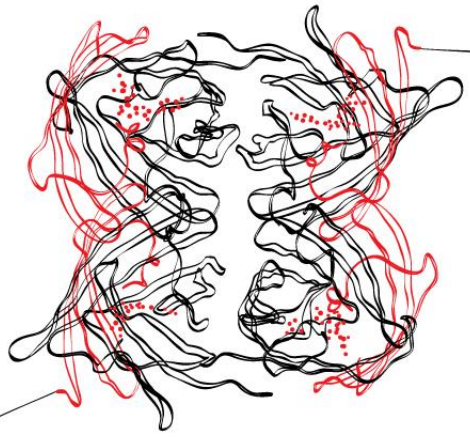
THE NATIONAL CULTURAL BACKGROUND OF AN ENTREPRENEUR AS A DRIVING FORCE OF EFFECTUAL BEHAVIOR IN NEW VENTURE CREATION



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The cultural background of an entrepreneur as a driving force of effectual behavior in new venture creation

Bachelor thesis

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Abstract and keywords

The main body of research on new venture creation is based on rational decision-making models that are goal driven and referred to as causation models. A more recent perspective that has been gaining ground in literature demonstrates that (expert) entrepreneurs create ventures in a different way when markets are non-existent or in situations with great uncertainty. This is the perspective of effectuation, which questions the universal applicability of causation-based models. Effectuation research is moving to a new level of research, characterized by establishing relationships with other constructs. This research is part of the EPICC (Entrepreneurial Processes in a Cultural Context) project and makes a contribution to effectuation literature by examining to what extent effectual behavior in new venture creation is driven by the national cultural backgrond of an entrepreneur. A comparison is made between student entrepreneurs of four different countries; Canada, the Netherlands, China and Vietnam. Based on similarities in cultural dimensions, the countries were clustered. The overall use of causation and effectuation demonstrate no significant differences between the clusters. However, after testing the hypotheses, results show that rather than acting as a predictor for the overall ratio between causation and effectuation, the national culturalal background of an entrepreneur reinforces the use of specific elements. Thus, specific characteristics of cultural dimensions that represent the national cultural background of an entrerpeneur are driving effectual behavior in new venture creation.

Keywords: *effectuation, new venture creation, cultural dimensions*

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1. Introduction

This research is part of the EPICC project (Entrepreneurial Processes in Cultural Context). Fellow members of the project executed research in a diverse range of countries. The results of this thesis will contribute to the general purpose of the project; examining whether culture influences the way entrepreneurs think and act. In this chapter, the research is introduced by discussing the background, the research question, and the relevance. After that, the outline of the thesis is described.

1.1 Background

With the globalization of business activities and the removal of political and economic barriers, entrepreneurship has gained renewed interest by researchers, government policy makers and business leaders (Mueller & Thomas, 2000). Entrepreneurial opportunities exceed national borders and differences in entrepreneurial activity between countries can be observed. Entrepreneurial activities, resulting in new venture creation, are considered as an important source of technological, product, and market innovation and economic growth (Mueller & Thomas, 2000). How new ventures are created will be explained in terms of entrepreneurial processes, which *"involve all the functions, activities, and actions associated with perceiving opportunities and creating organizations to pursue them"* (Bygrave, 2004, p.7). For looking at the entrepreneurial process, there are different theoretical lenses (Moroz & Hindle, 2012). The main body of research on entrepreneurial processes is based on rational decision-making models that are goal driven (Perry, Chandler, & Markova, 2012). These decision-making models are referred to by Sarasvathy (2001a) as "causation-processes". A more recent perspective that has been gaining ground in literature demonstrates that entrepreneurs work in a different way when markets are non-existent or in situations with great uncertainty. This perspective is the theory of 'effectuation' by Sarasvathy (2001a). Entrepreneurs who rely on effectuation processes do not start with a specific goal. Instead, they start with the means they have at their immediate disposal in order to create several possible effects. Goals emerge and change along the process while taking advantage of contingencies. Effectuation processes remain flexible and effectual entrepreneurs learn as they go (Perry et al., 2012).

Since the introduction by Sarasvathy (2001a), effectuation was empirically modeled and tested only in a limited number of studies (Perry et al., 2012). More recently, measures were developed and links of effectuation with other variables were examined by researchers like Chandler et al. (2011) and Dew et al. (2009). However, the link of effectuation with culture has not been established yet. Since differences in cultural values shape the development of certain personality traits and act as an interpretive frame of behavior, individuals in a society are motivated to engage in behaviors that may not be as prevalent in other societies. As a result, it might be expected that national culture is influencing entrepreneurial thinking. In other words, effectual behavior in new venture creation could be impacted by the national cultural background of the entrepreneur.

1.2 Research question

The general objective of this research is to find out whether entrepreneurial processes, and the use of effectuation in particular, differ between entrepreneurs with different cultural backgrounds. To fulfill the objective, the research question as formulated below should be answered: *To what extent is effectual behavior in new venture creation driven by the national cultural background of an entrepreneur?*

The research question will be subdivided into the following questions:

- How can new venture creation be described?
- What is the difference between causation and effectuation as an entrepreneurial process?
- What are the characteristics of the national cultural background?

To answer the sub-questions, a literature review will be carried out to clearly define the elements and to develop a theoretical framework from which hypotheses can be derived. This is a deductive approach; specific expectations of hypotheses are developed on the basis of general principles (Babbie, 2004). The insights from a theoretical background will be tested by a statistical analysis.

1.3 Relevance

In established effectuation literature, the role of culture has not been examined yet. In this exploratory study, the element of culture will be connected with causation and effectuation processes. When differences in effectual behavior between different cultural settings are perceived, this could have both theoretical and practical value. Future effectuation research would have to take the cultural aspect into consideration which could lead to adjustments in educational programs. In addition, consulting would have to grow accustomed to the cultural characteristics of current and future entrepreneurs.

1.4 Thesis outline

In chapter 2, literature of entrepreneurial processes and culture will be reviewed in order to answer the sub-questions. From the literature review, hypotheses are formulated and in chapter 3 the used methodology is addressed. Chapter 4 describes the data-analysis and the results. In chapter 5 the findings of the thesis are presented in the conclusion. In the final chapter, limitations of this study and suggestions for further research will be discussed.

2. Literature review

In order to develop a theoretical framework relevant literature will be reviewed in this chapter. The key elements of the research question will be discussed subsequently to provide a solid background for the study. Within this framework, a possible link between the concepts will be outlined, from which hypotheses are derived.

