ARE THE PRINCIPLES OF EFFECTUATION APPLICABLE FOR NOVICE ENTREPRENEURS DURING THE CREATION OF A NEW VENTURE? A REAL-LIFE ACTION RESEARCH EXPERIMENT

MSc in Business Administration, Innovation and Entrepreneurship

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Finally, executing this research with its action research approach and creating a new venture as novice entrepreneur at the same time was really challenging for me. Due to the people I mentioned above, I was able to accomplish both projects simultaneously. Looking at my history of education, it seems that I always search for additional challenges to make it more interesting. I think that this is something I apparently need to gain the right motivation

for studying. This behaviour flows perfectly further in the aspiration and realization of a new venture for the next step in my life. Something which is again really challenging. Hopefully I can use all the theory I have gained during entrepreneurship education in practice in order to make the venture a success.

Abstract

This study answers to calls for research that focuses on effectuation concerning novice entrepreneurs and for real-time process studies of effectuation. Since the theory of effectuation arose out of the study of expert entrepreneurs, who are by definition, not representative of the population of entrepreneurs as a whole, which also includes *novice* entrepreneurs (MBA students), I was triggered to study to what extent novice entrepreneurs can apply the theory of effectuation in practice. Besides, current empirical research in the field of the effectuation theory is of retrospective nature and therefore it is assumed that this is subject to recall bias. To that end, I have decided to focus on a longitudinal real-life study of effectuation in order to study the applicability of the principles of effectuation for novice entrepreneurs. Action research is used as method to study the new venture creation process of two novice entrepreneurs. During seven months, two researcher-entrepreneurs deliberately applied a variety of effectuation heuristics and reported their findings in personal diaries. The main results suggest interesting insights into effectuation theory. Looking at the bird-in-hand principle, entrepreneurs with a limited pool of resources at the start does not have to be problematic since it is easy to get access to the means of others in their network. The affordable loss principle is not always working, because in some situations courses of action require more than the entrepreneur has at hand or can afford to lose. Regarding to the crazy quilt principle, various degrees of effectual stakeholder commitments are found; (a) commitment of relatively inexpensive or inexhaustible resources, (b) short-term transactional commitment and (c) longer-term effectual partnership. Moreover, I suggest a need for two candidate effectuation principles: (1) a 'transparency' principle because being totally open and transparent about ideas and possible courses of action is necessary to convince stakeholders about the opportunities of the possible courses of action. Moreover, being and talking openly increases the chance to come across slack resources, self-selected stakeholders,

contingencies and possible courses of action. (2) A ‘versatility’ principle since it is not always possible to experiment with courses of action, it may be necessary to choose for flexibility in the courses of action. This is also a response to the restricted (financial) resources novice entrepreneurs might face during their venture creation process.

Overall, I conclude that novice entrepreneurs can use effectuation as method, but only with some modifications of the effectuation principles. For example, novice entrepreneurs might need some additional interactions with potential stakeholders in order to obtain expert knowledge, advice and experience for overcoming their lack of experience. Moreover, novice entrepreneurs need to be more open about their ideas and goals than expert entrepreneurs since stakeholders value a well-underpinned, supported, and enthusiastic story of novice entrepreneurs in order to be convinced about their venture ideas.

Based on this study of novice entrepreneurs, I suggest that the effectual principles are applicable in practice, and in turn suitable as contribution to the entrepreneurship program at universities, since entrepreneurship education is often seen as a vital determinant of the enhancement and development of economical activities in a country. Future research should further investigate this assumption.

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1. Introduction

Schumpeter commented already in 1934 that the phenomenon of entrepreneurship should be recognized as an important factor for enhancing economic growth and development. Also econometric evidence from the last decade suggests that entrepreneurship has emerged as an engine and vital determinant of economic development and growth throughout the world (Reynolds et al., 2005; Thurik, 2009). Or as Kuratko (2005, p.577) states: "*Entrepreneurship has emerged over the last two decades as arguably the most potential economic force the world has ever experienced."* So, boosting entrepreneurship can be seen as being part of a broader strategy for promoting economic growth (Reynolds et al., 2000). Around the world, entrepreneurship is at the top of the social, political and economic agenda (Reynolds et al., 2000; Kirby, 2005). The increased importance of entrepreneurship is clearly recognized by politicians and policy makers (Thurik, 2009). Reynolds et al. (2000) comment that policy makers worldwide have grown increasingly attentive to developing and implementing strategies that nurture and sustain entrepreneurial activity. They argue that one of the strategies that plays a vital role in developing entrepreneurship is investment in education, which clearly has a major impact on entrepreneurship as it ensures an ongoing supply of people creating new ideas, technologies, and knowledge which leads to new business opportunities (Reynolds et al., 2000). Kuratko (2005) sees an increased interest in the field of entrepreneurship education and Reynolds et al. (2000) even make the suggestion that education for entrepreneurship should be woven into the educational curriculum. In addition, Fayolle & Gailly (2008) see a growing interest in entrepreneurship as career choice for students.

Along this line of reasoning, the most recurrent question within this discussion is probably whether entrepreneurship can be taught? (Fayolle & Gailly, 2008). Some people still argue that it is not possible to teach entrepreneurship, they believe in the 'born entrepreneur'.

For them, entrepreneurship is a matter of personality and psychological characteristics (Fayolle & Gailly, 2008). However, one could argue that this is true for many professions and disciplines. Nobody will dispute the fact that medicine, law, or engineering can be taught and yet there are doctors, lawyers and engineers who are talented and others who are not (Hindle, 2007). In this discussion, Hindle (2007, p.108) states*: "No doctor is ever 'born'. All are made: through education."* That is not different for entrepreneurs because all aspirants have to learn their craft somehow (Hindle, 2007). Also Drucker (1985), one of the leading management thinkers, said: *"The entrepreneurial mystique? It's not magic, it's not mysterious, and it has nothing to do with the genes. It's a discipline. And, like any discipline, it can be learned"* (Kuratko, 2005, p.580). Note that some entrepreneurs can be better than others, through a combination of different intrinsic factors (e.g. intelligence), different levels of stimulus (e.g. more conducive environment) and different extrinsic factors (e.g. deeper and longer study) (Hindle, 2007). So, provided that one does not confuse the aptitudinal and motivational predicates of the student with the transferability of the subject matter, it is clear that the vocational aspects of entrepreneurship can be taught (Hindle, 2007), and that an entrepreneurial perspective can be developed in individuals (Kuratko, 2005). So, within this master thesis, the question whether entrepreneurship can be taught is obsolete. A more relevant and interesting next question is *'What should be taught?'*

Both Fiet (2001) and Kirby (2005) propose that educators should focus on teaching students the underlying theory of entrepreneurship instead of exposing them to what entrepreneurs do. Consequently, the objective of entrepreneurship education should be to help entrepreneurs to understand the value of theory and the consequences of their decisions (Fiet, 2001).

Teaching entrepreneurship is done in various ways, while they all call it 'entrepreneurship' (Fiet, 2001). Entrepreneurship in universities has so far been developed as

an add-on to business education, first as an elective course, then more courses, and finally as a concentration, major or program (Kuratko, 2005). Often, entrepreneurship is equated with small business management and almost all that is taught in entrepreneurship programs can be seen as the 'cookbook' of how to find financing and how to get a small business started (Kirby, 2005; Sarasvathy, 2008). Generally speaking, the predominantly entrepreneurial theory or decision model that is taught in many MBA programs of universities and business schools across the world is a goal-driven, deliberate model of decision making (Perry et al., 2012.). Sarasvathy (2001) refers to this as a *'causal logic'*. Large portions of course time are devoted to understanding market research techniques, competitive analysis, strategic management, and financial valuation methods based on calculations of expected returns (Dew et al., 2008). Causal rationality seeks to identify the optimal – fastest, cheapest, most efficient, etc. – alternative to achieve a pre-determined goal (Sarasvathy, 2001). Causal strategies are useful when the future is predictable, goals are clear, and the environment is independent of the entrepreneur's actions (Sarasvathy, 2008).

In the past decade, scholars and academics posed more and more questions and remarks about this type of entrepreneurship education. For instance Kirby (2005) argues that the traditional education system stultifies rather than develops the requisite attributes and skills to produce entrepreneurs, and propose that entrepreneurship should not be equated with small business management. In line with this, Kuratko (2005) states that a core objective of entrepreneurship education should be that it differentiates from a typical business education, since business entry is fundamentally a different activity than managing a business. Also Sarasvathy (2001) asked herself if it was truly 'entrepreneurship' that they taught when referring to causation. After all, the more traditional type of reasoning (causation) assumes that the future is predictable while Sarasvathy (2001) found that entrepreneurs often face three types of uncertainty. First type is 'Knightian uncertainty' which proposes that it is impossible

to calculate probabilities or expected consequences. Second type of uncertainty is 'goal ambiguity' which means that preferences are neither given or well ordered, and the third type is 'isotropy' which suggests that it is not clear which elements of the environment to pay attention to and which to ignore. Thereby, in a world where the entrepreneur must face a complex and dynamic environment, in which consumer demands change rapidly and tend to be rather inchoate, he or she cannot always predict the characteristics of the entrepreneurial results (Bhide, 2000) as is the case with more traditional entrepreneurial theories like causation.

1.1 Effectual logic as alternative approach towards entrepreneurship

Sarasvathy (2001) was intrigued by questions like: "*How are firms created in an unpredictable situation? On what principles base expert entrepreneurs their decision making for new venture creation? What can expert entrepreneurs teach me about entrepreneurship? What is teachable and learnable about entrepreneurship and what can I teach potential entrepreneurs in the classroom in order to increase their chance of success?"* (Sarasvathy, Effectuation.org). Although these types of questions had been debated for decades by both practitioners and academics, no one had gotten the truly unique behaviours of expert entrepreneurs (Sarasvathy, 2001). So, in order to find an answer to these questions, Sarasvathy (2001) has done research about entrepreneurship by using 'think aloud verbal protocol analysis' among 27 expert entrepreneurs in varying industries and markets. Sarasvathy (2001) argues that these expert entrepreneurs are that interesting to study and learn from because they are experienced in starting a new venture in unpredictable situations.

From this empirical basis, Sarasvathy (2001) found that the expert entrepreneurs were very strong in the way they approach problems in early stage venture creation in unpredictable and uncertain situations. As Sarasvathy's (2001) research has shown, these entrepreneurs based their decision making on the logic: 'To the extent we can control the

future, we do not need to predict it' (Sarasvathy, 2001), whilst engaging in a dynamic process of creating new artifacts in the world (Sarasvathy, 2008). Sarasvathy (2001) found that there is a science to entrepreneurship and that expert entrepreneurs across industries, geographies, and time use a common logic, or thinking process, to solve entrepreneurial problems. Sarasvathy (2001) calls this the *'effectual logic'.*

Effectuation is an important contribution to entrepreneurial thinking because it represents a paradigmatic shift in the way that we understand entrepreneurship (Perry et al., 2012). It is an alternative approach to the more traditional 'causal' entrepreneurial thinking and takes a different route in identifying and exploiting opportunities (Fisher, 2012). Effectuation theory suggests that under conditions of uncertainty, entrepreneurs adopt a decision logic that focuses on the controllable aspects of an unpredictable future, rather than on prediction-based planning (Sarasvathy, 2001). This means that effectual strategies are useful when the future is unpredictable, goals are unclear and the environment is driven by human action (Sarasvathy, 2008). Proponents of the effectual logic argue that opportunities and new artifacts are created and exploited by the actions of entrepreneurs (Alvarez & Barney, 2007).

Effectuation has been conceptualized in the form of a process model and as a set of principles. The principles of effectuation (opposed to causation) are:

Table 1: Effectuation vs. Causation

Principles Effectuation	**Contrast with Causation**
Bird-in-hand	**Pre-set goals or opportunities**
When expert entrepreneurs set out to build a new venture, they start with their means: who I am, what I know, and whom I know. Then, the entrepreneurs imagine possibilities that originate from their means.	Causal reasoning works inversely by assembling means after a goal is set
Affordable loss	**Expected return**
Expert entrepreneurs limit risk by understanding what they can afford to lose at each step, instead	Causal reasoning first targets a return, then works to minimize associated risk.

of seeking large all-or-nothing opportunities. They choose goals and actions where there is upside even if the downside ends up happening.	
Crazy Quilt	**Competitive analysis**
Expert entrepreneurs build partnerships with self-selecting stakeholders. By obtaining pre-commitments from these key partners early on in the venture, experts reduce uncertainty and co-create the new market with its interested participants.	Causal reasoning presumes that competitors are rivals to contend with.
Lemonade	**Avoiding surprises**
Expert entrepreneurs invite the surprise factor. Instead of making "what-if" scenarios to deal with worst-case scenarios, experts interpret "bad" news and surprises as potential clues to create new markets.	Causal reasoning works to minimize the probability of unexpected outcomes.
Pilot-in-the-plane	**Inevitable trends**
By focusing on activities within their control, expert entrepreneurs know their actions will result in the desired outcomes. An effectual worldview is rooted in the belief that the future is neither found nor predicted, but rather made.	Causal reasoning accepts that established market forces will cause the future unfold.

Source: Effectuation.org/teach retrieved on 09-07-2012

The process model of effectuation focuses on the stages that entrepreneurs go through during the creation of a new venture in an unpredictable situation. In this process, entrepreneurs start with a generalized aspiration to become an entrepreneur. They try to satisfy that aspiration by starting with the resources they have at their immediate disposal (Sarasvathy, 2008). In the process of deploying these means, entrepreneurs imagine and implement possible effects that can be created with them (Sarasvathy, 2008). At the same time, entrepreneurs set in motion a network of stakeholder interactions, each of whom makes commitments that on the one hand increases the resources available to the network, but on the other, add constraints to goals (Sarasvathy & Dew, 2005). Along the way, entrepreneurs leverage surprises or changes in the environment (Sarasvathy, 2008). Expert entrepreneurs and their stakeholders often end up co-creating new opportunities that they could not have expected beforehand (Sarasvathy & Venkataraman, 2011).

Note that effectuation and causation are not two opposites, but two alternatives that can be used in different circumstances (unpredictable vs. predictable). Sarasvathy (2001) argues that effectual logic is especially emphasized in earlier stages of venture creation with a transition to more causal strategies as the new venture emerges out of uncertainty into a more predictable situation. Within that view, effectual logic is like 1st and 2nd gear; the entrepreneurs needs them to start their business but eventually shifts away from the effectual logic towards a more causal logic (effectuation.org/teach).

