assignment. By applying these

recommendations, the authors are confident that project results of the technology may become more innovative by effectual behaviour of the students.

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## Evidence based Spinoff Policy, the Bias of Online Research

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Spinoff policy, Nonresponse bias, Sampling techniques

### Objectives

Authorities stimulate the increase of start-ups and enhance universities to increase the number of spinoffs. To measure the effect of the spinoff policy, the number of spinoffs are measured, predominantly by online sample surveys. Results of these surveys show that within one country the spinoff rate varies from 0% to 17,8%, though universities are comparable in terms of size, programs and reputation. What differs are the response rates, sample sizes and data collection methods. This research assumes that the data collection method is biasing a survey's outcome. The aim of this research is to identify if there is a bias in the data collection method of spinoff policy evidence and how it is effecting the surveys outcome.

### Prior Work

Universities nowadays stimulate student and graduate start-ups heavily (Wright, 2007) and since this policy is considerably public funded (Vincett, 2010, Philpott et al., 2011) most universities try to underpin their spinoff policy success with data. The published policy outcome in terms of established spinoffs, varies among universities in several countries (Sieger et al., 2014). In every research there is the danger of self-selection biases and attrition (Jüni and Egger, 2005, Fowler Jr, 2013). Online sample surveys seem highly vulnerable to these dangers (Little and Rubin, 2014).

### Approach

For the identification of the bias for several data collection methods, from one population, data was obtained by four different data collection methods. The data was gathered from one university population, within the same time period and with the same questions. Next to the traditional online sample survey, two other often used measuring methods were applied as well as the so far rare census method.

### Results

The different methods obtained all enough respondents to make a valid statistical comparison. They show that for every question asked, the replies were different for each data collection method. The most reliable method was the census where the tall population was obliged to respond (n=19.372). In the 'paper survey after lectures' method, the smallest positive deviation was found with the census method. The 'online survey' method scored on the same questions a result that is more than 3 times higher as was found from the census.

### Implications and Value

The value of this paper is that it contributes to the understanding of the size and direction of the bias of 'online sample survey' as a research method for spinoff policy evaluations. The implication of this paper is that the results of an online sample survey on spinoff policy could be questioned and that other methods could be preferred to evaluate spin-off policy. It is strongly recommended not to extrapolate the results of online sample surveys to evidence spinoff-policy.

## Introduction

Entrepreneurship is often seen as an important factor of economic growth (Thurik and Wennekers, 2004) and resilience of the regional economy (Carree and Thurik, 2003, Nicoletti and Scarpetta, 2003). For decades more evidence is found to support the assumption that new ventures, small businesses and entrepreneurship are a major factor in economic growth (Ahmad and Seymour, 2008, Gries and Naude, 2009). Therefore the phenomenon of entrepreneurship is studied by many scholars (Blenker et al., 2011). Policymakers and universities tried to advance the regional economic development by supporting Higher Educational Institutes to stimulate the regional Development (Sijgers et al., 2005). This support resulted in many initiatives to support young students to start their own new businesses (Hammer and Thuijs, 2013, Gibcus et al., 2010, Walter and Dohse, 2012). Till the end of the last century the field of study was dominated by the social science and psychology. There was a strong belief among scholars that entrepreneurship was to be found in personal traits and the psychological mind-set of a human being. After the influential work of Scott Shane (Shane and Venkataraman, 2000) the research on entrepreneurship shifted more towards behaviour and economics.

In this article we take the position of Shapiro and Sokol (1982) that entrepreneurs are human beings, following a process with a major gap in the stage of dreaming on the opportunities and the actual deed. The most prominent factor to take the step from dreaming to founding an enterprise is the state of "displacement" (Shapero and Sokol, 1982, Jayawarna et al., 2013, Krüger jr. et al., 2000). Since "end of study" is one of the major moments of "displacement" in our western economies a large number of start-ups are founded by graduation students (Karnebeek, 2001, Wright, 2007, Hayter et al., 2016). Universities nowadays stimulate student and graduate start-ups heavily (Sijde and Tilburg, 2000, Wright, 2007) and since this policy is considerably public funded (Vincett, 2010, Philpott et al., 2011) most universities try to underpin their spinoff policy with data. In this article we name this phenomenon "evidence based spinoff policy".

When comparing the data of the spinoff policy evaluations, within one time period and one country a certain variation can be observed. In table 1 below, an example for the Netherlands is given, where from 17 universities data was collected using an online sample survey in the context of a GUESS survey, identifying the number of students started their own business already (Karali et al., 2014).

Educational Institute	% Entrepreneurs	Respondens (n)
Utrecht UoAS	17,8%	96
Fontys UoAS	15,5%	23
Hanze UoAS	12,5%	1.436
Inholland UoAS	11,8%	833
Erasmus University Rotterdam	11,5%	59
Rotterdam UoAS	10,8%	540
University of Groningen	10,1%	1402
Average of the institutes	6,2%	13.121
The Hague UoAS	3,5 %	297
Albeda UoAS	1,4%	147
NHTV Breda UoAS	1,2%	150
Utrecht University	0,9%	96
Maastricht University	0,9%	188
Leiden UoAS	0,7%	46
Leiden University	0,7%	140
Eindhoven University of Technology	0,4%	59
Delft University of Technology	0,4%	32
Tilburg University	0%	23

Table 1, variation in spinoff policy outcomes in Dutch universities (Karali et al., 2015, p30).

It could be questioned if the spinoff policy of a university is the only variable responsible for this variation. Since time, place, method and policy boundaries are about equal some biases could be run into the data collection. In most of the published documents about the sample surveys regarding evidence spinoff policy, hardly any declaration is given about representativeness, reliability and validity (GEM,

2014, GUESS, 2016, Karali et al., 2014, Sieger et al., 2014). In respect to the broad range of publications and citations of these publications, representativeness, reliability and validity is assumed to be controlled in the common way. Regarding representativeness this usually is on age, gender, etc.. The response rate reported in most cases is below 10% (Sieger et al., 2014, Karali et al., 2014, GUESS, 2016). Therefore the data collection method for evidence spinoff policy can be questioned. The first hypothesis is formulated as:

H1: The data collection method is influencing the outcome of spinoff rates.

According to methodological handbooks, the 'non-response bias' is one of the major threads for mail and online sample surveys (Little and Rubin, 2014, Fowler Jr, 2013, Donald, 1960). "Non-response leads to an increase in variance as a result of a reduction in the actual size of the sample and the recourse to imputation. This produces a bias if the non-respondents have characteristics of interest that are different from those of the respondents. Furthermore, there is a risk of significantly underestimating the sampling error, if imputed data are treated as though they were observed data" (Statistics Canada, 2003, p.59). Focussing on non-response biases in sample research methods, Jüni and Egger (2005) describe a form of selection bias in their research called "attrition bias". Attrition bias is defined as "the loss of participants" (Miller and Hollist, 2007). This form of selection bias involves dropout, nonresponse, withdrawal and protocol deviators. In the research of Jüni and Egger, the example of a dieting test is mentioned. In this example, the researcher simply rejects everyone who drops out of the trial, when most of the ones who drop out are those for whom the treatment isn't working. The same could imply for measuring entrepreneurship in educational institutions. Mostly, respondents will not be thrown out by a researchers, but it may well be possible that respondents who do not participate in entrepreneurship activities, don't complete an online survey about their interest in entrepreneurship. This could lead to a higher non-response from the non-entrepreneur, which could influence the conclusions of such surveys. It can be argued that online sample surveys suffer from a non-response bias. This is especially important since most of the research on spin-off policy is based on online sample surveys (GUESS, 2016, GEM, 2014) We formulate the second hypothesis of this paper as:

H2: Using online sample survey for evidence spinoff policy is exaggerating the reality of spinoff rates.

In this paper, first the methodology used to test the hypotheses is described. In the following paragraph the results of experiments carried out are described and compared. After the conclusions, the recommendations and suggestions for further research are presented.

## Methodology

To test the hypothesis, the online sample survey will be compared with other data collection methods. Therefore we carried out several surveys with different data collection methods who are commonly used in university sample surveys: online sample survey, paper cafeteria sample survey, paper after lecture survey and the census. In all surveys, the population, timeframe and question was equal, so the data collection method was the only variable in the setting. The timeframe of measurement was the academic year 2011-2012. Because of organisational aspects the data census was acquired before the start of the academic year and the data of the sample surveys during a 'quit period of time' in that academic year. In this 'quit period of time', the students were not faced to other online surveys, had examinations weeks or start-ups of new educational modules. The multiple choice question asked in all surveys was: "Are you planning on starting your own business?". In this paper this question is indicated as 'research question'. The five possible answers to this question were:

1. No
2. Maybe
3. Yes, after my studies
4. Yes, during my studies
5. Yes, I have already started.

In the sections below, the definitions used for this research are given, the population is specified and the data collection methods are described.

## Definitions

In this section the key term used for the research are given. For this study we use the distinction in methods according to European Quality Assurance in Vocational Education and Training (European Commission, 2009). They distinguish census and sample survey. As definition for both kind of data collection, census is defined as: "...a survey conducted on the full set of observation objects belonging to a given population or universe" (OECD, 2007, p.94). Sample survey is defined as: "...a survey which is carried out using a sampling method, i.e. in which a portion only, and not the whole population is surveyed" (OECD, 2007, p.693). For the definition of non-response bias we use: "A form of nonobservation present in most surveys. Nonresponse means failure to obtain a measurement on one or more study variables for one or more elements selected for the survey" (OECD, 2007, p.533). Non-observation error is defined as: "Failure to obtain data from parts of the survey population which results from two sources: noncoverage and nonresponse" (OECD, 2007, p.539).

#### Population

The population for this study is the student population of Saxion University of Applied Sciences in the year 2011-2012 from the Enschede Campus. This are all people who are formally enrolled as student at this university on the 1<sup>st</sup> of September 2011 at one of the 8 faculties who are appointed at the Enschede Campus. The students of the 3 faculties, Saxion Next, APO and HBS, who are not appointed to the Enschede Campus are excluded in this research. Students from the Erasmus exchange programmes are also excluded from the population. The population for this research therefore counts 19.362 students. Saxion is a comprehensive university in the rural, eastern part of the Netherlands with locations in three major cities in the region. In 2012 there were 11 faculties, covering all major fields of study necessary for the region (Saxion, 2013).

#### Method 1: Census

For the census it is important to grasp the information from the population as close to the truth as possible (European Commission, 2009). To achieve this objective, at the time of answering the questions, respondents must be in a neutral modus, individually approached and must have no obligation to reject participation. In our study we organized that all students must have replied to the research question asked, before they could finish their enrolment for the new academic year. This administration is obligatory in an digital, online administration process called "Studielink" and owned by the Dutch Government (DUO, 2016). All students in The Netherlands who want to administer for a study on higher education level can apply with use of this system only. This method ensures that the whole population has answered the research question. For the reason that a governmental system is used students tempted to be in a serious setting, assuming giving a truth answer to all questions asked around their administration. Dutch students can only enter the system providing their DigiD (Personal Digital Security Code) which is related to all personal social and financial governmental matters (DigiD, 2016). The data was collected during the enrolment period for the academic year 2011 – 2012. Due to research ethics (WMA, 1964) and Dutch privacy legislation, the researchers were allowed to collect only a select number of variables from the data available from the Studielink system. For the aim of this study the variables provided were sufficient, since only the answer to the research question, study and year of first enrolment was used.

#### Method 2: Online sample survey

For the online sample survey, a digital survey was sent to 6.643 students with the online survey program Parantion (webpage version 5). The students were randomly selected from the population and approached by e-mail via the online survey program used. One memory e-mail was sent to all selected students. The online sample survey was asking only the research question. The period of data collection was March 2012.

#### Method 3: Paper cafeteria sample survey

For a period of one week two researchers asked random students in the cafeteria to complete a paper survey with the research question. They collected data at the students rush-hours from 11:30 till 13:15 at both cafeteria of the Enschede Campus. The week of data collection was 14<sup>th</sup> unit 18<sup>th</sup> of March 2012.

#### Method 4: Paper after lecture sample survey

At several lectures, a paper survey was presented to students attending the lectures. First of all, the classes were accurately selected to reach as many different students as possible. For this, a list of all separate education programs and faculties was made. In this list, the separate years for each education program were also included. If a selected year of an education program was not available, a different education program of the same faculty was used. Teachers and managing directors were asked for

permission and were reminded two days before the survey was presented. The teachers presented the paper surveys to the students, just when finishing their lecture. Two researchers went to the lectures and collected the filled-in surveys. The period of data collection was 14<sup>th</sup> unit 18<sup>th</sup> of March 2012.

The time of data collection has an interval of several month. This is for the reason that the administration take some months. During the starting period and ending period of an academic year, many surveys are collected from several institutions such as Students Union, Quality Control Department, Students Housing Department and the faculties. Also the time around Christmas, New Year and the examinations weeks, each quarter, are not so suitable for data collection. Therefore all sample surveys were held in March 2012.

#### Findings

In this section the findings of the surveys and census are given. After general remarks to the findings, the findings of each experiment are given. This section is closing with a summation of the relevant findings of all experiments presented together. For the first method, Census, the data was made available in October 2011 and processed in November. The response to the research question is shown in table 2 below. Next to the absolute numbers, the relative part of the population is presented.

Answer	n	%
No	8.292	42,8
Maybe	9.194	47,5
Yes, after my studies	1.190	6,1
Yes, during my studies	274	1,4
Yes, I have already started	412	2,1
total	19.362	

Table 2, results of method 1, census

For the second method, Online sample survey, 889 from the 6.643 send questionnaires were replied after one memory e-mail send one week after the sending of the questionnaire. Data acquired after a period of 4 weeks after sending the questionnaire, were excluded from the sample. In table 3 below the response to the research question is shown.

Answer	n	%
No	282	31,7
Maybe	429	48,3
Yes, after my studies	83	9,3
Yes, during my studies	34	3,8
Yes, I have already started	61	6,9
total	889	

Table 3, results of method 2, online sample survey

The findings from the third method, Paper cafeteria sample survey, are shown in table 4 below. Over the week, 455 students returned the paper survey to the researchers. The researchers observed that students tend to stay at one position in the cafeteria, resulting in a low flow rate of students. The researchers reported oral feedback from students that entrepreneurs probably were not at the canteen because they were busy with their venture.

Answer	n	%
No	187	41,0
Maybe	201	44,2
Yes, after my studies	43	9,5
Yes, during my studies	12	2,6
Yes, I have already started	12	2,6
total	455	

Table 4, results from method 3, paper cafeteria sample survey

The results from the last method, Paper after lecture sample survey, are presented in table 5 below. The researchers reported that several classrooms were relatively empty due to the absence of students. Therefore relatively a small amount of students could be questioned related to the amount of preparation time. Nevertheless all students present at the classrooms filled in the paper survey.

Answer	n	%
No	202	40,2
Maybe	233	46,4
Yes, after my studies	45	9,0
Yes, during my studies	12	2,4
Yes, I have already started	10	2,0
total	502	

Table 5, results from method 4, paper after lecture sample survey

When comparing the results of the methods, it can be observed that there is a difference in outcome of the research question. The paper sample surveys has the smallest positive deviation to the census. The online sample survey show a difference of more than triple the result of the census. It also can be observed that the sample surveys show an equal or higher result than the census. It can be argued one of the reasons for this could be found in the period of several months between the Census method and the other sampling methods. Using the same Census method over years like we did seems to exclude this argument since only a small modest upward gradient towards more entrepreneurship was found in the period 2010 (No = 43,0%) till 2013 (No = 39,2%). In papers to come we will discuss these findings in more detail. This brings us to a main cause in the differences in the outcomes presented here: the sampling method. Having a closer look to the response of the "no" answer, the online sample survey show a 25% lower score than the census. This might be an indication that students who are not interested in the topic, did not respond to the survey. In table 6 below, the results of all four methods are presented.

Answer	Method (reported in %)			
	Census	Online sample survey	Paper cafeteria sample survey	Paper after lectures sample survey
No	42,8	31,7	41,0	40,2
Maybe	47,5	48,3	44,2	46,4
Yes, after my studies	6,1	9,3	9,5	9,0
Yes, during my studies	1,4	3,8	2,6	2,4
Yes, I have already started	2,1	6,9	2,6	2,0

Table 6, summarized findings of all used methods

### Conclusion

From the findings it can be concluded that sampling methods do give different results on spinoff policy evidence then is shown by the population. Therefore the first hypothesis (H1) can be accepted. From the findings it also can be concluded that the online sample survey provides an exaggerating outcome of the population regarding spinoff policy evidence. Therefore the second hypothesis (H2) can also be accepted.

### Recommendations

The results of this research brake a lance for a change in the method to evidence spinoff policy. It is recommended to evidence spinoff policy with a Census instead of on online sample survey. This makes the measurement of the effect of spinoff policy interventions more accurate. It is also recommended to compare census research with an online sample survey of the same population at other universities. With these results it can be identified if the size of the nonresponse bias of the online sample research differs among universities or is uniform as can be expected when data collection methods are uniform.

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# Talent recognition

# 2

## Exploring the Recognition of Talents; identifying the Prototype

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### Abstract

To be successful and survive, entrepreneurs are encouraged to exploit their talents as element of their human capital nourishing the entrepreneurial process. Since education became an important aspect of society, teachers have a prelove for highly talented students. Especially young talented people relish profound attention of universities, firms, music ensembles, sports societies and artist groups. In entrepreneurship education students are encouraged to develop their unique strong point, named as talents. Around the globe, universities, institutes of higher and professional education provide students with programs for talent development and exploitation. Practitioners and educators complain on a regular basis that students rarely aware of what their talents are. It is experienced as difficult to identify them. In congruence with the entrepreneurial process of Shane and Venkataraman (2000) this paper explores the possibility for mechanisms to identify, or recognize, a talent. Scholars and consultants developed many instrument on the development and exploitation of talents. But how can talents are identified? In this paper the fuzzy front end of talent recognition will be fostered. It is advocated that the psychological cognitive prototyping principles can be applied to identify the prototype of a talent. The findings show a clear acceptance on the design of a prototype of talents in an entrepreneurial setting. Nevertheless it is also advocated that the findings can be applied in more than the entrepreneurial or business context.

### Keywords:

Entrepreneurship education, Talent, Prototyping, Human capital, Cognitive-psychology

### Introduction

Entrepreneurship is often seen as an important factor of economic growth (Thurik and Wennekers, 2004). Consequently, policy makers are interested in this field. There is also a strong relation between entrepreneurial education and entrepreneurial activity. Apparently there seems to be consensus among policymakers, academics, researchers and economists that Entrepreneurship Education is probably the most effective way to contribute to economic growth (Gibcus et al., 2010), as long as these entrepreneurs stay in the region or country. Many scholars and educational professionals have designed programs for supporting the entrepreneurial spirit or education of new, young entrepreneurs. Different approaches for supporting entrepreneurship and entrepreneurship education can be identified. First of all there is the positivistic approach, which is dominant in the traditional sciences. This approach of entrepreneurship led to the development of models, concepts and classifications for entrepreneurship. Most of them are however limited to a specific field of application (Hammer and Thuijs, 2013). In a second approach, derived from social sciences, most attention is on entrepreneurship as a cognitive development of an individual (Baron, 2008). Others take a perspective of a process model for entrepreneurship and describe an entrepreneur as someone

moving along the entrepreneurial process of value creation (Shane and Venkataraman, 2000). And as a fourth approach, Zull (2002) gives a biological perspective to an entrepreneur and describes the neurological processes associated with entrepreneurial activities. It is argued broadly among scholars that entrepreneurship needs other skills, methodologies and teachers (Koopman et al., 2013, Fayolle, 2006, Rae, 2007, Gibb, 2007). Despite, or due to the extensive variety of research, it is difficult for educators and curricula designers to make an effective program based on it (Kolb and Kolb, 2005, Hammer and van der Meer, 2013). The question is, are these programmes effective? Do they really contribute to value creation of society, by developing entrepreneurs? A qualitative study of one of Herbert Simons' (1996) latest doctoral students, Saras Sarasvathy (2001), studied the decision making heuristics in uncertain, disruptive situations by senior successful entrepreneurs. From this study, she proposed that the decision making of entrepreneurs is more 'effectual', were those of non-entrepreneurs is more 'casual'. Underlying this distinction, she interviewed dozens of senior entrepreneurs and asked to solve a business problem. By the 'thinking aloud principle', Saras found seven categories of differentiation contrasting the effectual and causal process of decision making (Sarasvathy, 2001, p 251). The first category, for this paper the most important one, is the 'givens'. Where in the causal process, the effect is given and the means must be allocated or provided to operate, in the effectual process the means and tools are given whereas multiple effects can be created. It is in the underlying logic of the entrepreneur that the means are the starting point of a successful entrepreneurial journey; they cannot be changed and are there anyway. Next to monetary means, infrastructural means and production resources, personal characteristics and strength of the entrepreneurial team is included. While 'means' are the valuable elements and aspects of a venture or entrepreneur, it is obvious to be aware of them up-front. Especially the intangible means as an entrepreneurs' personal strength are not easy to represent. In figure 1, a graphical projection of the difference between the causal and effectual difference in respect to means is displayed. From bird's eye view the effectuation might be interpret as a linear and polarised phenomenon which in fact has shown to be opposed (Sarasvathy, 2001, Read and Sarasvathy, 2005).

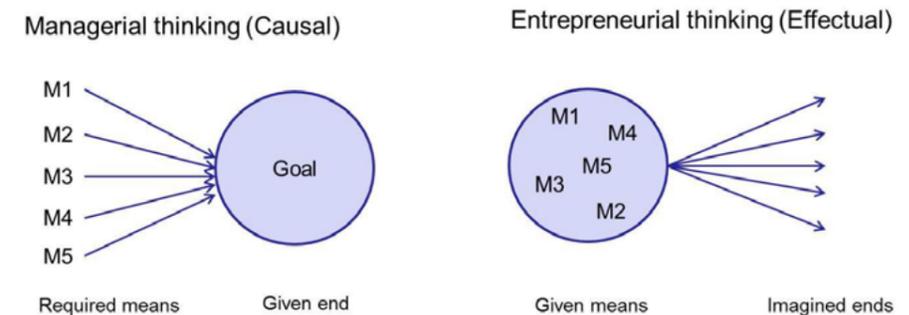


Figure 1- Graphical projection of causal and effectual principles

Since Norris Kruger's (2000) research on Entrepreneurial Intention (IE), it's concept is widely used to support new enterprise formation (Krüger jr et al., 2000). The entrepreneurial success of support systems are measured by the improvement of the participants' Entrepreneurial Intention (Souitaris et al., 2007, Varamäki et al., 2011). The perceived feasibility and desirability preceding the Entrepreneurial Intention, address the personal perception and characteristics of the entrepreneur (Krüger jr et al., 2000). From the perspective of Bandura's social cognitive theory (Bandura, 2001), the entrepreneurial outcome of the Entrepreneurial Intention, can be regarded as emergent interactive agency's (Bandura, 1989). From the process approach of entrepreneurship, it was Aard Groen (2005) from the University of Twente who bridged the tension between entrepreneurial exploitation and exploration. From a social system perspective (Parsons, 1991) he identified four capitals necessary to establish or grow a venture in a high tech context. Subsequent research adds a certain threshold for each capital where under growth will be omitted or even an entrepreneurial failure occurs (Groen et al., 2008). Derived from Kirwan et al (2007), the capitals of the entrepreneurial process can be described as: "Strategic capital"; the elements of a venture to attain a certain (power) position and authority in the field. "Economical capital"; the amount of, or access to, financial capital and financial assets. "Cultural capital"; the knowledge & experience, norms & values and knowledge & technology; either in the venture, the entrepreneur or the entrepreneurial team. "Social capital"; the elements regarding to the actors or access to actors of the venture network and the position of the venture in that network. The content of the relationship between the firm and its actors is part of the other capitals, because the content can relate to the strategic, the economic and the cultural capital. The entrepreneurial process and its capitals are represented in figure 2.

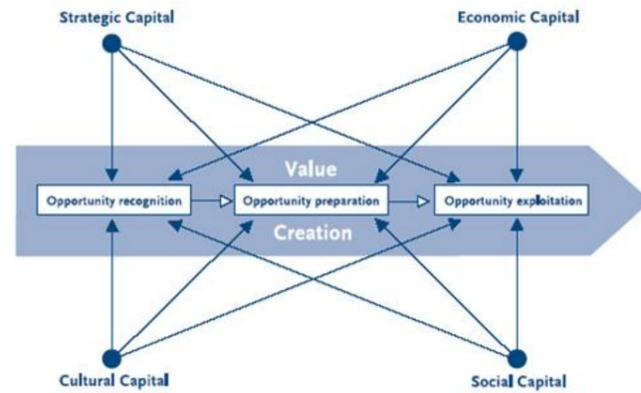


Figure 2- Capitals around the Entrepreneurial process (Groen, 2005)

In the social capital, the elements of personal cognition, knowledge and experience of the entrepreneur and, or entrepreneurial team are notable elements in the model. Along with the Entrepreneurial Intention model and the effectuation principles, this capital model denotes the importance of the entrepreneurs' personal qualities. Not jeopardizing the process perspective of entrepreneurship, from here this paper contemplates on 'the person' of entrepreneurship and the capitals or qualities of that person, in respect to entrepreneurship. In the paragraph below a historical overview over the identification and development of personal qualities are given.

### Personal qualities

When debating on personal qualities, words that can be put in categories of knowledge, skills, personal traits and competences (Vloon et al., 2013, QAA, 2012, Gibb, 2002, Koopman et al., 2013). Among scholars, there are no clear set boundaries between these categories. It can be advocated that scholars have similar perspectives on the development of the personal qualities. In literature, psychologists even constructed a list of 550 words to frame the personal traits (Anderson, 1968). Personal qualities are dynamic; they can develop over time and can be acquired by hard and intense training (Feldhusen, 1994). For this reason, we educate our children for more than a decade to prepare them for society; all more or less equal in the same classroom (Bloom, 1956). Nevertheless it is known that not all children have the same basic 'raw materials' or 'propositions' to start with; one is more 'gifted' than the other (Renzulli et al., 1976). As proposed by Bloom and Sosniak (1985), in this paper the focus is on this 'gifted thing', named 'talent', more than on the trained skills and knowledge. Talent is conceived as a multidimensional and multiplicative developmental phenomenon (Simonton, 1999). The word 'talent' is in many languages written or pronounced in the same way, off course Finnish, Hungarian and Asian languages are exceptions. This indicates that the word is old and commonly used. For example, the old Greek mentioned talent when rant about 'Weight or sum of money of that weight', later talent was defined as 'disposition' or 'gift of God' (Dale, 2009). Others speak about 'best and brightest' (Knegtmans, 2008).

For stimulating entrepreneurship both, the firm and the person are supported (Ahmad and Hoffmann, 2008, van Gelder et al., 2006). Although many different definitions, classifications and perspectives are used there is a long tradition and an extensive amount of researchers engaged with the support of entrepreneurs and ventures (Koopman, 2013). In respect to the scope of this paper, the historical overview will not start with the old Greek, long before the birth of Christ, where support, named as coaching or mentoring, was applied on a broader field of application that ventures and entrepreneurship. The conspectus will start at the beginning of the last century. After the industrial revolution the support of excellent personal characteristics, traits or qualities is described more regular in scientific literature and first it was not only on development of personal qualities or talents, there are clear statements of the detection or identification of talents (Abbott et al., 2002). It was also the timeframe where the new Olympic Games emerged and grow rapidly (Buchanan and Mallon, 2001) and the timeframe where the World War I and World War II signed the world history. Before, during an surely after these wars, nations and continents spend a considerable part of their GDP on competing to each other; not only on industrial and military aspects, also on sports (Buchanan and Mallon, 2001). Substantiated through the research of Angela Abbott et al (2002), it is known that academics studied personal qualities and talents within the context of sports. They assumed that there must be some characteristics what determine a good player from a perfect player. Throughout history Abbott et al (2002) identified and described three stages

of research on personal qualities of talents, in respect to identification or detection. More or less the stages show congruencies with the development and innovation structures of industry. In the paragraphs below the three stages are discussed briefly:

1. *Physiological and Anthropometric Correlates of Success.* From the early 1920s, researchers were examining the potential of anthropometrical (e.g., height) and physiological (e.g., strength) measures as discriminating factors between athletes involved in different sporting events. In that time sports was an important symbol for both, society and military. As the development of the industry, the main approach of researchers was the key actors in the process, as visible from the outside. Predominantly research was based on the registration of observable characteristics, from where correlations to performance were obtained (Spearman, 1927). The list of variables considered for discriminating good and perfect was wide-ranging, from simple considering age, height, weight and health, to more extensive studies where anthropometric measurements, somatotyping, and tissue analysis was used. Although numerous studies have contrasted senior and junior athletes, there was no scientific evidence for success prediction.
2. *Fundamental Movement Skills.* Some decades later, after the World Wars, the approach as similar to the industry became more sophisticate. Scholars' digger deeper in to the separate elements of a specific sport. In industry, more automation of simple processes was innovated and long production lines established. The premise of talent identification, or detection was that: 'participation in sport and physical education requires individuals to perform an array of different movements. Many of these movements are complex, specialised skills used in specific physical activities (e.g., top slice in tennis or the spike in volleyball). However, the majority of these specialised movements are underpinned by common skills (e.g., running, jumping, throwing). For instance, to be successful at triple jump, an individual must be able to run, jump, hop, leap, and land. These basic movements, which are common to a range of activities, are known as fundamental motor abilities and are defined as: A general template for a movement. The template becomes the basis of a number of specific skills, for example ...an underarm throw is a movement pattern and bowling in rounders is a specific skill that develops from it' (Abbott et al, 2002, p.19). From this same period of time, the actual general education paradigms emerged. Based on a generalised template of learnable simple elements of knowledge and skills, more complex tasks and competences are learned on this principle throughout the society nowadays (Bloom, 1956, Thurstone, 1936, McGregor, 1960).
3. *Psychological Determinants of Excellence.* In the last decades of the former century, a last shift in approach of talent detection and identification noticed. Again in line with industry, the academic attention shifted to the psychological determinants of success or excellence. In industry new professions as Human Resource Management entered the firms (Guest, 1987). Management science was focussing from the same psychological angle (Mintzberg, 1979). Since Schumpeter (1934), entrepreneurship research matured from this time period. Relations between venture success and psychological characteristics were studied widely; psychological and social science became a prominent domain of entrepreneurship research (Baumol, 1990, McGrath, 1999, Palich, 1995, Shapero and Sokol, 1982, Stewart et al., 1998). In sports science researchers got engaged with psychological characterisation in relation to elite athletic performance, driven by the quest for information on factors associated with high-level athletic success. An overview of the psychological determinants of excellence is shown in table 1. Research across a variety of 21 achievement settings has established mental characteristics as crucial to, or even causative of, elite performance (McCaffrey and Orlick, 1989). In this timeframe the Talent Detection and Development (TDD) models were based on distinctions between elite and non-elite athletes; limited emphasis was given to mental and cognitive attributes. Performance Determinants Research consistently has identified psychological determinants of sporting performance. For instance it was found that top *touring* professional golfers could be distinguished from lesser skilled *club* professionals on a number of psychological factors (McCaffrey and Orlick, 1989).

Based on the above described insights of science, national sports organisations and societies developed motley of models to identify and develop talents. To the extent talents were gifted wen born, without an exception the models start with young children as object, from where routes for development are supplied. According to Darwinian models of talent development (TD), an individual's potential becomes actualised through evolutionary interaction of innate capacities and 'ecological niches' available in family, school and workplace (Simonton, 1999), meaning that experience and good practice opportunities should be compulsory parts of those models. Abbott et al (2002) wrote in their summaries that the development and approach of the talent detection and identification in sports was in line with those in arts (e.g. music and dance) and universities. They summarise from the studied models: It has been established that the aim of talent detection and identification is to provide an accurate prediction of those individuals who have the potential to compete

successfully at world-class levels. Such talent detection and identification procedures tend to be employed with pre-pubescent or pubescent children so that selected children can complete the number of years practice which has been demonstrated as required to achieve excellence' (Abbott et al, 2002, p 25).

Commitment
Quality Practice
Goal Setting
Imagery
Planning at all levels
Distraction control strategies
Perceptions of pressure
Performance evaluation

Table 1- Psychological determinants of excellence (Abbott et al, 2002, p.23)

In fact the models and procedures are designed to select the gifted from the not gifted as early as possible in the development of a child; picking potential winners. Those scarce, precious children who are gifted with talent, were put on special tracks in either sports, academic or art. Because talented children were kind of a synonym for wealth, parents were sometimes 'overactive' in practicing and stimulating their brood on those, whether the children liked it or not. Meanwhile Radford (1990) found out that children practise more when they are progressing and finding practice pleasurable, even though the definition of deliberate practice outlines that it is not inherently enjoyable. In other words, one has to enjoy an activity before entering the deliberate practice; a forced development of skills rarely turns into a world class performance.