2.1 Entrepreneurial processes

Entrepreneurship is inextricably tied to the creation of new ventures. The creation of new ventures is a very complex and intricate process, affected by numerous contextual factors (Gartner, 1985; 1988). In the field of entrepreneurship research, scholars have made significant efforts to elucidate how new venture creation is realized and how entrepreneurs carry out their activities. In this research, new venture creation will be explained in terms of entrepreneurial processes, which involve *"all the functions, activities, and actions associated with perceiving opportunities and creating organizations to pursue them"* (Bygrave, 2004, p. 7). In literature, several models of entrepreneurial processes share the same fundamentals, but demonstrate a great diversity in critical activities and in the general philosophy behind them. The divergent perspectives point out the fragmentation in researchers' notions of the entrepreneurial process. There is no such thing as a comprehensive model; there are different paradigms for looking at the process (Moroz & Hindle, 2012). Recently interest in entrepreneurship as a field of research has intensified and new theoretical perspectives of the entrepreneurial process have originated. These new paradigms, which oppose the more traditional ones, have been referred to as 'emerging theoretical perspectives' (Fisher, 2012). The alternative perspectives, such as effectuation (Sarasvathy, 2001a) and bricolage (Baker & Nelson, 2005) have been reason for debate between scholars of different paradigms. The main body of entrepreneurship research is based on rational decision making models where business planning is essential (Brinckmann, Grichnik, & Kapsa, 2010; Perry et al., 2012). Researchers belonging to the 'planning school' argue that business planning is of vital importance for the survival and development of both new and established ventures. The underlying assumption is that planning improves effectiveness of human action and facilitates goal achievement (Ansoff, 1991). Business

planning is a rational and formal approach to strategy development and relies on prediction. Market research, competitive analysis and calculations of risk-adjusted returns are examples of supportive techniques of business planning that are used to make predictions (Dew, Read, Sarasvathy, & Wiltbank, 2009; Brinckmann et al., 2010). This approach lays the foundation of goal-driven, deliberate models of entrepreneurial decision-making, referred to by Sarasvathy (2001a) as causation models. Causation models make up the predominant entrepreneurial decision model, taught in many business schools. An opposing group, belonging to the 'school of learning', challenges the importance of systematic analysis and integrative planning. The school of learning suggests an adaptive and incremental approach when it comes to strategy development. Strategies can be unintended or get displaced along the process and are referred to as *emergent* strategies, which do not necessarily follow a predetermined plan (Mintzberg, 1978). The focus of these strategies is on learning, strategic flexibility, and controlling resources in order to respond to contingencies as they arise. An entrepreneurial process that is consistent with emergent strategies is effectuation (Chandler, DeTienne, McKelvie, & Mumford, 2011). Effectuation questions the universal applicability of causation-based models to the entrepreneurial process and represents a paradigmatic shift in the way that we look at entrepreneurship. This paradigmatic shift has been seen as expanding on entrepreneurial theory and practice (Perry et al., 2012). This research will center on the theory of effectuation to make a contribution to this expansion by establishing a possible link of effectuation with a construct that has not been examined before.

2.2 Effectuation and Causation

After analyzing interviews to understand how expert entrepreneurs transform an initial idea into an enduring company, Sarasvathy (2001a) recognized a distinct form of logic which she defined as effectual reasoning. Effectual reasoning contrasts important principles in theories which Sarasvathy (2001a) labeled as processes of causation. *"Causation processes take a particular effect as given and focus on selecting between means to create that effect"* (Sarasvathy, 2001a, p. 245). Effectual reasoning on the other hand does not start with a given goal. *"Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that*

set of means" (Sarasvathy, 2001a, p. 245). On that account, goals can emerge contingently over time. In the end, the generalized outcome of creating a new venture remains the same both in causation and effectuation. The set of choices is the distinguishing feature between the two processes (see Figure 1). Causal reasoning implies choosing between means to achieve a predetermined goal in the optimal way (for instance the fastest, cheapest or most efficient way). This signifies a "*many-to-one mapping*" whereas effectual reasoning involves a "*one-to-many mapping*" by choosing between many possible ends using a given set of means (Sarasvathy, 2001a, p. 245).

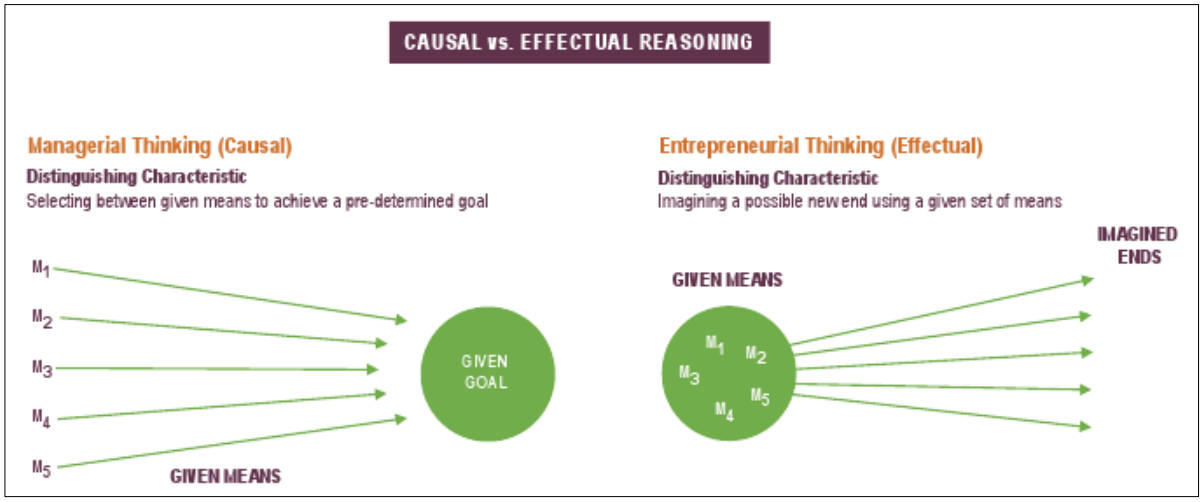


Figure 1: Causal vs. Effectual reasoning (based on Sarasvathy, 2004, p. 3)