1.2 Research goal

It has also been proposed that effectuation can be seen as a teachable method. Read & Sarasvathy (2005), for example, argue that looking at entrepreneurship as an expertise enables scholars to identify testable elements of entrepreneurship that are teachable. This view is based on the aforementioned assumption that entrepreneurial decision making is not an inborn aptitude but a skill, which is expressed through the adaptable behaviour of experts which they acquired in the course of their business lives (Davidsson, 2005). Moreover, Sarasvathy (effectuation.org) argues that effectuation is a logic of entrepreneurial expertise that both experienced and novice entrepreneurs can use in the highly unpredictable creation of a new venture. With proposing such things, Sarasvathy seems to postulate that effectuation might be the way to teach entrepreneurship in its essence at MBA programs and alike. Fayolle & Gailly (2008) agree on this by saying that the theory of effectuation could be a powerful means to differentiate entrepreneurial action and managerial action and could be used in the design of educational programs. In response to these type of propositions, Perry et al. (2012) note that the current concept of effectuation arose out of the study of *expert* entrepreneurs, who are, by definition, not representative of the population of entrepreneurs as a whole, which also includes *novice* entrepreneurs (MBA students). Therefore, Perry et al. (2012) propose that

research that focuses on effectuation concerning novice entrepreneurs is warranted. Papers, like those of Sarasvathy & Dew (2005), Dew et al., (2008; 2011) and Read et al., (2008) already introduced the logic of effectuation to a control group of novice entrepreneurs in order to examine the difference in framing decisions between expert and novice entrepreneurs. In particular they studied MBA students as novice entrepreneurs, who are trained in traditional management techniques (causation). Not surprisingly, in these studies, these MBA students (novice entrepreneurs) tended to use a different theory (causation) in their decision-making for new venture creation than the expert entrepreneurs (effectuation) who are experienced in creating new ventures. So, now the question arises what would happen if these MBA students had learned about the current logic of effectuation during their MBA course. '*Would they also tend to use that in their reasoning?'* Or a question that might be even more interesting: '*Is the current logic of effectuation appropriate and applicable in practice for novice entrepreneurs, even if they learned about it during their MBA program and deliberately use it?'*

To that end, this research focuses on the question whether the current formulated principles of effectuation, which are based on expert entrepreneurs, are adequate for novice entrepreneurs during their new venture creation. In order to study this adequateness, the aim of this research is to make a concrete link to practice in order to be able to measure the construct of effectuation in action. In line with this idea, Fiet (2001, p. 1) states that; *"One way to add more theoretical content to entrepreneurship courses is to teach students what they ought to do, which is coded language."* This means that I will translate the theoretical principles of effectuation into effectual heuristics that entrepreneurs can apply during new venture creation in an unpredictable situation. These heuristics will reflect decision making based on the principles of effectuation. By doing so, this master thesis can add some new insight on the question how entrepreneurship could be taught to students during their MBA course.

Note that this research only focuses on the translation of effectuation into effectual heuristics and then considering whether these are applicable for novice entrepreneurs. I will not focus on the comparison with the causation theory or with expert entrepreneurs. In addition, this research will be executed in close cooperation with a colleague entrepreneur-researcher who will do a similar research about the process model of effectuation. This means that both perspectives of effectuation are covered.

1.3 Research questions

In order to find out whether the current formulated principles of effectuation are also applicable for novice entrepreneurs, I have formulated the following main research question and subsequent sub questions.

Main research question: To what extent can novice entrepreneurs use the principles of effectuation during new venture creation in an unpredictable situation?

Sub question 1: Which effectual heuristics can be formulated in order to provide a useful operationalization of the effectual principles and to make it more applicable for entrepreneurs?

Sub question 2: Are there any problems or new insights that arise when novice entrepreneurs try to apply the effectual heuristics, and corresponding principles, during the creation of a new venture in an unpredictable situation? If so, what are these and what are the underlying reasons?

Sub question 3: To what extent do the observed problems and/or new insights apply to novice entrepreneurs in particular or can they be regarded as more general problems and/or new insights of the heuristics underlying the principles of effectuation?

Sub question 4: How can the effectual heuristics and current principles of effectuation be (re)formulated in order to overcome the observed problems and to include the new insights and thereby be (more) applicable for novice entrepreneurs during the creation of a new venture in an unpredictable situation?

1.3.1 Definitions

There are some concepts used in the research questions that has to be explained in order to make it more clear. Therefore, I will explain the definitions of the most important concepts below.

Heuristics and behaviours. Experience-based practical behaviour for operationalizing theories.

Logic of effectuation. The logic of effectuation can be explained as a process model which describes the process that expert entrepreneurs undergo during new venture creation in an unpredictable situation. Within this model, the main focus is on stakeholder commitment in order to generate new means, resources and goals. However, the focus of this study is on the second perspective; the principles of effectuation. These explain that effectuation is means-driven, focuses on affordable loss, exploiting contingencies, committing to partnerships, and control over the future (Sarasvathy, 2008).

New Venture Creation. Effectuation focuses on the development of a new venture. According Davison et al. (2004), new venture creation is also called simply '*entrepreneurship'.*

Novice entrepreneurs. Novice entrepreneurs are individuals with no prior business ownership and start-up experience (Sarasvathy, 2008). They are non-experts, novice in entrepreneurial thinking and a less knowledgeable group considering entrepreneurship (Dew et al., 2008). Note that for this study, it is important that the novice entrepreneurs who are used as subjects are taught about the logic of effectuation in their MBA course since it is assumed that effectuation is learnable and teachable.

Unpredictable or uncertain situation. A situation which is difficult or impossible to foretell or foresee and is unknown in advance. So, it is a situation in which no historical data exists to help the decision maker. Uncertainty cannot be modelled or predicted. It is a future that is not only unknown but also unknowable. (Read et al., 2011).

1.4 Research strategy

The state of a research program may be classified as being nascent, intermediate, or mature (Edmondson & McManus, 2007). The current research programs within the field of *effectuation* are mostly characterized as being nascent by focuses on open-ended questions, qualitative methods, and expanding on the suggestive theory thus far developed (Perry et al., 2012). Perry et al. (2012) propose that effectuation research should continue to focus more on intermediate research, which is characterized by research questions that propose relationships between established constructs and uses a mix of qualitative and quantitative research methods. However, I think that the current nascent research program of effectuation at least misses one interesting insight and that is the research question I proposed above. Therefore, I will do nascent research by using qualitative data gathering methods to find an answer to this research question.

Gathering data on individuals over time (longitudinal design) requires either retrospective recall or real-time data gathering (Perry et al., 2012). Since Perry et al. (2012)

argue that the retrospective nature of current empirical research in this field suggests that research on effectuation is subject to recall bias (Perry et al., 2012), I have decided to focus on a longitudinal real-time process study of effectuation in order to study the applicability of the principles of effectuation for novice entrepreneurs and education accordingly. Also other researchers inspired me to focus on real-time data. For instance, Kurt Lewin (1952, p. 169) once stated that: *"There is nothing so practical as a good theory"*. Moreover, Avison et al. (1999, p. 94) state that: "*To make academic research relevant, researchers should try out their theories with practitioners in real situations",* and Brydon-Miller et al. (2003, p.15) think that *"Theory is only useful insofar it is put into the service of practice"*.

I have used action research in this study to generate real-time data on the principles of effectuation. Action research aims for understanding complex human processes and practical problem solving in real-life situations, rather than in contrived situations as is common in more detached approaches (Baskerville & Harper, 1996). An important characteristic of action research is that it contributes to the development of theory by taking practical actions guided by theory and evaluating their consequences. Theory may then be supported or revised on the basis of the evaluation and the practical outcomes of the actions (Baskerville & Myers, 2004; Susman & Evered, 1978). This makes that theory and practice are intertwined in a single process (O'Brien, 1998; Baskerville & Meyer, 2004). For this study this means that I systematically studied a real-life problem – creating a new venture in an unpredictable situation – and ensured that it was driven and informed by effectuation theory. To that end, I have first translated the principles of effectuation into heuristics in order to make them applicable for practice. This will be explained in more detail in chapter 3.

2. Literature review

In this chapter the literature will be reviewed in order to determine which heuristics are underlying the principles of effectuation. However, before this it is key to understand the underlying problem space of effectuation. According to Sarasvathy (2008), the problem space of effectuation consist of uncertainties that entrepreneurs face during the creation of a new venture. Sarasvathy (2001) states that these uncertainties are based on the work of the following scholars:

Knightian uncertainty: probabilities for future consequences are impossible to calculate in advance. The fundamentally unknown future that entrepreneurs face during new venture creation is Knight's (1921) notion of true uncertainty (Sarasvathy, 2008). This means that under conditions of true uncertainty, it is impossible to predict or calculate probabilities for future consequences in advance since probabilities of success are unknown and unknowable (Sarasvathy, 2008). Sarasvathy (2001; 2008) postulates that expert entrepreneurs do not trust predictions and rather focus on the elements of an unpredictable future over which they have control (Read et al., 2009a). This means that they follow the logic: *'To the extent that we can control the future, we do not need to predict it',* in order to overcome the problem of Knightian uncertainty (Sarasvathy & Kotha, 2001). This logic is particularly useful in situations in which human action is the prevalent factor to form the future (Sarasvathy & Kotha, 2001). It seems that expert entrepreneurs use their experience to affirm what seems to be reasonable, doable and worthwhile (Sarasvathy, 2008).

All of this does not mean that prediction is useless, it has its time and function (Read et al., 2011). Expert entrepreneurs should consider whether the conditions are steady enough to base their decisions on information from the past. If there is no guarantee, it is important to concentrate the efforts on actions that will create an environment that does not build elaborate forecasts, but instead focuses on the controllable aspects (Read et al., 2011).

Goal ambiguity: preferences are neither given nor well ordered. In addition to the above mentioned 'uncertain future', March (1982) argues that there is another uncertainty. This is the uncertain future preference of the entrepreneur (Sarasvathy, 2008). This refers to the goal ambiguity underlying many organizational decisions. The effectual logic suggests that goals, which are originally ambiguous, become more specific over time (Kraaijenbrink et al., 2011). The final goal is the combination of all the ideas and aspirations of the entrepreneur and the stakeholders he/she has interacted and negotiated with during the creation of a new venture (Read et al., 2011; Sarasvathy, 2008).

Isotropy: it is not clear ex ante what elements of the environment to pay attention to and what to ignore. Sarasvathy (2008) states with decision making, which involve uncertain future consequences, it is generally not clear in advance which parts of information are important to pay attention to and which not. Weick (1979) suggests, in response to this Isotropy, that opportunities are enacted by humans instead of being 'out there' waiting to be discovered. Along this way, effectuators view the world as open and still in the making (Dew et al.,2008; Read et al., 2011; Sarasvathy, 2001). They believe that there is a important role for human action in order to create the future (Dew et al., 2008; Sarasvathy, 2008). Weick's theory of enactment puts decision makers in organizations at the center stage of the organization's evolution (Sarasvathy, 2008).

In addition to this, effectuation is a design logic for making things in a human made universe. Simon (1996) noticed that effectual entrepreneurship is a science of the artificial instead of being a social science (Sarasvathy, 2008). This means that entrepreneurs design artifacts by focusing on what they can do, rather than continually worrying about what they are ought to do (Sarasvathy, 2008).

Bounded rationality: human beings are generally not strictly rational. Simon (1959) states that human beings in general are not strictly rational because they are bounded

by cognitive limitations. These limitations are for instance psychological constraints on computational capacity, and psychological limitations like biases and fallacies (Sarasvathy, 2008). Or as Sarasvathy & Simon (2000) state: *"Where do we find rationality when the environment does not independently influence outcomes or even rules of the game (Weick, 1979), the future is truly unpredictable (Knight,1921), and the decision maker is unsure of his/her own preferences (March, 1982)?"* (Read & Sarasvathy, 2005, p.14) However, these findings do not suggest that decisions of entrepreneurs are irrational. Entrepreneurs will try to gather information through experimental an iterative learning methods, which aim is to find the underlying distribution of the future, when they think they are dealing with relatively unpredictable conditions (Sarasvathy, 2008). This implies that an entrepreneur might be a 'satisficer', a human being who accepts 'good enough' alternatives, not because less is preferred to more but because there is no choice (Simon, 1996).

2.1 Effectual heuristics

It has been suggested that adequate decision behaviour in entrepreneurial context can be taught and learned (Gustafsson, 2004). In line with this, Sarasvathy & Venkataraman (2011) state that it is helpful to rephrase entrepreneurship as a method of human action, which makes it possible to teach people who are motivated to learn and to empirically test this phenomenon. In this view, entrepreneurship becomes more than a specific set of skills or natural behaviour of expert entrepreneurs. It becomes a generalized method, a form of reasoning and logic which could be learned and mastered by others (Sarasvathy, 2008). Though Sarasvathy (2001) is careful to point out that the effectuation theory, while descriptively valid in many cases, is not necessarily normatively valid, the fact that effectuation is modelled on the behaviour of expert entrepreneurs shows that it has some normative value (Davidsson, 2005). Therefore, in this study, I consider effectuation as a

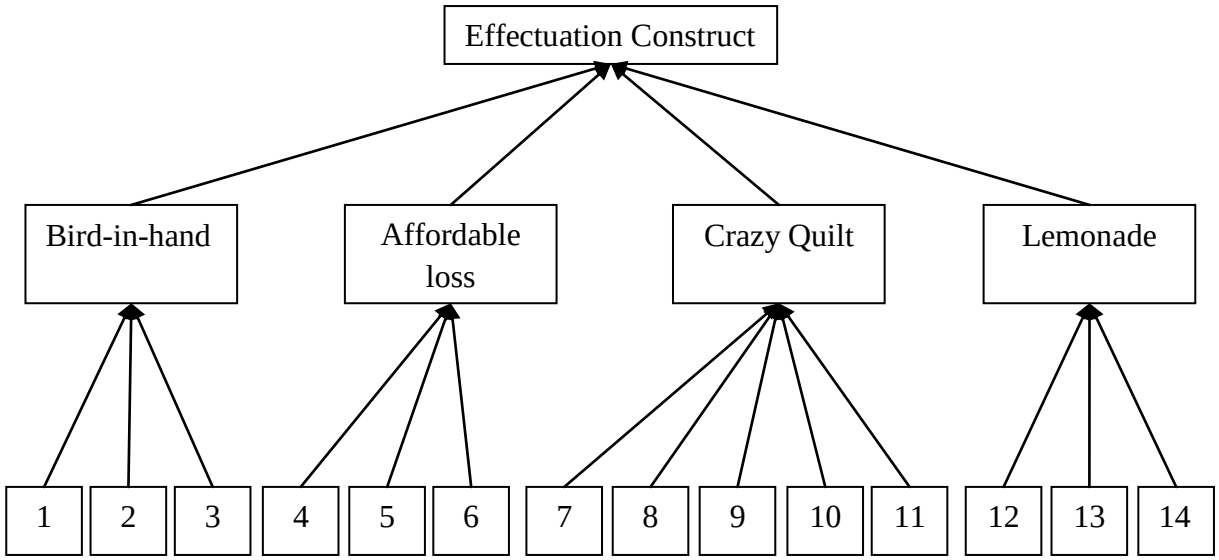
method that novice entrepreneurs can use when developing a venture under uncertain conditions.