### Theoretical framework

From the mid-nineties a shift in paradigm started whereas talent no longer was the domain of the gifted children and adults (Treffinger and Feldhusen, 1996). Francoys Gagné (1995, 2005, 1985) made a clear distinction between talented and giftedness. 'Giftedness designates the possession and use of outstanding natural abilities (called aptitudes or gifts), in at least one ability domain, to a degree that places an individual at least among the top 10 percent of age peers. *Talented* designates the outstanding mastery of systematically developed abilities (or skills) and knowledge in at least one field of human activity to a degree that places an individual at least among the top 10 percent of age peers who are or have been active in that field or fields (Gagné, 2005, p.99). John Feldhusen (1996) describes a talent as 'spending hours of time deeply engaged in an activity' (p.65) which does not subtend Gagné's definition. Despite the intensive debating on these topics it seems to be hard to find consensus on the definitions. Nevertheless it appears that on several aspects there is a broad agreement. Both, talented and giftedness:

- involves more than just a high IQ;
- have both, non-cognitive (e.g. motivationally driven) components and cognitive components;
- environment is crucial in terms of whether potentials will perform;
- are not a single thing: there are multiple forms and therefore one-size-fits-all assessments or programmes are likely to be too narrow;
- measures for identifying or evaluating these individuals need to be proposed to operationalise theories and then they need to be evaluated rather than merely being assumed to be valid (Sternberg, 2004).

Nevertheless talents were mainly identified with scales and checklists as Renzulli's 'ten scales for rating the behavioural characteristics of superior students' (Renzulli et al., 1976). Later, auditions (e.g. in performing arts) and portfolio's (e.g. graphic art) were used. According to Feldhusen (1994), talents emerge from general ability as a confluence of genetic dispositions, home and school experiences, and students' unique interests and learning styles (p.10). Gagné (1985) delineated a general pattern of talent development in youth. From the cognitive theories, it is about the perception of the observer, where "something" out there is to be noticed. This is called 'object' or 'pattern recognition' (Matlin, 2002). Based on these theories, in entrepreneurship new insight emerged (Baron and Ward, 2004, Baron, 2006) when using future-analyses or recognition-by-components model (Biederman, 1995). Baron concluded that the prototype models were the most accepted and suitable for more complex patterns and objects as business opportunity (Baron and Ward, 2004, p228). A cognitive-psychological prototype is based on, and to present, the mode or most frequently experienced

combination of attributes associated with an object or pattern (Solso and Raynis, 1979). Baron and Ensley (2006) identified the prototypical dimensions or meaningful patterns of a business opportunity. They made use of the cognitive psychological approach of the prototype phenomena. Research indicates that the understanding of the entrepreneurial opportunity-prototype, is positively correlated to a higher level of identification of these entrepreneurial opportunities (Costa et al., 2013). Congruent with a business opportunity, a talent can be seen as a combination of attributes which can be associated with objects or patterns, as indicated by Gagné (1985). Therefore this paper endeavours to travel the same road to identify a prototype of a talent. In the first part the preliminary prototype of a talent will be identified, where after the effect on under-graduate business students was tested.

### Methodology

The introduction and the theoretical framework suggest that a fourth development stage in talent detection or recognition emerged; the cognitive approach. The purpose of this paper is to explore the possibilities of the cognitive psychological prototyping technique in the field of talent recognition. As scientific paradigm the author chooses a design methodology as advocated by Andrew van de Ven (2007), whose work derives from the same paradigm as Herbert Simon (1996). Van de Ven emphasizes on the fact that society has to express their commitment to the research and play an important part in it; Society and researcher need to engage (van de Ven, 2007). The explorative dimension of the research generates data by open-ended interviews which are voluminous and complex (Baron and Ensley, 2006). Therefore data reduction procedures were applied similar to those used in the research on prototypes and pattern recognition to determine the prototype of opportunity recognition (e.g. Ward et al, 1997, Solso, 1999, Bartel and Wiesenfeld, 2012). The process used of prototype identification is shown in figure 4. The figure is a simplified version of the complex process of prototype identification and the design of it is inspired by the work of Costa et al, (2013).

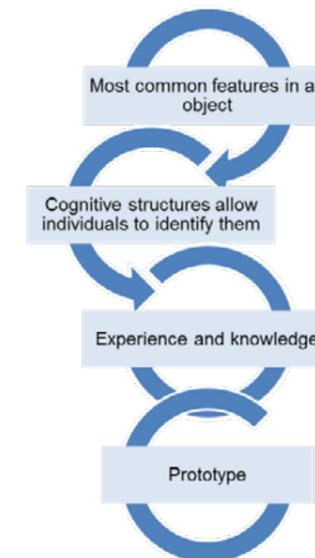


Figure 3- Simplified process of prototype identification

Whilst applying a design methodology, there is the obligation to validate the prototype identified (Aken and Andriessen, 2011). For the validation a group of under-graduate business students were asked pre- and post assigned on talents, as described in stage 5 of the research. With this fifth validation stage, the data collection, reduction and validation process applied is described below in more detail:

1. For the source of data, highly talented people as well as privileged witnesses of talented people were interviewed. These people were medal-winner sportsman, successful entrepreneurs, mentors of high talent classes and senior HRM managers who have their speciality in High-Potentials-Search contracts in several professional areas. They were asked to reply to two questions: "Describe what you think when you think on a highly talented person (as yourself may be one of them)?" and "How do you recognise a highly talented person?" The answers were written down by the researcher or the respondent. By hand, important words and word groups were registered.
2. The data from the first stage was discussed among a panel of two trained researchers on methods of content analyses (General Accounting Office, 1989) as method to reduce the voluminous and complex

data and the use of the Delphi discussion technique. The panel members were only confronted with blinded data; i.e. personal and meta-data were extracted. The panel distinguished a list of seven cognitive structures. These two steps represent the first step in the model above, were the most common features are identified.

3. For the identification of the key attributes and patterns, the result of the stage 2 was used to have small group discussions with representatives of the group of talented persons of the privileged witnesses of talented persons from stage one. In total three group discussions were held applying the Delphi technique. The groups were assigned to pick the 'not to be missed' attributes for the recognition of a talent. Over the four groups, there was a clear consensus over three most important and not to omit attributes. This stage represents the second step from the model above.
4. In the additional fourth stage, the panel members of the third step were asked to rank the three identified attributes. Also two groups, with the size of three members, of successful entrepreneurs were confronted with the three attributes and were asked to rank them. The panels were asked to rank among the level of importance and, if possible, in a chronological way. The reframing of the task to the groups and the addition of the two entrepreneur groups, represent the third step of the model above. The ranking of the sequence of the attributes represents the fourth step of the model mentioned above.
5. The fifth validating stage, three groups of under graduate students were asked to volunteer in a research project. The students were originating from the business, economic and social science faculties and had enrolled for a workshop on talent identification and development during an international week at the Saxion University of Applied Sciences in two cities (Enschede and Deventer) in the eastern part of the Netherlands. At the very beginning of the workshop, before one slide was shown, the student got their first assignment; and had to write-down their talents on a pre-printed form where there was no option to put on their name or any other individual recognition mark. To be sure the list will not be adopted during the workshop, because some talents could pop-up or made more specific, the students had to count the number of talents and wrote that number down at the bottom of the pre-printed form. A copy is shown in appendix 1. The answers should be copied in their Individual Development Plan (IDP). In the workshop they were learned to focus on the attributes of the prototype identified. Just before the end of the workshop of two academic hours (100 minutes), the students were then again asked to write down their talents again, on the back site of the pre-printed form, marked as 'page 2' and anew copy them in their IDP. Again the number of talents had to be counted en written down at the bottom of the paper. Finally they were assigned to hand in the pre-printed form. On request the training materials can be provided by the author since they are to extensive to provide them as an appendix. A team of two IDP-experienced senior lectures examined the pre- and post-lists of talents on two aspects: the number of talents and how detailed they were written down. For the latter the team was asked to judge what development there was in the talent described: more, less or equal in maturity. A mature described talent is put in a context, specified, and operationalised. This fifth stage represents the validation of the prototype identified.

## Results

From the first stage of the research a list of 52 words and word groups show up. These word and word groups were then in the second stage presented to the panel. The presentation was in two shifts because in a trail session with colleague scholars, a list of 52 items appeared too long for a proper discussion. The list of 52 words and word groups was split in two lists by systematic contingency; every second word on the list was transferred to list number two. After the discussion on the first list, ten words or word groups were selected or combined to new words or word groups. The same procedure was applied on the second list, directly after the first. Also ten words or word groups were selected. After a short break and energising exercises, the two lists of ten were discussed until there was agreement on the most important features was found. This was a list of seven attributes as is shown in table 2.

In the third step, the discussions in the three groups tended to be unstructured. From the point of view of the observer it was the interference of the strong characters of the participants. A lot of examples of talented people were used to elucidate several perspectives of the participants. At the end of the session, when there was consensus of three attributes, in random order. In the fourth step, from the attributes identified, a sort of logical order of importance or time sequence was asked to discuss. All five groups put the attributes in the same order, as shown in table 3.

Deep focused
Better than others, acknowledged by peers
Vastly joyful when applying
Spending all (spare) time to
Demonstrate professional attitude
Show pride
Applying without discernable effort

Table 2- Seven important attributes of talent

Vastly joyful when applying
Applying without discernable effort
Better than others, acknowledged by peers

Table 3- Prototype of a talent

According to the findings of Baron and Ensley (2006), attributes of a psychological cognitive prototype can be learned. Based on the prototype identified, senior lectures designed a workshop where the attributes could be trained to students. The students were voluntary selected by let them apply for a workshop on talent development and identification. It was one workshop out of 35 to choose from during the international week. Although it was compulsory to attend at least five workshops in two days, the students selected their own topics. To be sure all students attend five workshops, at the end the teacher provided the students with a token. As a side effect this system ensured a 100% response of the attendees because the teacher only provided a token when the pre-printed form was handed in. From the quality of the data, i.e. the text filled in or the text missed, it can be derived that the compulsory character of the students attending and participation biased the data in some respect. During the international week, all classes are taught in the English language. Students from partner universities in Europe and Asia were attending as well. In three sessions on two locations, 108 students attended the workshop. Before the examination of the documents, the researcher cleaned the data. The criteria for clean-up are: "document not completed and inappropriate response". From 20 documents only one side was filled in. 9 more documents had no or a wrong number of talents on the bottom of the first or showed inappropriate text. In table 4 the results of the assignment are presented. Next to the absolute numbers of response between brackets the percentage of the total is presented. Rounded brackets were used for the change in number (columns) and square brackets were used for the change in maturity [rows].

Change of maturity of the talent	Change in number of talents pre- and post-testing			Count
	More talents	Equal talents	Less talents	
More mature	10 (29%) [40%]	6 (24%) [24%]	9 (47%) [36%]	25 (32%) [100%]
Equal mature	25 (71%) [47%]	18 (72%) [34%]	10 (53%) [19%]	53 (67%) [100%]
Less mature	0 (0%) [0%]	1 (4%) [100%]	0 (0%) [0%]	1 (1%) [100%]
Count	35 (100%) [44%]	25 (100%) [32%]	19 (100%) [24%]	79 (100%) [100%]

Table 4- Results of the validation

The most of the 79 valid documents, show that the in the post-test a higher number of talents (44%). 25 documents show an equal number of talents, where the most showed exact the same talents (32%). In seven documents in the post-test there was only written that the talents were the same, sometimes in big letters. The author doubted to remove these documents from the result, however since they did not meet the cleaning criteria, it was decided to keep them in the sample. The last 19 documents show that fewer talents were

identified in the post-test, in comparison with the pre-test (24%). When counting the increase or decrease of maturity, the majority of the responses (67%) showed not a change, whereas only 1% showed a decrease. 32 % showed an increase of maturity of talents. Having a closer look on the distribution of the maturity within the three groups of the development of the number of talents, some interesting results. From the group of increasing number of talents, far the most responses (71%) stay equal with the maturity of the talent. This the same for the group with an equal number of talents (72%). Contradicting from the group with an decrease on the number of talents, about the half (53%) stay equal with the maturity. The other half (47%) have an increase of maturity of the talents. Comparing to the maturity of the group with an absence of growth of the number of talents (24%), the group with a decrease of talents have relatively more maturation in their talents (29%).

### Conclusions and recommendations

The results show that from a long list of patterns and attributes, there was a high level of propinquity among the peer-group discussions. This suggests that a cognitive psychological prototype of a talent is identified. From the validation of the prototype among under graduate students it can be derived that the attributes of the prototype are learnable. In most of the situations the number of the talents identified increase, whereas the maturity remains or even increase as well. Where there was an decrease of the number of talents, there is a relatively high level of increase of the maturity of the talents remain. With these conclusions it need to be addressed that there are some important limitations. First of all, the process of prototype identification was applied on a minimum of participants. It is advisable to extent the identification process. The prototype was single validated. It is recommended to apply more validations on the prototype. Furthermore it is recommended to apply the prototyping of talents in other then an entrepreneurial context. The results show also the possibility that undergraduate students can be helped identifying their talents. It is advised to improve the training material to raise the maturity of the talents from the students. Furthermore it is recommended to investigate if this approach has effect in other universities and if the learning can be implemented in general curricula.

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## Form 1

Exercise A: Please fill-in the answers below.

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## Towards a Methodology to Identify a Talent by Using Psychological Cognitive Prototyping

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**Abstract:** *Since education became an important aspect of society, teachers have a prelove for highly talented students. Especially young talented people relish profound attention of universities, firms, music ensembles, sports societies and artist groups. In higher education, students are encouraged to develop their unique strong point, named as talents. Around the globe, universities, institutes of higher and professional education provide students with programs for talent development and exploitation. Practitioners and educators complain on a regular basis that students rarely aware of what their talents are. It is experienced as difficult to identify them. This paper explores the possibility for mechanisms to identify, or recognize, a talent. Scholars and consultants developed many instrument on the development and exploitation of talents. But how can talents be identified? In this paper the fuzzy front end of talent recognition will be fostered. It is advocated that the psychological cognitive prototyping principles can be applied to identify the prototype of a talent.*

**Keywords:** talent, prototyping, cognitive-psychology

When debating on personal qualities, words that are emerging, can be put in categories of 'knowledge', 'skills', 'personal traits' and 'competences' (Gibb, 2002; Koopman, Hammer & Hakkert, 2013; QAA, 2012; Vloon, Hammer & Brahim, 2013). Among scholars, there are no clear set boundaries between these categories. It can be advocated that scholars have similar perspectives on the development of the personal qualities. In literature, psychologists even constructed a list of 550 words to frame the personal traits (Anderson, 1968). Personal qualities are dynamic; they can develop over time and can be acquired by hard an intense training (Feldhusen, 1994). For this reason, we educate our children for more than a decade to prepare them for society; all more or less equal in the same

classroom (Bloom, 1956). Nevertheless, it is known that not all children have the same basic 'raw materials' or 'propositions' to start with; one is more 'gifted' than the other (Renzulli et al., 1976). As proposed by *Bloom and Sosniak* (1985), in this paper the focus is on this 'gifted thing', named 'talent', more than on the trained skills and knowledge. Talent is conceived as a multidimensional and multiplicative developmental phenomenon (Simonton, 1999). The word 'talent' is in many languages written or pronounced in the same way, of course Finnish, Hungarian and Asian languages are exceptions. This indicates that the word is old and commonly used. For example, the old Greek mentioned talent when rant about 'Weight or sum of money of that weight', later talent was defined as 'disposition' or 'gift of God' (Dale, 2009). Others speak about 'best and brightest' (Knegtmans, 2008).

### *Historical overview*

In respect to the scope of this paper, the historical overview will not start with the old Greek, long before the birth of Christ. The conspectus will start at the beginning of the last century. After the industrial revolution the support of excellent personal characteristics, traits or qualities is described more regular in scientific literature and first it was not only on development of personal qualities or talents, there are clear statements of the detection or identification of talents (Abbott, Collins, Martindale & Sowerby, 2002). It was also the timeframe where the new Olympic Games emerged and grew rapidly (Buchanan & Mallon, 2001) and the timeframe were the World War I and World War II signed the world history. Before, during surely after these wars, nations and continents spend a considerable part of their GDP on competing to each other; not only on industrial and military aspects, also on sports (Buchanan & Mallon, 2001). Substantiated through the research of *Angela Abbott* and her colleagues (2002), it is known that academics studied personal qualities and talents within the context of sports. They assumed that there must be some characteristics that determine a good player from a perfect player. Throughout history Abbott and her colleagues (2002) identified and described three stages of research on personal qualities of talents, in respect to identification or detection. More or less the stages show congruencies with the development and innovation structures of industry. In the paragraphs below the three stages are discussed briefly:

1. *Physiological and Anthropometric Correlates of Success*. From the early 1920s, researchers were examining the potential of anthropometrical, and physiological measures as discriminating factors between athletes involved in different sporting events. In that time sports were an important symbol for both, society and military. As the development of the industry, the main approach of researchers was the key actors in the process, as visible from the outside. Predominantly research was based on the registration of observable characteristics, from where correlations to performance were obtained (Spearman, 1927). The list of variables considered for discriminating good and perfect was wide-ranging. Although

- numerous studies have contrasted senior and junior athletes, there was no scientific evidence for success prediction.
2. *Fundamental Movement Skills*. Some decades later, after the World Wars, the approach as similar to the industry became more sophisticated. Scholars' digger deeper in to the separate elements of a specific sport. In industry, more automation of simple processes was innovated and long production lines established. The premise of talent identification, or detection was that: "*participation in sport and physical education requires individuals to perform an array of different movements. Many of these movements are complex, specialised skills used in specific physical activities (e.g., top slice in tennis or the spike in volleyball). However, the majority of these specialised movements are underpinned by common skills (e.g., running, jumping, throwing). For instance, to be successful at triple jump, an individual must be able to run, jump, hop, leap, and land. These basic movements, which are common to a range of activities, are known as fundamental motor abilities and are defined as: A general template for a movement. The template becomes the basis of a number of specific skills, for example ...an underarm throw is a movement pattern and bowling in rounders is a specific skill that develops from it*" (Abbott, Collins, Martindale & Sowerby, 2002:19). From this same period of time, the actual general education paradigms emerged. Based on a generalised template of learnable simple elements of knowledge and skills, more complex tasks and competences are learned on this principle throughout the society nowadays (Bloom, 1956; McGregor, 1960; Thurstone, 1936).
  3. *Psychological Determinants of Excellence*. In the last decades of the former century, a last shift in approach of talent detection and identification noticed. Again in line with industry, the academic attention shifted to the psychological determinants of success or excellence. In industry new professions as Human Resource Management entered the firms (Guest, 1987). Management science was focussing from the same psychological angle (Mintzberg, 1979). Since (Schumpeter, 1934), entrepreneurship research matured from this time period. Relations between venture success and psychological characteristics were studied widely; psychological and social science became a prominent domain of entrepreneurship research (Baumol, 1990; McGrath, 1999; Palich, 1995; Shapero & Sokol, 1982; Stewart, Watson, Carland & Carland, 1998). In sports science researchers got engaged with psychological characterisation in relation to elite athletic performance, driven by the quest for information on factors associated with high-level athletic success. An overview of the psychological determinants of excellence is shown in table 1. In this timeframe the Talent Detection and Development (TDD) models were based on distinctions between elite and non-elite athletes (McCaffrey & Orlick, 1989).

Based on the above described insights of science, national sports organisations and societies developed motley of models to identify and develop talents. To the extent talents were gifted wen born, without an exception the models start with young children as object, from where routes for development are supplied. “According to Darwinian models of talent development (TD), an individual's potential becomes actualised through evolutionary interaction of innate capacities and 'ecological niches' available in family, school and workplace” (Simonton, 1999), meaning that experience and good practice opportunities should be compulsory parts of those models. Abbott and her colleagues (2002) wrote in their summaries that the development and approach of the talent detection and identification in sports was in line with those in arts (e.g. music and dance) and universities. They summarise from the studied models: “It has been established that the aim of talent detection and identification is to provide an accurate prediction of those individuals who have the potential to compete successfully at world-class levels. Such talent detection and identification procedures tend to be employed with pre-pubescent or pubescent children so that selected children can complete the number of years practice which has been demonstrated as required to achieve excellence” (Abbott, Collins, Martindale & Sowerby, 2002:25).

Table 1. Psychological determinants of excellence

Commitment
Quality Practice
Goal Setting
Imagery
Planning at all levels
Distraction control strategies
Perceptions of pressure
Performance evaluation

Source: Abbott, Collins, Martindale & Sowerby, 2002:23

In fact, the models and procedures are designed to select the gifted from the not gifted as early as possible in the development of a child; picking potential winners. Those scares, precious children who are gifted with talent, were put on special tracks in either sports, academic or art. Because talented children were kind of a synonym for wealth, parents were sometimes ‘overactive’ in practicing and stimulating their brood on those, weather the children liked it or not. Meanwhile Radford (1990) found out that children have to enjoy an activity before entering the deliberate practice; a forced development of skills rarely turns into a world class performance.

## Theoretical framework

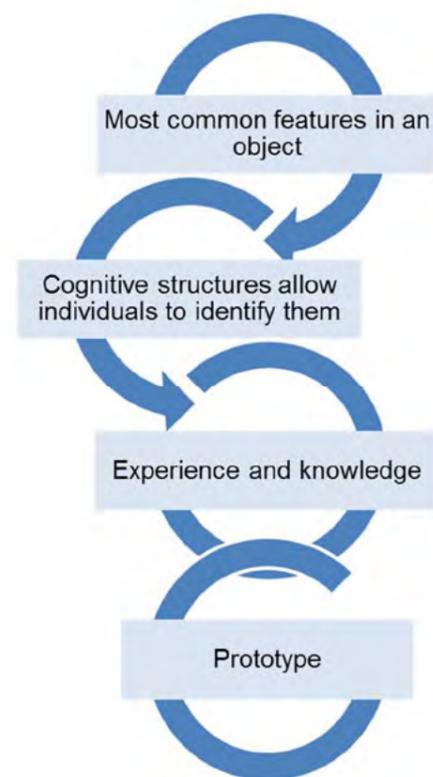
From the mid-nineties a shift in paradigm started whereas talent no longer was the domain of the gifted children and adults (Treffinger & Feldhusen, 1996). Francoys Gagné (1985; 1995; 2005) made a clear distinction between talented and giftedness. “Giftedness designates the possession and use of outstanding natural abilities (called aptitudes or gifts), in at least one ability domain, to a degree that places an individual at least among the top 10 percent of age peers. Talented designates the outstanding mastery of systematically developed abilities (or skills) and knowledge in at least one field of human activity to a degree that places an individual at least among the top 10 percent of age peers who are or have been active in that field or fields” (Gagné, 2005:99). John Feldhusen (1996) describes a talent as ‘spending hours of time deeply engaged in an activity’ (Feldhusen, 1996:65) which does not subtend Gagné’s definition. Despite the intensive debating on these topics it seems to be hard to find consensus on the definitions. Nevertheless, it appears that on several aspects there is a broad agreement. Both, talented and giftedness (Sternberg, 2004).

Nevertheless, talents were mainly identified with scales and checklists as Renzulli’s “ten scales for rating the behavioural characteristics of superior students” (Renzulli et al., 1976). Later, auditions (e.g. in performing arts) and portfolio’s (e.g. graphic art) were used. According to Feldhusen (1994), “talents emerge from general ability as a confluence of genetic dispositions, home and school experiences, and students’ unique interests and learning styles” (Feldhusen, 1994:10). Gagné (1985) delineated a general pattern of talent development in youth. From the cognitive theories, it is about the perception of the observer, were “something” out there is to be noticed. This is called ‘object’ or ‘pattern recognition’ (Matlin, 2002). Based on these theories, in entrepreneurship new insight emerged (Baron, 2006; Baron & Ward, 2004) when using future-analyses or recognition-by-components model (Biederman, 1995). Baron concluded that the prototype models were the most accepted and suitable for more complex patterns and objects as business opportunity (Baron & Ward, 2004:228). A cognitive-psychological prototype is based on, and to present, the mode or most frequently experienced combination of attributes associated with an object or pattern (Solso & Raynis, 1979). Baron and Ensley (2006) identified the prototypical dimensions or meaningful patterns of a business opportunity. They made use of the cognitive psychological approach of the prototype phenomena. Research indicate that the understanding of the entrepreneurial opportunity-prototype, is positive correlated to a higher level of identification of these entrepreneurial opportunities (Costa, Santos, & Caetano, 2013). Congruent with a business opportunity, a talent can be seen as a combination of attributes which can be associated with objects or patterns, as indicated by Gagné (1985). Therefore, this paper endeavours to travel the same road to identify a prototype of a talent. In the first part the preliminary prototype of a talent will be identified, were after the effect on under-graduate business students was tested.

## Methodology

The introduction and the theoretical framework suggest that a fourth development stage in talent detection or recognition emerged; the cognitive approach. The purpose of this paper is to explore the possibilities of the cognitive psychological prototyping technique in the field of talent recognition. As scientific paradigm the author choose a design methodology as advocated by *Andrew van de Ven* (2007), whose work derives from the same paradigm as *Herbert Simon* (1996). Van de Ven emphasis on the fact that society has to express their commitment to the research and play an important part in it; Society and researcher need to engage (van de Ven, 2007). The explorative dimension of the research generates data by open-ended interviews which are voluminous and complex (Baron & Ensley, 2006). Therefor data reduction procedures were applied similar to those used in the research on prototypes and pattern recognition to determine the prototype of opportunity recognition (e.g. Ward, Smith & Vaid, 1997; Solso, 1999; Bartel & Wiesenfeld, 2012). The process used of prototype identification is shown in figure 1. The figure is a simplified version of the complex process of prototype identification and the design of it is inspired by the work of Costa et al. (2013).

Figure 1. Simplified process of prototype identification. The process of prototyping



Whilst applying a design methodology, there is the obligation to validate the prototype identified (Aken & Andriessen, 2011). For the validation a group of under-graduate business students were asked pré- and post assigned on talents, as described in stage 5 of the research. With this fifth validation stage, the data collection, reduction and validation process applied is described below in more detail:

1. For the source of data, highly talented people as well as privileged witnesses of talented people were interviewed. These people were medal-winner sportsman, successful entrepreneurs, mentors of high talent classes and senior HRM managers who have their speciality in High-Potentials-Search contracts in several professional areas. They were asked to reply to two questions: "Describe what you think when you think on a highly talented person (as yourself may be one of them)?" and "How do you recognise a highly talented person?" The answers were written down by the researcher or the respondent. By hand, important words and word groups were registered.
2. The data from the first stage was discussed among a panel of two trained researchers on methods of content analyses (General Accounting Office, 1989) as method to reduce the voluminous and complex data and the use of the Delphi discussion technique. The panel members were only confronted with blinded data; i.e. personal and meta-data were extracted. The panel distinguished a list of seven cognitive structures. These two steps represent the first step in the model above, were the most common features are identified.
3. For the identification of the key attributes and patterns, the result of the stage 2 was used to have small group discussions with representatives of the group of talented persons of the privileged witnesses of talented persons from stage one. In total three group discussions were held applying the Delphi technique. The groups were assigned to pick the 'not to be missed' attributes for the recognition of a talent. Over the four groups, there was a clear consensus over three most important and not to omit attributes. This stage represents the second step from the model above.
4. In the additional fourth stage, the panel members of the third step were asked to rank the three identified attributes. Also two groups, with the size of three members, of successful entrepreneurs were confronted with the three attributes and were asked to rank them. The panels were asked to rank among the level of importance and, if possible, in a chronological way. The reframing of the task to the groups and the addition of the two entrepreneur groups, represent the third step of the model above. The ranking of the sequence of the attributes represents the fourth step of the model mentioned above.
5. The fifth validating stage, three groups of under graduate students were asked to volunteer in a research project. The students were originating from the business, economic and social science faculties and had enrolled for a workshop on talent identification and development during an international week at the Saxion University of Applied Sciences in two cities (Enschede and Deventer) in the

eastern part of the Netherlands. At the very beginning of the workshop, before one slide was shown, the student got their first assignment; and had to write-down their talents on a pre-printed form where there was no option to put on their name or any other individual recognition mark. To be sure the list will not be adopted during the workshop, because some talents could pop-up or made more specific, the students had to count the number of talents and wrote that number down at the bottom of the pre-printed form. The answers should be copied in their Individual Development Plan (IDP). In the workshop they were learned to focus on the attributes of the prototype identified. Just before the end of the workshop of two academic hours (100 minutes), the students were then again asked to write down their talents again, on the back site of the pre-printed form, marked as 'page 2' and anew copy them in their IDP. Again the number of talents had to be counted and written down at the bottom of the paper. Finally, they were assigned to hand in the pre-printed form. A team of two IDP-experienced senior lectures examined the pre- and post-lists of talents on two aspects: the number of talents and how detailed they were written down. For the latter the team was asked to judge what development there was in the talent described: more, less or equal in maturity. A mature described talent is put in a context, specified, and operationalised. This fifth stage represents the validation of the prototype identified.

## Results

From the first stage of the research a list of 52 words and word groups show up. These word and word groups were then in the second stage presented to the panel. The presentation was in two shifts because in a trial session with colleague scholars, a list of 52 items appeared too long for a proper discussion. The list of 52 words and word groups was split in two lists by systematic contingency; every second word on the list was transferred to list number two. After the discussion on the first list, ten words or word groups were selected or combined to new words or word groups. The same procedure was applied on the second list, directly after the first. Also ten words or word groups were selected. After a short break and energising exercises, the two lists of ten were discussed until there was agreement on the most important features was found. This was a list of seven attributes as is shown in table 2.

In the third step, the discussions in the three groups tended to be unstructured. From the point of view of the observer it was the interference of the strong characters of the participants. A lot of examples of talented people were used to elucidate several perspectives of the participants. At the end of the session, when there was consensus of three attributes, in random order. In the fourth step, from the attributes identified, a sort of logical order of importance or time sequence was asked to discuss. All five groups put the attributes in the same order, as shown in table 3.

Table 2. Seven important attributes of talent

Deep focused
Better than others, acknowledged by peers
Vastly joyful when applying
Spending all (spare) time to
Demonstrate professional attitude
Show pride
Applying without discernible effort

Table 3. Prototype of a talent

Vastly joyful when applying
Applying without discernible effort
Better than others, acknowledged by peers

According to the findings of Baron and Ensley (2006), attributes of a psychological cognitive prototype can be learned. Based on the prototype identified, senior lectures designed a workshop where the attributes could be trained to students. The students were voluntary selected by let them apply for a workshop on talent development and identification. It was one workshop out of 35 to choose from during the international week. Although it was compulsory to attend at least five workshops in two days, the students selected their own topics. To be sure all students attend five workshops, at the end the teacher provided the students with a token. As a side effect this system ensured a 100% response of the attendees because the teacher only provided a token when the pre-printed form was handed in. From the quality of the data, i.e. the text filled in or the text missed, it can be derived that the compulsory character of the students attending and participation biased the data in some respect. During the international week, all classes are taught in the English language. Students from partner universities in Europe and Asia were attending as well. In three sessions on two locations, 108 students attended the workshop. Before the examination of the documents, the researcher cleaned the data. The criteria for clean-up are: "document not completed and inappropriate response". From 20 documents only one side was filled in. Nine more documents had no or a wrong number of talents on the bottom of the first or showed inappropriate text. In table 4 the results of the assignment are presented. Next to the absolute numbers of response between brackets the percentage of the total is presented. Rounded brackets were used for the change in number (columns) and square brackets were used for the change in maturity [rows].

Table 4. Results of the validation

Change of maturity of the talent	Change in number of talents pre- and post-testing			Count
	More talents(x)	Equal talents (x)	Less talents (x)	
More mature [x]	10 (29%) [40%]	6 (24%) [24%]	9 (47%) [36%]	25 (32%) [100%]
Equal mature [x]	25 (71%) [47%]	18 (72%) [34%]	10 (53%) [19%]	53 (67%) [100%]
Less mature[x]	0 (0%) [0%]	1 (4%) [100%]	0 (0%) [0%]	1 (1%) [100%]
Count	35 (100%) [44%]	25 (100%) [32%]	19 (100%) [24%]	79 (100%) [100%]

The most of the 79 valid documents, show that the in the post-test a higher number of talents [44%]. 25 documents show an equal number of talents, where the most showed exact the same talents [32%]. In seven documents in the post-test there was only written that the talents were the same, sometimes in big letters. The author doubted to remove these documents from the result, however since they did not meet the cleaning criteria, it was decided to keep them in the sample. The last 19 documents show that fewer talents were identified in the post-test, in comparison with the pre-test [24%]. When counting the increase or decrease of maturity, the majority of the responses (67%) showed not a change, whereas only 1% showed a decrease. 32 % showed an increase of maturity of talents. Having a closer look on the distribution of the maturity within the three groups of the development of the number of talents, some interesting results. From the group of increasing number of talents, far the most responses (71%) stay equal with the maturity of the talent. This the same for the group with an equal number of talents (72%). Contradicting from the group with an decrease on the number of talents, about the half (53%) stay equal with the maturity. The other half (47%) have an increase of maturity of the talents. Comparing to the maturity of the group with an absence of growth of the number of talents (24%), the group with a decrease of talents have relatively more maturation in their talents (29%).

### Conclusions and recommendations

The results show that from a long list of patterns and attributes, there was a high level of propinquity among the peer-group discussions. This suggests that a cognitive psychological prototype of a talent is identified. From the validation of the prototype among under graduate students it can be derived that the attributes of the prototype are learnable. In most of the situations the number of the talents identified increase, whereas the maturity remains or even increase as well. Where there was an decrease of the number of talents, there is a relatively high level of increase of the maturity of the talents remain. With these conclusions it need to be addressed that there are some important limitations. First of all, the process of prototype identification was applied on a minimum of participants. It is advisable to extent the identification process. The

prototype was single validated. It is recommended to apply more validations on the prototype. Furthermore it is recommended to apply the prototyping of talents in other then an entrepreneurial context. The results show also the possibility that undergraduate students can be helped identifying their talents. It is advised to improve the training material to raise the maturity of the talents from the students. Furthermore it is recommended to investigate if this approach has effect in other universities and if the learning can be implemented in general curricula.