The given set of means is composed of three categories that entrepreneurs start with; they know who they are (traits, tastes and abilities), what they know (education, training, expertise and experience) and whom they know from their social and professional networks (Sarasvathy, 2001a). The primary set of means combined with contingencies during the process enables the entrepreneur to create several possible effects. The effects are not predetermined, but get constructed as an integral part of the effectuation process. This action based approach of effectuation does not entail an elaborate planning. During the process, plans and goals are made, unmade and revised, based on interactions with stakeholders and contingencies that arise. In terms of new venture creation this implies that a set of actions for transforming the opportunity into a new venture is visualized and pursued, but will not involve a preselected (optimal) type of firm. New venture creation involves dealing with uncertainties pertaining to the future. Since the structure of the new venture is not predetermined, but shaped through

the process, there is no need for prediction (utilized in causation processes). The unpredictable future is controlled to a certain degree and this is one of the five principles that constitute the theory of effectuation:

Issue	Causal Frame	Effectual Frame
View of the future	**Predictive logic**. Causal logic frames the future as a continuation of the past. Hence accurate prediction is both necessary and useful.	**Non-predictive control**. Effectual logic frames the future as shaped (at least partially) by willful agents. Prediction is therefore neither easy nor useful.
Basis for taking action	**Goal-oriented**. In the causal frame, goals, even when constrained by limited means, determine sub-goals. Goals determine actions, including which individuals to bring on board.	**Means-oriented**. In the effectual frame, goals emerge by imagining courses of action based on given means. Similarly, who comes on board determines what can be and needs to be done. And not vice versa.
Predisposition toward risk and resources	**Expected returns**. Causal logic frames the new venture creation problem as one of pursuing the (risk-adjusted) maximum opportunity and raising required resources to do so. The focus here is on the upside potential.	**Affordable loss**. Effectual logic frames the problem as one of pursuing adequately satisfactory opportunities without investing more resources than stakeholders can afford to lose. The focus here is on limiting downside potential.
Attitude toward outsiders	**Competitive analysis**. Causal frames promulgate a competitive attitude toward outsiders. Relationships are driven by competitive analyses and the desire to limit dilution of ownership as far as possible.	**Strategic alliances**. Effectual frames advocate stitching together partnerships to create new markets. Relationships, particularly equity partnerships drive the shape and trajectory of new ventures
Attitudes toward contingencies	**Avoiding**. Accurate predictions, careful planning and unwavering focus on targets form hallmarks of causal frames. Contingencies, therefore, are seen as obstacles to be avoided.	**Exploration**. Eschewing predictions, imaginative rethinking of possibilities and continual transformations of targets characterize effectual frames. Contingencies, therefore, are seen as opportunities for novelty creation – and hence to be leveraged.

Table 1: Differences between effectual and causal logics (based on Dew et al., 2009, p. 290)

Although effectuation is signified as the inverse of causation, Sarasvathy (2001a) emphasized that effectuation processes are not indicated as better or more efficient than causation processes. Moreover, they can work in a complementary way but entrepreneurs prefer effectuation over causation in the early stages of a new venture (Sarasvathy, 2001a). In literature, the contributions of several of the conceptual

effectuation articles presented and defined the concept of effectuation, contrasted it to causation and described when, how and why effectuation may be used. Effectuation research is moving from nascent toward an intermediate level of research, which is characterized by, among others, research questions that propose relationships between new and established constructs (Perry et al., 2012). Following on from this transition, the construct of culture will be connected to the concepts of effectuation and causation. The concept of culture will be introduced in the next section.

2.3 Culture

In everyday language, the word 'culture' is frequently used in a divergent set of contexts, but all with the same basic assumption; culture is derived from, or created by the intervention of humans and it involves shared artifacts and behavioral patterns and values (Dahl, 2004). The concept of culture can be defined as follows: *"a shared set of basic assumptions and values with resultant behavioral norms, attitudes and beliefs which manifest themselves in systems and institutions as well as behavioral patterns and non-behavioral items"* (Dahl, 2004, p. 6). Culture consists of multiple factors that are shared by members of a group and serves as an interpretive frame of behavior (Dahl, 2004). There is fierce debate about what level of analysis is suitable for the concept of culture. As culture is shared, it implies that it is not necessarily directly connected to the individual on the one hand, yet as the same time it is problematic to establish how many individuals who share a 'culture' make up any one culture. Every group or category of people carries a set of common mental programs that constitutes its culture. Different levels of culture are:

- *National level*
- *Regional and/or ethnic and/or religious and/or linguistic affiliation level*
- *Gender level*
- *Generation level*
- *Social class level*
- *Organizational, departmental, and/or corporate level* (Hofstede, Hofstede, & Minkov, 2010)

Culture will be analyzed at a national level in this research, since a comparison between countries will be made. Arguments that support an analysis on national level are that the nationality of a person can easily be ascertained and there is fair support for the idea that people stemming from the same country will be shaped by broadly the same values and norms (Hofstede, 1991). It is important to note that culture is not the only factor impacting human behavior. Culture level analysis always reflects "central tendencies for the country" (Hofstede, 1991, p.253). It is shared among members of one group or society, and has an interpretative function for members of that group. Although members of a group or society share their culture, expressions of culture-resultant behavior are modified by their personality (Dahl, 2004).

2.3.1 Layers of culture

Culture is composed of multiple layers. In 1976, Hall introduced the iceberg model of culture. The culture of a society was depicted as an iceberg, with some aspects visible (above the water) but a larger portion hidden beneath the surface (Hall, 1976). The invisible layer symbolizes values and the visible layer consists of resultant behavior or artifacts. This two-layer view however, seems to be too "*rudimentary*" for a representative model of culture (Dahl, 2004, p. 4). A cultural system consisting of four layers is proposed by Hofstede (2001), which could be compared with an onion. The skins can be peeled layer by layer in order to reveal the core, which represents values. Values can be seen as the invisible part of the iceberg model, whereas rituals, heroes and symbols represent the visible part and are subsumed under the term practices (see Figure 2).