In order to apply effectuation as method that is applicable for entrepreneurs, it is important to 'translate' the effectual principles into a list of concrete heuristics and behaviours that can actually be put in practice during new venture creation. The existing literature on effectuation provides a decent starting point for this and there are several contributions that explicitly attempt to make the logic of effectuation more executable and measurable. Chandler et al. (2007) have for instance developed and formulated a number of practical elements that can be used to measure the construct of effectuation. In a subsequent article four years later, Chandler et al. (2011) have developed Likert-type measures that capture the effectuation construct more broadly. Moreover, Read et al. (2009a) have contributed to making effectuation more actionable by explaining detailed insights into precisely measuring effectuation and by their teaching-oriented book on effectual entrepreneurship (Read et al., 2011). Finally, based on the above mentioned papers and the breakthrough research on effectuation by Sarasvathy (2001), Fisher (2012) has developed a list of effectual behaviours that also contributed to make the construct of effectuation more actionable. All these studies help moving my understanding of effectuation forward by providing useful operationalizations of the effectuation process and principles. I adapted these operationalizations to describe the entrepreneurial behaviours that comprise the effectuation method. This chapter will show an in-depth literature review and the corresponding translation of theory into heuristics and behaviours that are actionable.

One important issue that came up during the formulation of this literature study is that the heuristics of the 'pilot-in-the-plane' principle are 'overarching' the other four principles. Therefore, those heuristics are divided among the other principles. This means that I will use only four principles for this research. The following figure will visualize this approach. The

numbers in this figure 1 imply the heuristics that will arise during the second part of this literature review. All these heuristics together represent the construct of effectuation.

Figure 1: Effectuation construct



1-14 Heuristics as indicators of principles of Effectuation

Note that the current principles of effectuation focuses on expert entrepreneurs, which means that the heuristics that are formulated in this chapter are initially also based on expert entrepreneurs.

2.1.1 Principle 1: Bird-in-hand

Expert entrepreneurs tend to focus on the controllable aspects of an unpredictable future (Read et al., 2011). Therefore, Sarasvathy (2008) states that expert entrepreneurs are believed to be more means oriented than goals oriented, since taking action based on the readily available means is more controllable. The resources the entrepreneur needs are already 'in his hands'. Therefore, they do not have to go chasing means they have no control over. In addition, Sarasvathy (2001) found that expert entrepreneurs begin their venturing journey with their readily available means, which are *who they are, what they know* and *whom they*

know (Sarasvathy, 2001; Read et al., 2009b), and subsequently focuses on generating new ends and effects that can be created given these means (Dew et al., 2009). *Who I am* concerns the capital, assets, traits, tastes, and abilities of the entrepreneur him/herself (Chandler et al., 2007; Read et al., 2011). *What I know* is unique to each individual person because information is generated through idiosyncratic life experiences. Relevant means in this category are for instance entrepreneurial and partner experience, experience in the industry where the start up is operating, education, training and expertise (Chandler et al., 2007; Read et al., 2009a). *Who I know,* is the third category of means articulated by effectuation and consist of the entrepreneur's social and professional network, individuals and entities which might offer opportunities and resources to the venture (Chandler et al., 2007). Expert entrepreneurs create ventures by building stakeholder networks and subsequently adding others' means to their own means (Read et al., 2009a). Read et al. (2011) argue that expert entrepreneurs build stable stakeholder networks out of people they already know, out of people that they are connected to through others, and out of contingent interactions. These are for instance friends (in the business), family (e.g. entrepreneurial parents), number of university links, and serendipitous encounters (Chandler et al., 2007; Read et al., 2009a). While each individual is endowed with a wide range of means, only those means that are relevant to the venture constitute effectual means and should be considered during new venture creation (Read et al., 2009a). The focus of the entire decision making process for each individual involved is on what can be done, given who s/he is, what s/he knows, and whom s/he knows (Sarasvathy, 2008).

Effectuation theory assumes that the pool of these means, which are directly available resources, can be seen as the competitive advantage of every entrepreneur because every individual has a unique set of means which is different from other entrepreneurs (Read et al., 2011). Therefore, two individual entrepreneurs with their own unique pool of resources come

up with significantly different venture concepts at the same starting point in the same environment (Read et al., 2011). Besides using the pool of resources as the starting for creating a venture, it also can be seen as the basic ingredient of the venture opportunities that entrepreneurs create along the way (Read et al., 2011).

Effectuation also involves seeing means and resources where others do not see them or only see worthless things that cannot be used to create value (Read et al., 2011). These resources are called *slack resources* and can be of great use when creating a new venture. In addition, a good way to think differently about means and resources is to think about *exaptation* (Dew et al., 2008; Wiltbank et al., 2006). This means that something will be used for a purpose for which it was not originally designed or intended.

Focusing on the readily available means gives the entrepreneur the advantage to take action right away (Read et al., 2011). Entrepreneurs are working with their strengths without having to overcome their weaknesses first. Lesson: *'Get away from what you don't have and focus on what you have'* (Read et al., 2011, p. 74). Moreover, entrepreneurs do not need to wait for the blockbuster idea or the multibillion dollar opportunity, but can begin with simple problems for which they can see an implementation solution and go for it (Read et al., 2011). Most of the times, expert entrepreneurs start very small with the closest means, and move almost directly into implementation without elaborate planning (Read et al., 2011). Moreover, when entrepreneurs are sticking very closely to their own means, it would become clearer what not to do during their new venture creation (Read et al., 2011).

2.1.1.1 Heuristics principle 1; Bird-in-hand

1. Make an inventory of 'who you are', 'what you know' and 'whom you know'.

Entrepreneurs have to focus on taking advantage of their own means. That is the starting point for taking action under uncertainty (Kraaijenbrink & Rathino, 2010; Read et al.,

2009b). So they have to look back at their life and find out what means they have acquired or build that are relevant for the given situation.

When entrepreneurs are interacting, negotiating and committing with stakeholders, the pool of resources will continuously expand with information, knowledge, network contacts, contingencies etc. during the new venture creation (Read et al., 2011). This because the new available means of the stakeholder(s), which entrepreneurs can make use of, have to be added. This implies that the combination of these means contributes to novelty and the creation of a competitive advantage (Read et al., 2011). This can be practically exposed in the following table:

Table 1. Inventory of the means of the entrepreneur.

Who you know	**What you know**	**Who you are**
Your 'social media' network	Prior knowledge of education, training and expertise	Tastes, values, and preferences
Friends, family and acquaintances	Knowledge from a job, industry, or partnership	Skills and abilities
Serendipitous encounters	Knowledge from your life	Interests and passions
University links	Informal learning, and hobbies	Capital and assets

Source: Read et al. (2011)

2. Continuously look around to see where slack resources are in your own life.

The world is full of *'slack'* resources that are left over from other uses or simply lying around because nobody had paid any attention to them (Read et al., 2011). For entrepreneurs, it is important to look for those resources and to think about how they can be put into valuable use.

3. Consider what you could possibly do with the readily available means by imagining several courses of action.

After entrepreneurs have made an inventory of their unique set of means, it is important to consider what effects can be created with these means. Entrepreneurs can make use of figure 2 to visualize the imagined ends they came up with. It is important to realize that these imagined ends are also co-determined by stakeholders who are willing to commit their resources (Read et al., 2011).

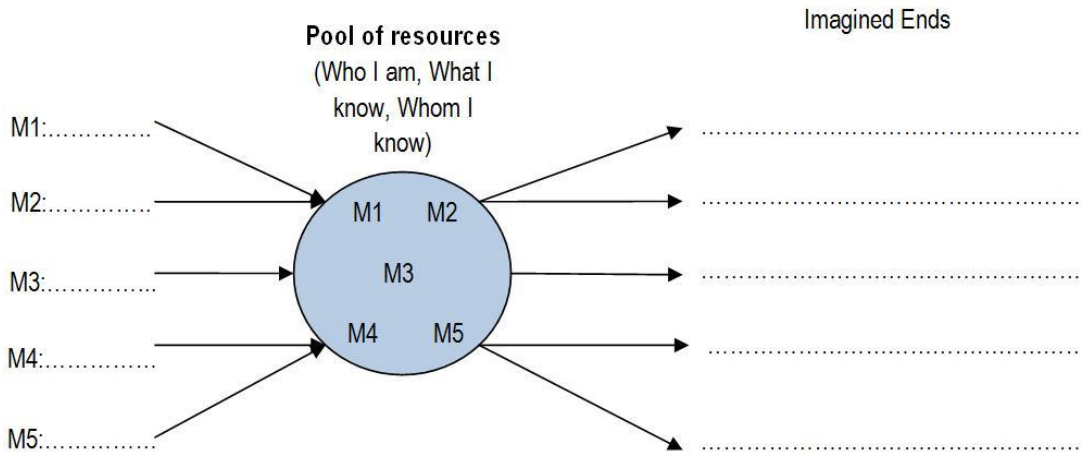


Figure 2. Pool of resources

Source: Read et al. (2011)

2.1.2 Principle 2: Affordable loss

The subsequent step focuses on evaluating whether and which course of actions are believed worth doing (Sarasvathy, 2008). These courses of action are evaluated in terms of their potential downside rather than their benefits (Sarasvathy, 2008), since outcomes to novelty are by definition unpredictable (Blekman, 2011; Dew et al., 2008). Meaning that the question is not: *"What is the expected return of this venture concept?",* but *"What can I afford to lose?"* (Blekman, 2011). These insights together can be formulated as the affordable loss mindset.

Fundamentally, within the mindset of affordable loss it is important to base decisions on things the entrepreneur knows and can control. Hence, their choices are not based on uncertain returns in the future, but expert entrepreneurs set limits to what they are willing and afford to invest (Kraaijenbrink & Ratinho, 2010; Sarasvathy, 2008) and lose in order to start a venture (Sarasvathy, 2008). In general, expert entrepreneurs prefer the cheapest alternative or come up with creative ways of doing things at minimum expenditure of resources as time, effort and money (Sarasvathy, 2008). They are cost-conscious and try to avoid irresponsible risks (Blekman, 2011). By making small bets, entrepreneurs make sure that when they fail it is not catastrophic (Read et al., 2009b) but that they can make failure survivable by constraining the loss to something that they regard as affordable (Dew et al., 2009b). Through the entrepreneur's willingness to fail, effectuators learn how to outlive failures by keeping them small and killing them young (Sarasvathy, 2008). This not only contributes to the entrepreneur's learning (Dew et al., 2008) but also generates more options for the future (Read et al., 2011).

Effectual entrepreneurs use little successes as lever in order to take the subsequent step and to move on quickly (Blekman, 2011). While this tactic may have unintended consequences, such as under-investing in attractive options or moving too quickly down unproductive paths, it provides a means of achieving some control over the occurrence of failure (Sarasvathy, 2008) and over the risks entrepreneurs assume to exist (Read et al., 2011). One of the benefits that expert entrepreneurs experience when using the principles of affordable loss is that they can move directly to selling a potential product or service to potential customers on the basis of their directly available means, without putting much money, time and managerial effort up front in market research (Blekman, 2011; Read et al., 2009b). So, the affordable loss strategy lowers the threshold to try out something new (Blekman, 2011). In line with this, Read et al. (2011) argue that it is not critical to have the

perfect idea when leaving the dock. It is action that turns a mere idea into a valuable opportunity (Read et al., 2011). So, entrepreneurs do not need to wait for the blockbuster idea or the multibillion dollar opportunity, but can begin with simple problems for which they can see an implementation solution and go for it (Read et al., 2011). In addition, effectual entrepreneurs make use of experimental and iterative learning techniques (Sarasvathy, 2001) in the business emergence process. This can be viewed as a series of affordable experiments to identify a business model that works (Chandler et al., 2007).

So entrepreneurs have to evaluate which imagined ends they can afford with the maximum investment that they are willing to lose (pay), with minimum earnings they need (Read et al., 2011). Typically, this evaluation provides a filter that is useful for reducing the number of possible imagined ends entrepreneurs can seriously consider and then leads to a go/no go decision on every single end (Read et al., 2011). After the imagined ends are evaluated on the basis of affordable loss, entrepreneurs have to select the most interesting course of action. Entrepreneurs should stick close to their means in order to start with those actions over which they have the greatest degree of control (Read et al., 2011). Moreover, they should avoid courses of action that restrict the flexibility and adaptability (Chandler, 2007).

2.1.2.1 Heuristics principle 2; Affordable loss

4. Decide how much you really need for starting the courses of action.

When considering affordable loss, the first thing entrepreneurs have to do is asking themselves what they really need to start the imagined ends. This means getting creative about different ways of bringing the imagined ends to the market, reducing the resources (e.g. cash) that they need, and to make use of slack resources. Questions that can be considered for determining how much an entrepreneur needs for each of these imagined ends (venture idea)

are for instance how much output is needed at the start, how cash outflows can be delayed, how cash inflows can be accelerated, how the entrepreneur can get the impact of the output without producing it in advance, etc. (Read et al., 2011). Read et al. (2011) advice that it is easiest to start from the estimated cost of the venture and to work hard (and creatively) to make that number zero.

5. Decide what you are maximally able and willing to lose in the worst-case scenario and what you minimally want to earn with the course of action.