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# Entrepreneurial exit



# WHY ENTREPRENEURS FAIL AND HOW TO FIGHT IT?

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**In the early phase of the exploration of the entrepreneurial process, about 50 % of the new ventures stop the business. Partly the exit is avoidable and assigned to the personal characteristics and the environment of the entrepreneur; Entrepreneurial Failure. A lot of money is spent for support systems, attributed to the success of an entrepreneur. It seems to be very fruitful to know more about why entrepreneurs fail and how to prevent starting entrepreneurs from failure. This article wants to shed light on the reasons why starting entrepreneurs fail and what could be done in support systems, like educational programmes, to reduce the avoidable entrepreneurial failure. In a literature research the most common reasons for entrepreneurial failure are put together. With this, in a survey among educational and entrepreneurial experts, prevention measures are determined that could be effective against the most common reasons for avoidable entrepreneurial failure. The findings of the survey shows that there are possibilities to overcome the most common reasons for avoidable entrepreneurial failure. This opens possibilities to reinforce the design of support systems of starting entrepreneurs. It is strongly recommended to apply these measures in the design of support systems for young starting entrepreneurs.**

## I. INTRODUCTION

Early in the last century, Joseph Schumpeter (1934) pronounced a positive relationship between economic growth and entrepreneurship. An anchor for fostering entrepreneurship can be found in the person of the entrepreneur (e.g. (Stewart & Roth, 2007), (Judge & Iliès, 2002) and Kirton, 1976) and in the process of entrepreneurship (e.g. Shane & Venkataraman, 2000, Gartner, 1985 and Shaper, 1982). The entrepreneurial process is not complete when the exit phase is excluded from this process (D. R. DeTienne, 2010).

Among other scholars (e.g. (Gries & Naudé, 2009; Wennekers & Thurik, 1999), the Organization for Economic Cooperation and Development (OECD) posit that entrepreneurship makes a major contribution to economic growth of countries and regions (Ahmad & Seymour, 2008). Research by the OECD (IMHE / OECD, 2007) shows that higher education can be a boost to regional development. According to the model of the OECD, the increase of entrepreneurship

can be achieved by the increase of ventures and entrepreneurs (Ahmad & Hoffmann, 2008). Research shows that the majority of the entrepreneurs do not survive the first five years (Parsa et al, 2005, Hayward, Shepherd & Griffin, 2006, Bangma & Snel, 2009, Verhoeven et al, 2005; Meijaard et al, 2007). For the last decades, many support systems for nascent and academic entrepreneurs established (Hammer & Thuijs, 2012). The output of these programs shows a different score on Entrepreneurial Failure. The University of Twente, for example, reports in the 25 years that they accompany spin-offs in the TOP program, a dropout rate of 25%, while unaccompanied spin-off companies have a drop of 40% (University of Twente, 2005). Furthermore, it is assumed that entrepreneurial support systems are designed on the elements who lead to success, instead of the prevention for elements of failure, as is common for support systems. McGrath (1999) argues that although failure is neither painless nor desirable, researchers have to overcome their bias in failure analysis, because understanding entrepreneurial failures allows for the discovery of valuable information, not just for society at large but for entrepreneurs in particular. McGrath (1999, p16) "by the continued denial of the Entrepreneurial Failure are many important lessons lost on the Entrepreneurial Failure and will not anticipate the negative consequences." "Careful analysis of failure, rather than put the focus on success rates researcher's systematic progress towards analytical models for value-based entrepreneurship (McGrath, 1999, p 28). Therefore it seems to be fruitful to investigate the expected impact of failure reduction elements in support systems. To start with this investigation, first a clear definition of Entrepreneurial Failure will be indoctrinated in the first paragraph. In the second paragraph the literature is searched for the causes of Entrepreneurial Failure. From the causes, among educational and entrepreneurial experts, a survey was held to identify prevention measures which could be proposed to improve support systems by reducing Entrepreneurial Failure. After the conclusions, recommendations are made.

## II. DEFINITION OF ENTREPRENEURIAL FAILURE

In this paragraph an overview of the understanding of Entrepreneurial Failure from the literature is given, after which a definition is argued. According to D. R. DeTienne (2010), every venture will once exit this entrepreneurial process. The literature distinguishes two ways of entrepreneurial exit: (i) quit because of good performance (also called desired failure or Entrepreneurial Exit) (D. R. DeTienne, 2010; Wennberg, Wiklund, DeTienne, & Cardon, 2010), or (ii) because the performances are not good (also called unwanted outages or Entrepreneurial Failure) (Headd, 2003; Samuels, Joshi, & Demory, 2008; Wennberg, 2011). About half of the cases of entrepreneurial drop out refers to situations which are not desirable (Wennberg et al, 2009) and in which the entrepreneur (e.g., Simon et al, 2000, Ottesen & Grønhaug, 2005, Hayward et al, 2006) and its environment (Vaillant, 2007) have a role in the cause. According to Cardon, about half of the cases of Entrepreneurial Failure, the failure seems to be avoidable, because the failure was based on mistakes (firm internal attributes) (Melissa S. Cardon, Stevens, & Potter, 2011). There is no clear research known to what extent the half of 'not desirable' is similar to the half of 'avoidable'. Research shows that the relationship between Entrepreneurial Exit and Entrepreneurial Failure, after the first seven years, is roughly equal (Wennberg et al, 2008). Melissa S. Cardon et al. (2011) divide Entrepreneurial Failure further into two categories: tough luck and mistakes by the operator. Within the entrepreneurial literature, many different meanings to the word 'failure' are used. An often used and small framed definition is that of 'bankruptcy' or 'insolvency' (Zacharakis, Meyer and DeCastro, 1999). Other scholars add elements as 'personal limitations of venture participants' (Singh, Corner & Pavlovich, 2007) or 'do not yield enough added values for a reasonable income' (Everett & Watson, 1998). In accordance with the taxonomy of exit routes (Wennberg et al., 2010), the 'Distress Sale' and 'Distress liquidation' seem to fit to the purpose of this research. To obtain clarification on an assembly of reasons for venture cessation, a more general definition of failure would be most helpful. In line with often-cited scholars on this topic, failure will be defined as 'the termination of an initiative that has fallen short of its goals' (e.g. McGrath (1999), Cannon & Edmondson (2001). To put this general definition of failure in an entrepreneurial perspective and addressing the role of the entrepreneur, the definition of

Entrepreneurial Failure, used in this paper, will be 'the termination of a venture creation that has fallen short of its goals'.

## III. CAUSES OF ENTREPRENEURIAL FAILURE

From literature, the main causes of Entrepreneurial Failure will be discussed and summarized. According to the above-argued definition of Entrepreneurial Failure, the causes can be found either inside or outside the venture. It is argued that internal causes are the far most reason for Entrepreneurial Failure (Wennberg, 2011), where one third of the small businesses are affected by exogenous factors (Everett & Watson, 1998) as can be allocated to external factors. Because of the fact that small businesses barely can influence the exogenous factors as economic recessions, shortage of raw materials and the appearance of substitution products (FEE, 2004), in this paper only the internal causes are discussed. Among mistakes, according to Melissa S. Cardon et al. (2011), issues such as business, mismanagement, unrealistic expectations, pride, finance and innovation mentioned. Other literature indicates that Entrepreneurial Failure is related to strategic resources (Michael & Combs, 2008), planning strategies (van Gelder et al, 2007; pride (Hayward et al, 2006), not able to cope with uncertainty (McGrath, 1999) and over-optimism and overconfidence (Muir, 2007). Research by Wickham (2003) shows that cognitive aspects of decision-making affects what Entrepreneurial Failure strengthened. Baron (2000) and Simon et al (2000) propose, in a more general manner, that a biased point of view has a negative impact on entrepreneurs, which can lead to Entrepreneurial Failure. Within literature, a study of Melissa S. Cardon and Potter (2003) shed light on the main courses of Entrepreneurial Failure. They studied over 500 citing's of news articles, addressed with entrepreneurial failure. They found that about 54% was caused by mistakes and 45% by misfortune. Focussing on the mistakes, 16% of the citations were caused by mismanagement and 18% by 'Conceptualizing a business and planning out its goals and the method by which to accomplish them...' (Cardon and Potter, 2003, p11). The European Federation of Accountants (FEE, 2004) defines more financial causes of Failure. In their paper, the FEE supplies a 10-item list of internal business failure for SME's: Poor management, deficit in accounting, poor cash flow management, inappropriate sources of finance, dependency on customers or suppliers, impending bad dept., overtrading, poor marketing research and fraud / collusion. In accordance with many scholars, no clear framework of causes

could found. Peek out through the leading scholars, from the many causes of Entrepreneurial Failure the next classification is proposed: mismanagement, poor concept and personal traits. On forehand it is obvious to the author that scholars may doubt on this categorisation; e.g. mismanagement can be moderated by personal traits (van Gelder et al., 2006).

#### IV. PREVENTION MEASURES

Based on the above-proposed classification of causes of Entrepreneurial Failure, a preliminary survey held on a group of entrepreneurial and educational experts, to identify possible prevention measures in support systems. In this paragraph first the methodology will be stated were after the results are presented. The conclusions and recommendations are given in the final paragraph of this paper. The chosen methodology for the survey was predominantly quantitative. From the three classified groups of causes, a questionnaire is designed to identify the prevention measures. By semi structured interview conducted at a limited number of experts, the questionnaire was tested. The main complaint of the responders was that it was difficult to identify causes, based on an open question, because the absence of a context. They also questioned the value of the proposed answers. From the questions asked, the answers would be to general for application. Suggestions were made to let the respondents answer in the setting of a prescribed context. Based on this feedback, the survey was modified. For this research the survey consists of three case descriptions from failed entrepreneurs. Every case consists of one of the characterised causes of Entrepreneurial Failure. The respondent was asked to determine the cause in the given context and to identify what could be possibly done (before the failure) to avoid it. The survey set out single blind by email or in person to the experts. Some experts contacted the author for clarification. In table 1, the results of this survey are given.

Situation	Identified cause	Prevention measure
1 poor management	Lack of financial knowledge	- teach accounting - identify cost-consumers
	No partners involved	- learn networking - do not start

2 poor concept	No clear focus on added value	- do marketing research - consult a senior entrepreneur - use business development tools
	No paying customer group identified	- make realistic business planning - stop starting a venture, keep in the laboratory.
3 personal traits	Taken to much risk (overconfidence)	- let experience failure early - teach accounting and hire accountant
	Hesitating too much on decisions	- stop starting a venture (select in the program) - learn decision-making tools.

Table 1, the integrated results of the survey

From the ten placed surveys, six returns fully completed and four completed partly or did not respond at the moment of the publication of this paper. In the results, only the completed survey are reported in the results.

#### V. DISCUSSION

The results show that there are some similarities between the identified prevention measures. With these results, it is worth to do some experiments on support systems to identify the effects. Some of the proposed measures are not often seen in support programs and therefore an effect could be expected. On the other hand, the sample is very small. The effect of the different cases presented to the respondents is clearly visible. The result do not release if the effect infinite. There could be a possibility that the failure situations are limited and therefore the 'map of prevention measures' is limited, when classified. To extend the research in this way, a complete overview can be given and a systematic reduction of Entrepreneurial Failure among starting entrepreneurs can be realized.

#### VI. CONCLUSIONS AND RECOMMENDATIONS

Considering the preliminary character, the results of the research show that there might be possibilities to reinforce the support systems to fight Entrepreneurial Failure. When the failure

would be categorized as 'mismanagement', specific educational tools can be implemented, although some are already implemented. When the failure would be categorized as 'poor concept', business development tools and 'investor pitching' were indicated as helpful instruments. When the failure would be categorized as 'personal traits', within a support system the nascent entrepreneur should not be stimulated to start, when tests indicate the risk of this failure type is realistic. Although the quantitative character of the research, it is recommended to test the purposed prevention measures in practice. For further research, it is recommended to take a bigger sample for the survey. It might be interesting to distinguish the respondent groups. As discussed at the prevention measures, it is recommended to research the effect of the context on the purposed causes. There could be a possibility that a different approach on Entrepreneurial failure classification is needed to overcome the context bias.

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## Why do some entrepreneurs decide to give up? Exploring the causes through cognitive maps.

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### Abstract

Despite the contributions of previous studies, no satisfying answer has been provided to explain why some entrepreneurs decided to exit from entrepreneurship. This question will remain extremely complex and difficult to answer if researchers continue to study this phenomenon using uni-dimensional and/or binary approach. The aim of this paper is to contribute to a better understanding the complexity of entrepreneurial exit by proposing an integrative and typological framework. This study seeks to provide two main contributions. First, given the little research integrating in the same studies the individual and firm levels of analysis, the current research propose an integrative theoretical framework based on entrepreneur/new venture dialogic and highlighting the multidimensional, the multiform and the paradoxical aspect of entrepreneurial exit. Second, despite the wide use of cognitive approach in entrepreneurship, only a few studies have used cognitive maps as a tool for understanding the “negative entrepreneurial outcomes”, such as the exit decisions of entrepreneurs. The methodological framework is based on cases studies of four entrepreneurs who have made the entrepreneurial exit decision. Based on cognitive mapping approach, the method used in this paper is divided into three stages. The first stage explores the view of the entrepreneur with regard to his/her exit experience and is based on non-directive interview. The second stage applies the cross-impact “cognitive matrix” in an effort to define the relationship among the concepts gathered during the first stage. In the final stage, the cognitive map composed of concepts and links is analysed in order to identify the root causes of entrepreneurial exit. The findings of this qualitative study show that entrepreneurial exit is not the exclusive consequence of the presence of positive or negative exit reasons, but the immediate result of the interaction of six key dimensions that this research aims to explore, describe and classify. The resulting analytical framework can be used as “visual support” by researchers and professional actors to provide an overall view of the entrepreneurial failure phenomenon, to better analyze its causes, and to build strategies for avoiding tragic and traumatic exit experiences.

**Keywords:** Exit, Failure, Entrepreneurship, Cognitive mapping.

## Introduction

Since entrepreneurship is seen as one of the main factors contributing for the economic growth (Minniti & Levesque, 2010; Schumpeter, 1934; Thurik & Wennekers, 2004; Zalan & Lewis, 2010), policy makers and researchers are constantly interested in the topic. From the late 90's the research focuses on entrepreneurial success and "picking winners" (Cooper, 1993). To predict successful entrepreneurs, previous research aligns with the linear discriminant analysis model (Cooper et al., 1994; Duchesneau & Gartner, 1990; Littunen et al., 1998; Wetter & Wennberg, 2009). The objective of these researches is to explain why some entrepreneurs succeed to insure the survival of their new ventures while others failed to avoid bankruptcy.

Although statistics show that failure of new ventures is more likely than success (Hayward et al., 2006; Parsa et al., 2005; Van Praag, 2003), entrepreneurial failure remains therefore less studied from a dynamic and "processual" perspective (McGrath, 1999). In fact, research on entrepreneurship has tended to focus on the positive outcomes of entrepreneurship such as the decision to start-up a new business (Cooper, 1993) but there is little research focused on the negative entrepreneurial outcomes such as "entrepreneurial failure" or "entrepreneurial exit decision". This phenomenon is therefore perceived by some entrepreneurs as well as by entrepreneurship supportive structures as something to be avoided (Cardon et al., 2011).

For researchers, entrepreneurial exit is an important aspect of entrepreneurship. We can't understand the entrepreneurial process without understanding the end of the process (DeTienne, 2010). Moreover, for several researches, entrepreneurial exit can be associated to successful outcomes (DeTienne, 2010; Wennberg et al., 2010). In order to highlight the paradoxical aspect of entrepreneurial failure, recent years have seen an increasing focus on the positive and negative exit reasons (e.g., Aaltonen et al., 2010; Wennberg et al., 2010).

Over the last decades, scholars tried to quantify the exits in start-ups. Although there is a dependency on global regions and branches (Hessels et al., 2011), more than 50 per cent of the starting companies stop their activity (Bangma & Snel, 2009; Verhoeven et al., 2005). In the United States, 34 % of the started ventures did not survive the 2<sup>nd</sup> year, after 4 years 50 % survived and 60 % did not reach the 6<sup>th</sup> annum (Hayward et al., 2006, p.160). Parsa et al. (2005) cite an investigation of American Express where was found that for restaurants, 60% did not survive the third year. Besides a negative perception of exit, a part of the exit, 50% -

66%, is determined as positive (Headd, 2003; Wennberg et al., 2010). A not quantified part of the negative determined exit was avoidable (Headd, 2003).

Despite the contributions of previous studies, no satisfying answer has been provided to explain why some entrepreneurs decided to exit their new ventures. This question will remain extremely complex and difficult to answer if researchers continue to study entrepreneurial exit using uni-dimensional and/or binary approach (Khelil et al., 2012). Indeed, entrepreneurial exit is a multi-dimensional and multi-forms phenomenon. Primary, it is a multidimensional phenomenon because it is most often been studied at organizational or individual levels of analysis (Wennberg, 2011). Secondly, it is multi-forms phenomenon because it can take many forms such as liquidation, bankruptcy, or sell-off of a firm (e.g., Aaltonen et al., 2010; Wennberg et al., 2010; Wennberg, 2011). The aim of this paper is to contribute to a better understanding the complexity of entrepreneurial exit phenomenon by proposing an integrative and typological framework. To this end, this study seeks to provide several contributions.

First, given the little research integrating in the same study the individual and firm levels of analysis, based on entrepreneur/new venture dialogic, the current research proposes an integrative theoretical framework highlighting the multidimensional, the multiform and the paradoxical aspect of entrepreneurial exit. Second, despite the wide use of cognitive approach in entrepreneurship research (Baron & Ward, 2004; Brännback & Carsrud, 2009; Forbes, 1999; Mitchell et al., 2000), only a few studies have used cognitive maps as a tool for understanding entrepreneurial phenomena. In management sciences, the cognitive maps are mainly used in strategic management for studying managerial decision-making (Calori et al., 1994; Eden, 2004). However, there are limited uses in entrepreneurship research (Khiari et al., 2011; Verstraete, 1997). Moreover, relatively few studies have focused on the use of a cognitive mapping approach to explain "positive entrepreneurial outcomes", such as the decision to start a new business (Hines, 2000; Vandekerckhove & Dentchev, 2005). Until now, studies focused on the empirical use of cognitive mapping to explain "negative entrepreneurial outcomes", such as the exit decisions of entrepreneurs, are rarely found (Khelil et al., 2012; Khelil et Smida, 2012).

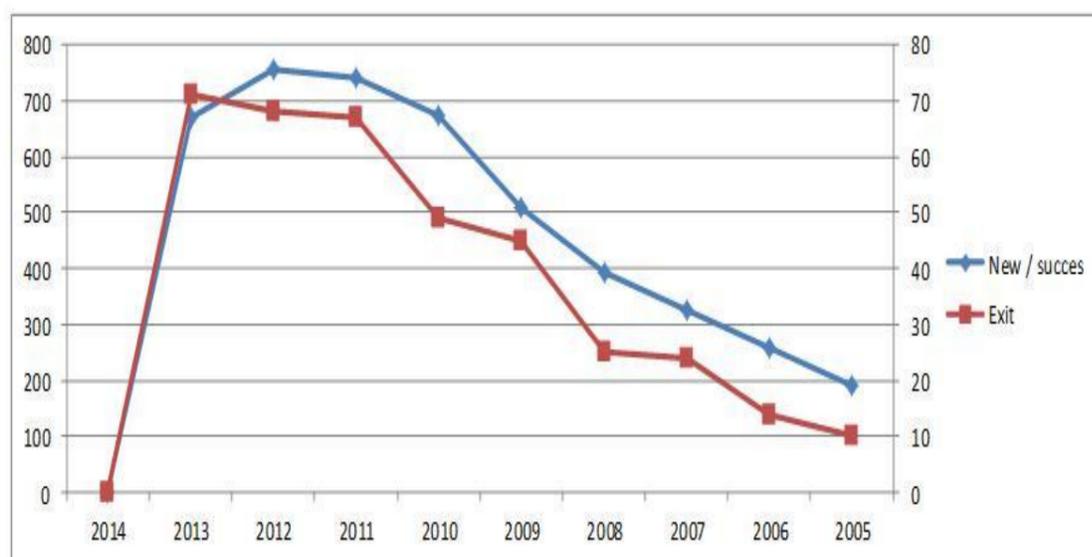
Our study is organized as follows. We begin by reviewing the previous literature on failure and exit in the fields of management and entrepreneurship in order to propose an integrative theoretical framework for developing an entrepreneurial exit typology. Then explain the

methodological framework, which is based on cases studies of four entrepreneurs who have made the entrepreneurial exit decision. The resulting cognitive map is next reinterpreted across the proposed theoretical framework. Finally, a discussion of the implications and the future directions of this work are highlighted.

## 1. Theoretical framework

For the dynamic aspect of the proposed framework, entrepreneurship is approached as a process (Baron, 2008; Bhava, 1994; Krüger et al., 2000; Shane & Venkataraman, 2000; Shapero & Sokol, 1982). According to this perspective, entrepreneurial failure is then approached as the exit of the entrepreneurial process (Vecchio, 2003; Wennberg et al., 2010) which is valuable to study more deeply as a significant part of new venture creation process (Cardon et al., 2011; McGrath, 1999). Searching the literature for entrepreneurship “success” and “start” (left y-axial), it generates ten times more hits than looking for articles on entrepreneurship and “exit” (right y-axial), which is shown in fig.1.

**Figure 1- Evolution of the number of publications on entrepreneurial exit**



Recent studies of entrepreneurial exit determine exit routes of the entrepreneurial process based on the ‘sale’ or ‘liquidation’ with high or low performance (Wennberg et al., 2010). Other exit routes based on resources (e.g. capital assets, human capital) and goals for organization and growth (Delmar et al., 2006; Van Praag, 2006; Wennberg, 2011) or personal traits (Hammer, 2012). Fragmented among scholars two groups of causes are mentioned: the

entrepreneur (Hayward et al., 2006; Ottesen & Gronhaug, 2005; Simon et al., 2000) or his / her organizational environment (Vaillant & Lafuente, 2007). Despite the contributions of the aforementioned studies, they lack an integrative approach. From the literature two levels of exit can be determined, from where the subject can be studied: organizational level and personal level.

### 1.1. The organizational-level approach of entrepreneurial exit

According to the population ecology of the organizations theory, the success of a new venture is expressed in terms of survival (Aldrich & Ruef, 2006, p. 38). Successful entrepreneurs are those who insure the survival to their new business for some or many years. There are certainly multiple definitions of entrepreneurial success, but several researchers suggest associating this concept to start-up survival because the early years are critical for the stabilization of the entrepreneurial activity (Littunen et al., 1998). Hay et al. (1993) argue that we can speak about entrepreneurial success only when the new venture remains on the market for a period of at least three years. The main difficulty for the newly created firms is not to find a new market, but the main difficulty is to be rooted in those markets (Hay et al., 1993).

To explain the performance of this type of venture, Hay et al. (1993) prefer using the concept of “survival barriers” rather than “entry barriers”. These authors characterize successful start-ups as it is primarily their ability to overcome the “survival barriers”. Although entrepreneurs are constantly subject to the risk that an event or combination of events forced them to exit from their new venture, they start their business in the hope that they will survive (Shepherd et al., 2000) and cross the start-up phase. Insuring the new venture survival becomes the most important goal for entrepreneurs (Littunen et al., 1998). Looked from this perspective, the basic measure of the success of the emerging businesses is first survival. Entrepreneurs who fail are those who fail to keep their business “alive” (Chrisman et al., 1999).

According to this deterministic approach, entrepreneurial failure is associated with new venture mortality. The reflection on organizational mortality really began in the 1970’s with Hannan & Freeman (1977) studies. According to the population ecology of the organizations theory, business failure is synonymous of “organizational mortality” (Mellahi & Wilkinson, 2004). Other research associates “organizational mortality” with a state of bankruptcy (Honjo, 2000a-b) which is considered as the legal form of the “organizational death”. For Singh et al.

(2007), bankruptcy is the most objective measure of “organizational mortality”. It is then appropriate to operationalize failure because it is based on a legal manifestation of the phenomenon.

This determinist and restrictive approach assigns a vital role to environmental factors to explain failure as bankruptcy (Mellahi and Wilkinson, 2004): new ventures fail through no fault of entrepreneurs, but rather, due to unavoidable difficulties derived from the environments (Cardon et al., 2011). However, entrepreneurs may exit their new ventures for positive reasons other than business failure (e.g., Aaltonen et al., 2010; Wennberg et al., 2010). According to DeTienne (2010), every venture will once exit this entrepreneurial process. The literature distinguishes two ways of entrepreneurial exit: (i) quit because of good performance (also called desired failure or entrepreneurial exit) (DeTienne, 2010; Wennberg et al., 2010) or (ii) because the performances are not good (also called unwanted outages or entrepreneurial failure) (Headd, 2003; Samuels et al., 2008; Wennberg et al., 2010). About half of the cases of entrepreneurial drop out refers to situations which are not desirable (Wennberg et al., 2010) and in which the entrepreneur (Hayward et al., 2006; Ottesen & Gronhaug, 2005; Simon et al., 2000) and its environment (Vaillant & Lafuente, 2007) have a role in the cause.

According to Cardon (2011), about half of the cases of entrepreneurial failure, the failure seems to be avoidable, because the failure was based on mistakes (firm internal attributes). There is no clear research known to what extent the half of “not desirable” is similar to the half of “avoidable”. Research shows that the relationship between entrepreneurial exit and entrepreneurial failure, after the first seven years, is roughly equal (Wennberg et al., 2010). Cardon et al. (2011) divide entrepreneurial failure further into two categories: tough luck and mistakes by the operator. Within the entrepreneurial literature, many different meanings to the word ‘failure’ are used. An often used and small framed definition is that of “bankruptcy” or “insolvency” (Zacharakis et al., 1999). Other scholars add elements as “personal limitations of venture participants” (Singh et al., 2007) or “do not yield enough added values for a reasonable income” (Everett & Watson, 1998). In this context, the exit reasons are essentially related to individual rather than organizational factors including the positive and the negative feeling attached to the new venture performance.

## 1.2. The individual-level approach of entrepreneurial exit

In some circumstances, the legal death of organization does not necessarily coincide with the death of the sociological entity of the organization. It can change its name to reorganize as a new legal entity, with all or only some of the members of the dying organization (Poroli, 1999). In addition to the legal bankruptcy Crutzen & Van Caillie (2009) argue that the abandonment of the initial legal status can also be done in the case of a merger, spin off or take over. In this case, the mortality is not related with the formal death due to legal bankruptcy, but the death of the original sociological corporate identity. Evoking the concept of identity led to ask about the sociological mortality of the new venture: the notion of organizational identity is not it the guiding principle for identifying organizational mortality (Mignon, 2001). Research conducted by Sutton (1987) can give an interesting perspective to define the sociological mortality. Based on a qualitative study of eight case studies, Sutton (1987) describes the process leading to death by focusing on the relationship between the dying organizations and their members. It specifies three components: the struggle for survival, the dissolution of the organizational arena “disbanding” and the reintegration component of the organization in other social systems “reconnecting”. In this perspective, the concept of mortality is associated with the failing of the venture to protect her initial identity.

However, it is difficult to identify the mortality of new venture based on their organizational identity. It appears as a set of characteristics that gives the firm during its existence, specificity, stability and consistency (Mignon, 2001, p. 43). But it takes time for an emerging firm to “build” his own identity. Moreover, it is difficult to distinguish the identity of a newly created firms that of its founder. New businesses are generally recognized through the name of their leader and founder. The entrepreneur may also terminate his/her entrepreneurial adventure. From a sociological perspective of mortality, failure of a new venture is related to the discontinuity of its activities under the leadership of its leader and founder.

According to this sociological perspective, entrepreneurial failure is perceived in terms of the mortality of the entrepreneurial identity. The sociological mortality is effective when the new venture cannot survive beyond a period of three years under the leadership and the control of its founder. This position is based on the observation that only 50% of new venture reach the threshold of three years (Abdessalam et al., 2004; Van Praag, 2003). Entrepreneurial exit is considered a key criterion to distinguish entrepreneurs who fail from those who succeed. It is

in this context that the sociological perspective that associates entrepreneurial exit to the person of the founder and considers the disappearance of the new company, known under the name of its founder as a failure.

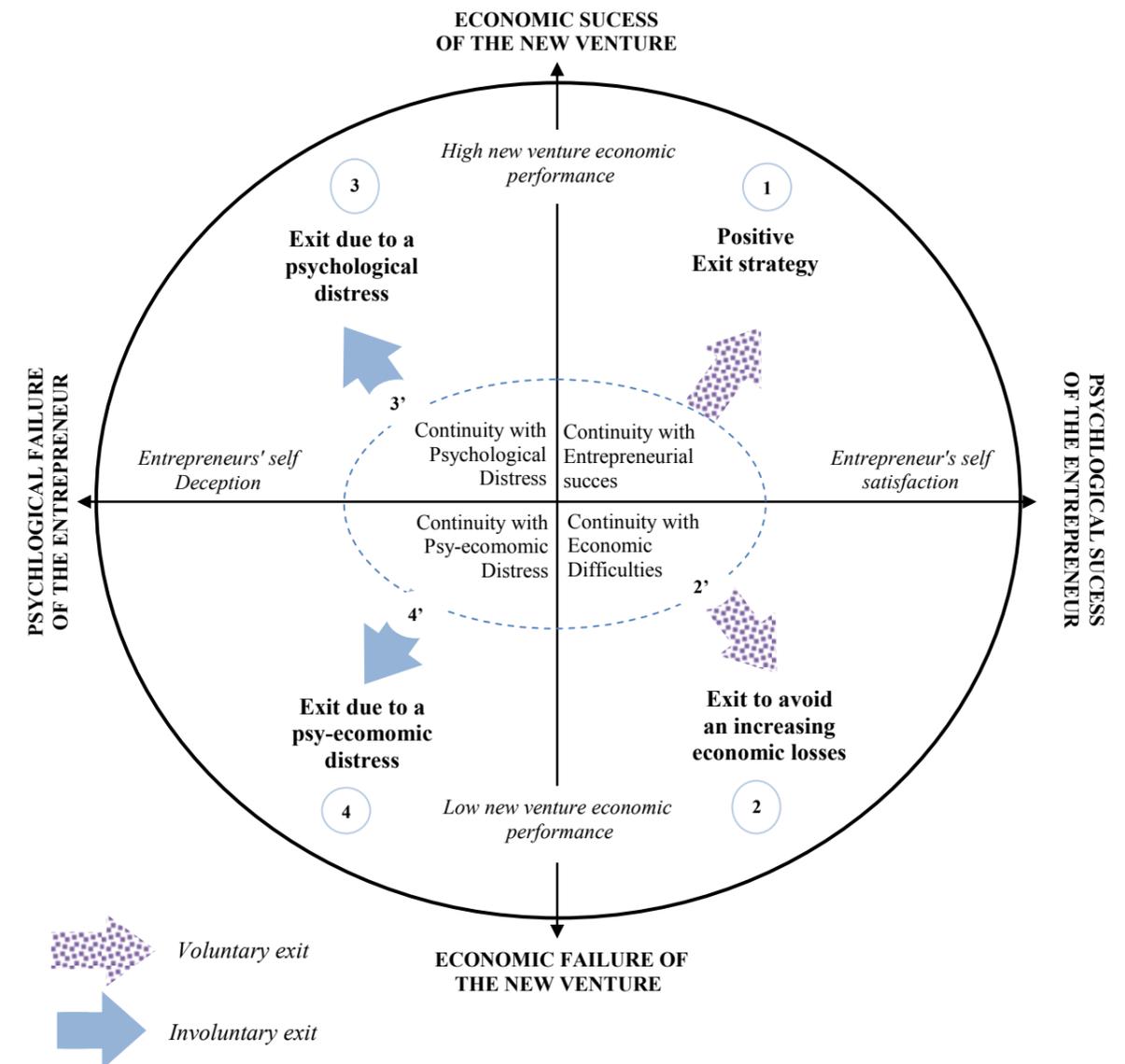
In terms of causes, the individual-level approach of entrepreneurial exit assigns a fundamental role to the entrepreneur's expectation in order to explain why some entrepreneurs decide to exit from entrepreneurship. From this perspective, the entrepreneurial exit is associated not only with organizational aspects, including the new venture's bankruptcy or insolvency, but also with psychological aspects related to the entrepreneur's expectations (Ucbasaran et al., 2010). The individual-level approach involves the goal-achievement gap theory (Cooper & Artz, 1995). Based on this theory, entrepreneurial exit can be associated with the entrepreneur's personal (dis)satisfaction with respect to the (non)achievement of her or his specific aspirations and expectations.

In accordance with the taxonomy of exit routes (Wennberg et al., 2010), the "distress Sale" and "distress liquidation" seem to fit to the purpose of organizational level approach. To obtain clarification on an assembly of reasons for entrepreneurial, a more holistic definition of entrepreneurial failure would be most helpful. In line with often-cited scholars on this topic, failure can be also defined as 'the termination of an initiative that has fallen short of its goals' (e.g. McGrath, 1999; Cannon & Edmondson, 2001) and therefore can be associated with individual-level approach. In this research we combine the two approaches of entrepreneurial exit: the organizational level associate with the economic reasons of exit and individual level associated primarily to psychological reasons. By combining the two approaches, the next section proposes a more nuanced approach of entrepreneurial exit.

### 1.3. The typology of entrepreneurial exit

By combining the two approaches to entrepreneurial exit, the proposed typology describes for "conceptual configurations" (see Fig.2).