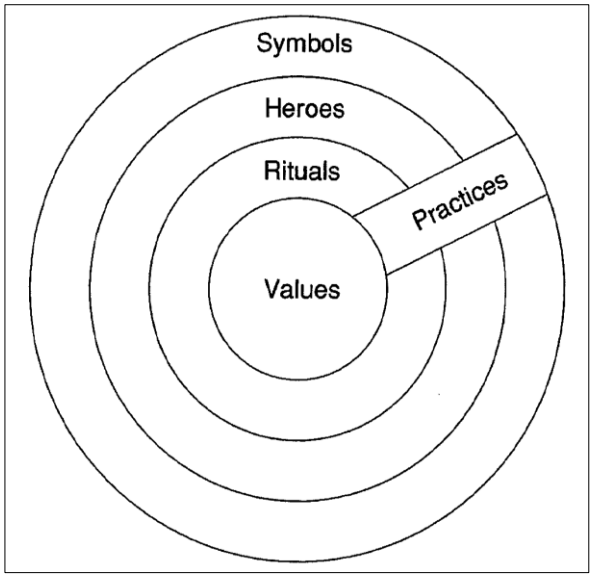


Figure 2: The "Onion Diagram" (Hofstede, 2001, p. 11)

Values form the inner layer of the onion diagram and can be seen as the core of every culture. Values are; "*broad tendencies to prefer certain states of affairs over others*" (Hofstede, 1994, p. 8) and manifest themselves in systems and institutions as well as behavioral- and non-behavioral items (Dahl, 2004). Values represent the basic conceptions that people have about how things should be and therefore shape the development of certain personality traits and particular behavior of individuals in a society (Mueller & Thomas, 2000). This research will focus on the core of the onion diagram (values) since it influences individual behavior and decision-making. How values can be linked to entrepreneurial processes will be discussed in section 2.4.

2.3.2 Cultural dimensions

As values form the invisible layer of culture, it makes it hard to perceive differences between groups. To be able to compare cultures, cultural patterns were classified and conceptualized in the form of cultural dimensions. Cultural dimensions are represented values; they are constructs of values and can be measured by quantitative scales. Cultural dimensions are the most widely used explanatory variables in intercultural management research (Fink, Neyer, & Kölling, 2007), and will be used in this research as well. In mainstream literature, various scholars developed value dimensions in order to create a universally applicable framework to classify cultural patterns:

Researchers (sources)	Dependent variable	Independent variables	Method	Sample/Context
Kluckhohn and Strodtbeck (1961)	Human problem solutions	*Five dimensions*: Human nature orientation Man-nature orientation Time orientation Activity orientation Relational orientation	Quantitative questionnaire, qualitative report	106 persons: Navaho Indians, Pueblo Indians, Spanish American village, Texan and Oklahoman farming village, and a Mormon village
Hall and Hall (1990)	Communication at work	*Four dimensions:* Fast and slow messages High and low context Space Time	Qualitative open interviews	180 employees and managers in the field of economy
Hofstede (1980)	National culture difference within one organization	*Four dimensions:* Power distance Individualism/collectivism Masculinity/femininity Uncertainty avoidance	Quantitative open interviews	Approximately 116,000 IBM employees
Trompenaars (1993)	Management-relevant problem solutions	*Seven dimensions:* Time status Achievement/status ascription Individualism/collectivism Universalism/particularism Emotional/neutral Specific/diffuse Man-nature relationship	Quantitative questionnaire with scales	15,000 employees in companies
Schwartz (1992)	Present and future in society	*Eleven dimensions:* Self-direction Stimulation Hedonism Achievement Power Security Conformity Tradition Spirituality Benevolence Universalism	Quantitative questionnaire with nine-point Likert scales	Approximately 200 teachers and 200 students per country, in 20 countries
House et al. (2004) - GLOBE	Business leadership present and future	*Nine dimensions:* Performance orientation Future orientation Assertiveness Humane orientation Gender egalitarianism Power distance Institutional collectivism In-group collectivism Uncertainty avoidance	Quantitative questionnaire with seven-point scales and analysis of qualitative data with content analysis	17,000 middle managers in 61 countries

Table 2: Value dimensions in mainstream literature (Fink, Kölling, and Neyer, 2005, 7-8)

The models of the abovementioned scholars will be elaborated below and the selection of the framework that will be applied in this research will be substantiated.

Kluckhohn and Strodtbeck developed one of the earliest models for analyzing culture. Based on three principal assumptions, they suggested that human problem solutions reflect a society's culture. Five problem areas, that are important for all human groups, were identified and for each problem area a corresponding value orientation was

established (Yeganeh, Su, & Sauers, 2009). Their model laid the foundation and set the benchmark for later research on values (Fink, Neyer, & Kölling, 2007; Yeganeh, Su, & Sauers, 2009) and one can find considerable commonalities between elements of their model and later models developed by Hofstede (1980), Trompenaars (1993) and Hall (1960, 1976) (Yeganeh, Su, & Sauers, 2009). Major limitation of this framework is the lack of objective and measurable yardsticks for cultural orientations (Yeganeh, Su, & Sauers, 2009). In addition, the model is relatively old and has been evolved by other scholars. Therefore, this cultural framework will not be used to explain differences in entrepreneurial processes.

Hall and Hall developed value dimensions to explain cultural differences in an international business context. Two dimensions focused on interpersonal communication; fast and slow messages and high and low context. These concepts are concerned with the way and the speed in which information is transmitted or communicated. The other value dimensions are time orientation (the ways in which cultures structure their time) and space (intimate, public and social spaces), which are perceived differently across cultures (Dahl, 2004; Fink, Neyer, & Kölling, 2007; Yeganeh, Su, & Sauers, 2009). The limit of the dimensions to only a few aspects of culturally based behavior (communication, time orientation, space) rather than a general explanation of underlying values, makes this model merely appropriate for specific areas of research such as communication, negotiation and organizational behavior (Dahl, 2004). Another concern with this framework is that it does not distinguish any ranking between its dimensions and does not provide objective measures for cross-cultural comparisons (Yeganeh, Su, & Sauers, 2009). Therefore, the framework of Hall and Hall is less suitable for this particular research.

Trompenaars developed a model based on the assumptions of Kluckhohn and Strodtbeck that culture is an offer of specific problem solutions. Trompenaars defined three specific problem areas: relations with other human beings, relation to time, and relation to the environment. Within these areas, seven dimensions were established, which show considerable similarities with the work of Hofstede (1980) and Kluckhohn and Strodtbeck (Yeganeh, Su, & Sauers, 2009; Dahl, 2004). Some dimensions of the model are not conceptually separated constructs which reduces the applicability of the

model in empirical research. In addition, the framework of Trompenaars does not provide a practical approach to measure culture (Yeganeh, Su, & Sauers, 2009). For these reasons, the model of Trompenaars will not be applied in this study.