The next thing entrepreneurs needs to consider is what they are really able and willing to lose and want to earn when starting a venture. Instead of calculating the opportunity cost of starting a business in terms of the entrepreneur's current salary and the venture's future earning potential, two relatively simple values can be calculated (Read et al., 2011).

- First, entrepreneurs have to estimate the absolute maximum amount they can afford to lose in the worst-case scenario (Chandler et al., 2007; Dew et al., 2009b). They can think about time and effort but also about their current financial condition, for instance long-term savings, home equity, credit card accounts and loans from family and friends. Subsequently, entrepreneurs have to think through how much they are willing to lose for the particular course of action that is put into practice first (Dew et al., 2009b). For example, half of the amount so they can try two projects instead of one, in case the first one fails (Dew et al., 2009b).
- Second, entrepreneurs have to decide on the absolute minimum they want to earn in the start up of the venture.

6. Consider which imagined end you feel comfortable with taking even if you lose all the investment. Start with those actions over which you have the greatest degree of control and avoid courses of action that restrict flexibility and adaptability.

Entrepreneurs have to evaluate which imagined ends they can afford with the maximum investment that they are willing to lose (pay), with minimum earnings they need (Dew et al., 2009b). This means that entrepreneurs also has to think through the non-monetary benefits (Dew et al., 2009b), like learning advantages. When selecting this imagined end the entrepreneurs' decision making should focus on staying close to their means, and avoiding courses of action that restrict the flexibility and adaptability (Chandler et al., 2007). Moreover, Read et al. (2011) comment that taking actions based on the available means of the entrepreneur is more controllable (than actions based on other's means), because the needed resources are already in their hand. So, courses of action that cannot be controlled have to be ignored (Read et al., 2011).

At all times, entrepreneurs should be open to their perceptions being wrong. There are probably more courses of action within their control than they originally imagine. However, even if their perceptions are not entirely accurate, they just have to begin with those actions they believe to be within their control is enough to get them started (Read et al., 2011). Moreover, there is always another way of getting something done. Having no alternatives usually means that entrepreneurs have to consume more time to get creative and produce some new alternatives. This will also improve their perceptions of control over the situation in hand (Read et al., 2011).

Note that entrepreneurs do not need to wait for the blockbuster idea, but can begin with a simple problem for which they can see an implementation solution (Read et al., 2011). Or they can start very small with the closest means, and move almost directly into implementation without elaborate planning (Read et al., 2011). Moreover, entrepreneurs have

to make sure that they make small bets so when they fail it is not catastrophic and they can incorporate the learning into the next iteration of the opportunity instead of having to terminate the project (Read et al., 2009b). Finally, entrepreneurs have to remain flexible and keep the concept idea up to a general level since effectuation is a stakeholder dependent process (they can contribute to co-creation), as is explained in the following sub dimension.

2.1.3 Principle 3; Crazy Quilt

In the previous principles is explained that expert entrepreneurs imagine possible courses of action based on their means and affordable loss and finally come up with a concept idea for a venture. Since the entrepreneur does not have market power yet (Read et al., 2011), and in order to reduce the resources he needs (Dew et al., 2008), the entrepreneur will start to reach out to other people to obtain advice and other inputs on how to proceed with the things they could possible do (Read et al., 2011) and to set the courses of action in motion. Effectuation assumes that entrepreneurs can put together partnerships that will successfully create a new situation (uncertainty calling for creation) (Read et al., 2011).

A distinguishing characteristic of effectual partnerships is the belief that those who choose to join the venture change the original set of means and ideas – since they have other types of identity, knowledge and networks - and ultimately shape and co-create the new market or artifact (Read et al., 2011; Wiltbank et al., 2006). In other words, new venture creation is contingent on interactions with particular stakeholders who self-select into the new venture creation process (Dew et al., 2008; Dew et al., 2011) and are willing to contribute to the development of a new market or artifact (Read et al., 2011). This means that the created artifacts embody a variety of ingredients from stakeholders including partially or fully formed preferences, ambiguous aspirations, and clear values (Dew et al., 2011). So, the content of the

negotiation consists of what each would like the product or service to look like and what each is willing to commit (Sarasvathy, 2008) and can afford to lose (Dew et al., 2011) in that case.

While entrepreneurs may be able to generate many ideas, what separates ideas from good ideas is whether key stakeholders such as employees, suppliers and customers are willing to make a commitment to them (Read et al., 2011). So what counts is the willingness of stakeholders to commit to the construction process of a new venture and not their fit with or alignment to some preconceived vision or opportunity. Working with committed partners gives you more control than predicting based on indirect market research (Read et al., 2009b). Moreover, effectuation emphasizes pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty in the environment (Read et al., 2011). In addition, a substantial number of agreements with customers, suppliers, other organizations and people reduce the amount of uncertainty (Chandler et al., 2007).

Note that an entrepreneur or a venture may build many relationships, but only those in which both parties share the risk of the venture and benefit from the success of the venture constitute effectual partnerships (Read et al., 2011).

During the interaction with potential stakeholders and 'people they know', entrepreneurs will pitch their effectual business plan. The aim of this 'pitch' is to communicate what it may take to co-create value for everyone involved (Read et al., 2011). In order to find out what might motivate stakeholders to actually commit their resources to the new venture creation, expert entrepreneurs often just ask the potential stakeholder what would convince them to come on board (Read et al., 2011) or what effects they want to create with having a 'stake' in the venture. Read et al. (2011) argue that most people will actually tell what they want and what their motives are for a possible commitment. At the very least, people will give honest and useful advice and feedback, a variety of valuable leads, and/or bring light to the entrepreneurs' own hidden resources (Read et al., 2011).

Persuasion is critical when trying to commit stakeholders (Read et al., 2011). New members of the effectual network either reshape the market to the extent they can persuade others to change their views or reshape their own preferences to the extent they are persuadable toward the views of others (Sarasvathy, 2008). So persuasion works both ways (Read et al., 2011). For instance, reciprocation can help when persuading. This means that if someone does you a favour, you tend to return it. Moreover, Read et al. (2011) argue that once a person has committed to do something, they will typically honour that commitment even if the original incentive or motivation disappears. Finally, people are more likely to be persuaded if they like the person doing the persuading (Read et al., 2011).

The result of stakeholder commitment is the introduction of new means and thus the expansion of the cycle of resources (Read et al., 2011). By committing means and resources, the stakeholders get a chance to re-shape the goals of the venture (Read et al., 2009b) and to make a worthwhile contribution to the transformation of extant realities into a new venture (Sarasvathy, 2008; Wiltbank et al., 2006). This means that the commitment of stakeholders also results in constraints on the transformation of the artifact. Note that the means and resources that the stakeholders commit to the venture are also determined by the decisions of the stakeholders concerning what they can and are willing to afford to lose (Read et al., 2011).

2.1.3.1 Heuristics principle 3; Crazy Quilt

7. Make a priority list of potential stakeholders.

Entrepreneurs have to consider if there is anyone in their environment (‘Who I know’) they might be able to co-create with. Within this, entrepreneurs should think about who might share risk with them (Read et al., 2011) and who has complementary means (Read et al., 2009b). So, entrepreneurs have to make a priority list of people they know and who are worth interacting with. It is important that the entrepreneur should remain flexible when considering

that, for instance, the first stakeholder may bring new stakeholders to the new venture creation process.

8. Interact with potential stakeholders and pitch the effectual business plan.

The next thing entrepreneurs should do is to interact with the potential stakeholder and to communicate or 'pitch' the effectual business plan in order to inform the potential stakeholder about their initial ideas. The pitch of the effectual business plan should be understandable for the potential stakeholder, and entrepreneurs should tell an appealing and inspiring story and should be open to the input of the discussion partner (Blekman, 2011). If the situation allows it, entrepreneurs might ask the potential stakeholders what would convince them to come on board and/or what effects they want to create with having a 'stake' in the venture (Read et al., 2011).

9. Be open towards self-selected stakeholders

Entrepreneurs should be open towards self-selected stakeholders who are potential contributors to the process (Wiltbank et al., 2009) and who 'buy into' the idea to sustain the enterprise (Sarasvathy, 2001; Sarasvathy & Kotha, 2001). Moreover, entrepreneurs should not try to sell the stakeholder a preconceived vision of the opportunity but should let the stakeholder self-select into the venture creation process (Sarasvathy, 2001; Sarasvathy & Dew, 2005).

10. Consider and negotiate creative ways of investment and generating cash with the stakeholder.

During the phase of interaction and negotiation with stakeholders, it is important to consider creative ways of investment and generating cash in order to lower the cash based entry barrier. Possible options that focus on lowering the cash based entry barrier are:

- Negotiation with *suppliers* about delayed payment terms, payments as a percentage of revenue, direct capital investment, paying them in direct services (make them customer), using their process/assets/talents during their downtime (slack resources), and getting them to guarantee a line of credit for the entrepreneur at their bank (Read et al., 2011).
- When working with *customers*, entrepreneurs can think about things like paying first purchase order (PO) in cash upfront for better pricing, getting a solid PO and then connect a lender that will accept that as collateral, using their commercial bank and piggy back on their line of credit (slack resources), getting them to guarantee a line of credit, pre-sell them the first year's worth of their purchases, etc. (Read et al., 2011).
- When entrepreneurs are interacting with *investors*, they can think about borrowing money from them instead of just taking the investment, paying them back as a variable cost against a percentage of revenues (not against time), getting them to guarantee a line of credit, taking investment but negotiating for a 'claw back' where entrepreneurs can earn back ownership if things go well (Read et al., 2011).
- Finally, entrepreneurs can also think about negotiating with *employees*. For instance they can consider giving them options rather than cash, and a percentage of sales rather than base salary (Read et al., 2011).

11. Become more specific and negotiate the terms and conditions (how to 'divide the pie' and 'control and ownership' issues) with the stakeholders.

Now it is important for the entrepreneur to become more specific and to negotiate 'terms and conditions' with the stakeholders in order to gain actual commitment. The content of the negotiation with potential stakeholders consists of what each is willing to commit (means) and why (motives/goals). The question of 'dividing the pie' should be discussed and negotiated and should primarily focus on the content and shape of the pie rather than its size and subdivision (Sarasvathy, 2008). It is also important to consider ownership and control issue.

2.1.4 Principle 4: Lemonade

Traditional entrepreneurship models suggest that entrepreneurs should envision where they want to go, set goals, and do fairly extensive planning to reach them before they venture into a new business (Read et al., 2011). However, Sarasvathy (2001; 2008) argues that, while there are benefits of these activities, these pre-made plans tend to lead entrepreneurs to avoid surprises. By treating every surprise as a problem, entrepreneurs are missing out on the upside opportunity that surprises – even negative ones – potentially entail (Read et al., 2011).

Read et al. (2011) argue that contingencies do not only undermine the value of current means in achieving given goals, they also provide upside opportunities that entrepreneurs can appropriate in venture creation. So, leveraging contingencies entails embracing unexpected events and turning them into profitable opportunities, thereby generating unanticipated outcomes as opposed to achieving a predefined goal (Fisher, 2012). Instead of looking at the unexpected as a problem, it can be looked at as a building block – a resource – for a new venture (Read et al., 2011). In every new venture, entrepreneurs know some of the building blocks when they start the venture; they often begin with only a very loose notion of their goals, they make up their plans in an incremental fashion, utilizing uncertainty and contingent

information as resources for their goals rather than relying on goals as determining factors of resource acquisition and choice (Sarasvathy, 2008). Decision makers therefore accumulate and take advantage of path dependencies in the effects they choose (Sarasvathy, 2008).

Within the Lemonade principle, unexpected events do not result in a loss of control over the situation but it can be seen as an opportunity to exercise control of an emerging situation by using it to redirect the initial goals (Sarasvathy, 2008). Read et al. (2011) argues that entrepreneurs can gain more control in an uncertain environment if they are flexible and embracing surprises that come along than if they try to follow a pre-determined plan. Entrepreneurs are not able to predict and design surprises, however, they can try to exploit surprises by incorporating them and rebuilding the venture around them as they go along (Read et al., 2011). That is the reason why entrepreneurs deliberately keep open room for surprises (Wiltbank et al., 2006).

When talking about contingencies it is key to realize that contingencies themselves do not automatically shape the future direction of the venture (Read et al., 2011). The logic of effectuation assumes that contingencies might be the source of opportunities for value creation, but only if entrepreneurs seize upon them in an instrumental way and imaginatively combine them with extant inputs for the creation of new possibilities (Sarasvathy, 2008). Within this, the entrepreneur's preparedness to change when confronted with new resources like information, means or surprises (Read et al., 2009b).

In order to make the process of leveraging contingencies more clear it is simplified into four steps, which can be seen as a toolbox for thinking through the contingency leveraging process.

Table 3: Path of contingencies

The Contingency Path to Novel Outcomes	
Contingencies - information - Events - People	1. The first step is that changes in the environment, people, events, meetings or information that arrives on the entrepreneur's 'doorstep' can provide the entrepreneur with new means and kick start the effectuation cycle again (Read et al., 2011).
Change your means - What you know - Who you are - Who you know	2. The second step of the path is that a contingency normally change the means of the entrepreneur (Read et al., 2011). The contingencies tend to incrementally change those means; for instance a meeting someone changes *'who they know'* and new information influences *'what they know'.*
Which gives you new means to leverage - By asking yourself; "Now what can I do with my revised means?	3. The third step in this contingency leveraging process is imagining a possible course of action in response (Read et al., 2011). The challenge for entrepreneurs is to be creative about what to do with the contingencies. In order to become more creative when solving problems, entrepreneurs can make use of two tools. Firstly, the more potential solutions entrepreneurs can consider, the more likely they are to provide creative solutions to a given problem they face. Secondly, a tool that is generally used for improving creative problem solving is changing the way a problem is framed; instead of facing it as a problem, it is key to turn it on and look at it as an opportunity (Read et al., 2011).
Which may generate novel outcomes - i.e. new venture directions	4. The final step concentrates on the novel outcome that may be generated. Read et al. (2011) state that the real source of value in contingencies is the novelty of the new imagined ends that entrepreneurs come up with.

Source: Read et el. (2011)

2.1.4.1 Heuristics principle 4: Lemonade

12. Improve chances to come across contingencies.

Entrepreneurs can think about several things that they can do in order to improve the chances that leverable contingencies happen to them (Read et al., 2011). First of all, entrepreneurs may be able to increase their exposure to contingencies by deliberately engaging in networking behaviours since information often arrives through others in their network (Read et al., 2011). Secondly, entrepreneurs can increase their exposure to contingencies by deliberately cultivating their own taste or new things (Read et al., 2011). They should display a taste for surprises, be intellectually curious and should tend to seek new

experiences (Read et al., 2011). Such entrepreneurs may be more receptive to, and welcoming of, contingent events and information and thus more likely to view these events as opportunities for action.