**Figure 2 - Typology of the entrepreneurial exit scenarios based on the entrepreneurs/new venture dialogic**



This typology shows that entrepreneurial exit may take other configurations than bankruptcy (eg. Khelil, 2012; Smida & Khelil, 2010). Indeed, the most common and extreme form of failure is the dramatic bankruptcy (Scenario 4), which corresponds to the conjunction of two dimensions: the economic failure of the new business and personal disappointment of founder due to a non-realization of their initial aspirations and expectations. The proposed typology demonstrates the presence of other forms of entrepreneurial exit. It shows that there are two predominant dimensions of entrepreneurial exit: economic (organizational-level) and

psychological (individual-level). It is the combination of these two dimensions that will determine the fate of the new venture: continuity versus discontinuity. In some circumstances, it is the entrepreneur who will decide whether to continue or stop the entrepreneurial adventure, in other circumstances, it is forced to stop his/her adventure. For scenarios 1 and 2, the decision of the discontinuity is a deliberate choice rather than being obliged, in scenario 3 and 4, entrepreneurs are faced with economic and /or psychological difficulties that force them to exit.

This approach of entrepreneurial exit was chosen by DeCastro & Szyliowicz (2004) to distinguish between a "voluntary exit" and an "involuntary exit". The first configuration includes all entrepreneurs confronted to constraints that obliged them to exit from their new venture. The second configuration includes the entrepreneurs that decided deliberately to exit from entrepreneurship (DeTienne & Cardon, 2006). In fact, the entrepreneur can design a positive exit strategy (scenario 1) to facilitate the transition to other activities that are perceived as satisfactory to him, while his company generates profits. The discontinuity of entrepreneurial activity is not then always synonymous of failure (Cope et al., 2004; Everett & Watson, 1998; Shepherd et al., 2000). Some entrepreneurs decide to exit from entrepreneurship for other reasons than insolvency (scenario 3). For example, interpersonal conflicts with partners, seemingly minor, can create serious problems ultimately leading to entrepreneurial exit (Singh et al., 2007).

The typological approach of entrepreneurial exit leads us to distinguish between "organizational mortality" and "entrepreneurial exit". The conception of entrepreneurial exit is larger than "organizational mortality" since the covers. Shepherd et al. (2000) argue that organizational death is specifically related to an unexpected drop in income and/or unpredictable increase in spending on such an important that the new venture becomes insolvent and unable to borrow or attract new financial capital: it can no longer continue to operate. In this perspective, the mortality appears to be the result of an unforeseen incident affecting the solvency of the new venture causing the interruption of its activities (Shepherd, 2003). Organizational mortality is therefore a special case of entrepreneurial exit. The entrepreneur decides to end his entrepreneurial adventure only for reasons of insolvency (Shepherd et al., 2000): it's the case of the scenarios 2 and 4.

Some entrepreneurs live moments of doubt, stress, disappointment, hesitation between continuity and discontinuity (Valéau, 2006). Among them are those who demonstrate a great motivation, determination and will that allow them to keep their business alive despite its economic failure and despite the lack of income it generates compared to their that could offer them the job market if they were employees (scenario 2') or/and even a rhythm or lifestyle that does not suit them at all (scenario 3' and 4'). Contrariwise, other entrepreneurs decide to exit for insolvency reasons (scenario 4), to avoid economic losses (scenario 2) or to end the psychological pressures that mentally exhausted (scenario 4).

In addition to the economic dimension, entrepreneurial failure is also associated with psychological states of demotivation, discouragement, lack of perseverance and endurance. The origins of this type of failure can be mixed with personal dissatisfaction of the due to non – concretization of its initial expectations and /or the entrance to his small emerging failure in the spiral of economic failure that demotivate (Khelil et al., 2012).

## 2. Methodological framework

In this paragraph the methodological framework is presented. First the used methodology of cognitive mapping is set out by describing the expressed concepts, the identification of the causality relationships between the concepts and the identification of the key dimensions. In the second part the four cases used are described.

### 2.1. A qualitative methodology based on cognitive mapping

Scholars propose several definitions of "cognitive map" or "large-scale space" (Chown et., 1995). Cossette's (2003) definition is the most commonly used in entrepreneurship literature. He defines a cognitive map as a graphical representation of the mental representation that the researcher has made of a set of discursive representations expressed by a subject (e.g., entrepreneur, manager) from his/her own cognitive representations about a particular object. According to this definition, the researcher conceives the cognitive map according to his/her own interpretation of the discursive representation of the subject. The cognitive map can be then considered as a graphical representation of the mental representation made by the researcher on a studied phenomenon.

For the use of cognitive maps in the research of exit-routes of entrepreneurship, the authors focus on the principle of “Human way finding” as proposed by Chown et al. (1995). Based on these principles, we performed the analyses in three sequential phases: (i) Landmark identification; the description of the expressed concepts as Piaget’s (Piaget & Inhelder, 1967) characterization topological representations of landmarks; (ii) Path selection; the identification of causality relationships between concepts; and (iii) Abstract environmental overview; the identification of the key dimensions.

### 2.1.1. The description of the expressed concepts

In the first phase of the structural analysis method, the interviewed entrepreneur indicated the different concepts or ideas that, in his opinion, related to his entrepreneurial exit decision. In this study, the process of listing concepts that compose the entrepreneurs’ cognitive map used the non-directive interview method which is the more appropriate for collecting data in the context of entrepreneurs with positive and negative exit experience. For this reason, the questions were at the same time “open”, for example: “What are the factors affecting your decision to exit from entrepreneurship?” and “centred”, for example: “What are the individual, organizational, environmental, and/or processual factors that affected your exit decision”? The main objective of this step is to generate concepts that are as realistic and exhaustive as possible.

### 2.1.2. Identification of causality relationships between concepts

The second phase of the analysis of a cognitive map is based on the study of the links between the identified concepts. The study of the network of relationships gives meaning to the cognitive map (Cossette, 2001). To identify the links between concepts, the method described in this article focused on the entrepreneurs’ discursive representations. To this end, in the previous step, the “entrepreneurs’ speech data” were divided into “units of analysis”. In cognitive mapping, the unit of analysis chosen is the belief about the cause and effect relationship or the influence relationship between concepts (Allard-Poesi, 2003). Relations expressed by the entrepreneur and identified from his/her discursive data were codified by using cognitive matrix.

This matrix determines whether each concept online has a direct impact or influence on each concept in a column. If the answer is “yes”, we entered one at the intersection of the row and column. If the answer is “no”, we write zero. Moreover, the diagonal cells must contain the number zero because greatness cannot “self-influence” directly (Smida, 2010). Regardless of the direction (positive or negative) and intensity (very low, low, medium and high) of the relationships expressed, the presence of a link between two concepts is codified as one.

### 2.1.3. Identification of the key dimensions

The third phase of analysis of the cognitive map is essentially based on the identification of the importance of concepts. A concept is not considered important unless it has numerous links with other concepts (Cossette, 2001). A factor that acts on a significant number of other factors exerts its influence on an important portion of the phenomenon under study. Moreover, a factor that reacts with a large number of additional factors is considered to be very sensitive. However, understanding how we can identify these factors /concepts is critical. The analysis of the entrepreneur’s cognitive map can be founded on the influence-dependence plane that allows researchers to identify and localize the factors and essential dimensions of entrepreneurial exit. Each variable can be projected according to its global influence and dependence on others. The repartition points clouds of all concepts’ repartition resulting from the structural analysis allows us to distinguish four categories of concepts (determinant, relay, dependent, and excluded) and to clearly examine the entrepreneurial exit phenomenon.

## 2.2. Cases

The current qualitative explorative study pursued the phenomenological perspective in the selection of the case studies. As opposed to the theoretical saturation criterion with is a fundamental aspect of the grounded theory, the phenomenological approach refers to the variety criterion in order to justify adequate sample sizes (Hlady-Rispal, 2002, p. 87). The selection of the cases studies is then based on the variety criterion. According to the typologies of entrepreneurial exit scenarios (as described below), our explorative study is based on four cases. In addition to the variety sampling criterion, the selection of his cases study is also based on the criteria of equilibrium and potential for discovery (Stake, 1995, p. 4; Rispal-Hlady, 2002, p. 82). In the choice of the number of cases, we also meet the standards of four to ten cases of a qualitative study (Eisenhardt, 1989).

### 2.2.1. The case of the positive exit strategy: Kids' Computer Club

After having obtained a Master's degree in Computer Science, K.C decided to pursue PhD studies in international deemed university for Engineering. In the absence of sufficient resources, he has temporarily waived this personal project. Thanks to the support of a friend, K.C obtains a supplier credit which allows him to receive Microcomputers needed to create a Kids Computer Club. This company was founded at the beginning of 2008 in Tunisia. At the time, the business idea - computer clubs children improve their skills by using educational software – was original and for this reason it received a national recognition. The amount of turnover increased exponentially within a few months. The company quickly gained the attention of private primary schools. Motivated by the wealth creation, K.C decided to sale his business to a private schools group in order to extract some economic value from Kids' Computer Club. This allows him to pay the registration fee to pursue his doctoral studies in his favourite university.

### 2.2.2. The case of the exit to avoid increasing economic losses: Visual Solution

The Visual Solution Company was founded in 2005 by V.S after having obtained a Master's Degree in art and communication; he decided to create his own business in the field of marketing communications. To differentiate his business from competitors, V.S specialized in 3D visual communication and more specifically in 360° virtual tour for the leading hotels. He quickly confronted with a series of start-up problems which are essentially related to cultural and commercial problems such as the difficulty to access to the hotel owner and convince them of the usefulness 360° virtual tour. In order to avoid insolvency and therefore the bankruptcy and the stigma attached to it, he decided to liquidate his businesses. Thanks to the customers' prospection, V.S found an hotelier who offers him a long-term stable employment. For V.S this job was a great opportunity to apply his creativity in 3D visual communication. V.S decided then to exit from entrepreneurial activity not only to avoid bankruptcy but also to reach a more tempting opportunity.

### 2.2.3. The case of the exit with the entrepreneurs' self-deception despite the economic success of the new venture: recycling plastic bottles

Attracted by the fiscal and financial advantages offered by institutional actors in order to encourage young entrepreneurs to create their own businesses, R.P decided to embark on an

entrepreneurial adventure. The absence of a stable and well-paying job after obtaining a master degree in entrepreneurship is also one of motivation that pushed R.P to choose entrepreneurship. It is in the recycling of plastic bottles that R.P wants to invest. To acquire the necessary expertise, R.P pursued a vocational training in recycling plastic process. At the beginning of 2006, R.P created his recycling plastic bottles company. At the starting up, R.P was confronted to several problems which are essentially associated with the quotas limitation in the supply of the discarded plastic bottles which are imposed by the regional authorities. Despite this constraint, the turnover and economic profits of the recycling plastic bottles, progress. This is why R.P decided to expand its business activity to include not only recycling, but also injection, extrusion and blowing of the recyclable plastic. Despite the high economic performance of his business, R.P suffers from permanent and unsupportable stress. According to R.P, there are two types of causes explained his psychological distress: (i) the mental pressure of the family culture in Tunisia (parental involvement on the live project of their children; public sector employment is socially perceived as being more prestigious than entrepreneurship); (ii) the competitors that mobilizing their institutional network relation to the detriment of R.P an additional of the discarded plastic bottles. Under the psychological pressure involved not only by the competitors but also by his family, R.P was obliged to sale his profitable firm to another recycling plastic company. This later was also motivated by the appropriation of the innovative process for the recycling developed by R.P.

### 2.2.4. The case of the exit with economic and psychological cost: industrial manufacturing of traditional cakes

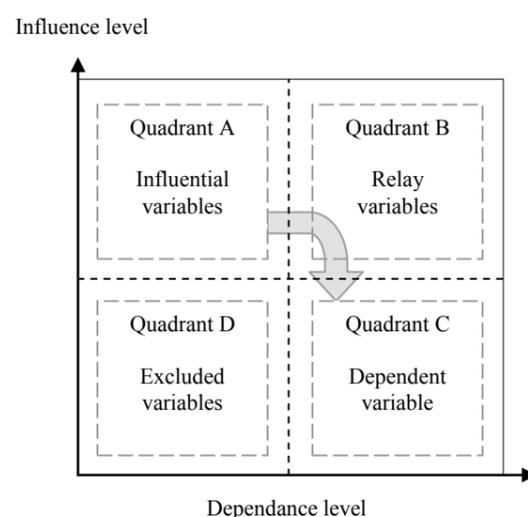
After obtaining a master's degree in finance, P.T decided to achieve his dream of starting his own business **Fout! De hyperlinkverwijzing is ongeldig**.his student live. His business idea was the creation of a company in the industrial manufacturing of traditional cakes for both, national and international market. The production processes of the cakes mostly take place in Tunisia providing cold chain logistics adapted to high temperatures of this country. Confronted with difficulty problem of bank financing, the foundation and the operations of his company launched four years later. However, multiple parameters were changed enormously during this period putting the feasibility of his business concept in peril: increase in the prices of the plastic packaging materials, changes in the cake production process, the cold chain logistics technologies, the increment of the intensity of competitive rivalry, etc. Financial resources actually invested been twice what was initially expected, where the over

indebtedness of P.T. In addition, P.T was strongly dependent on a limited number of clients who will reveal insolvent. The salary costs have also significantly increased which leads to the deterioration of the financial situation of the company. Faced with a situation of insolvency seemed insurmountable, P.T was invaded by the feelings of helplessness, despair, disappointment and demotivation. Mentally and physically exhausted, P.T decided to exit from entrepreneurship.

### 3. Results

The cognitive map approach used is based on the evaluation of the importance of concepts structuring the entrepreneurs' cognitive mind. This relative importance was assessed from the Mic-Mac (Godet, 2001) algorithm, which helped us identify the most influential concepts occupied a prominent place in the entrepreneurs "cognitive mind". This approach has helped not only to bring out the most influential concepts, but also the rank of "influence" and "dependence" from the influences/dependences cognitive plan. The distribution of cloud "variable points" in the plan, particularly in relation to the four quadrants can distinguish four main categories of concepts or variables: influential (sector 1), relay (sector 2), dependent (sector 3) and autonomous (sector 4) variables, which by definition, are excluded from the entrepreneurs cognitive mind.

**Figure 3 - The direct influence-dependence "cognitive plan"**



### 3.1. Influential variables

These are both very influential and little dependent variables. These are by definition the explicative causes of entrepreneurial exit. We can identify the strong influence of two categories: external contextual factors and internal factors associated with the lack of resources.

#### 3.1.1. External contextual factors

The "contextual constraints" dimension has three components: the "institutional barriers", the "difficulty in accessing external sources" and "the intense competition". Among the "institutional constraints" we can note the influence: the "inadequate" taxation" (case R.P), "cumbersome administrative procedures" (case P.T), the "cost of bank financing" (cases R.P & P.T), the lack of social legitimacy for young entrepreneurs (case P.T), the absence of a post-creation (case P.T) and psychological support system (case R.P). In addition to "institutional barriers", the external causes of entrepreneurial exit can also include the "difficulty in accessing external sources": difficulties in finding new creditworthy customers (case K.C and P.T), the difficulty getting loans (cases R.P and K.C), etc. Indeed, the study of cognitive maps, including R.P and K.C cases shows that the access to financial resources is one of the major challenges that entrepreneurs have faced. The "intense competition" is also perceived as a major threat for entrepreneurial continuity (case RP and VS).

#### 3.1.2. Internal factors associated with the lack of resources

In addition to external causes of entrepreneurial exit inherent to the context, we note the strong influence of the lack of the internal resources. These entrepreneurial exit causes are based on three elements: the "lack of expertise", the "fragility of social networks", the "undercapitalization - lack of sufficient financial resources". The "lack of expertise" is expressed by factors attributable to the "knowledge capital". According to the interview data analysis, the "knowledge capital" can be divided into two components: "academic knowledge" acquired throughout the academic curriculum of the entrepreneur and/or through specific entrepreneurial training and "operational knowledge" including the technical skills acquired through the prior experience in an industry.

The “fragility of social networks” is associated with a set of factors: the conflict relations with stakeholders such as bankers (case R.P), the lack of credibility and legitimacy with stakeholders such as customers (case V.S), the weakness of social and family support network (case V.S) are also among the crisis of legitimacy and credibility that affect the relational vulnerability of novice entrepreneurs. This is the case for K.C; V.S; R.P; P.J. They decided to create their own business without any significant experience. They have provided so little between the date of graduation and the date of the creation of their new venture, in order to build their own professional network.

The “under-financial capitalization” is expressed by the entrepreneurs who do not have enough capital to start their business. They are then obliged to apply for a bank loan. In case of rejection of their application, they are often forced to choose informal financing mechanisms such as the family debt. Without financial support, some entrepreneurs decide to start their business in the hope of having a cash flow from the first customers. Given the absence of a real and effective demand, they are in a state of insolvency.

In addition to “external constraints” and “lack of internal resources”, the study of cognitive maps emphasizes the importance of psychological factors. The fear of failure (cases K.C and V.S), the stress generated by the magnitude of entrepreneurial activity (cases R.P & P.T), the risk aversion (case K.C), the preference for a salary activity (cases K.C & V.S) than entrepreneurship career, etc., are among the psychological factors that might explain entrepreneurial exit.

### 3.2. The relay or mediating variables

The relay variables are the variables that are both highly influential and highly dependent. They are by nature mediating factors and present the tipping point between entrepreneurial continuity and discontinuity. By analysing the cognitive maps, it appears that psychological variables have the moderating effect. These variables are structured around four components: “push motivation” the “externality locus of control”, the “lack of commitment to entrepreneurship” and the “conservative orientation”.

Concerning the “entrepreneurial motivation”, the entrepreneurs evoke primarily the pull factors with the intent to conceal the push factors (case P.T & R.P). The main sources of motivation are driven by issues related to unemployment. The “externality locus of control” is associated with the belief that new venture survival depends on uncontrollable external factors. Need to be supported by competent persons, the need for financial support (case R.P & P.T) are among the variables explaining the entrepreneurs beliefs about what determines their failure. Regarding the “lack of commitment to entrepreneurship”, mental exhaustion, emotional depression, hopelessness (case R.P), unwillingness to continue and fight to keep the project alive entrepreneurial (case V.S) are among the psychological variables invoked and manifested through a state of demotivation, discouragement and a desire to give up the entrepreneurial activity.

The “individualistic orientation” is expressed in terms of variables such as the need for stability and financial security (case V.S), the perceived imbalance between the effort made and the pay, preference for employee status (case P.T & R.P). This implies that these entrepreneurs are guided by individualistic than entrepreneurial goals. To these factors must be added the psychological attributes of the entrepreneur – hyper-confidence which is defined by a very ambitious vision (case P.T) compared to the available resources. We can they speak about the “confused” entrepreneurs who are stressed by the goals they could not achieve because the lack of resources.

### 3.3. The dependent variables

The third sector includes the dependent or outcome variables of entrepreneurial exit. They are both dependent and very little influence. They are the result of which is explained by the influential and relay variables. These variables are organized around economic and psychological dimensions that will add the dimension of entrepreneurial discontinuity. For economic dimension of entrepreneurial exit, the most cited concepts by the entrepreneurs to deplore the non-economic performance of their business are: the (in) recovery of the initial investment, the degradation of the personal financial situation (case R.P & V.S) of the entrepreneur, the depreciation of the economic value of the new venture (case P.T), the destruction of invested funds (case P.T), the liquidity crisis (case P.T), etc. Psychological manifestations of the entrepreneurial exit are expressed in terms of (dis)satisfaction of the

entrepreneurial experience (case R.P), the personal disappointment, pain and psychological suffering, non-resistance to stress and pressure (case P.T) and loss of confidence (case R.P). Among the variables that comment the entrepreneurial exit, there is the sale of the business to the competitors (case R.P), the abandonment of the new venture (cases RP, VS and KC), the desire to suspend the entrepreneurial activity (case K.C) divestment and liquidation of the company (case K.C), transferred to informal sector (case P.T) and the desire to seize the opportunity for a well paid job rather than entrepreneurial activity (case K.C & V.S).

It also notes the strong dependence of the variables measuring the risk of involuntary discontinuity which are perceived by entrepreneurs from the multiplicity of problems that could jeopardize the survival of their business. Supply problems (cases P.T), family conflicts (case K.C), and conflictual relationships with bankers, loss of credibility, the problems with customer insolvency (case P.T & V.S) are also among the issues most discussed by the entrepreneurs as threats for entrepreneurial continuity.

### Conclusion and implications

The systematic literature review shows that there is an increasing rate of publication in the field, especially after the occurrence of an economic crisis. It shows also that there seems to be a predilection by some journals to the topic. Based on cognitive mapping, the findings of this qualitative study show that entrepreneurial exit is not the exclusive consequence of the presence of positive or negative exit reasons, but the immediate result of the interaction of six key dimensions that this research aims to explore, describe and classify.

The implications of this paper have two directions. The first implication is found in a contribution to research. From the wide variety of approaches and models, concerning failure and the exit routes of entrepreneurship, this paper sheds light on the field from an integrative and dynamic perspective by combining the most important and recent insights to a valuable framework. From this framework, scholars can apply further research to enforce the knowledge on the negative site of entrepreneurship, from the perspective of the person of the entrepreneur. From a social perspective, not enough can be done to prevent, mostly young, people from an entrepreneurial adventure, resulting in an economic, social and psychological disaster (Shepherd, 2003), as entrepreneurial failure is in an European perspective. The

framework can give anchor points for further research in this field. The second direction of implication is the use for the field of entrepreneurship support. The launching of an integrative framework opens new perspectives for support systems for starting entrepreneurs. One general aspect is that “curricula designers” have now a three dimension model where they can distil design criteria for curricula on entrepreneurship education as summer schools, short courses and regular business modules. Besides that, business coaches can develop new tools to add to their toolbox.

The framework offers new insights and handles for specific interventions, adapted to the entrepreneur involved. The resulting analytical framework can be used as “visual support” by researchers and professional actors to provide an overall view of entrepreneurial exit phenomenon, to better analyze its causes, and to build strategies for avoiding tragic and traumatic exit experiences.

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## Exploring the Different Patterns of Entrepreneurial Exit; the Causes and Consequences

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### Abstract

Since the phenomena of entrepreneurship became popular among scholars and politicians, it seems that it is addressed as "golden formula" for economic growth, regional development and personal wellbeing. Success is motivating and for any reason, maybe because of the Anglo-American dominance in this field, failure is not an option. From qualitative research it is known that before one single entrepreneurial success, many failures are to overcome first. Especially in the start-up phase of entrepreneurship the unwanted exit occurs in most cases. In the non-American part of the world, failure as an entrepreneur is not only a financial deception; it is often experienced as an emotional and social disaster with high negative impact on further social and professional career. This paper wants to contribute to the knowledge and insights on the causes and effects of entrepreneurial exit scenarios. This might shed some light on the dark sides of entrepreneurship and give opportunities to designers of support-systems for starting entrepreneurs and curricula of universities and colleges to prevent young nascent entrepreneurs for a tragic and traumatic entrepreneurial exit experience.

### Keywords

Exit, Failure, Entrepreneurship, Content Analysis, New Venture Performance

## Introduction

Despite an increasing research literature on entrepreneurial exit (DeTienne, 2010, Cardon et al., 2011, Wennberg et al., 2010, Wennberg, 2011) no satisfying answer has been provided to explain why some entrepreneurs succeed to insure the survival of their new ventures while others decide to give up. This question will remain extremely complex and difficult to answer if researchers continue to study entrepreneurial exit using static, one-dimensional and/or binary approach. Entrepreneurial exit is a dynamic, multi-dimensional and multi-forms phenomenon. Primary, entrepreneurial exit is a dynamic phenomenon because it can be approached as the end of an entrepreneurial process (Wennberg et al., 2010, Vecchio, 2003) which is valuable to study more deeply as a significant part of new venture creation process (McGrath, 1999, Cardon et al., 2011). Secondly, it is a multidimensional phenomenon because it concerns both the individual and firm level (Wennberg, 2011). Finally, it is multi-forms phenomenon because it can take many forms such as liquidation, bankruptcy, or sell-off of a firm (e.g., Aaltonen et al., 2010; Wennberg et al., 2010; Wennberg, 2011). Furthermore, it is a “paradoxical” phenomenon because entrepreneurial exit may be the result of failure as well as success (Wennberg et al., 2010).

To contribute to a better understanding the complexity of entrepreneurial exit phenomena, the current research proposes a multidimensional and typological framework. As the goal of this paper is to provide the widest possible perspective on entrepreneurial exit, we conducted an empirical exploratory study, using content analysis based on 24 exit cases studies. Thus, rather than formal hypothesis testing. The purpose of this paper is to explore the different scenarios of entrepreneurial exit. This study seeks to provide several contributions. First, given the little research integrating in the same study the individual and firm levels of analysis, the current research proposes an integrative framework based entrepreneur / new venture dialogic. Second, despite the wide use of cognitive approach in entrepreneurship research (Baron and Ward, 2004, Brännback and Carsrud, 2009), only a few studies have used content analyses methods, e.g. cognitive maps, as a tool for understanding entrepreneurial phenomena including the decision to start a new business (Vandekerckhove and Dentchev, 2005). Until now, studies focused on the empirical use of cognitive mapping to explain the exit decisions of entrepreneurs are rarely found. The use of content analyses for exploring entrepreneurial exit can reveal certain results that would have been difficult to obtain if we had adopted a positivist approach, such as the discriminant analysis method.

## Theoretical framework

An anchor for fostering entrepreneurship can be found in the person of the entrepreneur (Stewart and Roth, 2007, Judge and Iliès, 2002, Kirton, 1976), the enterprise (Thurik and Wennekers, 2004, McGregor, 1960, Osterwalder and Pigneur, 2010) and in the process of entrepreneurship (Shane and Venkataraman, 2000, Gartner, 1985, Shapero and Sokol, 1982). Recent studies of entrepreneurial exit determine exit routes of the entrepreneurial process based on the ‘sale’ or ‘liquidation’ with high or low performance (Wennberg et al., 2010). Other exit routes based on resources (e.g. capital assets, human capital) and goals for organization and growth (Delmar et al., 2006, Van Praag, 2006) or personal traits (Hammer, 2012). Wennberg & Detienne (2014) identified three mediated factors in the dynamic of exit, based on the type of the firm. Fragmented among scholars three groups of causes are mentioned: the entrepreneur (Hayward et al., 2006, Ottesen and Gronhaug, 2005, Simon et al., 2000), his / her new venture and his / her organizational environment (Vaillant and Lafuente, 2007). Despite the contributions of these studies, they lack an integrative approach. From the literature three levels of exit can be determined, from where the subject can be studied: environmental level, organizational level and personal level. Viewing the aforementioned view of exit together, it appears that the external factor inherent to the environmental constraints (environmental level), lack of resources and competences within the new venture (firm level) and the absence of a deep entrepreneur’s commitment (individual level) may explain the decision of entrepreneurial exit (Khelil et al., 2012). In terms of consequence, our theoretical framework takes into account three dimensions: the entrepreneurs’ self-deception, the poor economic performance of the new venture, which can lead to the exit from the marketplace (disappearance - environmental level); from the new venture (firm level -business discontinuity) or from entrepreneurship (firm level-discontinuity of ownership) (Smida & Khelil, 2008). By combining the three dimension of entrepreneurial exit, we propose five entrepreneurial exit patterns.

GAMBLER	SUPPORTED AT ARM'S LENGTH	BANKRUPT	MEGALOMANIAC	DISSATISFIED WITH LORD
Lack of experience	Lack of experience	Inexperienced	Consider themselves experts	Sufficient experience
Important financial investment	Lack of financial resources	Under-capitalization	Lack of financial resources	Important financial investment
Social support networks	Social support networks	Few relationships	Social support networks	Social support networks
Pull motivation Gains financiers	Pull motivation Need for family achievement	Push motivation unemployment	Push motivation Narcissistic gains	Push motivation Symbolic gains
Individualistic orientation Survival logic	Individualistic orientation Social status	Individualistic orientation Live decently	Individualistic orientation Social recognition	Entrepreneurial orientation

Table 1 - Entrepreneur’s failure profiles (Khelil, 2012)

## Methodology

As an exploratory empirical study, the aim of this paper is to provide the widest possible perspective on entrepreneurial exit. Thence we conducted a qualitative study based on 24 exit cases studies. As opposed to the theoretical saturation criterion which is a fundamental aspect of the grounded theory, we used the phenomenological approach in the selection of the case studies. This approach refers to the variety criterion in order to justify adequate sample sizes (Hlady-Rispal, 2002). The study covers three stages of research. In the first stage, from a literature review, the theoretical concepts of entrepreneurial exit were determined. In the second stage, from the empery of exited entrepreneurs, the perceived concepts of exit are identified. In the third stage, the mixed results of concepts are structured and analysed. From here classes were made and several path of exit fostered. In the paragraphs below, the methodologies of the three stages are described in detail.

The first stage the recent literature on entrepreneurial exit and failure was studied. A systematic literature review held on EBSCO database, JSTOR, Web of Knowledge and Science direct. The databases were approached from the librarian computer network of the Delft University of Technology, were full subscription are held on the databases mentioned. Articles were searched on the search-strings: [‘entrepreneur\*’ AND ‘exit’], [‘entrepreneur\*’ AND ‘failure’], [‘business’ AND ‘exit’] and [‘business’ AND ‘closure’]. From the articles, about 150, the abstracts were read and those who appear appropriate to for this study, about 25, were examined in more detail. The cause of an exit can be internal or external to the venture. It is argued by scholars that the far most causes are internal (Wennberg, 2011). Although one third of the causes can be allocated as external factors (Everett and Watson, 1998), micro and small business start-ups can barely influences exogenous factors as economic recession, appearance of substitution products or shortage of raw material (FEE, 2004), for this research only micro external causes are studied. When the details study of an article emerged a concept, it was noticed on a mind map structured overview. The results of this stage were used to identify cases for the second stage.

In the second stage of the research, entrepreneurs with exit experience were used. The selection of the cases studies is then based on the snowball method, where the authors interviewed entrepreneurs with exit-experience they know. These entrepreneurs were asked if they know other entrepreneurs with exit experiences. The authors are aware that this methodology implies a bias in sampling methodology as it is not completely randomized from a known population. Due to the fact that it is very complicated to identify entrepreneurs with an exit experience, especially those with a negative and intensive one, since it is not advertised on social media as Linked-in or Facebook, the population can be determined within broad margins only. The applied sampling method however, implies a sufficient level of variety (Pires, 1997). In some cases privileged witnesses were interviewed for the identification of concepts involved for the entrepreneurial exit.

According to Quivy and Van Campenhoudt (1995) the privileged witnesses are because of their professional or relational knowledge, in direct contact with public considered by the study. In addition to the variety sampling criterion, the selection of his cases study is also based on the criteria of equilibrium and potential for discovery (Stake, 1995, Hlady-Rispal, 2002). With the entrepreneurs, a semi structured interview was held on their feelings, knowledge and experience of the exit and its cause. Because the experience of a negative entrepreneurial exit can be of high emotional impact to the entrepreneur (McGrath, 1999), there is a wide variety on the depth of the different cases. For the analyses of the transcripts and summaries of the interviews, the Content Analyses methodology as described by the General Accounting Office (General Accounting Office, 1989) was applied. The quality of the data available was could not meet the requirements of the full methodology of cognitive mapping (Cossette, 2003). Nevertheless, the measurements principles were respected. The Content Analyses methodology come the most close to the cognitive mapping, however, cannot identify the casual relations of concepts (Allard-Poesi et al., 2003). As other methods derived from management sciences as cognitive mapping, the Content Analyses is fruitful as a 'large scale space' (Chown et al., 1995) and is widely used to explore multi-dimensional phenomena (Piaget and Inhelder, 1967). With the background of the theoretical concepts as conceived in the first stage, the data was analyzed. The concepts were tallied from the data were there was a relation with the venture exit. When other, new, concepts appeared in the data, they were noticed by the researcher.

In the third stage of the research, the data of the second stage was statistically interpreted. The data was imported in the SPSS computer program, version 18. To classify the concepts, the classification methodology was applied. The identified concepts form stage two was entered as objects for classification. The classes emerged were then controlled for their internal correlation. For further manual analyses, the cases belonging to one group were put together in an Excel computer program. With the use of mind-map techniques, similarities, differences and contradictions were identified by the authors. The findings are presented in the paragraph below.

## Findings

The first stage gives an in-depth insight in the concepts related to the entrepreneurial exit. As the definition for 'entrepreneurial exit' for this study, the broadly accepted definition of Rita Gunther McGrath is used: 'the termination of an initiative that has fallen short of its goals' (McGrath, 1999). According to this definition of negative entrepreneurial exit, the causes can be found either inside or outside the venture, as addressed in the methodology paragraph of this paper. In this study, predominately the internal causes will be studied. The results of the literature study was published before in the journal 'Modelling the New Europe' (Hammer, 2014). In the section below, the results of the literature search are summarized. Among mistakes, according to Cardon et al. (2011), issues such as business, mismanagement, unrealistic expectations, pride, finance and innovation mentioned. Other literature indicates that negative entrepreneurial exit is related to resources as for strategic importance for the venture (Michael and Combs, 2008), planning strategies (van Gelder et al., 2006); pride (Hayward et al., 2006), not able to cope with uncertainty (McGrath, 1999), over-optimism and overconfidence (Muir et al., 2007). Baron (2000) and Simon et al (2000) propose, in a more general manner, that a biased point of view has a negative impact on entrepreneurs, which can lead to negative entrepreneurial exit. Cardon and Potter (2003) found that about 54% was caused by mistakes and 45% by misfortune. Focusing on the mistakes, 16% of the citations were caused by mismanagement and 18% by 'Conceptualizing a business and planning out its goals and the method by which to accomplish them...' (Cardon and Potter, 2003, p11). The European Federation of Accountants (FEE, 2004) defines more financial causes of negative venture exit: Poor management, deficit in accounting, poor cash flow management, inappropriate sources of finance, dependency on customers or suppliers, impending bad dept., overtrading, poor marketing research and fraud / collusion. Emerging from the many causes of negative entrepreneurial exit identified in literature, in this paper the next classification is proposed: mismanagement, poor concept and personal traits. As a fourth group, 'other causes', bankruptcy was added. The author is aware of the scholars might jeopardize this classification; e.g. mismanagement can be moderated by personal traits (van Gelder et al., 2006). In table 2 below, the results of the literature review are summarized.