Schwartz's model represents an extensive and innovative study that elaborates upon previous works of, for instance, Hofstede (1980). A major difference with the earlier mentioned studies is that Schwartz's work is divided into an individual-level analysis and a culture-level analysis. On the individual level, eleven value types were developed and on the culture level seven value types are distinguished (Dahl, 2004; Yeganeh, Su, & Sauers, 2009). Although the work of Schwartz is based on previous models, the measurement instrument is radically different (values vs. preferred states or behavior). Schwartz's questionnaire is not based on outcomes, but on preferences for values that guide one's life. As a consequence, respondents may tend to choose an answer that is imaginary which may not be reflected in their actual behavior (Dahl, 2004). Although the work of Schwartz could be appropriate to be applied in empirical research, the model was not developed to be used in cross-cultural management research. Some value types represent broad notions without being clearly defined, which make it difficult to include them in a research design. And, above all, the framework does not indicate which value types are more or less essential in each culture (Yeganeh, Su, & Sauers, 2009). That makes it difficult to link a specific culture to another construct and therefore the model of Schwartz will not be utilized in this research.

The Global Leadership and Organizational Behavior Effectiveness Project (GLOBE) focuses on the impact of cultural values on organizational practices and leadership in a large number of countries (Fink, Neyer, & Kölling, 2007). National cultures in 61 countries were investigated along nine value dimensions. The nine value dimensions are derived from other models (Hofstede, 1980; Kluckhohn and Strodtbeck, 1961) and do not offer conceptual novelty (Yeganeh, Su, & Sauers, 2009). Points of criticism are the ambiguity about institutional collectivism and in-group collectivism constructs as it corresponds to a different notions by other scholars. In addition, some of the GLOBE dimensions reflect organizational phenomena instead of pure cultural values (Yeganeh, Su, & Sauers, 2009). Therefore the GLOBE model falls short in applicability for this specific research.

Hofstede derived his cultural dimensions from examining personal value orientation in the work situation of IBM employees. Data were collected in more than 40 countries in two periods during the years 1968 and 1972 and more than 116,000 questionnaires were filled in. From his original work, four value dimensions were derived and it was updated and expanded in 1991 (when a fifth dimension was added) and in 2001 (Dahl, 2004; Fink, Neyer, & Kölling, 2007; Venaik & Brewer, 2010). In addition to the large empirical database, Hofstede grounded his model on a comprehensive literature review and elaborated on previous scholars such as Kluckhohn and Strodtbeck and Kroeber and Parsons (Yeganeh, Su, & Sauers, 2009). Although Hofstede's framework is an accepted paradigm by researchers, it is also subject to several criticisms. The empirical work from which the initial four dimensions were derived took place in 1967-1973 and therefore the dimensions measured might now be outdated (Soares, Farhangmehr, & Shoham, 2007; Venaik & Brewer, 2010). Scholars have also criticized the nature of Hofstede's data – which are based on a single company, comprising middle class employees – (Hofstede, 2002; Yeganeh, Su, & Sauers, 2009), and the research methodology (McSweeney, 2002). Hofstede responded to the abovementioned criticisms (Hofstede 2001, 2002) and his arguments are: although cultures change, "the dimensions are assumed to have centuries-old roots" (Hofstede, 2002, p. 1356). Therefore, change is believed to emerge very slowly and "only data which remained stable across two subsequent surveys were maintained" (Hofstede, 2002, p. 1356; Soares et al., 2007). Consequently, relative cultural differences should be enduring and national cultural value systems are quite stable over time (Hofstede and Usunier, 1999 as quoted by Soares et al., 2007).

Despite the criticisms, the work of Hofstede is the most often cited (Dahl, 2004), the most widely employed (Yeganeh, Su, & Sauers, 2009) and dominant (Venaik & Brewer, 2010) work in the area of cross-cultural research. There is wide support in literature for Hofstede's conceptualization and operationalization of culture (Soares et al., 2007). What underlies the popularity is the simplicity in framing a complex and abstract conception such as culture into five distinct dimensions (Dahl, 2004; Yeganeh, Su, & Sauers, 2009). The model is concise and the cultural dimensions can be easily incorporated into research design. It is an instrument for measuring cultural values and since the data are interval, they could be analyzed using several quantitative techniques

(Yeganeh, Su, & Sauers, 2009). For those reasons, the dimensions of Hofstede are selected as the model of choice in this research. The five cultural dimensions are:

- **Power distance** is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally. The basic problem involved is the degree of human inequality that underlies the functioning of each particular society.
- **Uncertainty Avoidance** is the extent to which a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, and different from usual. The basic problem involved is the degree to which a society tries to control the uncontrollable.
- **Individualism** on the one side versus its opposite, **collectivism,** is the degree to which individuals are supposed to look after themselves or remain integrated into groups, usually around the family. Positioning itself between these poles is a very basic problem all societies face.
- **Masculinity** versus its opposite, **femininity** refers to the distribution of emotional roles between the genders, which is another fundamental problem for any society to which a range of solutions are found; it opposes “tough” masculine to “tender” feminine societies.
- **Long-term vs. short-term orientation** refers to the extent to which a culture programs its members to accept delayed gratification of their material, social, and emotional needs (Hofstede, 2001, pp. xix-xx).

The scores of societies on cultural dimensions are relative; countries are compared to other countries. For example, Germany scores 35 while France scores 68 on Power Distance and therefore it is suggested that Germany is more egalitarian than France. Regardless of whether these valuations are accurate or only generally indicative of these countries, they provide an indication of how these countries are culturally different (Nardon & Steers, 2006).