13. Transform the unexpected in opportunities in order to benefit from these surprises.

Entrepreneurs are advised to look at surprises from the perspective how they can shift actions so that they will benefit from it, instead of facing them as a constrain that upset the existing plans (Read et al.,2011). This implies that entrepreneurs rather can be focused on opportunities than constraints. A tool for transforming the unexpected into new opportunities and imagined ends is the imaginative re-thinking of possibilities (Read et al., 2009b).

14. Try to exploit contingencies by incorporating them in the venture creation process.

Entrepreneurs should allow the business to evolve as opportunities emerge (Chandler et al.,2007) and should try to exploit contingencies by incorporating them and rebuilding the venture around them as they go along (Read et al., 2011). A step towards thinking through how contingencies might be leveraged is that entrepreneurs should consider how these contingencies alter their own means, what constraints they bring, and subsequently how the contingency alters the goals.

2.1.5 Overarching principle 5; 'pilot-in-the-plane'

Knight's (1921) notion of true uncertainty points at the fundamentally unknown future that many entrepreneurs face when starting up their business (Sarasvathy, 2008). Under conditions of true uncertainty, probabilities of success are unknown and unknowable, which means that it is impossible to calculate or predict probabilities for future consequences and that entrepreneurs have to rely on other ways to guide their activities (Sarasvathy, 2008).

In line with the Knightian uncertainty, Sarasvathy (2001) postulates that effectual entrepreneurs tend to have a high focus on control and a low focus on prediction, so focusing on the controllable aspects of an unpredictable future (Read et al., 2009a; Read et al., 2011). They follow a logic of *'to the extent that we can control the future, we do not need to predict it'*. Hence effectuation primarily focuses on the aspects that are controllable in order to reshape the environment (Dew et al., 2009; Read et al., 2009a).

The focus on control does not imply that prediction is useless. It has its time and function (Read et al., 2011). Expert entrepreneurs ask themselves the question if their environment is stable enough to reliably base future actions on data from the past. If the answer is no, it is important to concentrate the efforts on actions that will create an environment that does not build elaborate forecasts, but instead focuses on the controllable aspects (Read et al., 2009b).

One way to start a successful venture is focusing on activities of which entrepreneurs know their actions will result in outcomes they find attractive. These may not be the activities with the most upside, but they have to be ones within their control (Read et al., 2011). Note that the beauty of control is that entrepreneurs do not need full control, they only need sufficient control in order to move ahead to the next step and to the next stakeholder (Read et al., 2011).

As already mentioned, the heuristics that represents this principle are divided among the other sub dimensions because they are overarching those other four principles. Moreover, this redistribution of heuristics will also increase the clarity of this research.

Table 4: Overview of effectual heuristics

Principle	Nr.	Heuristic
Bird-in-hand principle	1	Make an inventory of your readily available means, '*who I am', 'what I know',* & '*whom I know',* and include all the new means that become available during the process in your pool of resources (Read et al., 2011; Sarasvathy, 2001).
	2	Continuously look around for *'slack'* resources that are left over from other uses or

		simply lying around because nobody had paid any attention to them (Read et al., 2011).
	3	Consider what you could possible do with the readily available means and resources (Chandler et al., 2007; Read et al., 2011). Imagine possible courses of action and experiment with different ways, e.g. distribution channels and revenue models that can lead to commercial offerings (Chandler et al., 2011).
Affordable loss principle	4	Decide how much you really need for starting these courses of action. In order to commit only limited amounts of resources to the venture, seek out creative ways of doing things in inexpensive ways (Read et al., 2011).
	5	Decide what you are maximally able and willing to lose in the worst-case scenario and what you minimally want to earn with the course of action (Chandler et al., 2011; Dew et al., 2009).
	6	Consider which imagined end you feel comfortable with taking even if you lose all the investment. Start with those actions over which you have the greatest degree of control and avoid courses of action that restrict flexibility and adaptability (Chandler et al., 2007; Read et al., 2011).
Crazy quilt principle	7	Make a priority list of stakeholders you know and who are worth interacting or co-creating with. Remain flexible and update this list during the process (Read et al., 2011).
	8	Interact with potential stakeholders and pitch your effectual business plan in order to communicate what it may take to co-create value for everyone involved. Be open towards the input of the discussion partner and ask the stakeholder what would convince him/her to come on board (Read et al., 2011).
	9	Be open towards self-selected stakeholders, who are potential contributors to the process (Wiltbank et al., 2009). Don't try to sell the stakeholder a preconceived vision of the opportunity, but let the stakeholder self-select into the venture creation process (Sarasvathy, 2001).
	10	Consider and negotiate creative ways of investment and generating cash with the potential stakeholder in order to lower the cash based entry barrier. Make pre-commitments with suppliers, customers, employees, investors and other organizations (Read et al., 2011).
	11	Become more specific and negotiate the terms and conditions (how to 'divide the pie' and 'control and ownership' issues) with the stakeholder in order to transform pre-commitment into an effectual partnership. Also define what each is committing to the venture creation process (Sarasvathy, 2008).
Lemonade principle	12	Improve the chances that leverageable contingencies happen to you by deliberately engaging in social networking behaviours, by being 'open to experience' and transformation, and by deliberately cultivating your own taste for new things (Read et al., 2011).
	13	Transform the unexpected in opportunities in order to benefit from these surprises (Chandler et al., 2011). Respond to unplanned opportunities as they arise by looking how they can shift actions so that you are the beneficiary of a surprise (Read et al., 2011).
	14	Allow the business to evolve as opportunities emerge (Chandler et al., 2007) and try to exploit contingencies by incorporating them in the process and rebuilding the venture around them as they go along (Read et al., 2011).

2.2 Differences between expert and novice entrepreneurs

The claim of Sarasvathy (2008) that effectuation is also a method that can be used by novice entrepreneurs does not automatically imply that it can be applied without any modification. Since some differences between expert and novice entrepreneurs are found it is reasonable that the current concept and theory of effectuation may require some changes. A first difference can be related to the fact that entrepreneurship is seen as a form of expertise – a set of skills, models and processes that can be acquired with time and experience (Read & Sarasvathy, 2005). Entrepreneurs develop expertise through a specific type of experience that involves 'deliberate practice' (Read & Sarasvathy, 2005). This implies that experts learn by doing and in that way develop their volume of knowledge along the way. The deliberate practice of experts results in a larger mental database of actual experience (Dew et al., 2009) and more extensive knowledge assets that can be applied when facing problems than novice entrepreneurs have (Read & Sarasvathy, 2005). Novice entrepreneurs do not have prior business ownership experience and therefore they do not have the experience it takes to make decent and intuitive decisions (Dreyfus & Dreyfus, 1986; Gustafsson, 2004). This implies that novices may face some challenges when attempting to apply the principles of effectuation. It might be more difficult for novice entrepreneurs, for instance, to assess what could be done with their own pool of resources. Another context is that expert entrepreneurs have prior business ownership experience which may provide them with a variety of assets, like a network of social and business contacts that may be used in subsequent ventures (Westhead et al., 2005). During their entrepreneurial career, entrepreneurs collect social capital – the social contacts that lead to contributing to their entrepreneurial ambitions – which is regarded crucial for the creation of a new venture (Greve & Salaff, 2003). Therefore, novice entrepreneurs can be expected to have a more limited network compared to their expert counterparts, which might restrict the amount of available information, resources and ideas a novice entrepreneur can start with or accumulate. This might restrict the development of the creation of a new

venture. Yet another difference between novice and experts is the way how they frame problems. Experts frame it in such a way that they build contingency into their strategy, whilst novices may be less willing and able to do so (Read & Sarasvathy, 2005; Westhead et al., 2005). This might become problematic for the integration of contingencies during the creation of a new venture. These examples of differences suggest that it is still an open question whether and how novice entrepreneurs can use effectuation as a method for new venture creation.

3. Methodology

Since its introduction by Sarasvathy (2001), a variety of empirical studies on effectuation have been conducted (e.g. Chandler et al., 2011; Dew et al., 2009; Harmeling et al., 2004; Harting, 2004; Sarasvathy & Dew, 2005; Sarasvathy & Kotha, 2001; Wiltbank et al., 2009). These studies have particularly expanded our knowledge on the principles of effectuation. For instance, Wiltbank et al. (2009) focused on control, and Chandler et al. (2011), Harmeling et al. (2004), Harting (2004), and Sarasvathy & Kotha (2001) focused on all the principles of effectuation. All these studies contributed considerably to the understanding of the theory of effectuation. However, effectuation is developed as an inherently dynamic new venture creation process in which interaction, commitment, co-creation, experimentation, and creative action gives the entrepreneur the opportunity to continually transform extant realities into new imagined ends as time passes (i.e. Dew et al., 2011; Sarasvathy, 2001; Sarasvathy & Dew, 2005; Sarasvathy & Venkataraman, 2001), while this dynamic process has hardly been studied empirically. In addition, the retrospective nature of current empirical research in the field of effectuation suggests that research is subject to recall bias (Perry et al., 2012). In response to these voids in existing research on effectuation, several researchers have called for longitudinal real-time process studies of effectuation and

entrepreneurship more generally (Chandler et al., 2011; Davidsson, 2003; Perry et al., 2012). Answering these calls, the aim of this study is to contribute to the effectuation literature by an in-depth, real-time process study of effectuation during new venture creation. To that end, a real-life action research experiment is conducted in which two novice entrepreneurs together engaged in the creation of a new venture in the hospitality industry. During this seven-month process, the effectuation principles are deliberately applied and reflected on what happened to their venture and on the barriers they faced. Both entrepreneurs kept individual diaries, allowing first hand and real-time data collection. This experimental study provides detailed empirical insights into the dynamics of effectuation and into the effectual behaviours of novice entrepreneurs in a natural environment.

3.1 Research Setting and Approach

For this study I worked together with my student colleague and I have engaged in the creation of my first real-life venture in order to try out in practice to what extent I could base the entrepreneurial actions on the theory of effectuation. As such, both performed a dual role of researcher and novice entrepreneur. We can be regarded as the required novice entrepreneur for this research because we did not have any experience in creating a new venture beforehand, and we were exposed to effectual reasoning in our MBA course (Entrepreneurship & Innovation master Track of UTwente). This whole new venture creation process started with the ambition to become an entrepreneur in the industry we gained the most work experience; the hospitality industry. During the new venture creation process we were always open for all types of venture ideas, even when they were not within our preferred industry. The only requirement we had was that it has to be a novel idea. Since outcomes of novelty are by definition unpredictable and uncertain (Sarasvathy, 2008), this context can be seen as appropriate for a study of the effectuation theory. From that point in the process on,

we have followed the creation of a new venture during a period of seven months. This period of time was not definite at the start of the study, but turned out to be the time that we needed to get our venture up and running. During this new venture creation process, we deliberately applied the heuristics underlying the principles of effectuation and reflected on what happened to the venture and on the problems and struggles that we faced.

Action research is structured along an iterative cyclical process of diagnosis, action planning, intervention, evaluation and reflection (Coughlan & Coghlan, 2002; Davison et al., 2004). The cyclical character provides a way of learning from experience through a series of reflective stages. The experience of the previous iterations enables us to be flexible and to refine the research design and improve effectiveness of the interventions. Moreover, it means that researchers, who enact the research cycles, test their own assumptions and subject their assumptions to 'public' testing (Coughlan & Coghlan, 2002). This means that action research offers a gradual and emergent approach to problem solving. In each cycle, the five phases are implemented as follows:

Diagnosing. In each diagnosing phase I focused on identifying the current situation (problem) of the research and to make the purpose and direction of the particular moment clear. This means that I have looked at the principles of effectuation and decided where the focus would be on. At the very start of the venture creation process, I focused on the all the heuristics underlying the principles of effectuation. However, after a few cycles, some heuristics became clearer and I could focus my attention more on the parts that needed extra insights.

Action planning. In these phases I made an action plan which included the purpose and target of the intervention. The interventions were mostly meetings with potential stakeholders, so in this phase I prepared these meetings together with my colleague-entrepreneur and decided the strategy and topics that we wanted to employ in order to be able

to collect all the information that was needed for studying the heuristics underlying the principles of effectuation on which I wanted to gain insights. From a research perspective, the goal of these meetings was to gather qualitative data on the extent to which I could use the heuristics during new venture creation, when considering the preferences, demands, wishes and reactions of these stakeholders.

Intervention. During the intervention phases we executed the action plan and interacted with the potential stakeholders in order to observe their behaviour regarding the effectual heuristics. We also focused on our own perception of and feelings about the effectual heuristics in practice. This was all recorded in memos, which we individually used as method for collecting data during the rapid flow of activities. These memos were further written down in a research diary. Details about this method of data collection are explained below.

Evaluation. After the interventions and – other unplanned events – were recorded in the research diary, we coded the interesting fragments of the research diaries into a coding scheme. This process is explained in the data analysis section. I did this in order to evaluate the interventions with regard to the applicability of the principles of effectuation for novice entrepreneurs. In these phases, I also compared the outcomes with the objectives defined in the action plan.

Reflection. In these phases I analyzed whether the interventions had generated relevant theoretical and practical insights. I reflected on the plan of approach together with my colleague researcher-entrepreneur, and decided to what extent it was applicable or needed adjustments for the future. This phase also enabled us to decide whether or not to proceed through an additional cycle and how to improve the effectiveness of our interventions.

An important note is that I will only describe the first cycle in detail in advance. This is because the first cycle of action research will end with evaluation and reflection which will

subsequently leads to planning the next cycle. During the evaluation and reflection steps, I will learn of the experience of the cycle, which will enable me to adjust new insights, to test my own assumptions and to improve effectiveness of the interventions, and thus to plan the next cycle (Coughlan & Coghlan, 2002).