Situation	Identified cause
1 (poor management)	Lack of financial knowledge
	No partners involved
2 (poor concept)	No clear focus on added value
	No paying customer group identified
3 (personal traits)	Taken to much risk (overconfidence)
	Hesitating too much on decisions
4 (other causes)	Bankruptcy

Table 2 - Results of the literature review

The second stage shows empiric data of the entrepreneurial exits, as emerged from the content analyses methodology. The interviews with the entrepreneurs or privileged witnesses were held by the authors over a time of five years. In table 3, statistical data of the casus are presented.

	Average	Median	Standard Deviation
Employees (number)	2,6	2	2,3
Life time (year)	2,7	3	0,9

Table 3 - Statistical data of the casus

The first cases studied, showed a more preliminary form of transcript as a clear framework of concepts was emerging. Some entrepreneurs or privileged witnesses were interviewed informally after the formal research interview, to obtain the additional information. Spread over the cases, three sectors of industry presented. The service and retail sector are the dominant sectors in this study. A minority is categorized in de production sector, where small craftsmanship was involved. The distribution of sectors among the cases is presented in figure 1. Where there was a melancholic exit of the enterprise adventure (Khelil, 2012), emotions came up more intensely as were the causes were less extreme as e.g. when 'sold with a profit'. The total overview of the entrepreneurial failure by Khelil (2012) is shown in table 1 above the 'methodology' paragraph of this paper. As described in the methodology paragraph above, for this research entrepreneurs and privileged witnesses as close friends, familie or partner. The distribution of the interviewee's is shown in figure 2.

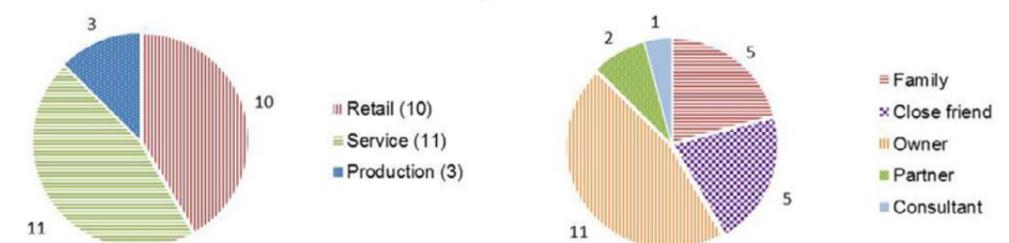


Figure 1 Distribution of the sectors

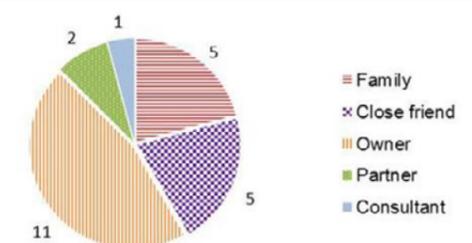


Figure 2 Distribution of the interviewees

Classification	Identified causes		
	Concept	Theory	Practice (out of 24 cases)
Poor management	lack of financial knowledge	X	4
	no partners involved	X	5
	no experience in the branches (*)		4
	lack of financial resources (*)		6
	no social acceptance (*)		2
Poor concept	no clear focus on added value	X	8
	no paying customer group identified	X	2
	poor market information (*)		5
	not enough sales (*)		11
	taken to much risk (overconfidence)	X	5
Personal traits	hesitating too much on decisions	X	5
	found other job		3
Other causes	sold with profit		3
	bankruptcy	X	8

(\*) not identified in theory but grouped within the classification

Table 4 - The agitated results of the concept identification

Class	Case number	source of the case	Sector	Employees	Life time	restarted	Lack of financial knowledge	No partners involved	No experience in the branche	Lack of financial resources	No social acceptance	No clear focus on added value	No paying customer gr. Identif.	Poor market information	Not enough sales	Taken to much risk (overconfide)	Hesitating too much on decision	Found o ther job	Sold with profit	Bankruptcy
A	6: family	production	4	4									1					1	1	
	9: family	service	4	3									1							
	13: partner	retail	4	3									1							
B	11: friend	retail	5	3	1								1					1		1
	16: friend	service	3	5														1		1
	17: friend	retail	4	2	1	1												1		1
C	3: co-owner	service	2	2																1
	24: family	retail	1	2									1							1
	14: consultant	production	1	2									1							1
	5: family	retail	2	2	1								1							
	19: owner	service	2	1									1							
	1: owner	retail	1	1									1							
	8: owner	service	0,5	2									1					1	1	
12: owner	service	1	2														1	1		
D	2: family	retail	2	3		1	1										1	1		1
	21: owner	production	2	3													1			
	10: friend	retail	2	2	1												1			1
	15: owner	retail	2	2														1		1
	18: owner	service	2	3									1						1	
	22: friend	service	1	3									1					1	1	
	20: owner	retail	1	3	1													1		
	23: owner	service	1	4															1	
	7: owner	service	2	3																1
E	4: owner	service	12	4	1															1

Table 5 - Results of the first classification run

From the summaries and transcripts, more concepts were addressed by the entrepreneurs as was identified from the first stage of this research. With a group of scholars on entrepreneurship, these concepts were framed in the three classifications, based on the results of the first stage. In table 4 the results from the first and second stage are combined.

In the third stage of the study, the findings of the second stage were processed in a statistical computer programme. The found concepts in the second stage were selected as variables to identify if classes could be detected. In appendix 1 the results of the classification is shown. Five classes were detected. The clustering of the cases, belonging to the same group, result in a fuzzy picture, were there seem to be no appropriate explanation (table 5). The first two classes, A and B, and the last on, E, have distinguished by the number of employees, were as class C and D, seem to differ in the lifetime of the venture. The difference between class A and B, is the fact that there was a bankruptcy. Next to the distinguishing of class A and B, the other disseminations are originated by characters of the venture and not by the concepts of exit. From previous research on a large amount of statistical information, it is known that venture characteristics as life time or number of employees are not the cause of exit (Headd, 2003, Hessels et al., 2011). For this reason the authors looked for a different perspective to analyze the data. Latest research of Karl Wennberg (2011) is focusing on the moment of decision to exit the venture. Inspired from there, the authors applied a process model for the concepts identified and the data gathered. Based on the classic 'input → process → output' model, the concepts were rearranged in a different order.

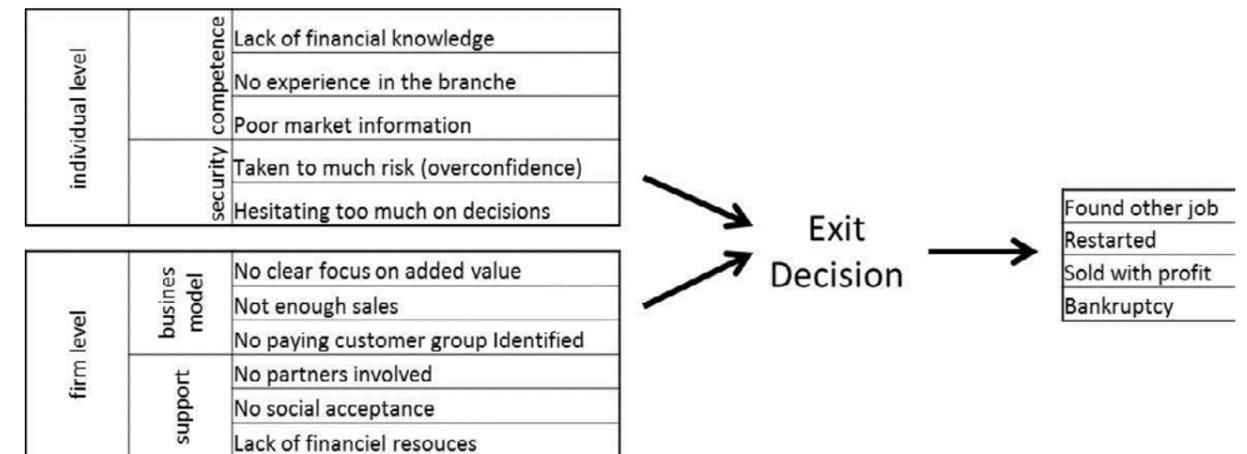


Figure 3 - The concepts placed in the classical process model

For the input, two main categories opposed, based on prior research (Khelil, 2012, Wennberg et al., 2010): concepts with effect on 'firm level' and concepts with effect on 'individual level'. Further classifications were after statistical examination. As output concepts are determined: 'found another job, restarted, sold with a profit and bankruptcy'. The process model and the position of the concepts are shown in figure 3. With the new concepts, again the data was processed with the SPSS computer program. New classes were defined by the classification method of SPSS, as afore described. In appendix 1 the classification run is show. In Appendix 2, the statistical details are shown. A correlation test was run successfully to confirm the strength of the classes. Four main classes were identified, where two classes were partitioned in both two sub classes. The results of this classification are shown in table 6.

As from the prior run, again the classification is based on the 'output' concepts. Were the classes 1.2 up to 4, show a specific pattern of the presence of concepts, class 1.1 has none. From the casus with a positive output, were a job was found (class 1.2) or sold with a profit (class 3), the lowest average of input factors (1½) was addressed. Adversatively, the large group of cases with bankruptcy as output (classes 2.1 and 2.2) showed the highest average of input factors (3). The class were the venture was sold with a profit (class 3) showed no individual factors as input on the exit decision. They also show the lowest influence from firm factors. This same class, together with the class of a restart without a bankruptcy (class 4), show that there was no lack of security, as input on the exit decision. From the last class mentioned, the main cause of exit was the business model. From the class who found a job (class 1.2), no competence causes were indicated. In table 7 the classes, their descriptions, attributes, average number of employee's and average lifetime is

shown. This table emphasize that the classes with 'restart and bankruptcy' and 'sold with a profit' (classes 2.1 and 3) had the highest number of employees and a low average on support.

Class	Case number	OUTPUT					INPUT									
		Found other job	Restarted	Sold with profit	Bankruptcy	Lack of financial knowledge	individual level		firm level							
							competence	security	business model	support						
						Lack of financial resources	No social acceptance	No partners involved	No paying customer group Identified	Not enough sales	No clear focus on added value	Hesitating too much on decisions	Taken to much risk (overconfidence)	Poor market information	No experience in the branche	
1,1	21, 22, 1, 17, 18, 12, 13, 9					1										
1,2	8, 23, 6	1									1					
2,1	11, 17, 10		1								1	1	1			1
2,2	15, 16, 2, 7, 14											1	1			
3	24, 4, 3		1								1	1				1
4	5, 20		1				1			1	1					1

Table 6 - Results of the second classification run

When confronting the individual and firm proposition, the outcome of an exit decision can then be put in a grid of two axes. Through the lens of enterprising, high or low firm activity and high or low individual activity can be appointed. For this study we use the proposition of entrepreneurship on individual or firm level. The classes 2.1 and 4 show both a high level of individual entrepreneurship because they did start another enterprise and therefore stayed within the entrepreneurial process. Class 3 shows a high level on firm entrepreneurship because the venture stayed in operation. The remaining three classes showed no individual and now firm entrepreneurial activity after the accomplishment of the exit decision. The coordinate system of entrepreneurship on the described levels is show in figure 4. In the quadrant where there are both, a high entrepreneurial activity on firm and individual level, none of the casus could be put in.

Class	Description	Attribute	Average employees	Average life time
1.1	No output factor identified	Brain mortality	2,4	2,5
1.2	Found a job	Entrepreneurial mortality	1,8	3,3
2.1	All restarted and bankruptcy	Business mortality	3,7	2,3
2.2	All bankruptcy	Financial mortality	2,0	3,0
3	Sold with profit	Financial enlightenment	5,0	2,7
4	Restart	Entrepreneurial enlightenment	1,5	2,5

Table 7 - The classes, their descriptions, attributes, average number of employee's and average lifetime

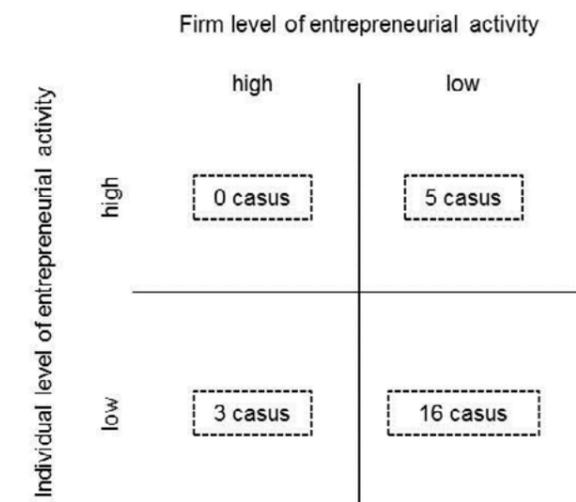


Figure 4 - Coordinate system of Entrepreneurial exit

### Conclusions

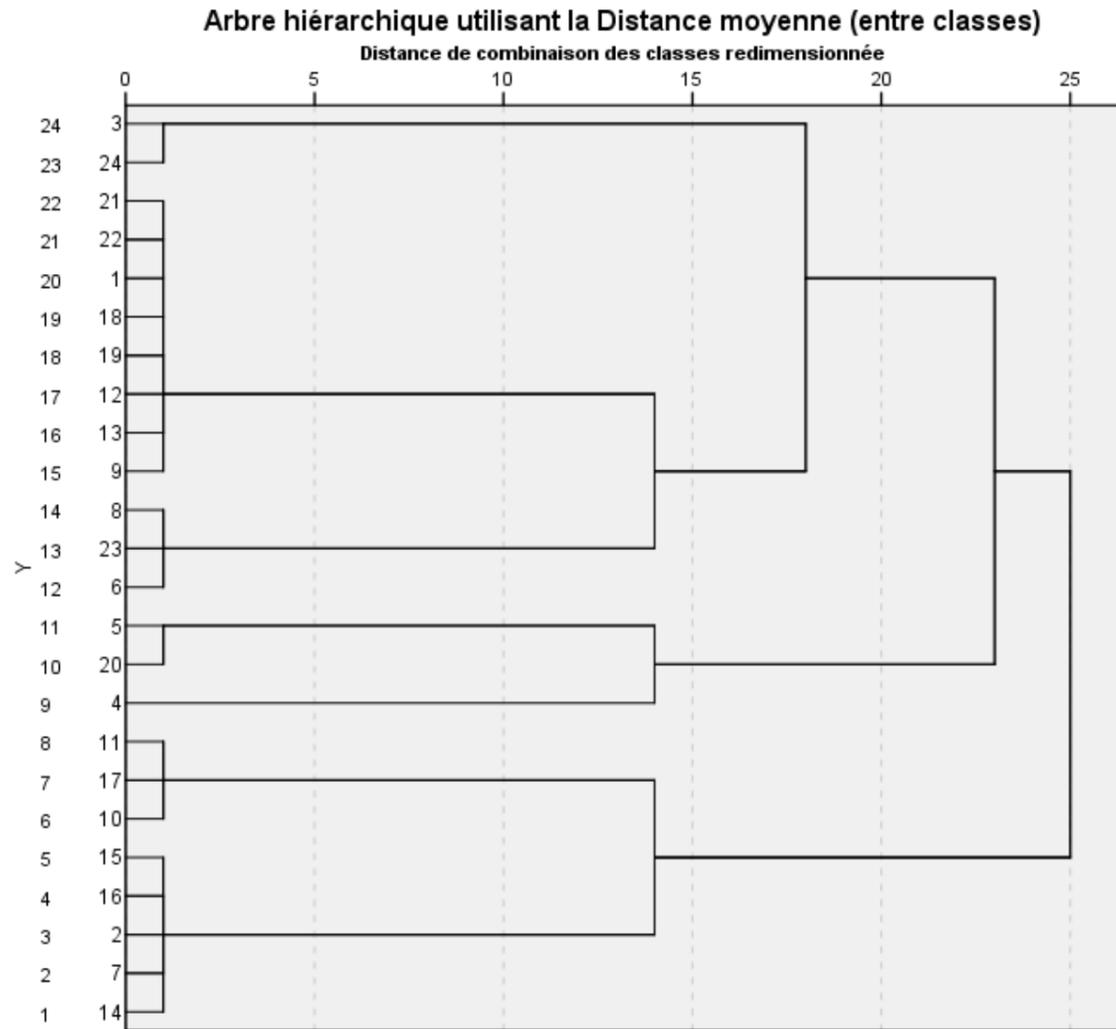
Exploring the different patterns of entrepreneurial exit, the classical process-model can be used. In general, the causes of the exit decision can be found on personal and firm level. On personal level competence and security are explanatory causing concepts, where on firm level they are the business model and support. Five output patters could be identified, concerning mortality or enlightenment. Enlightened entrepreneurs have no causes on individual level and a view on support. When an entrepreneur is restarting, there are no causes related to support. When a venture was sold, only firm-related causes involved. The most causes of exit are related to aspects of the business model. This study clearly show that after the exit decision there is a low entrepreneurial activity on firm and / or individual level, were in most cases on both level there is a low entrepreneurial activity.

### Recommendations

The results of this research encourage a study on a bigger sample where a more quantitative approach can be advocated. As this study only addressed the concepts of exit, a study to identify the relation between the concepts and their causality would illuminate the causes of entrepreneurial exit more brightly. For this purpose the methodology of cognitive mapping is recommended. As last the authors recommend fostering strategies for avoiding tragic and traumatic exit experiences.

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Scheffe

Variable dépendante	(I) Classe d'affectation (nuées dynamiques)	(J) Classe d'affectation (nuées dynamiques)	Différence de moyennes (I-J)	Erreur standard	Signification	Intervalle de confiance à 95%	
						Borne inférieure	Borne supérieure
FounJob	1	2	,273	,153	,391	-,20	,74
		3	,273	,215	,663	-,38	,93
		4	,273	,254	,765	-,50	1,05
	2	1	-,273	,153	,391	-,74	,20
		3	,000	,224	1,000	-,68	,68
		4	,000	,261	1,000	-,80	,80
	3	1	-,273	,215	,663	-,93	,38
		2	,000	,224	1,000	-,68	,68
		4	,000	,302	1,000	-,92	,92
	4	1	-,273	,254	,765	-1,05	,50
		2	,000	,261	1,000	-,80	,80
		3	,000	,302	1,000	-,92	,92
Restart	1	2	-,375	,166	,197	-,88	,13
		3	-,333	,232	,571	-1,04	,37
		4	-1,000	,274	,015	-1,84	-,16
	2	1	,375	,166	,197	-,13	,88
		3	,042	,241	,999	-,69	,78
		4	-,625	,282	,212	-1,48	,23
	3	1	,333	,232	,571	-,37	1,04
		2	-,042	,241	,999	-,78	,69
		4	-,667	,325	,272	-1,66	,33
	4	1	1,000	,274	,015	,16	1,84
		2	,625	,282	,212	-,23	1,48
		3	,667	,325	,272	-,33	1,66
NotSales	1	2	,080	,238	,990	-,65	,81
		3	,121	,334	,987	-,90	1,14
	2	4	-,545	,395	,600	-1,75	,66
		1	-,080	,238	,990	-,81	,65
	3	2	,042	,347	1,000	-1,02	1,10
		4	-,625	,406	,513	-1,86	,61
3	1	-,121	,334	,987	-1,14	,90	

	2	-,042	,347	1,000	-1,10	1,02
	4	-,667	,469	,578	-2,10	,76
	1	,545	,395	,600	-,66	1,75
4	2	,625	,406	,513	-,61	1,86
	3	,667	,469	,578	-,76	2,10

\*. La différence moyenne est significative au niveau 0.05.

## EXPLORING THE PREVENTION MEASURES FOR PREMATURE NEGATIVE ENTREPRENEURIAL EXIT?

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Research interest: The general focus of the research is on creating and stimulating more entrepreneurship among innovative students. More specific the focus is on entrepreneurial exit, entrepreneurial behaviour and entrepreneurship education, where cognitive mapping and psychological cognitive prototyping are revered research methodologies.

*Abstract: In the last decade, directed from the European Union, entrepreneurship and entrepreneurship education became a main topic on both, political and strategic managerial agenda's. Despite the enormous effort and money invested, the failure rate of starting entrepreneurs seems to be stable. Next to an increase of starting entrepreneurs, more young people are faced with the trauma of an entrepreneurial failure. This paper want to explore the causes of a negative entrepreneurial outcome an the possibilities to prevent from this.*

Keywords: *Entrepreneurial exit, Entrepreneurship education, Cognitive mapping*

### 1. Introduction

Running a business or enterprise, is a phenomenon that exists for millennia. Evidence of the exchange of values between persons or parties can be found before Christ. Nevertheless it was Joseph Schumpeter (1934) who in the earlier of the last century pronounced a positive

relationship between economic growth and entrepreneurship. The time of his publication was in a period where the limitations of the industrial revolution were visible. In the last decade, the premise that entrepreneurship is an important factor on the economic development on a smaller scale like a region, is affirmed through many scholars (Ahmad and Hoffmann, 2008, Thurik and Wennekers, 2004, Minniti and Levesque, 2010, Zalan and Lewis, 2010). Carree and Thurik (2003) has shown that a high level of entrepreneurial activity contribute to innovation, competition, economic growth and job creation. For this reason, politicians on European, national and regional level, started to encourage activities promoting and stimulating new business creation (Sijgers et al., 2005, Khan, 2011, Raposo and do Paco, 2011). Organisations as the Organization for Economic Cooperation and Development (OECD) conducted many studies on this and do stimulate regional governments to focus on entrepreneurial development (Ahmad and Seymour, 2008, Ahmad and Hoffmann, 2008). Based on GEM-data it is known that since several years the Total Entrepreneurial Activity (TEA) is increasing worldwide and that a positive relation with the growth of the economy is found (Bosma and Levie, 2009). Though it is not surprising entrepreneurship became to one of the most researched strategic management subjects. In literature two mainstreams for fostering entrepreneurship can be found: one in the person of the entrepreneur (e.g. (Stewart and Roth, 2007), (Judge and Ilies, 2002) and Kirton, 1976) and the second in the process of entrepreneurship (e.g. Shane & Venkataraman, 2000; Shaper, 1982). Research on firm-level is mostly found in the common business management journals. From the late nineties first universities and later secondary and primary education developed programmes to stimulate entrepreneurship. A new twig of entrepreneurship research emerged, known as entrepreneurship education.

One of the leading researches on entrepreneurship education, Allan Gibb (2002), proposed more diversity and dynamics on the education of entrepreneurs. Other researchers as Walter and Dohse (2012) argue that that education methods as active modes, are positively influencing the entrepreneurial education. Neck & Green (2011) conclude that the education structure requires a new approach based on action and practice. Whereas Mathews (2007) argues that constructivism leads to learning that is action-based where learners construct or make interpretations of their world through interactions in the real-world. Per Blenker et al (2012) were he argued that the entrepreneurship education need to be adopted for context, culture and circumstances, down to a

personal level. Other scholars argued that entrepreneurship needs other skills or competences (Groen et al., 2002, Kutzhanova et al., 2009, Leitch et al., 2012). A good example of a complete set of skills and competences is given by the QAA (2012). The support given to entrepreneurs in starting can be divided in hard support, as tax reduction and provision of infrastructure and soft support as, coaching and training (Koopman, 2013). Communities as well as universities designed programmes to support the starting entrepreneurs to contribute to the economic growth in both elements of support, likely to have double chances achieving their objectives. A main stream of scholars finds that the support of person, the entrepreneur, has a positive impact on the development of entrepreneurship (Zalan and Lewis, 2010, Raposo and do Paco, 2011) and helps to avoid entrepreneurial failure (Parsa, 2005).

Despite the scientific knowledge and special designed programmes for entrepreneurs, quantitative research shows that the majority of the entrepreneurs do not survive the first five years (Parsa, 2005, Hayward et al., 2006, Bangma and Snel, 2009). For the last decades, many support systems for nascent and academic entrepreneurs established (Hammer and Thuijs, 2012). The output of these programs shows a different score on entrepreneurial failure. Furthermore, it is assumed that entrepreneurial support systems are designed on the elements who lead to success, instead of the prevention for elements of failure, as is common for support systems. Where the semantic opposite of success is failure, in the cognition of entrepreneurs, this word has a negative impact. Recent studies on this phenomena prefer to tackle the concept of 'entrepreneurial exit' while 'failure' or 'success' might be a personal interpretation of an entrepreneurial exit (Wennberg, 2011). The negative entrepreneurial exit is not a prescheduled scenario among nascent and experienced entrepreneurs. Contrary to the North American culture, a negative entrepreneurial exit not only results in a financial deception but also in a social one. McGrath (1999), preferring to address the concept of entrepreneurial failure, argues that although failure is neither painless nor desirable, researchers have to overcome their bias in failure analysis, because understanding entrepreneurial failures allows for the discovery of valuable information, not just for society at large but for entrepreneurs in particular. McGrath (1999, p16) "by the continued denial of the entrepreneurial failure are many important lessons lost on the Entrepreneurial Failure and will not anticipate the negative consequences." "Careful analysis of failure, rather than put the focus on success rates researcher's systematic progress

towards analytical models for value-based entrepreneurship (McGrath, 1999, p 28). Therefore it seems to be fruitful to explore the expected impact of ‘prematurely negative entrepreneurial exit’ reduction elements in support systems. The first step in this explorative study is to shed light of the concept of entrepreneurial failure or ‘prematurely negative entrepreneurial exit’ which is presented in the next, second paragraph. In the third paragraph the literature is searched for the causes of negative entrepreneurial exit. The findings are validated by semi- and non-structured interviews among entrepreneurs with exit experience. From the causes identified, among educational and entrepreneurial experts an explorative questionnaire and peer review sessions were organised to identify prevention measures which could be proposed to support systems reducing the negative exit scenario. After the conclusions, recommendations are made.

## **2. Definition of negative entrepreneurial exit**

In this paragraph an overview of the concept of entrepreneurial exit from the literature is given. According to (DeTienne, 2010), every venture will once exit this entrepreneurial process. The literature distinguishes two ways of entrepreneurial exit: (i) quit because of good outcome is good or positive (DeTienne, 2010, Wennberg et al., 2010). This is also called positive exit or wanted exit. The second alternative is (ii) because the outcome is not good (Wennberg, 2011, Samuels et al., 2008, Headd, 2003), also called unwanted outages or failure. About half of the cases of entrepreneurial exit refers to situations which are not desirable and in which the entrepreneur, e.g.,(Ottesen and Grønhaug, 2005, Hayward et al., 2006, Simon et al., 2000), and its environment (Vaillant and Lafuente, 2007) have a role in the cause. According to Cardon (2003), about half of the cases of negative entrepreneurial exit, the then called failure seems to be avoidable, because the failure was based on mistakes (firm internal attributes) (Cardon et al., 2011). There is no clear research known to what extends the half of ‘not desirable’ is similar to the half of ‘avoidable’. Research shows that the relationship between positive and negative entrepreneurial exit, after the first seven years, is roughly equal (Wennberg et al., 2010). (Cardon et al., 2011) divide negative entrepreneurial exit further into two categories: tough luck and mistakes by the operator. Focussing on the word of entrepreneurial failure, within the entrepreneurial literature, many different meanings to the word ‘failure’ are used. An often used

and small framed definition is that of ‘bankruptcy’ or ‘insolvency’ (Zacharakis, Meyer and DeCastro,1999). Other scholars add elements as ‘personal limitations of venture participants’ (Singh et al., 2007) or ‘do not yield enough added values for a reasonable income’ (Everett & Watson, 1998). In accordance with the taxonomy of exit routes (Wennberg et al., 2010), the ‘Distress Sale’ and ‘Distress liquidation’ seem to fit to the purpose of this research. To obtain clarification on an assembly of reasons for venture cessation, a more general definition of failure would be most helpful. In line with often-cited scholars on this topic, failure will be defined as ‘the termination of an initiative that has fallen short of its goals’ (McGrath, 1999). To put this general definition in an entrepreneurial perspective and addressing the role of the entrepreneur, the definition of negative entrepreneurial exit, used in this paper, will be ‘the termination of a venture creation that has fallen short of its goals’.

## **3. Causes of negative entrepreneurial exit**

Based on a literature survey on ‘entrepreneurial exit’, ‘entrepreneurial failure’ and ‘business closure’, the main causes of negative entrepreneurial exit will be discussed and summarized in this paragraph. According to the above-argued definition of negative entrepreneurial exit, the causes can be found either inside or outside the venture. It is argued that internal causes are the far most reason for entrepreneurial failure (Wennberg, 2011), where one third of the small businesses are affected by exogenous factors (Everett and Watson, 1998) as can be allocated to external factors. Because of the fact that small businesses barely can influence the exogenous factors as economic recessions, shortage of raw materials and the appearance of substitution products (FEE, 2004), in this paper only the micro external causes are discussed. Among mistakes, according to (Cardon et al., 2011), issues such as business, mismanagement, unrealistic expectations, pride, finance and innovation mentioned. Other literature indicates that negative entrepreneurial exit is related to resources as for strategic importance for the venture (Michael and Combs, 2008), planning strategies (van Gelder et al., 2006), pride (Hayward et al., 2006), not able to cope with uncertainty (McGrath, 1999), over-optimism and overconfidence (Muir et al., 2007). Baron (2000) and Simon et al (2000) propose, in a more general manner, that a biased point of view has a negative impact on entrepreneurs, which can lead to negative entrepreneurial

exit. Within literature, a study of (Cardon and Potter, 2003) shed light on the main courses of entrepreneurial failure. They studied over 500 citing's of news articles, addressed with entrepreneurial failure. They found that about 54% was caused by mistakes and 45% by misfortune. Focussing on the mistakes, 16% of the citations were caused by mismanagement and 18% by 'Conceptualizing a business and planning out its goals and the method by which to accomplish them...' (Cardon and Potter, 2003, p11). The European Federation of Accountants (FEE, 2004) defines more financial causes of negative venture exit. In their paper, the FEE supplies a 10-item list of internal business failures for SME's: Poor management, deficit in accounting, poor cash flow management, inappropriate sources of finance, dependency on customers or suppliers, impending bad dept., overtrading, poor marketing research and fraud / collusion. In accordance with many scholars, no clear framework of causes could found. Emerging from the many causes of negative entrepreneurial exit identified in literature, in this paper the next classification is proposed: mismanagement, poor concept and personal traits. The author is aware of the scholars might jeopardise this classification; e.g. mismanagement can be moderated by personal traits (van Gelder et al., 2006). For this reason the findings were validated with a field research. In this research 24 entrepreneurs with exit experiences were studied. Non- and semi-structured interviews were conducted with the entrepreneur or privileged witnesses as family or close friends. According to Pires (1997, p.72), it is a way of building up a sample in a homogenous way allowing for describing internal diversity within one population. Based on interview techniques as story-telling and cognitive mapping, were in-depth cognitive concepts can be identified (Khelil and Smida, 2012), the causes found in literature were confirmed by the entrepreneurs. The results are shown in table 1. During the interviews more causes were mentioned then extracted from literature. Partly these could be addressed to the classification, partly not. The latter are put together in a fourth group.

#### 4. Prevention measures

Based on the above-proposed classification of causes of negative entrepreneurial exit, an explorative survey held on a group of entrepreneurial and educational experts, to identify the possibility for prevention measures identification. The methodology for the survey was predominantly quantitative. First the respondents were asked if they agree on the possibility to

identify preventions measures on general causes given and if they prefer to join the further research. Then from the four classified groups of causes, they were asked to identify the prevention measures. From 10 send questionnaires 7 returned were 6 respondents declared to see possibilities to identify prevention measures in support systems. One respondent indicated not to be interested in exploring qualitative research.

Table 1, identified causes of negative entrepreneurial exit

Classification	Identified causes		
	Theory	Theory	Practice (out of 24 cases)
Poor management	lack of financial knowledge	X	4
	no partners involved	X	5
	no experience in the branches (*)		4
	lack of financial resources (*)		6
	no social acceptance (*)		2
Poor concept	no clear focus on added value	X	8
	no paying customer group identified	X	2
	poor market information (*)		5
	not enough sales (*)		11
Personal traits	taken to much risk (overconfidence)	X	5
	hesitating too much on decisions	X	5
Other causes	found other job		3
	sold with profit		3
	bankruptcy		8

(\*) not identified in theory but grouped within the classification

Supported by the results of the questionnaire two peer-groups of educational and entrepreneurial were formed and discussed on possible prevention measures. Each peer-group was assembled by 3 entrepreneurial experts like business coaches, venture capitalists and senior entrepreneurs and of 3 educational experts like senior lectures, professors and curriculum designers. There was no relation between both peer-groups and the discussions were held on different times at the same location. With the discussions a researcher chaired the session and a research assistant made minutes the session. A session started with a brief introduction of each participant, followed by the agreement of the aim of the session. In the middle of the discussion table a big sheet with the classes of causes was laid down. During the discussion several individual and all classed causes

were discussed to share each other's understanding of the causes. Individual causes were written at the appropriate classification. On regular basis the participants were asked to address possible prevention measures and write them down on a post-it paper and put them next to the classification or individual cause. The aggregated results are shown in table 2.