2.4 Hypotheses

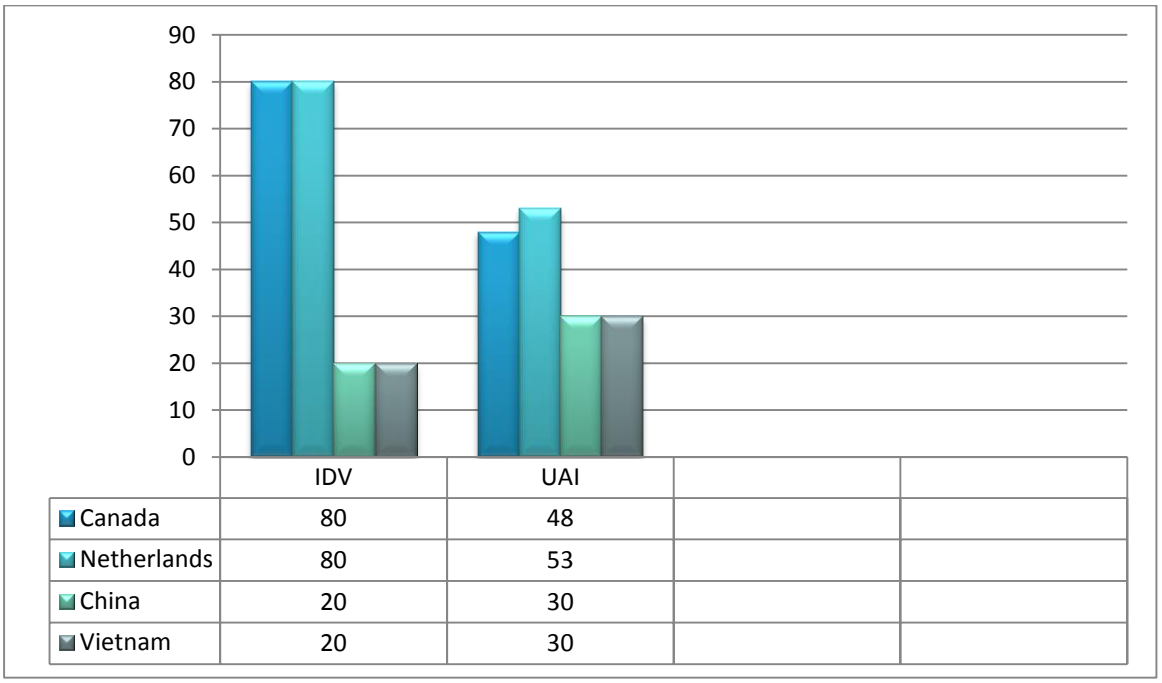
In this section, the possible influence of the cultural context on effectuation and causation processes is discussed. The national culture of a country could influence artifacts like organizations and economies in several ways. Culture leads to stable and systematic differences across countries. These systematic differences are reflected in, for instance, different levels of entrepreneurial activity (Mueller & Thomas, 2000; Hayton, George, & Zahra, 2002). Some cultures are more closely aligned with an entrepreneurial orientation since culture reinforces certain personal characteristics and behavior. Cultural values could indicate the degree to which a society regards entrepreneurial behaviors, for example risk taking and independent thinking, as desirable (Mueller & Thomas, 2000). Those entrepreneurial behaviors are reflected in the principles of effectuation as well. The principles that form the core of the effectuation theory involve a set of decisions and preferences. Just like personal characteristics and behavior (reinforced by culture), those decisions and preferences could be influenced by culture as well. Thus, it might be expected that cultural values (measured by the earlier mentioned dimensions) could influence the use of effectuation.

2.4.1 Context

Cultural distance that has been subject of debate for centuries is the East-West dichotomy (Kawada, 2003), where big cultural differences between Western countries and the Eastern world are highlighted. Conceptually, the demarcation is on a cultural basis rather than geographical (Meštrović, 1994). This cultural demarcation will form the basis of this study, since a bigger cultural distance between entrepreneurs is expected to reveal more clearly perceivable differences in the use of entrepreneurial processes. To be able to observe the possible influence of culture on the use of effectuation and causation, a comparison between entrepreneurs of different countries will be made. The Netherlands and Canada are selected as representatives of a Western cultural context. Both countries are classified into the category of North / North-west Europe and the Anglo world (Hofstede, 2010) and share a heritage of social norms, values, political systems and religion that have origin in Europe and are marked by European immigration. The resemblance of the countries is reflected in the scores on the

dimensions of Individualism (IDV) and Uncertainty Avoidance (UAI), which are virtually the same (see Figure 3). Therefore, Canada and the Netherlands will compose cluster 1.

China and Vietnam are selected as representatives of 'Confucian countries' located in East-Asia. The northern part of Vietnam was strongly influenced by the Chinese culture due to a long period of dominance by the Chinese, which brought with it a strong influence of Confucianism. In addition, Vietnam and China have been part of the communist camp for many decades. With its past history and current ideology, Vietnamese culture bears similar traits to the Chinese in many respects (Thang, Rowley, Quang, & Warner, 2007; Hoang & Dung, 2009). This is covered in the ranks on IDV and UAI, on which both China and Vietnam score exactly the same (see Figure 3). Therefore, China and Vietnam will compose cluster 2.



	IDV	UAI		
Canada	80	48		
Netherlands	80	53		
China	20	30		
Vietnam	20	30		

Figure 3: Scores on IDV and UAI by country (based on Hofstede, Hofstede, & Minkov, 2010, pp. 95-96)

Both Canada and the Netherlands rank 80 on IDV, and around 50 on UAI (48 and 53 respectively). The scores of China and Vietnam are equal for both dimensions (20 on IDV and 30 on UAI). Therefore, a comparison based on these dimensions will be made. Differences in scores of IDV and UAI are expected to reveal differences in the use of effectuation and since distinguishing marks of IDV and UAI can be linked to elements of effectuation, this will form the basis of the hypotheses. The hypotheses as formulated in the next sections may resemble hypotheses generated in other studies that are

covered by the EPICC project. However, by focusing on characteristic features of the cultural dimensions instead of a more general view, the hypotheses are formulated in a differential way.

2.4.2 Individualism and view of the future

In individualistic cultures, social identity is based on individual contribution. Basic social values emphasize "*personal initiative*" and "*achievement*" (Hofstede, 2001, p. 227). Individualistic cultures tend to reinforce and reward independent action and initiative; collectivistic cultures reward these actions less (Mueller & Thomas, 2000). Autonomy, variety, pleasure, and personal financial security take precedent over group loyalty and individuals are expected to look after their own interests (Hofstede, 1980). In individualistic societies, entrepreneurs who exhibit high levels of self-confidence and self-reliance are encouraged because they believe in their own abilities to achieve and give little credence to external forces (Rotter, 1966). Those entrepreneurs consider themselves as in control of situations and as a result it is likely that they focus on the controllable aspects of an unpredictable future, which is one of the five effectual principles. The logic behind this approach is: "To the extent that we can control the future, we do not need to predict it" (Sarasvathy, 2001a, p. 252). In non-predictive control, the future comes from what people do. The entrepreneur is shaping the future by focusing on activities that lie within their control and can be created with existing means. New outcomes may arise that the entrepreneur initially may not have considered. Prediction is therefore superfluous. This leads to the following hypothesis:

Hypothesis 1: Entrepreneurs in the societies of cluster 1, whose cultural background has a stronger emphasis on personal initiative and achievement, will rely more on non-predictive control than entrepreneurs in the societies of cluster 2