3.2 Data collection: memos and diaries

During the venture creation process and particularly during the meetings with potential stakeholders, we (both researcher-entrepreneurs) made use of individual memoing. This is often regarded as the only possibility of collecting data on quickly flowing practical activities (Altrichter & Holly, 2005; Babbie, 2010). Memoing is a flexible strategy wherein the process of construction and nature of content was determined by the focus of us as researchers and the aim of the research (Birks et al., 2008). Therefore, the notes that are recorded included both empirical observations (know) and our own interpretations (think) of them. I experienced that it was a vital activity to make accurate notes of all the interesting topics and issues that were discussed during the meetings and of all the things that appeared during the execution of the heuristics. As soon as possible after the activities I worked them out in more detail in order to prevent losing interesting data.

My colleague researcher-entrepreneur and I both recorded all the information individually in an electronic research diary. This diary is used as a self-report instrument in which we repeatedly captured the ongoing experiences and events (Bolger et al., 2003; Coughlan & Coghlan, 2002). Altrichter et al. (2005) state that qualitative research can make intensive use of research diaries since it can build up thorough insights concerning the researched issue. Moreover, research diaries are also reducing the likelihood of retrospection, since it minimizes the amount of time elapsed between an experience and the recording of this

experience. In addition, diary research is particularly applicable for the cyclical nature of data gathering that was executed within this action research design (Bolger et al., 2003).

For the research diary, an event-based design is used (Bolger et al., 2003). Since effectuation assumes that entrepreneurs move through the process in an iterative fashion, we have recorded each iteration of the process of effectuation as one 'event' and thus one entry in our research diary. Moreover, one iteration of the process model of effectuation corresponds with one action research cycle, suggesting that one 'event' is also one action research cycle. Within each iteration, we captured descriptive and interpretive data on all the interesting insights that appeared during the interactions with potential stakeholders, and on our experiences, feelings, and behaviours concerning the theory of effectuation. In order to obtain the required reliable and valid data, diary studies must realize a high level of participant commitment that is rarely required in other types of research studies (Bolger et al., 2003). Though achieving such commitment is generally seen as challenging, the action research design and the dual role of us as researcher–entrepreneur, led to very strong commitment in this research. The process of this study resulted in 15 'events' and thereby 15 separate entries in the research diaries of both researcher-entrepreneurs. We both kept an individual research diary that was not shared initially. This in order to increase the reliability. This approach resulted in 30 research diaries in total, consisting of 220 pages of typed text, which is used for the analysis of this study.

3.3 Data analysis and coding

In order to make the data of the research diaries more suitable for analysis, the data is transformed into a standardized form of data by using thematic analysis. This kind of analysis is a process of making sense of data by encoding qualitative data in common themes or categories (Boyatzis, 1998). In this case, these categories are based on the underlying

heuristics of the principles of effectuation, as displayed in table 4. A coding scheme is developed for these categories in order to structure all the fragments of the research diaries that contained interesting information or insight into the specific categories. In order to be able to express what happened over time, all the 14 categories (heuristics) are divided in the coding scheme into 15 rows. This in order to include the iterative process of action research. To increase the reliability of the study, both researcher-entrepreneurs individually take out the most interesting fragments of the 30 individual research diaries and recorded those in the coding scheme. This resulted in a coding scheme which include more than 1200 single fragments of both researchers.

3.4 Reliability

Reliability concerns the question whether a measurement or observation technique would yield the same data if it were possible to measure or observe the same thing several times independently and be replicated by different researchers (Tayler et al., 2006; Babbie, 2010). However, this relies upon the fact that the underlying aspects being measured have not changed, and often with qualitative research that cannot be guaranteed (Tayler et al., 2006). One of the threats that came across in this study was that the interaction with various potential stakeholders were always executed in different settings, with different starting points (due to the extension of means and goals during the cycles), and with changing environments. This made it difficult to measure or observe the same thing several times independently and makes it hard to replicate by different researchers. Since Babbie (2010) argues that the documentation and clear articulation of procedures can contribute to greater reliability, we both explicitly and in detail documented the research settings and starting points for each action research cycle in our individual research diary.

Moreover in order to overcome this difficulty, both researcher-entrepreneurs individually recorded the data (interpretations and thoughts) in their own diary and coded these two data bases individually, in order to avoid sharing the same weaknesses. This means that we both wrote our own memos and observations, recorded them individually in our personal research diary, and both coded this data after each action research cycle individually in a coding scheme. Furthermore, we also coded each other's research diary in order to minimize overlooking important things. By using two data bases, which are independently made and coded, I was able to assess the reliability of the analysis (Babbie, 2010). Therefore, use Interrater reliability (IRR) is important when a measure is subjectively scored, as is the case with our research, and judgment is involved with biases of the researcher (Jackson, 2012). Inter rater reliability is a measure of consistency that assesses the agreement of observations made by two or more raters (Jackson, 2012). The following formula offers a quick means of estimating inter rater reliability: *Number of agreements / number of possible agreements x 100% (Jackson, 2012).* What researchers need is an approach to measure agreement beyond chance (Gwet, 2001). To address this problem Cohen (1960) came up with the Kappa coefficient which is a chance corrected measure of inter rater reliability. Cohen sees Kappa as a measure of: "*.. the proportion of agreement after chance agreement is removed from consideration…"* (Gwet, 2001). To have sufficient data for calculating this and to keep track of the reliability throughout the process, we have calculated Cohen's Kappa after each three action research cycles. Also, after each three cycles (research diaries), we have reflected on the coding and have listed the provisional findings of the coding scheme. So, during this process, we have continuously thought about provisional answers to the research questions (Boeije, 2005).These Kappa's, respectively, were .840, .800, .808, .774 and .783 for cycles 1-3, 4-6, 7-9, 10-12, and 13-15, and 0.801 overall. In addition, I also calculated all the Kappa's within the category separately, after each three cycles. Based on a

threshold for reliability of .70 (Jackson, 2012), I can conclude that all the Kappa's were above this threshold (see coding scheme appendix I) and that the coding and analysis were reliable.

3.5 Validity

The principal threat to validity of this research is the lack of impartiality concerning my own role as action researcher. Most of the things I recorded, measured and analyzed were products of my own thoughts and interpretations, so not things that exist independently of human judgment (Babbie, 2010). This means that there was a high dependence on what I picked out as appropriate data to analyze. Consequently, this made it hard to remain objective and therefore I openly acknowledge my bias to the research. A way in which the researcher can increase the validity is proposed by Avison et al. (1999) and Coughlan & Coghlan (2002). They argue that it is important to explicitly state the purpose and the goal of the research. Therefore, I have described this extendedly in 1.2. Moreover, I consciously and deliberately enacted the action research cycles, tested my own assumptions with each iteration (Coughlan & Coghlan, 2002). This increased the validity so I have more confidence in the research conclusions.

Secondly, an important part of this research is the translation of the theoretical logic of effectuation into underlying heuristics that is done during the literature review. All these translated effectual heuristics together form the construct of effectuation. So I made sure that these heuristics together really reflect the theoretical construct of effectuation so I was sure that I measured what I wanted to measure. This phenomenon is explained as construct validity (Babbie, 2010). In turn, construct validity is divided in translation and criterion-related validity (Chandler et al., 2007). In order to make the effectuation construct valid, I analyzed the effectual heuristics based on translation validity. More specifically, translation validity can be divided into two parts: face validity and content validity. As a starting point, I assessed face validity subjectively by analyzing the operationalization of the effectuation construct and

decided whether ‘on its face’ it seems to be a good translation of the construct (Babbie, 2010). Then I moved on to content validity. This means that the range of translated heuristics included in the construct of effectuation has to capture the entire domain of effectuation – in this case the principles of effectuation. Therefore, I checked the operationalization of the effectuation construct against the relevant content domain for the effectuation construct (Babbie, 2010). These subjective analysis provided evidence for supporting both the face validity and the content validity of the construct. In order to provide this evidence of translation validity I clearly described the effectuation construct in the literature review and displayed the measures in my research diary (Chandler et al. 2007).

Finally, action research primarily focuses on the creation of knowledge which is particular, situational and contextually embedded and interpreted (Aguinis, 1993; Coughlan & Coghlan, 2002). This restricts the contextual generalization (Tsang & Williams, 2007), which means that generalities must be tempered with an interpretation of the extend of similar settings to which the theory or solutions can be expected to hold (Baskerville, 1999) and that action research is not a suitable method to create universal knowledge. In fact, Singh & Bajpai (2008) argue that it is unnecessary to be concerned with this external validity when performing action research.

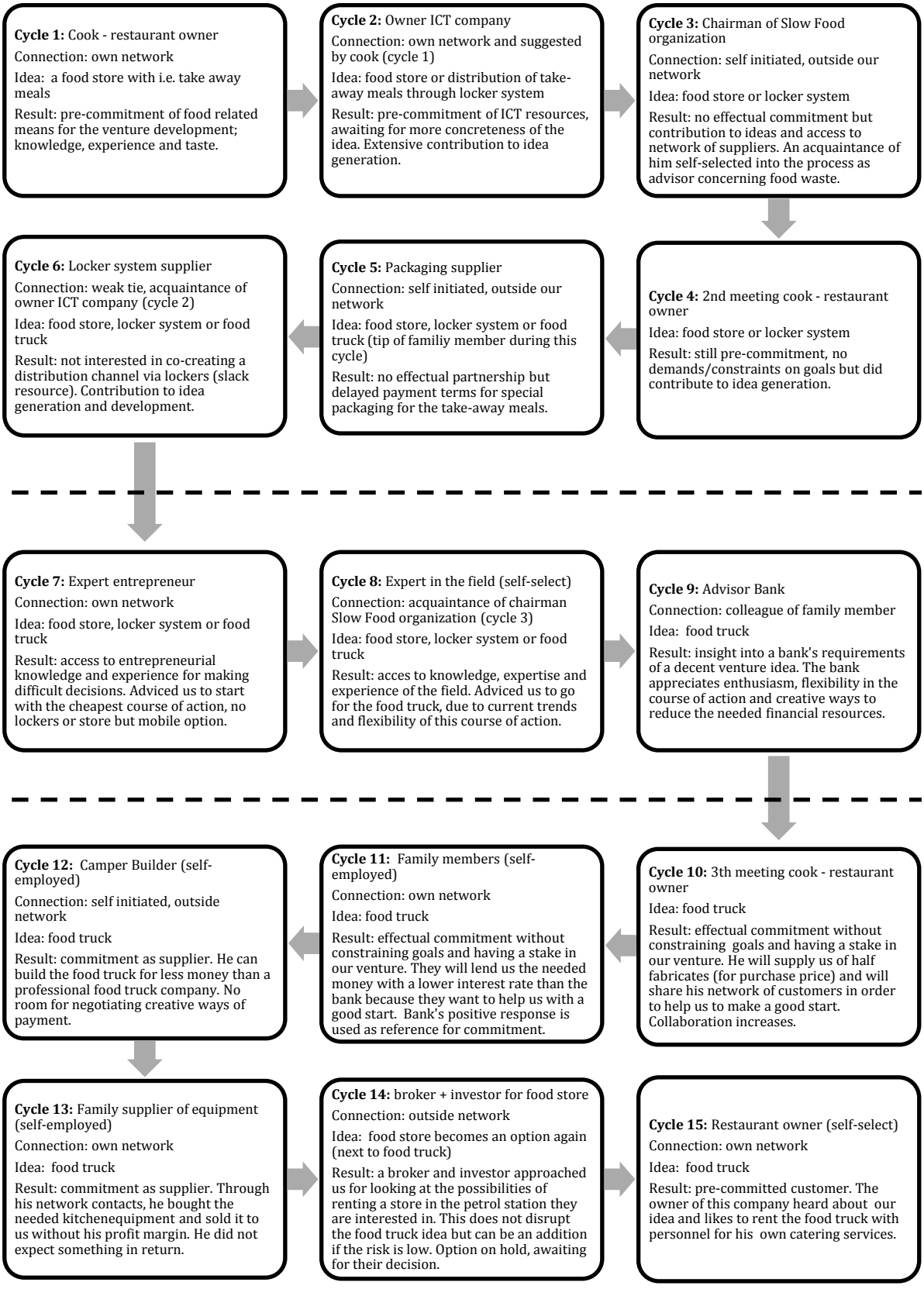
4. Results

As a result of the analysis of the data, several new insights into the relevance and applicability of effectuation as a method for novice entrepreneurs. Below these will be discussed by first describing the venture creation process in general and then focusing on the findings with regards to the effectuation principles. For reasons of simplicity I use of the term ‘we’ also throughout this results section, which refers to the two researcher-entrepreneurs.

4.1. The venture creation process

At the start of the venture creation process, we were charmed by a small food store called ‘Neighbourfood’ which was situated in a small city district and which sold i.e. take-away food that was healthy and very tasteful. However, after some successful years, the owner decided to close the store due to private circumstances. This triggered us to start the creation of our own new venture. While we had some options in mind, like distributing the food in a store or through a sort of mobile system, and decided to keep this idea open and start our venture creation process in an effectual way. With these initial ideas we engaged throughout a period of seven months in which we interacted with a total of 15 potential stakeholders. The 15 cycles of interactions with potential stakeholders are summarized in Figure 3.

Figure 3. Overview of the Fabulous Food Truck new venture creation process



The process shows that after these 15 cycles, the venture had turned from an initial idea for a food store (inflexible, expensive), via the idea of distributing take-away meals through existing lockers (expensive, hard to put in practice) to the 'Fabulous Food Truck' concept – a mobile restaurant, which is flexible, relatively inexpensive and supported by the stakeholders. Note that at the time of writing, this food truck is nearly ready for use and the first customer orders have been placed.

In order to test the applicability of the effectuation principles, the heuristics belonging to each principle are deliberately applied, as they were summarized in table 4. Doing so, led to the following findings.

4.2 Bird-in-hand principle

To apply the bird-in-hand principle, we made an inventory of our means, looked around for slack resources and focused on generating imagined ends that could be created given our means (see figure 2). While doing this, I experienced the following:

4.2.1 Easy to inventorise own means and stay close to them.

At the start and during the new venture creation process we have made an inventory of our means and continuously added the new available means to this pool of resources; *"We constantly added new resources and insights to the pool of resources and used it in the development of the venture concept"* (C1). In addition, it was not difficult to stay close to our means when considering possible courses of action. We experienced that it felt not that 'safe' to include external resources in the courses of action which were beyond our own control. We preferred keeping control over the situation and to stay close to ourselves; *"We notice that we like to stay close to ourselves in order to 'control' the situation and our future… to prevent losing our strength and distinctiveness"* (C5).