After each peer-group discussion the results evaluated. It was agreed that the outcomes, when looking back to the process of peer-discussion, were not spectacular nor felt odd. Somehow they seem to be predictable. Confronting the results with actual entrepreneurship education programmes, not all prevention measures could be identified. These results are shown in table 2 in the last column. The prevention measures not appearing in support-systems yet seem to be hard to implement in standard entrepreneurship education programmes. For example, the prevention measure 'to let nascent entrepreneurs experience the dynamic of failure' cannot be taught from a book or during an internship. Another remarkable aspect is the lack of finding prevention measures for 'find a new job' and 'sold with a profit'. From both peer-groups it was argued that these causes, might feel a negative outcome as the event emerge, but might not be wanted to prevent. Dominantly the entrepreneurs in the peer-groups indicated that a sale, although it might be a distress sale (Wennberg et al., 2010), can be seen as a positive outcome of the entrepreneurial process and therefore is might be better than going with the business and move into a bankruptcy.

## 5. Conclusions and recommendations

Considering the explorative character, the results of the research show that there are possibilities to reinforce the support systems like educational programmes, to prevent nascent entrepreneurs for premature negative entrepreneurial exit. Some measures seem obvious at first sight, but rarely applied fully in programmes. Other, not practiced measures need a change of the educational culture or maybe paradigm to be able designing effective support systems. The discussed example of the failure experience fits here. Arguments of the aforementioned paradigm shift in entrepreneurship education can be found in the fact that failure rates of starting

entrepreneurs seems not the falling although for more than a decade theories for entrepreneurship education applied.

Table 2, identified prevention measures

Classification	cause	prevention measure	found in support systems
Poor management	lack of financial knowledge	get financial knowledge	X
		identify cost-consumers	X
		learn to use a bookkeeper	X
	no partners involved	learn networking	X
		do not start	
		apply / develop social skills	X
	no experience in the branches	find partners	X
		do not start	
	lack of financial resources	reduce costs	X
		find investors	X
		learn other business models	X
	no social acceptance	interact with stakeholders	
find partners		X	
Poor concept	no clear focus on added value	start researching the market	X
		consult experienced entrepreneurs	X
		use business development models	X
	no paying customer group identified	make realistic business plans, apply several models	X
		stop starting, keep in the laboratory	
		do market research	X
	poor market information	do market research	X
		learn networking	X
	not enough sales	learn market adaptation	X
		improve sales skills	X
apply cost reduction techniques		X	
Personal traits	taken to much risk	get early failure experience	
		learn to use a bookkeeper	X
	hesitating too much on decisions	stop starting the venture (can be observed in the program)	
		learn applying decision making tools	
Other causes	found other job	-	
	sold with a profit	-	
	bankruptcy	learn accounting	X
		learn to cope with losses	
		learn financial forecasting	X

The identified prevention measure who not applied in existing support systems, provides support for this argument. As an alternative of the failure experience, it is recommended to explore the effects of the increase of resilience to nascent entrepreneurs. Resilience is indicated as a psychological concept that help to overcome the setback after excessive exposure to stress or trauma (Camperbell-sills and Stein, 2007) as the event of e.g. bankruptcy or entrepreneurial failure. Furthermore it is recommended to redesign entrepreneurship education programmes to more action and real-life learning to provide young dynamic starting entrepreneurs with important cognitive baggage for their entrepreneurial journey. In this way an early social relation with possible stakeholders can be created. Furthermore the emotional distance between the relatively passive world of an adolescent, educated by the principles of pedagogy, and the active dynamic lifestyle of an entrepreneur could be reduced. It seems to be worth trying the learning principles of andragogy to this respect (Reischmann, 2004, Henschke, 2011).

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## Premature Entrepreneurial Exit: Exploring the Role of Goal Setting Bias

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*Abstract: The stimulation of entrepreneurship and the support to venture creation is widely introduced in governmental policy plans. Despite the good intentions, the failure rate of start-ups remains the same. Research on entrepreneurial exit and the design of effective prevention measures seem to be at a dead end. New perspectives might generate an impetus to this field. In this paper the goal setting theory is explored. The findings indicate that there are designations that a bias in goal setting effect premature entrepreneurial exit. In this paper important recommendations for further research are given.*

*Keywords: Entrepreneurial exit, Goal Setting*

### 1 Introduction

#### 1.1 Perspective of the research

Entrepreneurship is become an important topic in both, research and society [1]. On European, national and local level, government support entrepreneurship and entrepreneurship education [2]. Nevertheless, neither the number of successful entrepreneurs increase nor the failure rates of entrepreneurial support systems decrease [3]. Therefore it seems important that the causes of entrepreneurial failure are identified and that support systems need to be more effective. This research is a side-step from the

authors' initial PhD project as it yearns for additional research perspectives. After a discussion on a conference with other scholars, some ideas came up which could be fruitful for further research. In the discussed paper [4] it was asked to help with different perspectives on the research methodology. As the theory of *goal setting* [5] was purposed as a feasible option, the author started this side-step research to explore the possibilities of this approach.

#### 1.2 Aim of the research

The aim of the initial research is to design prevention measures for premature entrepreneurial exit in support systems for starting, or to start entrepreneurs. In a first practical step, the causes should be identified. For this purpose, next to a systematic literature review, failed entrepreneurs were interviewed. Also some prevention measures were identified [6]. With these results, in the next stage of the research, on a larger scale entrepreneurs with premature entrepreneurial exit experiences will be researched. In an attempt to collect data from as many scientific perspectives as useful, other scholars were asked to suggest meaningful perspectives. Mainly researchers with a consultancy background felt that the achieved goals of 'entrepreneurs in trouble' could be different from those who survive. Therefore the aim of this side-step research is binary: to explore the possibilities for data acquisition and to explore the application of the concept of 'goal setting' to the initial research project. When both aims seem to be achievable, the concept of goal setting will be added to the initial research project.

### 2 Theoretical background

In this paragraph first a summarized theoretical background will be given on the perspective used on entrepreneurship, entrepreneurial exit and premature entrepreneurial exit. Latest results on the identification of causes of premature entrepreneurial exit are given at the end of the first subparagraph. In the second subparagraph the actual insights of the theory of goal setting is discussed.

#### 2.1 Entrepreneurial exit

An anchor for fostering entrepreneurship can be found in the person of the entrepreneur [7], the enterprise [8] and in the process of entrepreneurship [9]. From multiple statistics of entrepreneurial exit, in the first five years, about half of the started enterprises does not survive [10]. Two third of the entrepreneurs consider this event as a failure what could have been prevent from [11]. Recent studies of entrepreneurial exit determine exit routes of the entrepreneurial process based on the 'sale' or 'liquidation' with high or low performance [12]. Other exit routes based on resources (e.g. capital assets, human capital) and goals for organization and growth [13] or personal traits [14]. Wennberg & DeTienne [15] identified three mediated factors in the dynamic of exit, based on the type of the firm. Fragmented among scholars three groups of causes are mentioned: the

entrepreneur [10], his / her new venture and his / her organizational environment [16]. Based on a systematic literature review and case studies of 24 entrepreneurs, an overview is generated on the concepts of causes as shown in figure 1 [4]. It can be seen

Classification	Identified causes		
	Concept	Theory	Practice (out of 24 cases)
Poor management	lack of financial knowledge	X	4
	no partners involved	X	5
	no experience in the branches <sup>(*)</sup>		4
	lack of financial resources <sup>(*)</sup>		6
	no social acceptance <sup>(*)</sup>		2
Poor concept	no clear focus on added value	X	8
	no paying customer group identified	X	2
	poor market information <sup>(*)</sup>		5
	not enough sales <sup>(*)</sup>		11
Personal traits	taken to much risk (overconfidence)	X	5
	hesitating too much on decisions	X	5
Other causes	found other job		3
	sold with profit		3
	bankruptcy	X	8

Figure 1  
The concepts of premature entrepreneurial exit

as notable that there is not an entire overlap between theory and practice. This ascertainment supports the application of a different perspective. The above cited studies lack an integrative approach.

From the literature three levels of exit can be determined, from where the subject can be studied: environmental level, organizational level and personal level. Viewing the aforementioned view of exit together, it appears that the external factor inherent to the environmental constraints (environmental level), lack of resources and competences within the new venture (firm level) and the absence of a deep entrepreneur's commitment (individual level) may explain the decision of entrepreneurial exit [17]. As the environmental level cannot be influenced by a small economic entity as a start-up, the study to the causes of premature entrepreneurial exit is focussed on the firm and personal level. The attributes of the cases studied were processed with the computer program SPSS (version 17) where classes were made. From these classes, the personal and firm level of causes was isolated, as is shown in figure 2 below. These results show a framework, from where prevention measures could be made when there was no absence of the entrepreneurs' cognition [4]. For this reason a study started where cognitive maps of failed entrepreneurs will be made. Not reported preliminary results

and feedback from an international conference suggest that the theory of *goal setting* [5] could shed more light on the dynamics of starting and (premature) exiting of entrepreneurship. In the subparagraph below, the theoretical background of goal setting is given.

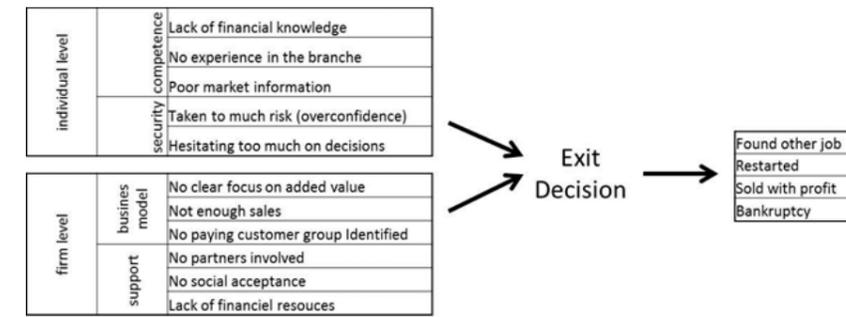


Figure 2  
Personal and firm level causes of premature entrepreneurial exit

## 2.2 Goal setting

The work of psychologist Edwin Locke from the University of Maryland at College Park, is broadly accepted by scholars as fundamental [5]. Together with Gary Latham he published his ground-breaking work in their book "A Theory of Goal Setting and Task Performance" where it is explained that goal setting theory predicts that people will channel effort toward accomplishing their goals, which will in turn affect performance [18]. Setting a goal should include setting a structure that directs actions and behaviors which improve the unsatisfactory performance. Setting a goal will change a person's behavior in order to work towards achieving the set goal. Goal setting research is focused on the motivation and task performance of employees. It builds on the concept that goals must have specific attributes to get and keep employees motivated. Though the goal setting theory is sparingly applied in the field of entrepreneurial exit. In relation to the entrepreneurial cognition and mind set, goal setting has been studied and acknowledged as one of the many personal traits of an entrepreneur [19]. Predominantly in relation to venture growth [20]. The basic principle of the goal setting theory is that motivational goals need to have four dimensions [18]:

- *Acceptance & commitment.* An individual must commit themselves to the goal set and fully accept it. Goal importance and Self Efficacy are improving this dimension.
- *Goal specificity.* Goals must be measurable, so an external referent is created. It must be very clear and explicit to all. Goals have to be conceivable, believable and achievable.

- *Goal difficulty*. For a high performance, the difficulty of a goal must set high and challenging for the one achieving. Conversely too high set goals reduce the achievability.
- *Feedback on progress*. Feedback may gauge the progress and indicate possible weaknesses in an early stage. It increases the achievability and raise motivation.

Latham [21] argued that goal setting mechanisms affect performance by increasing motivation to reach set goals. He proposed the four mechanisms below:

- *Direct Attention*. Goals direct attention to behaviors that will accomplish the goal and away from the behaviors that will not achieve the goal.
- *Energizing*. Inspiration to put out a certain amount of effort based upon the difficulty of achieving one's goal.
- *Task Persistence*. The amount of time spent on the behavior to achieve a goal.
- *Effective Strategies*. In wanting to achieve a goal the individual seeks out different ways to achieve it.

In this research paper the mechanisms and the dimensions of goal setting are used. A well-known spin-off of the goal setting theory is the SMART-criteria for effective goal setting, as proposed by Kenneth Blanchard and Spencer Johnson. Because SMART is a simplification of the goal setting theory, for this research this concept is not used in the research. Beside the benefits of the goal setting theory, there are some limitations in respect to this research, which need to be addressed. First there might be a conflict of interest between the personal and organizational goals. Second there is the problem that individuals are more tempted to take risky actions in pursuit of their goals, which could potentially lead to failure rather than success.[18].

### 3 Methodology

For this research three semi structured interviews were held with nascent entrepreneurs; two are failed and not restarted and one has not failed. Found on previous research as described in the theoretical paragraph above, entrepreneurs should be interviewed with a clear cause of failure: one on personal level and one with a clear cause on firm level. The entrepreneurs were not interviewed before on this topic. Preliminary information on the failure cause was provided by so called privileged witnesses (e.g. friends, accountants or family). The third, not failed, entrepreneur started in about the same timeframe as the other two failed entrepreneurs. The interview protocol was designed for the first interview of a cognitive mapping process. For this research the protocol was added with questions about the goals set by the entrepreneur when starting and closing (maintaining) the venture. The interviews were recorded and transcriptions were made. Also notes were made during the interview regarding non-verbal signs and

summarization of the answers by the interviewee. The interview results then were confronted with the dimensions and the mechanisms of the goal setting theory. For this purpose the transcriptions and notes were searched manually on pointers on the dimensions or mechanisms of goal setting. The findings and conclusions are shown in the paragraphs below.

### 4 Findings

In this paragraph the findings are presented. The interviews were held in the Dutch language, as it is the native language of the entrepreneurs. The interview with the failed entrepreneurs was about one hour, the non-failed 40 minutes (no questions on exit were asked). The age when started was mid thirty of all entrepreneurs. All cases are anonymised and names do not refer to the natural person. During the interview it appeared difficult to address the exit element of the entrepreneurial journey of the interviewees. They expressed elements of inconvenience when taking about the time period of exit. Contrary during the time period of starting, verbal and non-verbal clear signs of positive emotions were registered. As the entrepreneurs were asked to the goals they set when starting the firm, different answers came up. The answers were analysed among the dimensions and mechanisms of goal setting. From the dimensions all three entrepreneurs have full commitment to the goal set, did not expect that the goal was so difficult to achieve and had only a sort of financial feedback system on the goals. In respect to the specificity, the not failed entrepreneurs had set a measurable goal, the failed ones did not. When analysing the mechanisms, the Direct Attention, Energizing and Task Persistence are positive with all three entrepreneurs. It needs to be remarked that it was difficult to address if the Direct Attention and Task Persistence was based on the 'right' tasks; tasks who contribute to survive in entrepreneurship. The firm-failed entrepreneur had only one strategy. The personal-failed entrepreneur had an exit strategy from the start. The not-failed entrepreneur showed flexibility in the strategy to aim his goals. In figure 3 below, the findings are summarized.

	Entrepreneur		
	Failed "personal"	Failed "firm"	Not failed
Case name	Frank	Gerard	Rene
Goals indicated	Having own firm Income replacement Be independent Take responsibility	Development Personal growth Freedom to make decisions	Established firm ± 10 employees Supply flex. service Build-up capital Satisfaction
<i>Dimension</i>			
Commitment	Fully accepted	Fully accepted	Fully accepted
Specificity	No measurable goals set	No measurable goals set	Clear goal set, measurable
Difficulty	Not expected to be so difficult.	Not expected to be so difficult.	Not expected to be so difficult.
Feedback	Only financial feedback	Only financial feedback	Only financial feedback
<i>Mechanism</i>			
Direct Attention	Positive	Positive	Positive
Energizing	Positive	Positive	Positive
Task Persistence	Positive	Positive	Positive
Strategies	Starting and Exit strategy from the start	One strategy	Flexible in adjusting strategy

Figure 3  
Summary of the findings

## 5 Conclusions and recommendations

For this side-step research is support by a modest dataset, preliminary conclusions can be made on both of the aims of this research. To the first aim, the exploration of data acquisition, it can be concluded that the transcription of semi structured interviews can be used to acquire data. Mechanisms as Direct Attention and Task Persistence demonstrated a possible bias. It could not clearly be distinguished what if the task discussed, contribute to entrepreneurial survival. Sequel interviews, as is habitually to techniques as cognitive mapping, are recommended. To the second aim of this research, it is demonstrated that the goal setting concept indicate differences in the cases presented. Only the dimension Specificity, one of the eight parameters, shows a clear difference between 'failed' and 'not failed'. A distinction between 'failed-person' and 'failed-firm' could not be made. From the data it cannot conclusively be declared that there is causality with premature entrepreneurial failure. For this reason it is recommended to research a larger sample with both groups, 'failed' and 'not-failed' entrepreneurs. Taken into account the recommendation, the goal setting theory can have a positive contribution to the initial research project. A specificity bias in goal setting of nascent entrepreneurs can be suggested as an indicator of premature entrepreneurial exit.

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# Regional development

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# 1 OVERVIEW OF THE REGION

Matthijs Hammer, Gert-Jan Hospers and Peter van der Sijde

## 1.1 The geographical and demographic situation

Figure 1.1 Geographical map of Twente in relation to the Netherlands



Source: ITC, 2005

### 1.1.1 Location of Twente

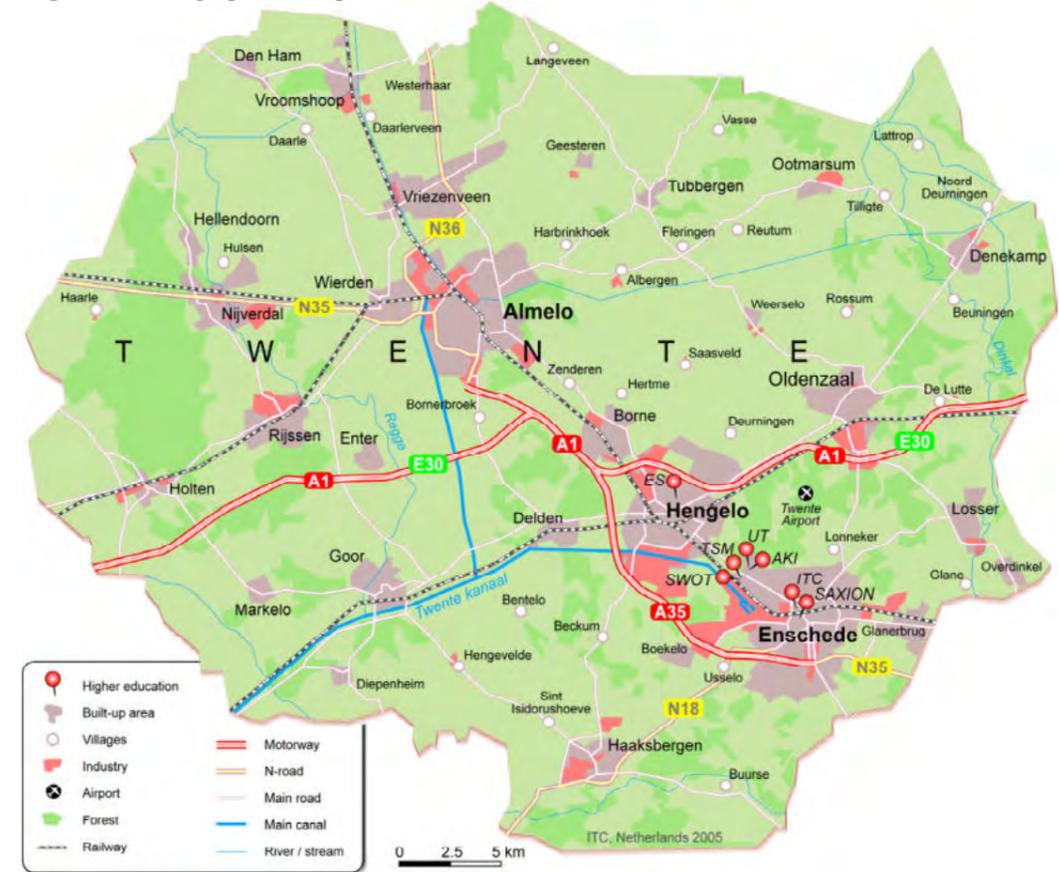
The region of Twente, in of the Province of Overijssel, is located on the eastern border with Germany and is part of the *Euregio*, a transregional cooperation between bordering areas in Germany and the Netherlands. The size of Twente is 143,000 hectare; there are about 600,000 inhabitants, who live in 14 municipalities; half of them live in one of the three cities Enschede, Hengelo or Almelo. These three cities have a function towards the neighbouring towns for medical care, industrial estates and (large) companies.

Twente is located on the axis that runs from Amsterdam via Berlin to Moscow. It is 150 km from Amsterdam and 500 km from Berlin. This corridor consists of e.g. the motorway A1 (E 30) that in Twente intersects with the A35 (and connects the north-west of Twente with the south-east) and connects Twente with Zwolle (the capital of the Province) and Germany. There is an international intercity connection by train from Amsterdam to Berlin that stops in Hengelo and direct connections to the European rail nets (Netherlands: Thalys, Germany: ICE, France: TGV).

Twente has an airport (*Airport Twente*); originally a military airbase and now also used as a civilian airport (charters for holidaymakers and air taxis). The military part of the airport is to be closed down in the next couple of years. Via water, Twente can be reached by the *Twente Kanaal* (Twente Canal), which is connected with the seaport of Rotterdam. The Twente Canal is used for commercial freight

transport as well as for recreational purposes and runs from Zutphen via Hengelo to Enschede. At Goor it branches to Almelo.

Figure 1.2 Geographical map of Twente



Source: ITC, 2005

### 1.1.2 Industry

In Twente there are a number of large companies with an international reputation, e.g. Texas Instruments (microelectronics), Urenco (uranium enrichment), Siemens, Philips, Stork, Eaton-Holec (all in the metalelectrical sector), Vredestein (tyres), Grolsch (beer), Ten Cate (industrial textiles), Polaroid (photographic films), Cannondale (bikes), Bolletje (industrial bakery), Uniq (salads), Zwanenberg (fine meat products), Akzo (salt production), SASOL (chemical additives), Thales (military radar equipment). Furthermore, there are two main cultural institutions located in Twente: the Nationale Reisopera (National Travel Opera) and the Orkest van het Oosten (The Netherlands Symphony Orchestra).

### 1.1.3 Demographics

Table 1.1 Main demographics of Twente

	1980	1985	1990	1995	2000	2004
<b>Number of inhabitants</b>	553,600	563,848	573,635	586,720	596,394	615,303
<b>% Inhabitants living in cities</b>				48%		49%
<b>Between 15 and 65 years</b>				68.7%	68.8%	66.7%
<b>% men</b>	50.1%	50.0%	50.0%	50.1%	50.1%	50.2%
<b>% women</b>	49.9%	50.0%	50.0%	49.9%	49.9%	49.8%
<b>Average income per</b>				€ 23,300	€ 25,100	

	1980	1985	1990	1995	2000	2004
household						
% participation in the labour process				54.4%	61.0%	64.6%
Unemployment				7.6%	3.8%	6.6%
Number of emigrants			1,992	2,042	1,842	2,806
Number of immigrants			2,908	2,942	3,848	2,650
% Living below the poverty line					9.6%	

Data have been used of the year mentioned or of a year just proceeding or following that particular year.  
Source: I&O Research, Enschede

One of the problems Twente will face in the future is a growing shortage of teachers in secondary education as well as a decreasing supply of managers in primary education. Therefore, efforts are taken now to investigate the set-up of a Twente *Instituut voor Lerarenopleidingen* (Twente Institute of Teaching) in which UPE Edith Stein, Saxion UPE and the University of Twente will cooperate in order to educate students for a job at primary and secondary schools. This is related to the general problem that many graduates leave the region after their studies in Twente. Explanations for this 'brain drain' are a lack of suitable jobs and the feeling that the *Randstad* (the cities of Amsterdam, Rotterdam, The Hague and Utrecht) rather than Twente, is the 'place to be'.

#### 1.1.4 Knowledge institutes

Higher Education Institutions (HEIs) are concentrated in the largest city of Twente, Enschede: the University of Twente (UT), Saxion University of Professional Education (Saxion), AKI Visual arts and design academy, ITC (International Institute for Geo-information Science and Earth Observation), Telematics Institute, TSM Business School, SWOT (business school). The Educational Centre Edith Stein (ES), a large part of the ROC van Twente (Regional Training Centre, community college) and the SMEOT (training school for the metalelectrical sector) are located in Hengelo, and the STODT (a technical training centre) is located in Almelo. For a detailed overview of the HEIs in Twente, see appendix A.

The table below (table 1.2) shows the distance to the closest HEIs in the Netherlands and Germany.

**Table 1.2** Higher Education Institutions close to Twente

Institution	City	Type of HEI	Distance from Enschede (km)
Saxion Deventer	Deventer	UPE	60
Windesheim	Zwolle	UPE	75
Emmen	Emmen	UPE	75
Saxion Apeldoorn	Apeldoorn	UPE	75
Theological University Kampen	Kampen	University	85
Arnhem Nijmegen	Arnhem / Nijmegen	UPE	85
Radboud University	Nijmegen	University	100
University of Groningen	Groningen	University	140
Fachhochschule Münster	Münster (D)	UPE	70
Universität Münster	Münster (D)	University	70
Fachhochschule Osnabrück	Osnabrück (D)	UPE	95
Universität Osnabrück	Osnabrück (D)	University	95

(D) = Germany

Source: Saxion, 2005

#### 1.1.5 Business development support

In the Twente region there are many organisations that support companies and offer networking opportunities. The *Kamer van Koophandel* (Chamber of Commerce) is an organisation where every company has to be registered; it supports organizations in commercial contacts (national/international), export and start-up. There are a number of organisations that represent the

interest of their members nationally and regionally – e.g. MKB-Oost, the organisation of SME in the Eastern part of the country, VNO-NCW Midden Nederland, the employers' organisation in this part of the Netherlands. Other organisations are the IKT (Industrial Circle Twente) supporting members through seminars and network activities and TKT (Technology Circle Twente), a business club of high-tech companies in Twente. To support innovation processes there is Syntens and the *Innovatieplatform Twente* (Innovation Platform Twente), and to support finding locations and getting investments etc., there is the Regional Development Agency, Oost N.V. For a full list of these industrial institutions / societies in Twente and their scope, see appendix D.

#### 1.1.6 The Twente identity

For centuries, Twente has had a regional identity. This identity becomes clear when the region is evaluated according to the four regional criteria of Paasi. These criteria are clear borders, symbols, institutions and a 'mental map'. Twente is a territorially bounded area, the area is recognizable as such and it is clear which area belongs to Twente and which does not. Twente has symbols, like a dialect of its own, a flag (with the Twente horse), a regional anthem and regional products (e.g. *Twentse krentenwegge*: black raisin bread). Twente has many regional institutions: governance (*Regio Twente*; the region of Twente), society (e.g. *Twentsche Courant Tubantia*; regional newspaper, *FC Twente*, national league football), and a strong industrial base.

The Twente notion is rooted in the consciousness of many Dutch people and spread by national VIPs such as the comedian Herman Finkers, singer Ilse DeLange, and marketing and PR-guru prof. Dr. Anne van der Meijden. This are examples of the clear and recognizable identity, and industry increasingly recognizes it as an opportunity to differentiate itself from other regions.

## 1.2 The economic base of Twente

### 1.2.1 Twente's strong industrial past

The present economic structure of Twente is the result of the region's specific economic history. Until the 19th century, Twente was a rather rural area with a population of farmers and traders that lived in the countryside and in small villages. The composition of the soil of Twente was too poor to make it entirely into an agricultural area. When the farmers could not work in the fields in winter, they took up spinning and weaving. It was this home industry at farms that laid the basis for the growth of the regional weaving industry, which developed into the largest textiles companies in the world. After the separation of Belgium from the Netherlands in 1830, King William I looked for a place to build a national textiles sector that could produce cotton for the colonies overseas. The weaving knowledge of the Twente people and their strong labour ethics made the national government support the development of a modern textiles industry in Twente. In Almelo, Borne and Enschede large textiles factories were built, whereas Hengelo specialized in related industries such as metal, machinery and electronics. The demand for qualified workers soon was so high that immigrants from the northern provinces (Drenthe, Groningen) and Germany came to work in Twente's industry.

To make the hard transition from country to factory life tolerable, the manufacturers invested in green parks and decent working class neighbourhoods such as the Garden Villages *Pathmos* en '*t Lansink*. Also libraries, art collections and sporting facilities were established as well as a financial bank in 1861, the *Twentsche Bank* which in 1964 merged with the *Nederlandsche Handelsmaatschappij* (Dutch trading society) to the *Algemene Bank Nederland* (ABN). Nowadays this bank is better known as the internationally operating *ABN-AMRO bank* after the merger with the *AMRO bank* in 1991. In addition, the industrial heritage consists of those quarters in several cities, which were built to provide housing for the thousands of employees during the industrial revolution. Therefore, the actual shape and design of the cities and the local infrastructure incorporates in many ways the characteristics of the past.

During the 19th and first half of the 20th century Twente was constantly growing in textiles and metal manufacturing, providing not only mass products, but also specialized clothing, synthetic fibres and

metal-electronic equipment. In the 1950s, however, the regional textiles sector entered a period of structural decline: competition from low-wage countries, the post-war loss of Dutch cotton colonies, increasing technological efficiency and lack of entrepreneurial alertness led to a cut-down of 80% of regional employment in textiles between 1955 and 1980. To counter the loss of 40,000 jobs, the region's stakeholders joined forces and lobbied in national government circles to get academic education for Twente.

### 1.2.2 Still recovering from the crisis?

The regional lobby succeeded: in 1964 the UT was opened as a campus university of technology offering degrees in mechanical, electronic and chemical engineering as well as applied physics and mathematics. The area's strong industrial heritage and the technological university were seen as an ideal combination to build a modern technology-based regional economy. During the 1970s, it was clear, however, that the region could not grow solely on the basis of technology. Unemployment was still high, while the enrolments at the university were stabilizing. To diversify the economic structure, investments were made in new growth sectors, especially services. In line with that, the UT set up degrees in social sciences such as management studies, public administration and educational sciences. Meanwhile, also other regional higher education institutes were expanding: the *Hogeschool Oost Nederland*, the *Hogeschool voor Techniek en Gezondheidszorg* (both now part of Saxion), ITC as well as AKI. Backed with European funds in the 1980s Twente could gradually recover; the region's infrastructure was improved and the area managed to climb back to the third place in the national league of industrial regions. Manufacturing still is important in the regional economy with food, chemicals, metal/electronics, defence industry, transport and building as well-known examples. Ten Cate, today producing fibres like artificial grass, carbon fibres and aramid fiber products for the aircraft industry, is one of the few remnants of Twente's long textiles history. Consumer and business services (e.g. finance and communication), which have been at the top of the Twente planners' lists since decades, have been growing rapidly only since the 1990s. Especially transport, communications, financial services and business services have been on the rise, realizing a growth that is higher than in the rest of the Netherlands. The same is true for public services: thanks to large medical institutions like the Roessingh rehabilitation centre, MST (*Medisch Spectrum Twente*) and ZGT (*Ziekenhuis Groep Twente*), and related economic/scientific activities, especially Twente's health care sector is on the rise. In terms of high-tech clustering, the region now has a worldwide reputation for its performance in medical technology, telematics, nanotechnology and tissue engineering.

### 1.2.3 Towards a more diversified economic base

Due to the tendency of diversification the sector structure of Twente has become more balanced over the last decades. This can be concluded from the recent development of the regional 'concentration index' (i.e. a sectoral index in which a higher level indicates a higher concentration of firms, employment and value added in only a few sectors): twelve years ago in Twente this index amounted to 39.6% (Dutch average: 37.0%), but now it is 36.7%, which is close to the national average of 36.5%. Nevertheless, the sectoral shares in employment show some significant differences between Twente and the Netherlands. Although the share of people working in manufacturing and building declined over the period 1996-2004, the region still employs many people in the secondary sector (26.3% versus 18.1% in the rest of the Netherlands). The reverse can be seen in the primary sector: only a few people from Twente work in agriculture (0.8% versus 1.4%). Despite its recent rise, the employment share in the tertiary sector has not reached the overall Dutch level yet. With a share of 72.9% service workers, Twente has 7.6% less service jobs than the Dutch average of 80.5%. From a national perspective, only the number of jobs in Twente's public health services like hospitals, homes for the elderly and specialized medical services (e.g. heart centre), is relatively high. All in all, the long industrial legacy of Twente is important to the present day.

The sectoral dynamics of Twente's economy is rather ambivalent. Thanks to leading knowledge-intensive and export sectors (electronics, metal, machine-building and fibres) and leading knowledge institutes, the regional innovation potential is high. At the same time, the actual regional innovative performance lags behind this large potential.

The level of R&D expenditures is 2.1% of Twente's gross regional product, which is more than the 1.6% nation-wide. In addition, the number of patent applications is higher than in the rest of the country.

This innovative potential, however, does not lead to a similar high level of regional innovation; to be sure, Twente develops slightly more product innovations than other Dutch regions, but far less process innovations. The rate of new business formation in Twente over the last five years has been 0.1% higher than in the Netherlands, but not in innovative sectors, where start-ups are 0.1% lower than the Dutch average.

Most firms are local SMEs; only 0.41% of all firms are large companies (Dutch average: 0.43%) and only 0.49% of the business comes from abroad (national figure: 0.67%).