2.4.3 Uncertainty avoidance and attitude toward outsiders

Some societies are very tolerant towards an ambiguous and unpredictable future, others are reluctant. This phenomenon is reflected in the dimension of uncertainty avoidance. Ways of dealing with uncertainty are influenced by the cultural background of a society (Hofstede, 1980); some societies try to control the future, whilst others accept each day "as it comes" (Hofstede, Hofstede, & Minkov, 2010, p. 203). In high uncertainty

avoidance societies, people rely on structures, regulations and expert knowledge to reduce the level of uncertainty (Mueller & Thomas, 2000; Brinckmann et al., 2010). Also, there is more concern with security in life (Hofstede, 2001). Achievement is defined in terms of security; there is greater fear of failure, lower levels of ambition and lower tolerance for ambiguity (Hofstede, 1980). Specifically dealing with situations of uncertainty and shortage on information, the theory of effectuation offers an explanation of how decision-making occurs at the level of new firms (Brinckmann et al., 2010). Since entrepreneurs often start the process without assuming the existence of a predetermined market for the idea, detailed competitive analysis do not seem to make any sense to them at that particular phase. Instead, effectual entrepreneurs make use of partnerships or alliances in order to reduce and/or eliminate uncertainty. Creating partnerships within the network of an entrepreneur offers launching customers, and a new market can be co-created. Pre-commitments from key stakeholders make uncertainty irrelevant by shaping a future that looks very comparable with what was contracted for (Sarasvathy, 2003). In addition, strategic partners contribute financial means, knowledge and experience. In this way, investments are limited (and risk decreased), and the knowledge and experience make next steps less unpredictable and uncertain. Thus, it can be expected that:

Hypothesis 2: Entrepreneurs in the societies of cluster 1 who prefer situations to be more structured, clear and predictable will rely more on the use of alliances than entrepreneurs of cluster 2 who are more tolerant to an unpredictable and ambiguous future

2.4.4 Individualism and attitude toward contingencies

In societies that rank high on individualism, basic social values underline personal initiative and achievement. Activities are self-started as opposed to activities that are dictated by role and context in low individualistic countries. More importance is attached to freedom and challenge in jobs and work goals underline the employee's independence from the organization (Hofstede, 2001).The abovementioned elements of individualism can be linked to the effectual principal of exploration of contingencies. Effectual entrepreneurs invite the surprise factor as a potential clue for novelty creation. Both positive and negative contingencies are transformed into useful components of new opportunities and possibilities are rethought (Sarasvathy, 2001a; Dew et al., 2009).

Effectuation processes are actor dependent (Sarasvathy, 2001a). The ability to identify and leverage contingencies requires personal initiative, which is reinforced and rewarded in individualistic societies where activities are self-started. Contingencies are regarded as a challenge, which is an important work goal in individualistic countries. Therefore, it can be expected that:

Hypothesis 3: Entrepreneurs in the societies of cluster 1, who place a greater emphasis on self-started activities and personal initiative, will rely more on the exploration of contingencies than entrepreneurs in the societies of cluster 2

2.4.5 Uncertainty avoidance and predisposition toward risk and resources

Uncertainty avoidance should not be confounded with risk avoidance, because they are not the same. In contrast with risk, uncertainty has no probability attached to it and is not focused on a specific event. In an uncertain situation, anything can happen; the outcome is unknown. Uncertainty avoidance implies the reduction of ambiguity rather than the reduction of risk (Hofstede, 2001). As mentioned earlier, in strong uncertainty avoidance societies, achievement is defined in terms of security (Hofstede, 2001). People look for structure that makes events clearly interpretable, more predictable and less ambiguous (Mueller & Thomas, 2000; Brinckmann et al., 2010). But how will this preference for clearly interpretable and less ambiguous events relate to the theory of effectuation? Causation models focus on pursuing the (risk adjusted) maximum potential returns for a decision by selecting optimal strategies and raising the required resources. The focus here is on the upside potential, but under true uncertainty the prediction of expected returns is impossible. Therefore, decisions in effectual models depend on the predetermination how much loss is affordable for the entrepreneur and its stakeholders. The affordable loss principle implies experimenting with as many strategies as possible with the given limited means and focuses on limiting downside potential to an affordable level that can be controlled (Sarasvathy, 2001a; Dew et al., 2009). The element of affordable loss signifies a reduction of ambiguity because it is based on the current financial condition of the entrepreneur combined with a psychological estimate of his/her commitment in terms of the worst case scenario.

Uncertainty is reduced and events are clearly interpretable as the effects of failure are certified and therefore it can be expected that:

Hypothesis 4: Entrepreneurs in the societies of cluster 1 who prefer clearly interpretable and predictable situations will rely more on affordable loss than entrepreneurs of cluster 2 who are more tolerant to ambiguous and unpredictable situations

3. Methodology

In this exploratory research, the data are retrieved from an SPSS master file comprising all the data gathered for the EPICC project thus far. Data were collected in a range of countries by fellow project members. How this was carried out will be discussed in section 3.1; operationalization and data collection. The exact sample and setting for this research will be described in section 3.2 and section 3.3 addresses the method of analysis which will produce the results as presented in chapter 4.

3.1 Operationalization and data collection

Operationalization is *"the process of developing operational definitions, or specifying the exact operations involved in measuring a variable"* (Babbie, 2004, p. 45). The question that arises here is how are the entrepreneurial processes of effectuation and causation measured? If entrepreneurs are asked how they go about setting up a new venture, for example by means of an interview, it is quite well possible that their explanation will be incomplete or even incorrect. The reason for this is that they likely construct this explanation from memory, for instance by describing methods acquired in their educational background. It has been demonstrated by psychologists that such explanations are not very reliable (van Someren, Barnard, & Sandberg, 1994). What is needed are more direct data on the ongoing thinking processes. A good method in this situation is the 'think aloud' method. The resulting verbal protocols can provide data about cognitive processes that are difficult to obtain by other methods (Ericsson & Simon, 1984; van Someren et al., 1994).

3.1.1 Think aloud method

The think aloud method implies that subjects are required to think aloud continuously as they solve a set of typical problems for their domain of expertise. In other words, the subject solves problems while speaking out loud whatever thoughts come to mind (van Someren et al., 1994). What they say is recorded by the interviewer (protocol leader) and used as data for analysis of the cognitive processes that are used.

The specific decision-making task developed for the EPICC project was a business case involving the creation of a fictive coffee corner. The case was originally drafted by Sarasvathy (2001a). The case had been slightly altered by the supervisors of the EPICC project and later on by members of the project. Adjustments were made to prevent from cultural biases, avoid too much focus on technology and create a more appropriate case for the selected sample. Data in the SPSS master file were collected by using the final version of the case. The case is composed of ten decision making problems devoted to: identifying and defining the market, meeting payroll, financing, leadership/vision, product re-development, growing the company, hiring professional management, goodwill and exit.