4.2.2 It is easy to get access to means of others.

At the start of the venture creation process our pool of resources was relatively limited. In 2.2 is suggested that this could be problematic, since novices are expected to have a rather limited network, which might restrict the amount of available information and resources. However, we have experienced that it was easy to expand a limited network by taking that network as a starting point: *"Interesting to see is that your limited network in the beginning can expand so quickly via people you know"* (C4) and; *"The network contacts of our stakeholders are very important means that are added to the pool of resources"* (C3). Furthermore, it was relatively easy to get access to the means of others in our network. They were all prepared and willing to help us with committing their means. This can be illustrated by this fragment: *"Making use of our own network works well; they are willing to help us with their means and resources in order to make sure that we start off well"* (C13) and *"He expanded our means with his experience, advise and network"* (C3). Although we got access to the means of others, we also preferred to stay close to ourselves: *"We notice that we like to stay close to ourselves in order to 'control' the situation and our future… to prevent losing our strength and distinctiveness"* (C5).

4.2.3 Thinking in slack resources requires the development of skills.

We experienced that it is not very easy to look for slack resources that could be used as starting point for the venture concept. Moreover, if we saw slack resources, it was difficult to link them back to the chosen direction: *"During the first couple of interactions with potential stakeholder we saw some interesting slack resources, however it was hard to link and incorporate them to our ideas"* (C4). Thinking in slack resources was new for us, as novice entrepreneurs, because we had not used this before as part of our limited 'deliberate practice'. We noticed that finding, judging, and incorporating slack resources require the

development of skills and developing a 'slack resource mindset'. We also noticed that one can take targeted actions to increase the chance of coming across slack resources. For instance, the second stakeholder mentioned: *"You can only see slack resources when you interact with a new industry or new people"* (C2) and one of us perceived: *"Looking for slack resources from behind your desk is not really working, I noticed"* (C1). Therefore, we have asked stakeholders for interesting slack resources that they saw. Within Cycle 6 this resulted in a slack resource that could be used as building block for a new possible course of action: *"The locker system itself is a slack resource that we can use as distribution channel for our meals. The occupation degree of the lockers is never 100%, so there are always lockers free that we might use"* (C6).

4.3 Affordable loss principle

In order to apply affordable loss as a principle, we have been creative regarding the things we really need for the courses of action, we estimated the absolute maximum we were able and willing to lose, determined the minimum we wanted to earn and selected one course of action (see Table 1). This yielded the following results:

4.3.1 Be creative about the things you really need in order to commit stakeholders.

We noticed that having a mindset of looking at what you really need is highly valued by our stakeholders. For instance: *"The stakeholder agreed that novice entrepreneurs, but actually every entrepreneur, have to be very critical about the resources he or she really needs"* (C2). In addition, being creative about these resources was also strongly stimulated and appreciated by these stakeholders: *"Everybody, including this stakeholder, tells us to be creative regarding the resources we need and to look around us for opportunities in order to reduce the amount of resources and cash we need"* (C10). One creative way of reducing what

you need, which was put forward by a stakeholder, was to make use of existing resources. This fragment illustrates this: *"Use existing distribution channels and not try to realize a large channel yourself which is very expensive and hard to realize"* (C2) and "*… this investment should be kept low by being creative about the investment types and by using the resources and means of others"* (C2). During the meeting with the bank account manager, we noticed that they actually expect you to decrease the investment needs: *"A bank likes the idea of reducing the needed resources for a starting business. Being creative in generating resources will reduce cash needs and increase the chance on success since your costs are lower"* (C9) and; *"... he told us that that was the strength of our effectual business plan: being creative about what you really need for this concept"* (C9). Thus we found that being creative about the means we really needed did not only give us control (as the affordable loss principle suggests), but that it also helped to obtain additional means from stakeholders.

4.3.2 Calculating minimum earn is a useful tool

Another action that worked well was the calculation of what we had to earn at minimum. Since this calculation is not guided by uncertain returns in the future, but by setting a minimum what we have to earn, it feels like a valuable tool to use. Even more because stakeholders also recommended us to make this transparent, like we recorded after the meeting with the experienced entrepreneur in cycle 7; *"This stakeholder advised us to make an overview of what we have to earn at a minimum. This is something that can be calculated and it gives an idea if the concept is worth doing"* (C7). Also the bank account manager advised us to calculate the minimum we have to earn; *"He explained that by keeping the costs low, the minimum amount that we have to earn will also be lower. This reduces the risks for us and for investors"* (C9), and; "*Also show the investor what you should minimally earn in order to cover all the costs, so break-even point"* (C9). In short, it seems that thinking and

acting in affordable loss leads not only to reduced risks, but also to expand resources since stakeholders indirectly require this before committing resources.

4.3.3 Affordable loss does not always work.

The effectual logic triggers entrepreneurs to come up with courses of action within their own resources. However, we noticed that sometimes the course of action requires more than we had at hand or could afford to lose. This made us realize that in our case what we could afford to lose was not enough as investment. This made us decide to bet all our financial resources on one course of action – the Fabulous Food Truck, once we were convinced of its potential: *"We don't have that much money, so we want to lose everything we have to show our investors that we are also willing to invest"* (C11). The negative effect of this was that after this decision we were restricted in further experimenting with courses of action. This means that we could not experiment with another course of action if the chosen one would fail. So, we were not able to experiment with our courses of action due to our limited financial resources. Whereas, this is something that expert entrepreneurs apparently do value; *"What you need to know is the minimum you have to earn in order to break-even. Then you have to decide for yourself what the amount of money and time is that you want to spend on this business idea. Then set a deadline, which can of course be adjusted in the meantime, and try to make the best of it. If the money and time is spend, and it didn't work out the way you hoped, then just quit and start another project!"* (C7).

4.3.4 What is an affordable loss depends on the concreteness of the imagined ends.

We experienced that it was difficult to evaluate the imagined ends on the basis of affordable loss when they are lacking concreteness. Within the first cycle we already perceived this difficulty; *"I think it is difficult to get started with evaluating the imagined ends*

on affordable loss. I think this is because the venture concept is not very concrete yet, which makes it hard to imagine or put on paper what concrete costs we have to make for each of them" (C1) and *"It felt like it is not really important for this moment to make sure what you would like to afford to lose, since the final idea isn't clear"* (C1). We observed that we were looking for some concreteness within the courses of action before evaluating them on affordable loss: *"We first want to get a better view of each course of action. So evaluating on affordable loss isn't really applicable at this moment"* (C5). After interactions with some potential stakeholders, the ideas became more concrete and it became more logical to evaluate what we really needed for these imagined ends and what we were willing and able to afford to lose for them. For instance in cycle 12, we have evidence that we were creative about what we really needed; "At this moment we are concentrating on looking what do we really need in order to reduce the needed cash and how can we purchase leftovers with a huge discount" (C12). In the next meeting we did a similar observation; "Especially in the phase in which the venture concept is quite concrete, it is useful to think of the needed resources in creative ways" (C13).

4.4 Crazy Quilt principle

In order to apply this principle we have made a priority list of people who could be of value to the venture creation process, we pitched our effectual business idea, were open for self-selection, negotiated creative ways of investment and, if applicable, negotiated about 'how to divide the pie' and control and ownership issues in order to gain stakeholder commitment. Doing so, revealed the following observations:

4.4.1 Different degrees of stakeholder commitment

During the creation of the new venture we tried to gain stakeholder commitment. Unlike the theory of effectuation suggests, we experienced that stakeholders not always prefer to initiate an effectual commitment or partnership in which both parties share risks and benefits, and whereby the stakeholder commits means and constrains goals. In fact, we observed that stakeholder commitment comes in degrees. Which implies that stakeholders are willing to commit resources for different purposes, under different conditions and with different levels of 'involvement'. There are three types of stakeholder commitment found in this study.

Type 1: Commitment of relatively inexpensive or inexhaustible resources. During the venture creation process we observed that stakeholders are very willing to commit and share their relatively inexpensive and inexhaustible resources in order to contribute to developing possible imagined ends: *"They would like to share 'inexpensive' resources like network, knowledge and time but they don't like to risk something"* (C13). The stakeholders with whom we interacted were not always expecting something in return: *"Although he noticed that there was maybe not an extensive role for his company, he was prepared to think about other options with us"* (C6), and: *"It is really not the case that the potential stakeholders are only looking if there is something in it for them, they are also open and willing to help and advice us for our benefit"* (C6). The stakeholder in cycle 3 contributed in a similar way: *"It really seemed that the stakeholder saw himself as mediator between us and the suppliers of Slow Food. He gave us many ideas and contacts"* (C3). In addition, we interacted with an expert entrepreneur who committed his experience to the process: *"The stakeholder committed to us as our advisor during the start-up of our venture"* (C7). Moreover, in the second cycle a potential stakeholder is approached in order to try to commit interesting resources regarding ICT. However, we noticed that this stakeholder was rather

focusing on exploring possible imagined ends, awaiting for more concreteness of the venture concept before committing valuable resources. Although, he hinted that he was interesting in a pre-commitment: *"I hope you have enough inspiration now to develop the venture concept and to make something workable of it. Try to work it out and let me know what you have decided on. If you have a more concrete picture of the venture, then contact me if you need someone of my network"* (C2) and; *"He is enthusiastic, sees lots of opportunities, and is able to make all the desired applications but when other things are more clear he would like to commit his valuable ICT resources"* (C2).

Type 2: Short-term transactional commitment with effectual elements. The second type of stakeholder commitment can be formulated as a 'transactional' one. This type 2 stakeholder commitment is characterized by a (short-term) supplier-buyer relationship in which the stakeholder did not constrained goals or shared risks. However, there were some effectual elements included in this type of stakeholder commitment, like delayed payments terms, making use of stock lots, and creative ways of generating cash. For example, we pre-committed stakeholder 15 as customer: *"This stakeholder might become a customer of us who rents the Food Truck once in a while for his own catering services. For us it is interesting because it brings us some certainty, in order to keep the Food Truck busy. We see it as a creative way to generate cash and to establish our new venture"* (C15). Another example of a creative stakeholder commitment was initiated by a family member who became a supplier of required kitchen equipment: *"This person is willing to help us with buying all the kitchen equipment directly from the factory. This will save us much money. He didn't want to get a compensation for it. However, he is a maintenance mechanic and we need a person who can execute the needed service/maintenance for all the equipment. Therefore, he will also benefit from this partnership"* (C13). It feels like these stakeholders were willing to help us without receiving a stake in the venture in return. It seems they want to make a contribution to the

chance of survival: *"He is not interested in having a stake in our venture, it seems like he just wants to help us with his knowledge and resources in order to increase the chance of success"* (C13).

Type 3: Long-term commitment with effectual conditions. We observed that a few stakeholders were willing to commit to a long-term effectual partnership which is characterized by partners who both share risks and benefits. We committed an former colleague who is a chef cook and owns his own restaurant these days: *"We pitched our idea and without asking him for his resources he said: "I'm in. I will help you"* (C1). After the venture idea became more concrete and we had a second meeting, this stakeholder became a partner with whom we have formulated a creative payment construction in which he shares risks with us: *"He told us that we could pay him for every meal that we sell. So, for instance, he makes enough food for 100 meals, but if we only sell 70, we only have to pay him for these 70 meals"* (C4). However, besides sharing risks he also benefits: *"If he does the purchase of products for us, he reaches a higher level of total purchases which means a reduction in purchase price. So, there is something in it for both of us"* (C10), and: *"He will also benefit from the success since he will be hired as professional cook during large caterings"* (C10). We constructed also another stakeholder commitment in which the focus was more on sharing risks than on sharing benefits: *"The stakeholders are willing to help us with their financial resources, without really benefitting of it themselves. They just believe in the venture concept and want to help us (financially) during the start up of the venture"* (C11). Although we would call these commitments 'effectual', these stakeholders did not have a formal stake in the company: *"However, he is not investing money in the project and therefore doesn't need to have a stake in the company"* (C10). Finally, even in this type of effectual commitment, the stakeholders did not constrain our goals.

4.4.2 A well-underpinned and enthusiastic story is key for convincing stakeholders.

We experienced that it was valued by stakeholders that we underpinned the venture concept with the ideas and trust of people in our environment: *"A very important aspect was that we explained that we talked to a lot of people in order to develop the effectual business plan. The stakeholder really seemed to appreciate this strategy because that makes the final plan well-underpinned, not really with estimations of the future but with the ideas, trust and enthusiasm of people in and outside the industry and in our own environment"* (C9). Moreover, we found that stakeholders liked to be able to visualize the venture concept when they listened to our pitch. For instance, we tried to underpin our idea by basing it on a comparable successful food concept in order to make it lively and tangible: *"We experience that starting with a tangible story in the pitch is working very well"* (C7) and; *"We used the same pitching strategy…; making a story of our concept on the basis of a successful equivalent food concept. Again this was a success"* (C2). Another element which increased the stakeholder's imagination, was the underpinning of the venture concept with current trends in the industry: *"A bank isn't only interested in predictive figures, they want to know if the idea is underpinned with the trends in the industry"* (C9) and; *"The concept is also based on some major trends of a respected organization and therefore he was more and more getting sense about our plans"* (C1). In addition, we observed that an enthusiastic story was very important in convincing stakeholders: *"A bank wants to see enthusiasm. This enthusiasm is one of the indicators for a bank to see how fanatic the novice entrepreneur is in order to get the venture started"* (C9) and; *"I think that our enthusiasm and convincing attitude about the potential of Slow Food, and the idea to make it more convenient for customers, convinced him to take us seriously"* (C3).

4.4.3 There are at least two ways of self-selection.

We experienced two types of self-section by stakeholders during the venture process. First, some stakeholders self-selected into the process after we initiated the contact: *"We pitched our idea and without asking him for his resources, he responded to our pitch by saying: "I'm in, I will help you"* (C1). In addition, our family has always been interested in the venture concept and was informed about the developments of the venture. Once they noticed that he bank (cycle 9) was enthusiastic about our venture concept they self-selected into the process: *"Since we have talked with the bank and they have told us what the costs are for getting a loan, our family is approaching us with the opportunity to get a loan via them because that is much cheaper"* (C11). Moreover, a pre-committed customer self-selected into the process: *"We can say that this stakeholder has self-selected him into the process. He knew about our plans and asked us if he could rent the Food Truck for more quality and exclusive catering services that he offers his fixed clients"* (C15).