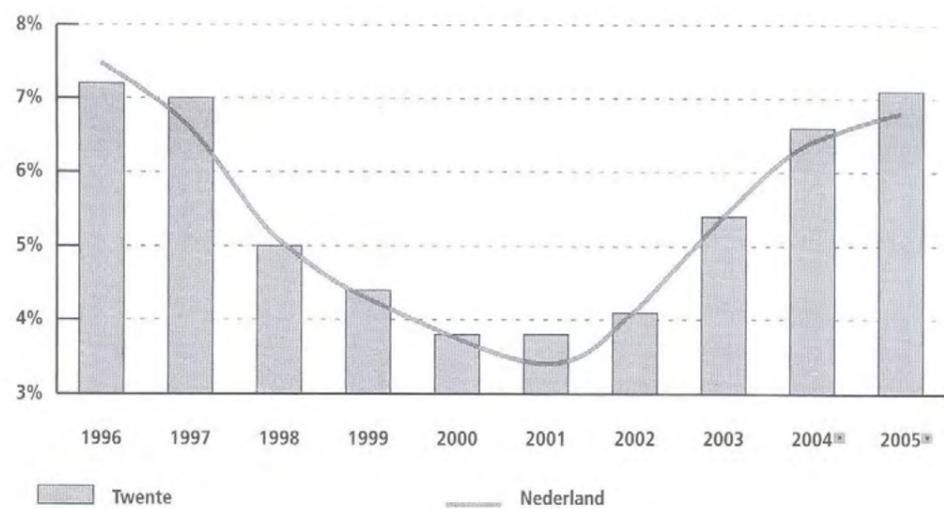
The problem of Twente's innovation paradox of high potential combined with low performance could be that a relatively large share of regional R&D is carried out by only a few actors. The majority of the patent applications, for example, come from a small group of knowledge-intensive firms around the UT. By finding new ways to exploit the knowledge-potential, the economic growth of Twente can be continued.

### 1.2.4 Labour market and long-term performance

The Twente economy represents 3.5% of the total number of jobs in the Netherlands. The participation level (i.e. the number of workers related to the potential work force) is 64.6%, which is lower than the Dutch average of 65.1%. Compared with other regions manufacturing and building offer relatively many jobs in Twente. Although employment growth takes place in the services sector, the rise of jobs in the area emerges particularly from a rise of the regional participation level. Unemployment figures show a less favourable development. At the moment, the level of unemployment in Twente is slightly higher than the Dutch average: in 2004 about 6.6% of the working population in the region were out of work compared with 6.4% in the Netherlands as a whole. This is a gap of 3%. Three years ago these levels were about 3.8% and 3.4%; a difference of 8%. The rise of unemployment, however, is part of the general downward economic trend since 2002 that can be felt throughout the nation. Twente's share of unemployed young people (15-29 years), however, is much larger than in the rest of the country. In the last two years the regional growth of youth unemployment, for example, has been about three times higher than the national average. Over this period the unemployment rate among higher educated people has risen faster (more than two times) than in the Netherlands. It must be said, however, that the traditional lower starting level in Twente plays a role here as well.

Between 1985 and 2005 the economy of Twente has performed better than in the sixties and seventies. Nevertheless, the region's economic development has been structurally weaker than in the rest of the Netherlands, in terms of employment, income and value added. In 1985, for example, unemployment in Twente was 18.5%, while the Dutch average was 15.4%. The unemployment rate in Twente in relation to the Dutch average has been lower only once over the last twenty years, namely in 1996 (see also figure 1.3). Also in terms of gross regional income per capita, there has always been a structural gap between the relatively poor Twente and other Dutch regions (figure 1.4). Compare, for example, the GDP (Gross Domestic Product) per head in 2002: in the Netherlands this amounted to €27,641, whereas the Twente figure was €21,966. A similar structural lag can be observed in the development of sectoral value added, that is the contribution of the single sectors to the regional economy. Over the period 1996 until now, the average growth of the total regional added value was lower than that in the rest of the country. Twente's transport and communications (including information and communication technology), trade and commercial services realised high growth rates in their value added, although they did not reach the Dutch average. In leisure, finance and the environmental sector, however, the growth of value added over the last ten years has been higher than the national average. In total, these statistics demonstrate that the long-term performance of Twente continues to be less favourable vis-à-vis the Netherlands.

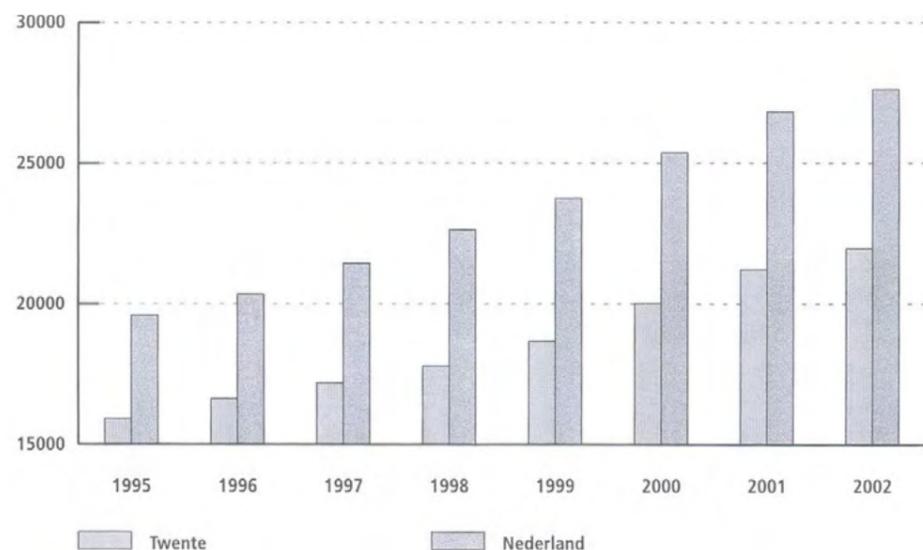
**Figure 1.3** The development of unemployment in Twente and the Netherlands (1996-2005)



Bron: CBS, bewerking Economisch Bureau ING

\* Twente 2004 en 2005 en Nederland 2005: raming Economisch Bureau ING

**Figure 1.4** GDP per capita in euros in Twente and the Netherlands (1996 – 2002)



Bron: CBS, bewerking Economisch Bureau ING

### 1.3 The governance structure in Twente

#### 1.3.1 Tasks and responsibilities of authorities

Like all areas in the Netherlands, Twente falls under the Dutch system of administrative governance. The Netherlands is a decentralised unitary state with two types of 'lower governments' besides the national government (*rijksoverheid*): provinces (*provincies*) at the regional/county level and municipalities (*gemeenten*) at the local level. The Netherlands has twelve provinces with hundreds of municipalities; Twente and its fourteen municipalities (Enschede, Hengelo, Borne, Almelo, Losser, Oldenzaal, Dinkelland, Tubbergen, Twenterand, Hellendoorn, Wierden, Rijssen-Holten, Hof van Twente and Haaksbergen) are part of the province of Overijssel. The lower governments have an autonomous position, but the extent of their autonomy is determined by the national government. The higher administrative levels also supervise the lower ones and can demand cooperation from them. The set-up of this system implies that the tasks and responsibilities of Dutch provinces and municipalities are largely dependent on the national government. In matters of macro-economic and social-distributional policies, the national level is in charge. When it comes to the provision and allocation of local amenities, the lower governments come on the screen.

Generally speaking, provincial authorities have the right to decide on all regulations that they deem important for the development of the province. In implementing the regulations, municipal cooperation can be required. In turn, municipalities have to submit their local plans to the province for approval. In practice, the province settles regulations with a supra-local scope in the field of spatial development, infrastructure and socio-economic development. Within the limits of these provincial regulations, municipalities have important allocation tasks. The local authorities, for example, take care of public order, traffic, education, transport, culture and recreation within their municipalities. For this purpose, they dispose of only a limited amount of own financial means (received for example from local taxes), totalling not more than 10% of the local budget; the majority of the municipal funds still comes from the national government and is earmarked for special purposes. In conclusion, the different tiers of government in the Netherlands are highly interdependent. Municipalities have a certain degree of discretionary power on local matters, but they are subordinated to the national and provincial government. Unsurprisingly, local stakeholders regularly complain about some 'superfluous centralism'. Especially in Twente such complaints can be heard about the province; the municipalities in Twente feel, as the economic engine of Overijssel is in their region, that they deserve more power in relation to the province governing from Zwolle.

#### 1.3.2 Network city and the region of Twente

In all post-war national plans for regional administrative reform, Twente has been designated as one of the areas where such reform should take place. This designation can be seen as recognition by the national government that Twente – although part of the province of Overijssel – does have an administrative right to exist. Historically speaking, there is indeed reason to see Twente as a separate entity; see chapter 1.1.6. The recognition and reality of Twente as a single territorial unit, however, has never resulted in a new, official administrative status for the region. As a matter of fact, Twente has a historical record of forty years of inter-municipal cooperation. In varying combinations the cities, towns and villages in Twente have tried to join forces since 1966 and work together more closely for the benefit of overall regional development. Plans for a City Belt, District Twente, Province of Twente, Twin City (Enschede-Hengelo) and Twente City, however, failed because of internal conflicts or due to opposition from the national government.

Over the years, the close inter-municipal deliberations, consultations and cooperation initiatives still led to progress. For one thing, the municipalities got to know each other's opportunities and sensitivities better, which sets it apart from other regions in the Netherlands. For another thing, building on the historical experiences Twente has been able to establish a Network City and a Region. Both bodies are platforms for strategic cooperation between municipalities in the region. Since 2001, Enschede, Hengelo, Borne and Almelo have met in Network City Twente (*Netwerkstad Twente*) to develop strategic visions and jointly set-up regional flagship projects such as Knowledge Park Twente.

Besides this city network, there is the construction of the Region of Twente (*Regio Twente*) in which all municipalities discuss matters of region-wide importance.

The emphasis of this cooperation is on the content, not on the cooperation structure. To this body, the members have delegated a few competencies, mainly in the field of infrastructure and tourism. The Region, for example, is responsible for the functioning of public assistance (fire brigade), public transport (buses, taxis) and information on health matters (Area Health Authority) on a regional scale. Enlarging the powers of the region to matters like spatial planning and economy has not been possible until now, because the participating municipalities fear to lose their individual autonomy.

A factor that may explain the lack of administrative cooperation in Twente is the absence of a large natural centre city whose leading position is recognized and accepted by all the other municipalities. Thus, due to inadequate cooperation Twente still lacks a strong regional authority. This result contrasts with the high degree of 'social capital' in the region, which counts among the highest in

In the region 89% of the population participates in a local social-cultural network (e.g. a business association, soccer club or music society), while the West-European average is 26%.

Western Europe.

This is a positive sign, because social capital enlarges mutual trust and facilitates doing business. Obviously, the solution of the regional cooperation paradox (the population is highly cooperative, but the authorities are not) has to be found in the nature of cooperation: making far-reaching decisions on the region differs from collective action in social networks.

### 1.3.3 Governance in the economic and education domain

As in all policy domains, spatial-economic and educational policy at the regional level cannot be separated from national and provincial plans in this field. At the moment, the economy of Twente is subject to national policy (funds within the framework of Dutch regional-economic policy) and provincial policy (Triangle-strategy and Regional Innovation Platform). In the recent policy document Peaks in the Delta (Ministry of Economic Affairs, 2004), Twente figures as one of the five Dutch regions that have been designated as R&D-Hot Spots. In the new Dutch regional policy a radical shift has taken place from an approach aimed at regional equity to a policy geared towards regional efficiency. In this respect, the designation of Twente as an R&D-Hot Spot is an important recognition; it shows that the Dutch government sees Twente as a region with opportunities rather than a place with problems. The Triangle is a project of *Oost NV*, the joint regional development corporation for Overijssel and Gelderland, promoting closer research cooperation between the UT (Technology Valley), Nijmegen (Health Valley) and Wageningen (Food Valley). With the help of all these partly overlapping policies Twente should develop into a Top Technology Region with a focus on innovation in clusters like materials and health technology. A similar goal has been formulated in the Region's Regional Economic Development Plan for Twente (REOP), although in this strategy also recreation and tourism receive a great deal of attention. At the moment, ES, Saxion and UT investigate the possibilities for the establishment of a *Twente Instituut voor Lerarenopleidingen* (Twente Institute of Teaching). This institute should help to attract more students for a job at primary and secondary schools. In this way, it is hoped to give in to the shortage of teachers and managers in primary and secondary education that is threatening the region of Twente. The municipalities in Twente also have economic plans of their own (e.g. health technology in Enschede), but they have to deal more with the day-to-day matters of economic development, such as providing services. Local authorities may also sell land and develop business parks in cooperation with private developers and other parties (e.g. the universities or schools). Thus, recently an Educational Boulevard for vocational education was built. In a similar way, local authorities and the university are cooperating now to redevelop the Business & Science Park in Enschede into a Knowledge Campus.

## 1.4 Conclusion

### *Towards a SWOT analysis of Twente*

As was stated above, Twente is a region with a distinctive development path. It is a clearly recognizable region marked by its strong industrial past and moving now into a largely technology-based future. Within a European and global context, it is hard to judge whether the region of Twente can regain its competitiveness of the past. In an attempt to assess the economic perspectives of Twente, researchers often have related the region's internal characteristics to the external challenges the area is facing. In this respect, a number of SWOT analyses have been made, mapping the strengths/weaknesses and opportunities/threats for Twente and its economy. Table 1.3 lists the main findings from these studies. In general, international developments, technological change and the demand side of the economy gain importance. Twente could take advantage of these opportunities in particular by exploiting its strategic location and its unique position as an area where trend and tradition on the one hand and city and country on the other are complementary. Such a positive scenario is only feasible, however, if Twente is able to solve its weaknesses. Investments in infrastructure and in amenities that keep and attract higher educated people may be needed for this. But whether these investments are made, probably depends in the first place upon the willingness among the municipalities to join forces and develop strategies for the benefit of the whole region.

**Table 1.3** Strengths/weaknesses of Twente vis-à-vis external opportunities/threats

Opportunities for Twente	Threats for Twente
Further integration/enlargement of EU Technological change/knowledge economy Growing demand for quality of life	Interregional competition in Europe Dependency of footloose companies Less growth in low-tech/mass production
Strengths of Twente	Weaknesses of Twente
Strategic position on East-West axis Highly-developed knowledge infrastructure Nature and tranquillity in green surroundings	Bad infrastructural North-South connections Lack of a dynamic and vibrant urban environment Inability of municipalities to cooperate well

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## 7 CONCLUSIONS: MOVING BEYOND THE SELF-EVALUATION

Matthijs Hammer, Wolter Horst, Peter van der Sijde, Irene Sijgers

### 7.1 Lessons to be learned from the self-evaluation process

In the previous chapters, different aspects of the impact of the Twente higher educational institutions on the region are presented. In this chapter we bring together the lessons learned. In the first part of this chapter, the stakeholders of the HEI structure are described, followed by the state of cooperation between the institutions. Then the developmental themes for the region are presented. Already here, at the start of this chapter two important issues are presented as major challenges for the region:

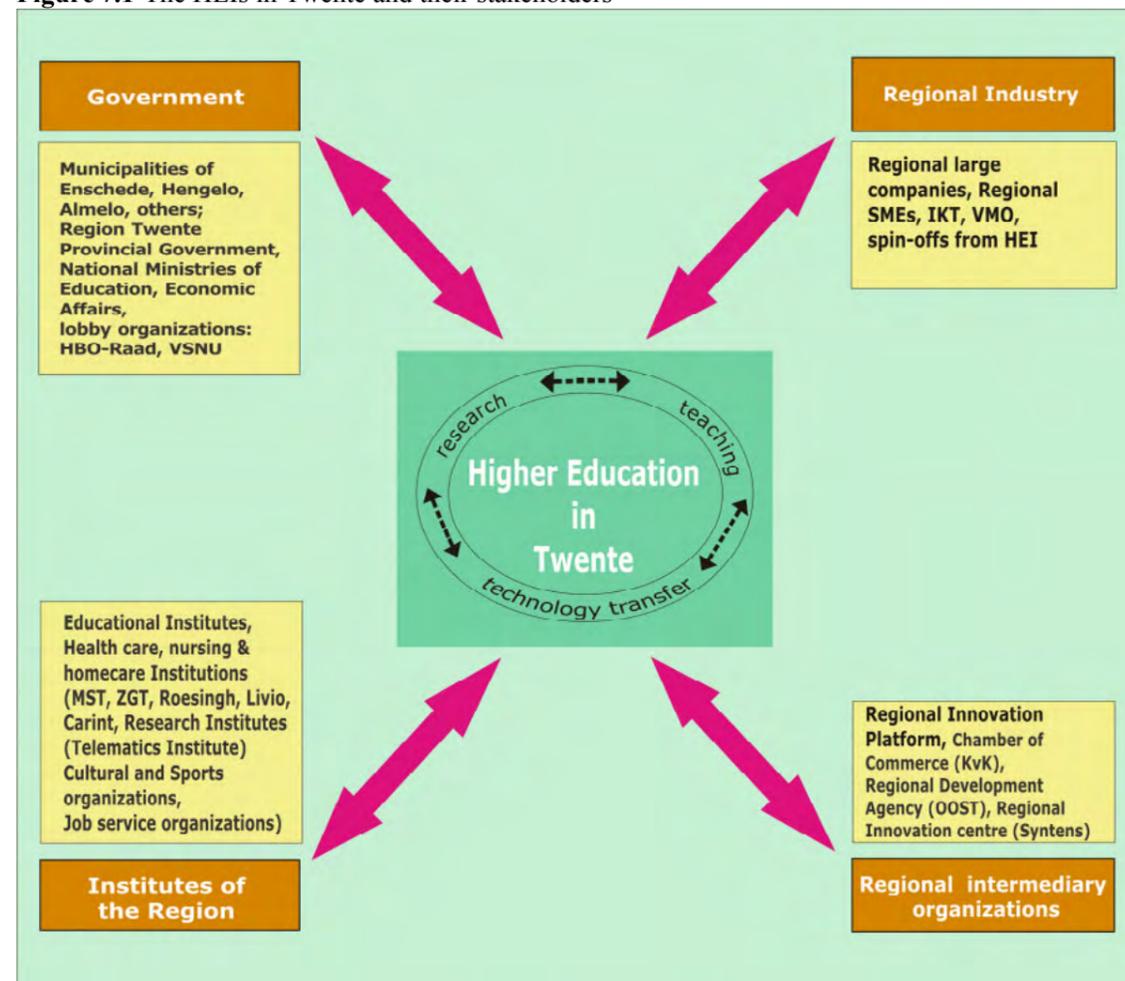
- The Twente region needs a jointly adopted view and ambition.
- Twente needs to recognize its socio-cultural context and infrastructure as an economic force.

These two challenges are incorporated in the developmental themes for the region.

### 7.2 Stakeholders of the HEI structure in Twente

In the previous six chapters an outline is given of the various stakeholders of the Twente HEIs and their involvement with activities that impact the region and regional development and vice versa. Although students are stakeholders in the HEI, they are not explicitly incorporated in Figure 7.1; the students are implicit stakeholders and dealt with this way in this report.

Figure 7.1 The HEIs in Twente and their stakeholders



These stakeholders together with the HEI make up the “playing field” of the higher education arena in Twente; they influence and determine the course of higher education by participating in the (different levels of) governance of the regional HEIs and stimulating and facilitating the HEIs to take particular courses of actions via lobbying for and with the institutions. Together, strategies are developed to elevate the educational level, create wealth (through the stimulation and contribution to innovation and entrepreneurship) and well-being in the region<sup>57</sup>.

### 7.3 Cooperation between the HEIs in Twente

The cooperation between the HEIs in Twente took shape in the last decade of the last century. As a result of the Bachelor-Master structure in higher education, Saxion<sup>58</sup> and Edith Stein are cooperating closer and on a more structural basis than before with the UT and other educational institutions (schools and the National Institute for Curriculum Development; LinX is an excellent example of an integral cooperation between educational institutions – see 4.6.1) in the region. Undergraduates from Edith Stein and Saxion have (after completing a so-called pre-master programme) access to the Master studies at the UT.

TSM Business School (a foundation of the UT) cooperates with the SWOT (a foundation in which both UT and Saxion cooperate) and draw their teachers primarily from other HEIs. In the TechnoCentre Twente both Saxion and UT participate (as does the ROC van Twente). In the previous chapters many examples have been mentioned of cooperation between the HEIs in Twente; some forms of cooperation can be characterized as “projects” (of a temporary nature and for a specific purpose), while others are of a more permanent nature. Partnerships and strategic alliances with (regional) industry and institutions are formed to enhance the interaction between “theory” and “practice” (see 6.1/6.1.1. and 3.3.3.2). Also new partnerships and alliances are necessary; e.g. between the Edith Stein, Saxion and UT to be able to cope with the shortage of and drain from teachers in secondary education, managers in primary education and the “second phase” teacher trainings in Twente. (Appendix I)

Nevertheless, all HEIs in the Netherlands are fishing in (more or less) the same pond for students. This holds for the undergraduate students (a university study or a higher professional education study) as well as for the postgraduate students (a master’s degree at the university or at the UPE). Agreements have been made to approach future students together. Also, since all HEIs are supposed to engage in research, this could put the higher education institutions in competition with each other – further cooperation in this area could lead to a strengthening of the Twente position in research.

The AKI is focused on art and in this area there is cooperation with other HEIs in the region. Although ITC has (on an ad-hoc basis) regional impact, its focus is primarily international.

### 7.4 Developmental themes for Twente

Given this first outline of the ambition of Twente, there is definitely a lot of work to be done in the region for the HEIs together with the stakeholders of the HEI structure. Since regional development is the issue, the HEI should and cannot take leadership; support and involvement, however, is necessary. The Innovation Platform Twente (IPT) has taken up a leading role in setting the agenda for Twente with respect to innovation, industry and policy. The REOP (Regional Economic Development Plan)

<sup>57</sup> After a visit to Silicon Valley early 2005, stakeholders in the field of regional innovation (policy makers, universities and entrepreneurs) decided to cooperate in order to publish an annual Twente Index that should map and compare the economic development of Twente. To develop the index, the University of Twente, Saxion Universities, the Chamber of Commerce and regional development agency Oost NV immediately joined forces and carried out the task to prepare a first version. The result, Twente Index 2005, is an overview of existing quantitative and qualitative material on the economy of Twente and is an important source for policy makers and other Twente stakeholders in charge of boosting regional competitiveness. It is presented to the public in November 2005. The example shows the growing awareness in Twente that cooperation leads to synergy and does pay off economically.

<sup>58</sup> The cooperation between UT and Saxion received an extra impulse because at both institutions a special position was created to stimulate and implement further cooperation in the areas of bachelor-master, fundamental-applied research, flow of students, etc.

that just came into the implementation stage<sup>59</sup> extends this agenda setting to new entrepreneurship, industrial environment, tourism and labor market & employment. The participation of the larger companies, the educational and research institutes in the IPT (the UT and Saxion are members of it) and the support of the government (both local and provincial) gives the platform an excellent position. The platform came into existence in December 2004 and set up a process in which all stakeholders are asked to cooperate to present a Twente agenda for regional innovation (road map) to the Prime Minister of the Netherlands in December this year. Based on the outline of the ambition and the previous four chapters the following “developmental themes” are identified:

- Entrepreneurship, innovation and creativity
- Regional focal areas
- Knowledge infrastructure
- Strengthening of HEIs

#### 7.4.1 Entrepreneurship, innovation and creativity

*The challenge:* For a long period the region has used the slogan “Twente where innovation is tradition” to promote itself as an entrepreneurial and innovative region. As described in Chapter 3 the many spin-off companies of the UT and Saxion contribute to the innovation through entrepreneurship (UT via the TOP programme, the institutional spin-offs, and the holding company; Saxion via spin-offs, Small Business, the virtual incubator, and S-CIO). Innovation is supported directly (cooperation with SMEs, contract research, continuous professional development) as well as indirectly (via spin-off companies). Nevertheless, Twente has companies belonging to the “old economy” as well as ones belonging to the “new economy”, and an opportunity for building on this basis new ventures incorporating its creativity and resources provided (also/primarily) by the HEIs. In Chapter 5 the socio-cultural context of the region is summarized.

The challenge to strengthen its economic base by focusing on innovation and entrepreneurship and to use its creative class and its cultural potential as an economic power:

- a. To strengthen companies’ capacity to:
  - apply the knowledge (from the HEIs) into products, processes and services;
  - successfully market innovative products and services.
- b. To organize education and research of the HEI in a demand-driven way
- c. To support and spin-off companies with a growth potential

*Intention & Contributions needed:* The intention of the HEIs is to contribute actively to entrepreneurship and innovation in the above-mentioned way. All HEIs already have these intentions in their strategic plans and in the coming years, entrepreneurship will be strongly stimulated in the academic communities. Together with industry, stimulating incentives will be developed and implemented for both students and faculty to engage in entrepreneurship and innovation. The following three concrete action lines will be implemented:

- *Stimulation of entrepreneurship:* The HEI will stimulate entrepreneurship in the different schools and institutes. Since individuals drive entrepreneurship, the stimulation of entrepreneurship is directed towards individuals in different target groups: management, teaching and research faculty, and students. Research faculty and students are the prime target group for setting up their own business. Project and activities will be organized in the individual HEIs, preferably at joint activities and projects with companies, institutes, government and other HEIs. The management and the teaching faculty have to facilitate entrepreneurship; teaching staff has to enthuse the students and will be encouraged to participate in companies and institutes in advisory boards and management has to enthuse the schools and institutes.
- *Stimulation of innovation:* Higher education and industry, especially SME, have to work more closely together in a “one stop shop” through which companies can get access to knowledge,

equipment and laboratories and research capacity. The challenge for higher education and regional companies is to build up together a harmonized system for commercialization of knowledge. A system in which not only the knowledge of higher education, but also knowledge within companies is shared. All with one target: applying the knowledge in Twente in products, processes and services.

- *Connecting creativeness with entrepreneurship.* Successful marketing of innovative ideas and products requires knowledge and feeling for the needs of the market: of target groups, their perception of the environment and behaviour and of the way in which the market can be opened up. Connecting the creative sector with (industrial) products and services of Twente has great potential. The HEIs want to contribute to this by connecting the creative courses with the more technological ones in projects, internships, etc.

The above-mentioned tasks for the HEIs cannot be seen in isolation and ought to be activities in which the relevant (regional) stakeholders play an important role. In order to enable the HEIs to perform their self-imposed tasks, industry and government have to provide or participate in:

- *Acknowledgement and appreciation by all stakeholders of the role of HEI in the (regional) innovation and entrepreneurship (or R&D) infrastructure.* The HEIs contribute in many different manners to the innovation and entrepreneurship infrastructure and the stakeholders should acknowledge this. The HEIs perform an essential task in the regional innovation structure via their generation and transfer of knowledge, availability of their research infrastructure, equipment, laboratories and other facilities; industry and SMEs, other research organizations should also be encouraged to open up their infrastructure to the higher education institutions.
- *An active role in the HEI structures:* Industry (and government) already plays an important role in the decision-making processes in the HEIs. As the HEIs’ intention is to be more regionally engaged, this is an opportunity for the stakeholders to participate in the different levels of decision-making with regard to education and research. Such involvement should lead to joint projects that are mutually beneficial.
- *Strengthening of the intermediary’s role in HEI:* Both Syntens and Oost N.V. can play a more prominent role in the articulation of needs from companies in the region and in (regional) knowledge and technology transfer processes and projects.
- *Development of (financial) instruments* for the stimulation of entrepreneurship and innovation both for companies and the HEIs.

#### 7.4.2 Regional focus

“Health & Technology”: In the last 10 years many activities have been developed around this theme. Regional companies clustered in the TIMP, Twente initiative for Medical Products, which currently is a Euregional cluster of companies. IZIT – an initiative to stimulate technology in care was established recently and together with TKT they developed the “Product Factory”. With Saxion Health & Care there is a so-called Best Practice Unit and to stimulate innovation in SMEs the project “Trinnovatie” was recently granted. The UT has its Biomedical Technological Institute for research, a Bachelor’s and Master’s programme in biomedical engineering and technical medicine as well as a business accelerator for tissue engineering. The HEIs together spin-off annually some 4 to 6 high-tech companies.

*The challenge:* group of SMEs can be provided leading to a contribution to sustain the innovation structure and A strong point of the Twente region is that all stakeholders have jointly selected focal areas and more focus is needed. The regional focal technology area follows the technology choices made by the UT (Microsystems/nanotechnology, biomedical technology, ICT, and mechanical engineering and process technology) and reinforces the regional industrial make-up (health/healthcare and manufacturing). The development of the region concentrates around these policy issues and themes. An opportunity for the Twente region is the further involvement of Saxion; especially via the recently established *lectoraten*, knowledge circles and knowledge circulation mechanisms, innovation

<sup>59</sup> <http://www.twenteinuitvoering.nl>

to a wider potential of the region. The Regional Innovation Platform Technology Valley will direct this process; the LinX initiative established in 1996 could serve as an example for the economic development domain in the region in the operational domain (e.g. in entrepreneurship, clustering and commercialization). The challenge for Twente is:

- To position the HEIs within the regionally chosen focus areas in such a way that they can optimally contribute to the further development
- To position the companies in the focus areas in such manners that they can on the one hand enhance their growth and on the other hand play an active role in the HEI's activities.

*Intention & Contributions needed:* The HEIs already contribute to the above-sketches processes; nevertheless, some elements need to be strengthened:

- *Harmonization and further cooperation between the HEIs.* As described in this report, there is already a lot of good cooperation between the HEIs in the region. The cooperation at governance levels ought to be sustained and elaborated and harmonization of activities of the HEIs should enter the discussions. Harmonization of activities for regional development should be the focus.
- *Further HEI-industry cooperation:* To stimulate entrepreneurship and especially innovation in the focus areas, the HEIs ought to improve their systems for the exploitation of knowledge both to small and larger companies, innovative and (more) traditional companies.

Obviously, the HEIs need the commitment and involvement of the stakeholders, particularly when it concerns the further cooperation between HEIs and industry. In the regional focus areas, the HEIs together with industry (small and larger companies) should be enabled to not only experiment with new structures but also to sustain proven concepts. The active involvement of the stakeholders in the self-imposed tasks and intentions is of crucial importance.

#### 7.4.3 Knowledge infrastructure

*The challenge:* There is an excellent knowledge infrastructure in Twente and there is fertile soil for R&D. The HEIs are important components of this infrastructure and they supply it with human resources (researchers, professors, *lectoren*, students) and facilities (equipment, laboratories). There also is a high-speed broadband computer network and services (Trent, NDIX) available as well as specialized research and service facilities and laboratories in the region. The knowledge/science park, (technology) incubators, formal and informal venture capital funds complete the knowledge infrastructure. Twente faces two major challenges:

- *Positioning Twente* in the Netherlands, Europe and beyond as a region of excellence with a superior knowledge, social and cultural infrastructure where HEIs and industry work together in the (further) development of the region for the benefit of all.
- *Active participation of all in "bringing knowledge to market":* It is our joint task to overcome the European knowledge paradox (excellence in knowledge production, inability to bring it to the market). Twente possesses all important ingredients.

*Intentions and contributions needed:* Bringing knowledge to the market and within reach of (regional) industry is an important task, not a task that can be performed without the (active) involvement of all parties. Knowledge circulation (see Chapter 3) is an important mechanism that should enable all involved to benefit from it and jointly create new knowledge. Concrete intentions are:

- *Vertical harmonization of programmes and projects in and between HEIs.* Cooperation in the professional "column" to enhance the contribution to entrepreneurship and innovation and the harmonization of the competency frameworks and the actual competencies of (graduate) students is a big challenge to deal with. A focus ought to be the usability of knowledge (in practice, in companies and societal organizations) and the competencies of the knowledge workers of the (near) future – see e.g. the IDC best practice.
- *Finding ways to encourage* the involvement of faculty and students in these processes.

The Twente knowledge infrastructure can be further improved through facility sharing. Both industry and HEIs could jointly invest in new facilities and other elements of the knowledge infrastructure, e.g.

- *Regional technological top institutes* and technology parks for the development and exploitation of knowledge in a small number of carefully selected focal areas. Such initiatives should be started jointly. The technology parks aim not only at sophisticated, knowledge intensive companies, but also at the full chain of companies that are necessary to convert an innovative idea into applied knowledge that contributes to the competitiveness of Twente's economy.
- *Cooperation and joint coordination* of the developments in and of the knowledge infrastructure (e.g. via the regional innovation platform).

#### 7.4.4 Strengthening of HEIs

*The challenge:* Traditionally, HEIs are "supply" driven and follow solely their own agendas. Today, HEIs are regionally engaged to a larger or smaller degree. This implies that the HEIs, including the Twente HEIs, adopt the regional (innovation) agenda as input for their own policies. Twente faces many challenges, e.g.

- To further incorporate (within the boundaries and limitations of the legal tasks) the regional agenda into the HEI policies
- To (better) respond to regional needs.

*Intentions and contributions needed:* To be able to face the challenge, the HEIs have to assume new roles, next to the traditional ones, with respect to the provision and retention of human resources. The Twente HEIs intend to incorporate the agenda (and as the previous chapter indicates this already happens) *further* into the HEI policies. This will be implemented through the provision of a wide variety of degree programmes and contract and joint activities with and for companies. Many students have traineeships in regional companies and in this way contribute to elevate the innovative potential in the region. Other students also go for traineeships in companies outside the region, because companies with established reputations offer better opportunities. In addition, some students leave Twente after completing their studies causing a "brain drain" of students leaving Twente to work for companies in other parts of the Netherlands and in Europe.