Second, we experienced that persons in our environment approached us and presented themselves as potential contributors to the venture creation process. We perceived this in the following cycles: *"By being open about our idea, we found out that there are people in our environment who are interested in our idea and might even be open for committing to the idea in some sort of way"* (C1), and *"Since we speak with a lot of people about our plans, there are more and more people who are interested in doing business with us"* (C15). These persons self-selected into the process while we had not deliberately initiated the first contact and did not expect them to come to us. This was also the case during the third cycle: *"After our meeting with this stakeholder, he talked to an acquaintance from an organization in the food industry. This person was interested in our concept and we could ask him for a meeting in order to brainstorm about the concept"* (C3).

4.5 Lemonade principle

In order to apply this principle, we improved chances to come across contingencies and have deliberately kept open form for surprises and unexpected events that could potentially entail new building blocks for the venture (see the heuristics in Table 1). This led to the following result:

4.5.1 One can improve one's chances to come across contingencies.

We experienced that pro-actively trying to improve the chance that contingencies happen to you works and is valuable. As an example, we have engaged in social networking behaviour by visiting an open day of a comparable catering service. Whereas we did not expect it, we received much information about their services and strategy during this open day: *"They exactly told us on what basis they cooperate with other mobile catering companies. This was a surprise for us and it made us think and conclude that our venture concept is also a good addition on their current services. We hadn't thought about this before and we certainly didn't expect the openness about all of this during the open day"* (C15). We see this event as a self-generated contingency that we incorporated in our own venture creation process. This means that contingencies do not only come across the new venture creation process as external shocks, they may also be internally initiated by the entrepreneur who improves the chances to come across contingencies.

4.6 Two new effectuation principles?

This research focused primarily on applying the principles of effectuation as they have appeared in the literature so far. In addition though, we also experienced that the current principles may not sufficiently capture effectuation as a method for novice entrepreneurs. Two candidate principles are found that might need to be added.

4.6.1 Principle 6; Transparency

We experienced that we had to be totally open about our ideas and possible courses of action to convince stakeholders about the opportunities, which in turn was needed to obtain advice and commitment of resources. This appears in this fragment: *"To explain our ideas it was necessary that we pitched it as concrete as possible in order to make sure that the stakeholder could imagine what our plans are"* (C5). Moreover, talking openly about our venture concept towards the people in our network resulted in unexpected and valuable insights: *"By explaining our idea broadly, we noticed that people responded with interesting suggestions, ideas and contacts in order to develop the venture concept"* (C1). This subsequently influenced the number and type of imagined ends that we considered: *"Speaking with another stakeholder results apparently in new insights and ideas, so in new imagined ends"* (C2). Although 2.2 highlights that novice entrepreneurs might have difficulties with accumulating ideas and assessing what could be done with their means, we found that this was not a problem in practice. However, interaction with others was key in generating new possible courses of action and we needed to speak openly about the plans to improve our chances to come across slack resources, contingencies and self-selected stakeholders. Without this openness, it was not possible for us to fully apply effectuation as a method. Therefore, our experiences suggest the inclusion of an additional 'transparency principle' to the effectuation construct. This principle can be summarized as *'Disclose your means and goals as opposed to conceal and protect them'*.

4.6.2 Principle 7: Versatility

We also experienced that we did not always have the possibility to experiment with courses of action due to our limited resources. In order to overcome this restriction we have selected a course of action in which we were still flexible concerning the exact interpretation

of activities. This means that we were still able to adapt to changed insights and could shift towards other business activities within the chosen imagined end: *"We are very flexible and we can easily anticipate on the developments in the food branch and the desires of (potential) customers. This makes the business idea versatile and flexible, which I really prefer"* (C9). Also in order to reduce the risk: *"We have chosen for the Food Truck because (…) the business activities are numerous, which makes the risk lower in my eyes. If one thing doesn't work, we can start with another activity. It really feels good that we have chosen for the most flexible option"* (C11). As with the transparency principle, we could not fully apply effectuation as a method without this 'versatility principle'. Hence these findings suggest adding it as seventh effectuation principle, which can be summarized as *'Choose a versatile venture idea and keep it versatile as long as you can'*.

Table 5: Overview main findings

Topic	Main findings
Bird-in-hand principle	A limited pool of resources at the start does not have to be problematic. It is easy to get access to the means of others in your network.
	Finding, judging and incorporating slack resources seem to require the development of skills (deliberate practice).
Affordable loss principle	Being creative about the things you really need does not only give control and limits risks, it is highly valued by stakeholders and in turn accelerates stakeholder commitment.
	Affordable loss is not always working. Sometimes the course of action requires more than the entrepreneur has at hand or can afford to lose.
	When the imagined ends are lacking concreteness, it is hard to evaluate on affordable loss.
Crazy quilt principle	There are different degrees of commitment: 1. Commitment of relatively inexpensive or inexhaustible resources, such as time, knowledge, experience and network. 2. Short-term transactional commitment with effectual elements but without sharing risks and benefits. 3. Longer-term effectual partnership with (some) effectual conditions, such as sharing risk and benefits.
	A well-underpinned and enthusiastic story is key for convincing stakeholders.
	Self-selection can either be viewed as internally initiated by the entrepreneur, which means that the entrepreneur initiates the contact and those people self-select in the venture creation process, or people may present themselves as

	potential contributors.
Lemonade principle	Entrepreneurs can improve their chances to come across contingencies by having a pro-active stance. This means that contingencies do not only come as external shocks, but are often initiated by the entrepreneur who improves chances to come across them.
Transparency principle (new)	Being totally open and transparent about your ideas and possible courses of action is necessary to convince stakeholders about the opportunities of the possible courses of action.
	Being and talking openly increases the chance to come across slack resources, self-selected stakeholders, contingencies and possible courses of action.
Versatility principle (new)	It is not always possible to experiment with courses of action. Therefore it may be necessary to choose for flexibility in the courses of action.
Novice entrepreneurs	Novice entrepreneurs might need some additional iterations of the effectual process in order to obtain expert knowledge, advice and experience for overcoming their lack of experience.
	Novice entrepreneurs need likely to be more open than expert entrepreneurs. They need to tell stakeholders a well-underpinned, supported, and enthusiastic story in order to convince them about the venture ideas.

5. Discussion

5.1 Implications

In this study effectuation is used as an entrepreneurial method for two novice entrepreneurs who together engaged in new venture creation during a real-life experiment. As such, this action-research has led to several new findings about effectuation, which are summarized in table 5. These findings have implications for effectuation as a practical method and as a theoretical construct.

Firstly, this study has implications for a better understanding of the affordable loss principle. We found, for instance, that this principle is not always working. Sometimes the course of action requires more than the entrepreneur has at hand or can afford to lose. In these cases, entrepreneurs have to put additional effort in reducing the needed resources and/or being creative in gaining these needed resources as cheap as possible.

Secondly, this study also contributes to a better understanding of stakeholder commitments within the crazy quilt principle. Although the findings do not necessarily challenge the value of stakeholder commitments for co-creation, we found that it was not always possible or desirable to engage in the longer-term effectual partnerships that effectuation theory suggests. Rather, we found that stakeholder commitment comes in degrees with respect to their purposes and level of involvement. This implies that when applying effectuation as a method, entrepreneurs should perhaps not focus exclusively on effectual commitments but instead also embrace less effectual commitments that can also result in more means and goals and subsequently contribute to the venture creation process.

Thirdly, with respect to the crazy quilt principle, two ways of self-selection are found. From a practical perspective, this implies that entrepreneurs need an open stance towards the self selection of people into the venture creation process without any occasion. Moreover, they also have to make sure that there is a chance for potential stakeholders to self select themselves during a interaction or meeting before the entrepreneur asked the stakeholder for committing his resources. With respect to the lemonade principle, we found that entrepreneurs can pro-actively seek for contingencies and that contingencies are not only external shocks that come across once in a while.

Finally, two candidates for new effectuation principles are found: the transparency principle and the versatility principle. It seems that entrepreneurs will boost their venture creation process when they are disclose their means and goals as opposed to conceal and protect them. Based on the outcomes of this research, it seems to be wise that entrepreneurs choose a versatile venture idea and keep it versatile as long as possible in order to be able to adapt to external developments. When combined with other findings on the effectuation principles, these findings contribute to a further refinement of the effectuation construct.

While I believe that some of the findings apply to experienced entrepreneurs, there are specific findings for novice entrepreneurs as well. During the venture creation process there was a point that we were looking for expert experience and advice. This need for reassurance originate in our lack of experience with new venture creation. We have tried to compensate this lack of experience by consulting experts as sounding board (Cull, 2006) who provided us with different opinions and viewpoints that fostered increased knowledge during difficult decision moments. This implies that novice entrepreneurs might approach some additional 'people they know' in order to gain expert feedback, advice and experience (new means) that can be used in their decision making. Moreover, my experiences of this study suggest that some parts of effectuation require the development of skills. Examples are finding and judging slack resources, contingencies and imagining possible courses of action based on the resources at hand. Experienced entrepreneurs have developed these skills through prior deliberate practice, but novices have not engaged in new venture creation processes before. This implies that novice entrepreneurs should gather these skills either during the new venture process or in another way, e.g., through education. Finally, while expert entrepreneurs can use their track record to trigger the interest of stakeholders and convince them, novice entrepreneurs need to rely much more on the business idea. Therefore, it was very important to be open and to pitch a well-underpinned and enthusiastic story in order to gain commitment of stakeholders. Expert entrepreneurs might need to do this less.

This study has also a methodological implication. To my knowledge, action research has not been applied to effectuation research before. In addition, Neergaard & Ulhoi (2007) see no evidence that action research has been applied in an entrepreneurial context at all. With this real-life experiment it is shown that it is possible and productive to apply action research in entrepreneurship research and on effectuation in particular. Although it was possible, I experienced that it requires extremely high levels of commitment and conscientiousness of the

action researcher, who is researcher and entrepreneur at the same time. Therefore, I suggest that other entrepreneurship processes can also be empirically studied using action research, but only if the researchers are willing to show the required level of commitment.

This research has also implications with respect to including the theory of effectuation in the curriculum of entrepreneurship education as mentioned in the introduction of this thesis. Since the findings of this research show that effectuation is applicable for novice entrepreneurs during their new venture creation in an unpredictable situation, I suggest that it is valuable to teach students (1) to start with '*who they are, what they know and who they know'*, (2) to be creative concerning 'what do I really need', (3) to realize that there are three types of stakeholder commitment which in different degrees can boost forward the venture creation process, especially committing 'expert experience' is necessary for novice (4) to talk openly and transparent towards potential stakeholders concerning means and goals and (5) to choose a versatile venture idea and keep it versatile as long as possible.

5.2 Limitations and further research

As with all research, this study has limitations that need to be acknowledged. The most prominent limitation concerns the mixed roles of me and my colleague as researcher-entrepreneurs. Therefore, the principal threat to the validity of this study is the lack of impartiality on the part of the action researchers. Although action research is subjective in nature, it is tried to limit this bias by making use of two coders. Secondly, action research focuses on contextually embedded cases in which the system as a whole matters. This means that rich and detailed information is gathered about one specific case – a new venture in the hospitality industry founded by two novice entrepreneurs. This restricts the generalizability of the findings to other situations. This limitation is mitigated by continuously generalizing the findings towards effectuation theory. However, generalization towards other contexts remains

subject of further research. Finally, the cyclical nature of action research is time-consuming and complex to conduct and report. While this research is executed within 7 months, a typical action research project can easily take up to 3 years. Although I assume that most elements/parts of the gestation phase of our venture creation process within this time frame are captured, it is also interesting to see what will happen at later stages of the venture creation process. Studying this, though, is directed forward towards future research.

While this study contributes to establishing a qualitative foundation for effectuation as method for novice entrepreneurs, future research should test the findings of this study with larger samples in order to make the results more generalizable. Particularly, future research should focus on the question whether the findings of this research regarding the different degrees of stakeholder commitment, the findings of the effectual principles and the subsequent possible new transparency and versatility principle also apply to situations in which expert entrepreneurs use effectuation in practice. Such studies should also be applied in different contexts.

Finally, this research suggests some possibilities to link effectuation to other streams of literature. The findings of this study regarding the versatility principle, as well as the affordable loss principle suggest that there may be a close connection between effectuation theory and real option theory (e.g., McGrath, 1997) concerning how to deal with uncertainty issues and evaluating which course of action to chose with respect to flexibility and affordable loss. Exploring this connection, so I think, may be fruitful in providing additional insights into both effectuation and real option theory. Furthermore, findings regarding the Crazy Quilt principle and the new Transparency principle also suggests interesting directions for linking effectuation theory to theories of legitimization, for both concern how entrepreneurs gain legitimacy during new venture creation. This question is especially interesting for novice entrepreneurs since they lack prior business ownership experience and a network of social and

business contacts that restrict the development of their creation of a new venture (Delmar & Shane, 2004; Lounsbury & Glynn, 2001; Suddaby & Greenwood, 2005).

6. Conclusion

This study has contributed to the effectuation literature by an in-depth process study of effectuation applied by novice entrepreneurs in real-life. This action research experiment provides new and detailed empirical insights into the dynamics of the effectuation theory and simultaneously into the effectual behaviours of novice entrepreneurs. Concentrating on the main findings, the first suggestion is that stakeholder commitment comes in at least three degrees of effectual involvement. The second main finding suggests that entrepreneurs need to be highly transparent about their means and goals in order to act effectually. A third interesting finding suggests that entrepreneurs can act effectually by choosing a versatile venture idea and keeping it versatile as long as possible.

Furthermore, with regard to novice entrepreneurs specifically it is found that they might require additional interactions with 'people they know' and might need to talk more openly about their ideas and goals than experienced entrepreneurs to gain legitimacy and develop their venture. Based on these findings, I introduce two new effectuation principles – the transparency principle and the versatility principle. Looking at all the findings, I can conclude that novice entrepreneurs can use effectuation as method, but only with some modifications of the principles of effectuation. I hope that the findings of this qualitative action research study will stimulate other scholars to conduct further research on how these findings and implications hold with larger samples, different contexts and when applied by experts entrepreneurs.

Returning to the question whether the logic of effectuation as method for new venture creation has to be added on the curriculum of entrepreneurship education, as mentioned in the

introduction of this thesis (chapter 1), I suggest that it can be valuable since the findings of this research show that effectuation is applicable for novice entrepreneurs during their new venture creation in an unpredictable situation.

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Appendix I: Coding scheme