A challenge for the Twente HEIs is to play, together with its stakeholders, an active role to attract and to keep potentially excellent students (educational programmes of excellent quality, special programmes for "top talent" like Fast Forward (see section 3.3.3.2) and TOP (see section 3.3.3.1) and to support the creation of excellent career opportunities in Twente. But also to create, in response to regional needs, educational programmes together that provide the students and knowledge workers in general with new and other relevant skills and competencies.

The regional stakeholders and the HEIs ought to exploit jointly the excellent location of Twente as being strategically located on the West-East corridor that runs from Amsterdam to Moscow, on the border with Germany. It can also be reached by water (*Twente Kanaal*), by rail (on the line from Amsterdam/Schiphol to Berlin) and by air (Twente Airport, Schiphol Airport (Amsterdam) and FMO (Münster/Osnabrück, just across the border in Germany). Twente is well connected with the major German economic centres (Berlin and the Ruhr area). As such, it is well positioned in Europe with an excellent infrastructure and top-class universities.

## ORGANISATIONAL BLUEPRINTS FOR GROWTH IN SERVICE FIRMS

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**Abstract:** *Start-ups and Smaller and Medium sized Enterprises are vital for national economies. The vast majority of these enterprises can be found in services industries. One of the parameters to measure performance of a company is growth. Only a very small percentage of these enterprises find ways to sustainable growth. Little is known on models for making a service firm grow. Based on our extensive literature study and in-depth analyses of 7 cases in the Dutch service industry we came to 5 distinct models or blueprints for growth and a framework on how to decide which model is best suited for the specific situation of a specific firm. Yet many research has to be done to give the final answer to the main question of our study "What kind of organisational blueprint is best suited for growing your company successfully?"*

**Keywords:** service firms, growth, organisational model, structure, culture.

### 1. Introduction

The impact of entrepreneurship on national economic growth is a widely recognised

(King & Levine, 1993; Carree & Thurik, 2003). Economic growth and job creation activity is no longer characterized by reliance on large firms but has shifted to small firms (Wennekers, Thurik, 1999). Entrepreneurial activity is one of the major drivers of economic growth. Small- and medium enterprises (Henderson & Weiler, 2010) and in particular growth oriented SMEs are an important source for job creation (Valliere, 2006). In western economies SMEs represent more than 90% of all firms (Fink, Kraus, 2008).

With the growing importance of the service sector in our industrialized economy, there is much room for growth in this sector and the innovation in services is versatile. The vast majority of entrepreneurial start-ups are in the service industries (CBS, 2013). It is no surprise that the service industry has become of increasing research interest of researchers in the field of entrepreneurship. However entrepreneurship in the service industry is not yet a common topic for research, the Body of Knowledge reflected in the scarce literature on the topic is rather small (Dobon & Soriano, 2008).

Entrepreneurs in the service industry are struggling. Growth prospect of newly founded firms in the service sector in for instant the Netherlands are extremely low. In 2012, 94% of the firms in the service sector have a maximum of five employees and only 1% of the companies exceed the number of twenty employees. Many start-ups do not survive the first years of existence and the highest rate of bankruptcy is in the service sector (CBS, 2011). The high percentage of SMEs in the service industry and their probable effect on the economy make the growth of these firms crucial. If firms in the service sector have more problems concerning firm survival and growth, the growth of service firms might differ from that of the product oriented industries

Most service companies struggle with growth. However there are service companies, if only a small 1%, who do succeed in growing their company (CBSa, 2011). One of the factors that can successfully influence company growth is the organizational structure (Lewis, Churchill, 1983). An organizational structure is the pattern of relationships among members and positions in the organisation, defining tasks, responsibilities, work roles and channels of communication. The organizational structure of a company can determine its success upon entering the market. The entrepreneur has to decide on the management style and employee roles within the company to determine the organizational structure. In this article we refer to such a structure as an "organisational blueprint" a term coined by Baron & Hannan in 2002. When an organizational blueprint successfully reflects the entrepreneur's

business goals it will support company growth (Baron & Hannan, 2002). The aim of this research is to define organizational blueprints that are successful for business growth in the service industry. The research will define a set of blueprints that are suitable for the service industry and helps entrepreneurs to select the most suitable organizational blueprint for their firm. Our contribution is thus to shed light on the role and selection of organizational blueprints within service firms when it comes to firm growth.

## **2. Theoretical background**

In our study we found three particular arguments to explain why only one per cent of the Dutch service companies is able to grow successfully. The first argument is the desire for growth, why is this desire critical and what effect does it have on the selection of an organizational structure. The second and third are interconnected and are culture of the company and organisational structure (van der Meer, 2007). The organizational structure is the pattern of relationships among members and positions in the organisation. This structure can only support the company strategy if it connects with the company culture. In the rest of this article we will use the term organisational blueprint when we refer to organizational structure.

### **2.1. Desire for growth**

Entrepreneurs starting their service firm with a high desire for growth have a focus on company strategy from the first moment onwards (Rockey, 1986; Bhave 1994; Brush 2008). In the first start-up phase of the company these entrepreneurs are not yet influenced by employees and have the opportunity to operate a structure of their own preference. The entrepreneur is in this case the major source of power and authority, they decide almost singlehanded upon courses of strategic action, including structural forms and performance standards (Child, 1972). According to Schein's (2010) leaders first articulate their values and then reinforce them through subsequent culture embedding mechanism. After the primary embedding mechanisms in which leaders have articulated their values, the secondary embedding mechanisms are started. In this second phase, organisational structures, systems and procedures as well as rituals are build. We use the term organisational blueprint for the whole of organisational structures, systems and procedures. The organizational blueprint and cultural embedding help the organization in

copied with the external environment and help the behaviours and values to turn into success (Schneider, Ehrhart & Macey, 2012)

### **2.2. Culture**

The influence of founders on an organization's culture has been a topic of discussion in literature, empirical studies of this relationship are difficult to find (Schneider, Ehrhart & Macey, 2012). Organizational culture is the specific collection of values and norms that are shared by people in an organization and controls the way they interact with each other and the outside world (van der Meer, 2007). An organizational culture informs people on how to behave and what is right and wrong. It also provides order and structure because it determines who has power and who does not. A company's corporate culture and strategy are interdependent. The effect of a company's culture on the organizational effectiveness is shown in many studies (Kono, 1994).

### **2.3. Organizational blueprints**

Organizational blueprints determine how roles, power and responsibilities are assigned and coordinated (Van der Meer, 2007). This blueprint determines relationships among the members of the organization and how information flows within a company. The organization's objectives and strategy are related to the organizational blueprint (Baron & Hannan 2002, van der Meer 2007). Start-ups and SME's often use a flat organizational blueprint (see for instant Shane 2004). Employees have an informal, direct and frequent contact with each other and with their managers. Furthermore, employees in small companies can have multiple responsibilities and functions. This flat structure enables quick decision making and flexibility.

During the transition from start-up to small or medium sized enterprise, communication and roll difficulties arise (Scott, Bruce, 1987). Roles need to become more defined and communication structures need to be installed to successfully grow the company. Multiple organizational blueprints are available and selecting the best organizational blueprint can be very challenging. Each business is unique, the type of business and needs of the owner will influence the selection. Deciding on the right management style and employee roles, the organizational blueprint that reflects the entrepreneur's goal, will directly influence the success of the firm (Baron & Hannan, 2002).

Once an entrepreneur has made the decision his company should grow, the quest begins. In literature we found hardly any information on the selection of organizational blueprints, let alone information about successful blueprints for entrepreneurs in the service industry. During our research we identify organizational blueprints that are successfully being used in the service industry. Factors on what make these organizational blueprints successful will be discussed in our section Results..

### 3. Method

In hindsight the methodology we used shows a large overlap with Engaged Scholarship as developed by Van de Ven (Van de Ven, 2007). We started our research with a “design” question of one company. This service firm employed 10 professionals and failed to grow further. Yet there was a specific desire by management to grow and the main question was “How can we realize and manage further growth of our company?”

During our research, we sought to understand which organizational blueprints implemented by entrepreneurs in their service organization resulted into successful growth. Before entering the empirical field to make observations in the real world we started our study with an extensive study on the phenomenon of organisational blueprints for the service industry. or the current research we conducted a literature search within the field service industries with a focus on business models for growth. We used the academic database of Scopus for our literature research. This database captured most of the relevant journals on service industries based on their impact number. To adjust for missing articles we also entered the search terms in Google Scholar. Because Google Scholar filters on titles build up from the entered search terms, we used this search engine to saturate our literature sample. Our search terms were: “manag\* growth”, “growth entrepreneurship”, “growth services industr\*”, “growth model\*” ‘business growth typolog\*’,. The stars are so-called wildcards, they are automatically replaced by all possible conjugations of the search terms. For more information regarding wildcards see Wolfswinkel et al. (2013). Our search resulted in 54 relevant articles. Using cross references, correcting for doubles and extensively reading the abstracts and full text of the articles we narrowed down our literature base to 27 highly relevant articles. To be able to perform a comprehensive analyses of the body of literature, we used coding procedures like those described in Wolfswinkel et al. (2013). The coding procedures were applied as follows. We read the articles from the selected sample one by

one in a random order. Everything that seemed relevant for our research was highlighted, Wolfswinkel et al. (2013) call these highlighted parts ‘excerpts’. We then performed so-called ‘open coding’ to transform these excerpts into concepts and were applicable these concepts into categories. Through ‘axial coding’ relations between the concepts were identified.

With the insights and organisational blueprints we found in literature we started our field study. We first interviewed experts on growth of companies ( consultants, bankmen and academics with relevant experience on growing service companies; n = 9). With the use of the blueprints found in literature as sensitising concepts we used a open interview protocol on the main question “How to grow a service company and what models do you know off?”.

After the interviews with experts we started our main field research. As argued before only a small percentage of organisations in the professional service industry manage to install growth. We selected the Dutch professional service industry as the empirical setting for our research. For this study both classic service firms, like law and organisational consultancies, as well as younger disciplines, like the creative service sector, were consulted.

Data were collected through one-on-one interviews with the founders of seven different professional service firms, the websites of the companies and thirdly all publicly available written information of the company. The participants in the interviews were questioned on their culture, organizational model and experience on how to grow their firm. We used a semi-structured interview protocol (Yin, 2009). Each interview lasted at least 60 minutes.

The companies for our studies were selected in the following subset of service firms:

1. highly educated employees (university degree);
2. between 20 and 150 employees;
3. founded in the past 20 years.

Table 1 provides summarized information regarding the participating companies.

### 4. Findings

One of the initial findings from our research was that the entrepreneurs embraced different organizational blueprints. In our literature study we found five organisational blueprints. These blueprints were confirmed by the experts we interviewed. No new blueprint was added. In our field study with the 7 cases we found all five organisational blueprints successfully implemented in the professional service organisations and enabled

growth. This finding indicates that service firms are able to grow successfully with different organizational blueprints.

Firm	N. Employees	Founded in	Industry
A	20-30	2000	Organisational advise
B	40-50	1993	Creative
C	120-130	1995	Law
D	20-30	2008	Creative
E	60-70	2008	Organisational advise
F	30-40	2000	Creative Research
G	130-140	1992	Law

Table 1: Description of case data

The reason why the companies are able to successfully grow with each of this blueprint is explained by the second finding, the fit between the organizational blueprint and the company culture. Each of the participants in our study stressed the importance of installing an organizational blueprint that has a tight fit with the companies culture. The organizational blueprint that is adopted by a firm influences multiple aspects of a company, but in itself does not influence the ability to install growth or not. Companies are able to grow a firm by using any of these organisational blueprints, as long as the organisational blueprint has a tight fit with the strategic offering and business culture of the firm.

A third finding was that the participants all worked with the organizational blueprint that they had adopted during the start-up stage of their company. Founders had a clear vision about what their company would feel like and what they wanted to achieve, and chose their blueprints accordingly right from the start of their company. None of the participating companies adopted a different organizational blueprint during their growth., Only slight adjustments were made out of necessity to compete in the changing environment. Nevertheless most companies continuously searched for improvements in their organizational blueprint due to shifts in the company environment. This search so far has led to only incremental improvements not to radical changes in the blueprint. Selecting a good organisational blueprint at the start of the company and keeping this alive seems vital for the

companies in our research.

A fourth finding is that organizational blueprints are not often found in their pure form. This is in coherence with the findings of Baron and Hannan (2002). In organisations a mixture of aspects of multiple organisational blueprints are often used to create the desired organisational structure.

## 5. Organisational blueprints in the service industry

For the purpose of this article the organizational blueprints present in the research are analysed in their pure form. The organisational blueprints are described in their pure form to give good lines of reasoning for selecting the best suitable blueprint as a starting point for entrepreneurs in the service industry. Each of the five organizational blueprints found during this research will now be described in more detail. A case of a commonly known company that has successfully applied this organizational blueprint in a form that is almost pure is added underneath each description to give the reader some flavour of the essence of the blueprint. A summary of each organizational blueprint is provided in table 2 below. The table describes the structure, assumptions, beliefs, values and service type belonging to each of the organizational blueprint.

### 5.1. Blueprint 1: Pyramid

A pyramid-based organisation has a hierarchical structure and organises employees into departments based on the function they perform in the company. Top-down decision-making is the standard in this type of organisations. The pyramid organizational structure typically has three major levels with the executive level at the top, a middle layer of managers and the lower level of staff. Each level in the organization is supported by a lower level of the pyramid. The key elements of the firm: strategy, operation and vision are managed by the top level. A benefit of the pyramid structure is the clear definition of responsibilities. Downsides of this blueprint are decision-making on department level, resulting in communication difficulties across departments.

*McKinsey - Founded in 1926 by James O. McKinsey a former attorney, the global management consulting firm known as McKinsey &Company. Serves over two-thirds of the Fortune 1000. McKinsey has over 100 offices in 60 countries and is one of the most prestigious management consulting firms in the world. It became*

*successful with a pyramid-based organization and is a role model for other consulting firms.*

*(Source: Bhide, 1994; McDonald, 2013).*

### **5.2. Blueprint 2: Circle**

The circle organisation is a self-organizing organisation. It is based on “Trust in employees”. In this blueprint a company builds on the trust it puts in employees and their possibilities to make its future. Put trust in employees they will make decisions in the best interest of the company and let them decide what is best for them and what is best for the company. The circle organization consists of concentric circles. The inner circle has responsibility from making a strategy and take care of the financing. Out of this inner circle come Counselors. The Counselors then are teamed up with partners who form the middle circle; partners are the leaders from each division of the company. In the outer ring the rest of the employees are present. Depending on its size the company relies on independent divisions, with every unit containing up to 150 employees. Every unit has his own responsibility from manufacturing, sales, to financial results. Each division is responsible for its own decision-making and success. Benefits of a circle organization are the highly motivated and performing employees. The employees are highly involved with their work, resulting in a self-sustaining level of delivered quality. A downside of this organizational model is that disciplined workers are required to be able to handle the freedom.

*Semco - One of the most well-known business examples of a circle organisation is Semco SA. When Ricardo Semler was beginning at the age of 20, he took over the 220 man factory from his father. The company was based upon old fashioned values; employees feared to lose their job if they did not come in on time and did not work hard enough. Moreover the firm was losing profit. Ricardo Semler changed the organizational model drastically and first introduced the circle organization. Semco's revenue increased from 4 million dollar to 212 million dollar in 2013 over a wide variety of industries including service industries like hotels.*

*(Source: Semler, 2001; Wieners, 2004)*

### **5.3. Blueprint 3: Cell**

Cell organisations are the firms with the most organic growth. In big traditional organizations change is difficult to realize because of the organizational structure in place.

If an employee wants to implement change he or she needs to file its requests at multiple departments. In the cell organization all staff departments are removed from the organization. The organization is split up in small cells of about 30 people. Each cell is located at a different office and responsible for its own business. Complete confidence that the business is handled locally is an absolute must for the success of this organizational model. If a cell becomes too big it splits into two parts, the new cells are responsible for their own success. The mother cell can set the strategy, brand guidelines and targets but other than that has no influence on the cells. A benefit of this blueprint is that every time a cell splits up, it creates new career opportunities. New cells also enables the company to have differentiated offerings under one brand. The cell maintains the company culture, but with the new employees can also easily adapt to local culture. A downside of this organizational blueprint is that the separation of employees during cell division can be very painful and the career opportunities outside the rather flat cell or creating a new cell are very limited .

*BSO – In 1973 the Dutch subsidiary of the American GTE, an information technology company, was founded. After a Management Buy Out in 1976 the company was renamed as BSO. Eckart Wintzen introduced the cell philosophy to BSO. The strong culture made it possible to attract employees with the same mind-set to the company, common goals and shared value created synergy in the company. The merger with Philips Pass proved to be difficult because the cultures of BSO and Philips did not merge well. But after a reorganisation and culture clash BSO revived. When Wintzen resigned in 1996 BSO had successfully grown to 75 offices in more than 20 countries, with a total of 10.000 employees. A second merger with Philips C&P was too much of a culture shock for the company and BSO did not survive.*

*(Source: Wintzen & Pabon, 2007)*

### **5.4. Blueprint 4: Franchise**

A franchise organisation has one main cell that develops strategy, brand guidelines and processes, which are shared with other cells in return for a share of their profit. The franchisor is a supplier who allows a franchisee to use its firm's successful business model. The franchisor determines the rules for the franchisees. Some allow a lot of freedom other franchisors have a very detailed prescriptions. A standard offering combined with local market knowledge. The benefits for the franchisor are that he can avoid the investment and liability that comes with opening multiple locations. The downside is that the brand quality

is affected by franchisees, so the franchisor depends on the success of its franchisees. However the franchisees have a direct stake in the business and are therefore more keen for success than regular employees. A struggle for franchisors is the search for the right business partner. When the business model is successful, many people will be interested in starting a franchise location. It is key to find a business partner with experience in the field and knowledge of the local business culture.

*Marriott – with more than 3,500 properties to date, Marriott is the leading franchise company in the lodging industry. Quality service, innovation and performance are the key pillars of this company. With over 50 years of experience in the industry it is a good option to start a lodging or hotel business under the Marriott label. The initial franchise fee is around \$50,000, following by the start-up costs of a hotel or resort of five to seven million dollar. This franchise system has a strong management system, direct lines with each location allows the Franchiser to stay up to date with the changes, alterations and developments. Teamwork and strong relationship make Marriot a successful franchise with a strong reputation.*

*(Source: Marriott & Brown, 1997)*

### 5.5. Blueprint 5 Network

A network organisation operates in fundamentally different ways from traditional organizations. A network organization has relatively few resources. It has a core of people who manage projects and connections between external people with different specialisations. For each project the right team is formed of multi-skilled people from the network. Network organizations are able to quickly adapt to changes in the marketplace and are able to grow fast. The employees in the network are not bound to the company with a permanent working contract. Interesting and challenging assignments need to tie them to the company. Employees are empowered to say no to opportunities that are unrealistic or do not fit with their vision. This keeps the company sharp but a disadvantage is that the availability of the network can be unreliable. Another downside of the network organization is the difficulty in managing the quality level.

*Avaaz - The network organisation is a new organizational model that is currently finding its way in the business market. Many network organisations are still small to medium sized enterprises. The most well-known network organisations are non-profit organisations like Avaaz. Avaaz—meaning "voice" in several European, Middle Eastern and Asian languages—launched in 2007 with a simple democratic mission: organize citizens of all*

*nations to close the gap between the world we have and the world most people everywhere want. Avaaz is a non-profit organisation with fewer than 20 employees in its core. In its network the company has over a million members that have a good understanding of politics, online technologies and community organizing. Avaaz has a strong focus on winnable projects and chooses priorities in collaboration with their members. The priority poll must indicate which projects interests its members. Setting a campaign target allows the employees and members in the Avaaz network to successfully win campaigns.*

*(Source: Avaaz, 2013)*

In table 2 we summarize the main characteristics of the five distinctive blueprints according to Structure, Assumptions, Beliefs, Values and Service type. This table is inspired by the general model introduced by Schneider, Ehrhart and Macey (2012).

Organizational Blueprint	Structure	Assumptions	Beliefs	Values	Service Type
	Functional	Stability	Employees have clear roles and procedures are formally defined by rules and regulations	Routinization, formalization	Routine
	Divisional	Stability	Trust and loyalty to membership in the organisation and high performance are important.	Competence, Growth, communication	Routine
	Divisional	Personal development	Culture is the most important driver for successful and efficient service delivery	Stimulation, creativity, growth	Innovation
	Matrix	Achievement and personal development	Motivated employees need to understand the importance and impact of the task	Communication, Achievement, competition	Routine and Innovation
	Matrix and Divisional	Efficiency and Change	Employees have clear defined project objectives and are rewarded based on their achievement	Adaptability, participation and communication	Innovation

Table 2: Main characteristics of our 5 growth models (inspired by Schneider, Ehrhart & Macey, 2012)

## 6. How to select an appropriate blueprint and grow?

As shown in our study both the decision to grow as well as the organisational blueprint to realise this growth is made by the entrepreneur right at the starting point of his firm. Once the decision to grow the company is made, an organizational blueprint is selected. But what kind of organizational blueprint will help a specific individual firm to successfully grow?

Our research indicates that an organizational blueprint needs to be selected at the start-up phase of the service firm in order to create a high growth company. This organizational blueprint must have a tight fit with the desired company culture and goal. Organizational blueprints are seldom used in their pure form, a mixture of two or more blueprints are more common (Baron, Hannan, 2002). To be able to create an organizational model that fits with the company, an organizational blueprint needs to be selected from the pure form that has the closest fit with the entrepreneur's desires. This blueprint can be the starting point in the development of the organizational growth. The organizational model will be installed in phases. The bigger a company becomes the more important the organizational model will be. Our study showed the organizational model is never finished, the search for a good design is continual. Changes in the environment of the company give a constant need for organizational change.

The organizational structure can have a large influence on the culture within the business. The fit of between the business culture and organizational blueprint is the most important decision making factor for the selection of an organisational blueprint. The entrepreneur needs to decide what business culture he wishes to project to its employees. Each culture has its benefits and disadvantages. Selecting a pure organisational blueprint should be based on the wanted company culture.

For selecting the right organisational blueprint we suggest the culture model introduced by Schneider (Schneider, 1994) as shown in figure 1. The model has two axes, the first is people oriented versus company oriented, describing the level of personal involvement in decision making. The second axis is reality oriented versus possibility oriented, describing what organizations pay attention to. These two axes give us the following four quadrants:

1. **Collaboration:** The collaboration quadrant is about working together and using the diversity of skills. The culture is based on interaction and trust. People are the priority in this culture and the trustworthiness of

employees is highly valued.

2. **Control:** The control quadrant is all about stability. A hierarchical structure is often seen in these types of cultures and standardisation of processes to exercise control. Business planning is daily business and these type of companies recruits for loyalty.
3. **Cultivation:** The cultivation quadrant is about growing people by stimulating authenticity, creativity and creating dedication of employees. These cultures feel very unorganized, brilliant people with creative ideas are the most important driver of these firms.
4. **Competence:** In the competence quadrant expertise, professionalism and efficiency are the cultural norms. The company looks for top performers and achievement is highly cherished. The work is organized as projects led by experts in the field of that specific project.

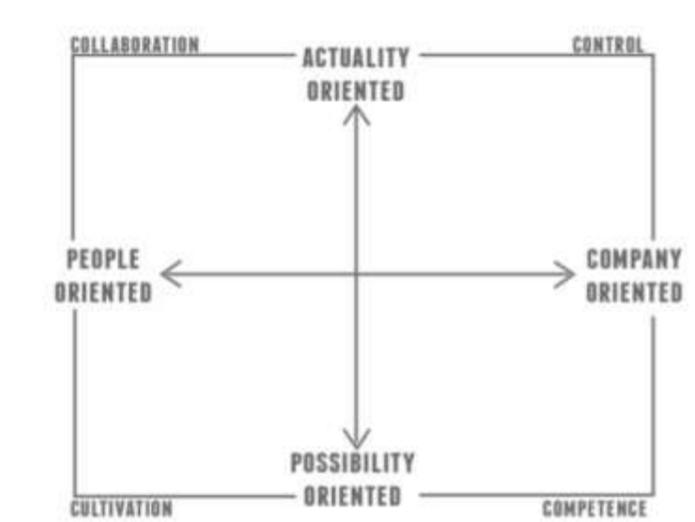


Figure 1: A culture model (Schneider, 1994)

Summarizing the culture model, the core of the *control culture* is power, the *collaboration culture* is about teamwork, a *competence culture* focuses on achievement and the *cultivation culture* is concerned with growth and potential. To be able to select an organizational blueprint the entrepreneur should understand the organization's central nature. The core culture of an organization is an important element to the focus of the organization. To be successful the service organization should adopt an organizational blueprint that is

inherently congruent with the nature of that organization's culture. By identifying what the natural definition of success, approach to your customers and leadership focus is, the core culture of your organization can be identified.

Based on the findings of our research we placed the five organizational blueprints in the culture model, as is shown in figure 2. This placement is based on the best fit between organizational structure and culture. Of course an organizational blueprint can be adapted in such a way that it has a strong fit with another culture. As a starting point the entrepreneur should identify its core culture and then select the organizational structure that successfully matches this culture. Then the organizational blueprint can be taken out of its pure form and adapted to the specific needs of the company.

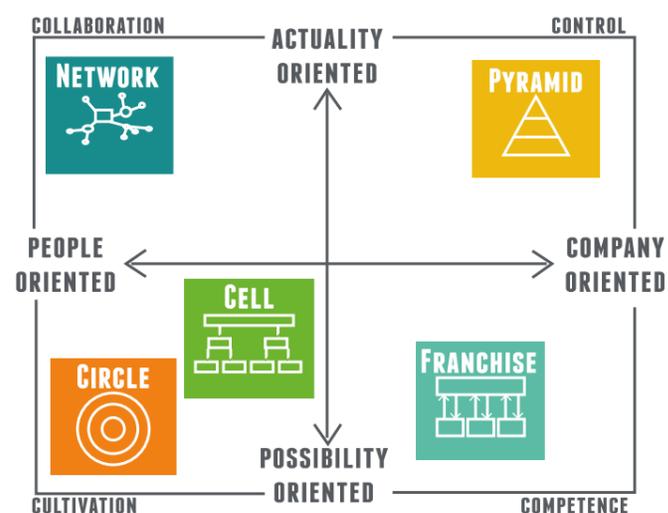


Figure 2: Placements of the 5 organisational blueprints

## 7. Discussion

With this research we set out to investigate what organisational blueprints are best suited for business growth in the service industry. During our literature search and our field study we found five organisational blueprints to be suitable for business growth in the service industry. Service firms thus can grow successfully with different types of organizational blueprints. This finding was confirmed by our expert interviews. This is a very important finding and so far does not explain why so many companies in the service industry struggle with growth.

Few studies on organisational models and business growth exist (Dobon & Soriano, 2008), and none of these offer an explanation on how to select an organisational blueprint for service firms. Some research has been done on factors that influence company growth, of which one important factor is the organizational structure (Lewis, Churchill, 1983). Other research focuses on the importance of the organizational blueprints and the reflection of the entrepreneur's business goals (Baron & Hannan, 2002). While all of these research topics offer important insights on the role and significance of selecting the right organisational structure, the studies do not provide us with insights that would be usable to select an organisational blueprint.

Given the nature of service firms, entrepreneurs need to make the decision whether to they want to grow their company or not (Tominc, & Rebernik, 2007). Our research indicated that once this decision is made it is essential to find an organizational blueprint that fits with the company culture. Service organizations are able to grow successfully with any of the five identified organisational blueprints, as long as the organisational model has a tight fit with the strategic offering and business culture of the firm. To increase the speed of successful growth it was found to be important to adopt an organisational blueprint at an early stage of the company, during the start up phase. During this stage the clear vision of the founder can be intertwined with the organisational blueprint. Small improvements to the initial organisational blueprint need to be made to react on the shifts in the company environment.

## 8. Limitations

The first and most important limitation of this study is the scale of this research. A second limitation lies in the nature of the sample. Data was collected in the Netherlands only. Since culture is an important influencing factor on the selection of an organisational blueprint, it is desirable to make a comparison between service firms in Western Europe. The results of a study among multiple countries will help to understand the effect of each individual national culture on the growth success of the different organisational blueprints in service firms. The third limitation is that the research relies on self-reported measures of company growth by the owner of the interviewed company and publicly available written sources. A sense-check was performed to see how many employees were currently working at the

company as a measure for company growth. However, it would be desirable to have access to financial information from companies to effectively compare the growth successes.

### 9. Directions for further research

The relationship between organisational blueprints and business growth in the service industry is significant. Both literature and our field study support this finding. The field study also provided an important selection factor for organisational blueprints, namely 'business culture'. While there is a strong relationship between the organisational blueprints, business culture and its effect on business growth for service firms, the selection criteria are not significantly proven. The findings of our empirical field study clearly point towards the need of more in-depth studies to fully understand how organisational structures need to be selected. A first attempt is made in this research with the Schneider culture model (1994) and Schneider, Ehrhart & Macey, (2012). Future research can provide more knowledge about the selection criteria of organisational blueprints and its effect on growth for service firms.

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# Han van der Meer

## Professor-emeritus Innovative Entrepreneurship, Saxion University of Applied Sciences

Matthijs Hammer and I met some ten years ago when he joined our research group Innovative Entrepreneurship as a PhD Candidate. We worked closely on several research papers on academic entrepreneurship as can be seen in the reference list in this book. But most of the time I had the privilege to mentor him in the work for his Ph thesis on “Preventing premature entrepreneurial failure”.

Before joining our group Matthijs already worked for over 12 years as a lecturer at Saxion University of Applied Sciences mainly in the School for Commerce and Entrepreneurship. He delivered tenths of courses and mentored hundreds of graduates. He guided later highly successful entrepreneurs like Marco Aarnink of DrukwerkDeal and Monique Alderkamp of Cura safely to graduation. Matthijs was not so much fascinated by the success but even more by the difference between those graduates who were successful and those who failed as entrepreneurs. His research focused on helping the latter group by improved education. The focus on Entrepreneurial Exit shows clearly in the articles in this book. Matthijs was aiming at a major improvement of Entrepreneurial Education since exit is a rather neglected phenomenon in this field while the group of exiteers is far larger than those who are successful.

Besides entrepreneurial exit and education the work of Matthijs shows a third cluster: talent. The article in this book on Talent recognition is one of the few systematic approaches in the academic field to understand the highly (mis)used term: talent.

As an academic Matthijs was a networker who found inspiration and critique in the international academic world of entrepreneurship research. The papers in this book give witness to this as well his many positions in boards (vice-president ECSB etc.) do.

As an academic Matthijs can best be described as “empiricus scepticus”, always looking for facts and longing for giving and receiving critique. As a teacher he was warm and human-centered. Once I entered the room we shared at Saxion where he was mentoring a graduate student. With almost angelic patience and a soft voice he kept asking questions to the student until you finally could see the insight appearing on the students' face. Matthijs brought him to understanding by igniting his own brainpower not by pushing knowledge and facts. When the student had left I asked about what I just saw and shared my admiration for it. He ignored my admiration. For him this was the obvious way to act.

I was hoping to work with Matthijs for many years to come. It was not to be: he passed away unexpectedly January 15, 2018 at the age of 48. He will live in his students and his written work like this book.

# Ruud Koopman

## Senior lecturer entrepreneurship, Saxion University of Applied Sciences

During the time Matthijs Hammer and I worked together, we did some very challenging activities and learned a lot from each other. I was often asked why Matthijs and I could work together in such a good way. And I always answered that although we were different in several ways, we both valued each other and we knew each other's strengths and weaknesses. In that way we were compatible to each other. Together we did some very nice projects and we both learned a lot from each other.

In our teachers-group we did several creative experiments. For example trying to combine meetings with network exercises and sports. Not all these experiments became regular ways of working, but the joy and teambuilding was always great. During that time, about 15 years ago, we learned to trust each other, which formed the base for our later cooperation.

This resulted in several projects we worked on together. We also started our PhD in the same field: entrepreneurship. Because of this we visited several conferences. Sometimes we traveled together by car to visit these conferences which gave us the opportunity to talk about new ideas and experiments. For example Matthijs was one of the first representative of universities of applied science to join the Dutch Academy of Research in Entrepreneurship, a Dutch network which has nowadays representatives of most Dutch research universities and applied universities. Another project during which we worked closely together, was about learning teachers to teach more entrepreneurially. In this project Matthijs connected teachers from secondary schools, vocational schools and universities. He really enjoyed being a connector. The results of this project were very important to him. A quote he often used in this context was 'we have to challenge students who are good, instead of giving them less challenge because they already know things'.

At one of the first conferences we visited together, Matthijs heard about a new entrepreneurship education conference. He immediately told me that we should organize the 2nd edition of this conference. This was a bit too ambitious because the owner of this conference, the ECSB, had some other ideas. So he put in a lot of effort to convince the board of the ECSB that this conference should go to Enschede. In the meantime he became country vice president of the ECSB for the Netherlands; a function he performed with enthusiasm. Finally we could organize this ECSB Entrepreneurship Education (3E) conference in the spring of 2018. At our last conference in November 2017 in Lund (Sweden) he talked enthusiastic about the upcoming 3E conference in Enschede. Driving back by car, we talked about making the conference a happening to stay in the memory of all participants. Although he passed away four months before the conference took place, he succeeded in that goal. Lots of elements of this conference sprouted from his creative mind and the conference was a great success.

He will be remembered by all his colleagues, inside and outside the Netherlands; especially the members of the ECSB. The papers in this book will represent some of his ideas.

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