The benefits of using think aloud protocols over other methods can be summarized as follows: while retrospective recall (such as interviews) allows subjects to make up good stories about how they believe they solve problems, and stimulus-response methods (such as questionnaires) force us to deduce subjects' decision processes after the fact, concurrent verbalization allows the researcher to look directly inside the black box of cognitive processing, because of the structure of the short term memory system of the human brain (Ericsson & Simon, 1984). There are no interruptions or suggestive prompts or questions as the subject is encouraged to give a concurrent account of his thoughts and to avoid interpretation or explanation of what he is doing, he just has to concentrate on the task. The subject's conscious effort is aimed at solving the problem, there is no room left for reflecting on what he or she is doing. Therefore, talking out loud does not interfere with the task performance (Ericsson & Simon, 1984; Someren van, Barnard, & Sandberg, 1994). Validity of verbally reported thought sequences derives from its immediacy: the very short interval between the occurrence of thoughts and their

verbalization (Dew et al., 2009). The data so gathered are very direct; there is no delay (van Someren et al., 1994).

3.1.2 Transcribing and coding

After the think aloud sessions of the EPICC project were recorded, they were transcribed. Transcriptions of the recorded verbalization form the basic data to be analyzed. The protocol was transcribed by typing it out as verbatim as possible. Typing out complete protocols is necessary to be able to apply reliable coding procedures (van Someren et al., 1994). Further, the transcripts were coded by a coding scheme. The coding scheme is an operationalization of the theory which relates it to the text of the think aloud protocols. It specifies how elements of causation and effectuation can be identified and labeled with a specific code. The coding scheme used in the entire EPICC project was based on the research by Sarasvathy (2008) and is represented in Table 3 below:

Causal	Effectual
G – Goal driven	M – Means based
R – Expected returns	L – Affordable loss
B – Competitive analysis	A – Use of alliances or partnerships
K – Existing market knowledge	E – Exploration of contingencies
P – Predictions of the future	C – Non-predictive control
X – Causal (no subcategory given)	N – Effectual (no subcategory given)

Table 3: Coding Scheme (based on Sarasvathy, 2008, p. 55)

For each problem area, relevant statements in the transcript were identified and assigned to one of the categories (indicated with a letter). For example:

> *"I will have a new market, my company can grow in a faster way, my employees can accumulate more experience, I can make more money (…)"*

In this sentence, the identified statements of "*grow in a faster way"* and "*make more money"* were assigned to the category 'Goal driven' (G). This procedure resulted in a general view how many times a specific logic (category) is used; per problem area and during the entire case. By this, an insight in the use of causation and effectuation for each entrepreneur is gathered and these results formed the input to the SPSS master file.

3.2 Sample and setting

The sample refers to the evidence that will be subjected to direct examination. It is composed of units or cases: bounded entities such as individuals (subjects), organizations, communities, or nation-states, which may be observed spatially and/or temporally (Gerring, 2012, p. 75). In this study, the sample is composed of male and female student entrepreneurs. The term student entrepreneur implies that the subject is matriculated at a university or college while having their own company. In addition, subjects who have graduated and continued their business are included as well. Data of student entrepreneurs from four different countries (Canada, the Netherlands, China and Vietnam) will be analyzed. The total distribution is displayed in Table 4:

Country	Total number of entrepreneurs
Canada	20
Netherlands	45
China	50
Vietnam	17
Total	132

Table 4: Distribution student entrepreneurs

The sample size of cluster 1 (composed of the Netherlands and Canada) is N=65, which is about the same size as cluster 2 (composed of China and Vietnam) with N=67.

3.3 Method of analysis

Data of the four selected countries have been statistically analyzed with IBM SPSS software in order to test the hypotheses. An appropriate test will be selected based on a decision tree (Field, 2009, p. 822). The first step of the decision tree is to ascertain how many outcome variables are involved. An outcome variable is expected to change as a function of changes in a predictor variable and is also known as the dependent variable (Field, 2009). Effectuation is expected to change as a function of changes in national culture. Each of the four hypotheses comprises one element of effectuation acting as a single outcome variable: Non-predictive Control, Use of Alliances, Affordable Loss and Exploitation of Contingencies. The type of outcome is continuous; “a variable that can be measured to any level of precision” (Field, 2009, p. 783).

The next step refers to the predictor variable. In the hypotheses there is one predictor variable: a cultural dimension. Predictor variable is basically another term for

independent variable; a variable expected to be the cause of some effect (Field, 2009). In two hypotheses, Individualism is the predictor variable and in the other two hypotheses it is Uncertainty Avoidance. The type of predictor here is categorical; a variable that is made up of categories of objects/entities (Field, 2009). Individualism and Uncertainty Avoidance are here categorical because of the two clusters. The cluster of Canada and the Netherlands is category 1 (high on individualism) and the cluster of China and Vietnam is category 2 (low on individualism). Thus, there are two categories. In each category, different participants (student entrepreneurs from different countries) are used. Depending on whether the data meet assumptions for parametric tests, it is recommended to conduct an independent t-test or the Mann-Whitney U test (Field, 2009). If a parametric test is used when data are not parametric, then the results are likely to be inaccurate. Therefore, it is important to verify the assumptions before deciding which statistical test is appropriate. The assumptions of parametric tests are:

- Normally distributed data
- Homogeneity of variance
- Interval data
- Independence (Field, 2009)

To see whether the distribution of the data deviates from a comparable normal distribution, the Shapiro-Wilk test can be used. A significant value (Sig. less than .05) indicates a deviation from normality (Field, 2009).

4. Results

In this chapter the results of the statistical analysis are discussed. First of all, an overview of the share of causation and effectuation for each cluster will be given. Then, the test results of the hypotheses will be elaborated. After that, as a more in-depth view the share of causation and effectuation will be discussed per problem area.

4.1 Overall use of causation and effectuation

A comparison is made between the overall use of causation and effectuation by entrepreneurs of the two clusters. Percentages are calculated by taking the average scores on causal and effectual reasoning of the ten problem areas (see Figure 4).

On average, the Dutch and Canadian entrepreneurs of cluster 1 use 57.65% effectuation and 42.35% causation. The Chinese and Vietnamese entrepreneurs of cluster 2 use 57.56% effectuation and 42.44% causation. Considering Appendix 1, for both causation and effectuation percentages the values of the Shapiro-Wilk test are not significant (*Sig.* less than .05). The p-values of .775 and .540 indicate that within both clusters the use of causation and effectuation is normally distributed. The differences in the use of causation and effectuation between the clusters are almost non-existent and non-significant with a p-value of .960 as a result of the independent t-test (see Appendix 1).

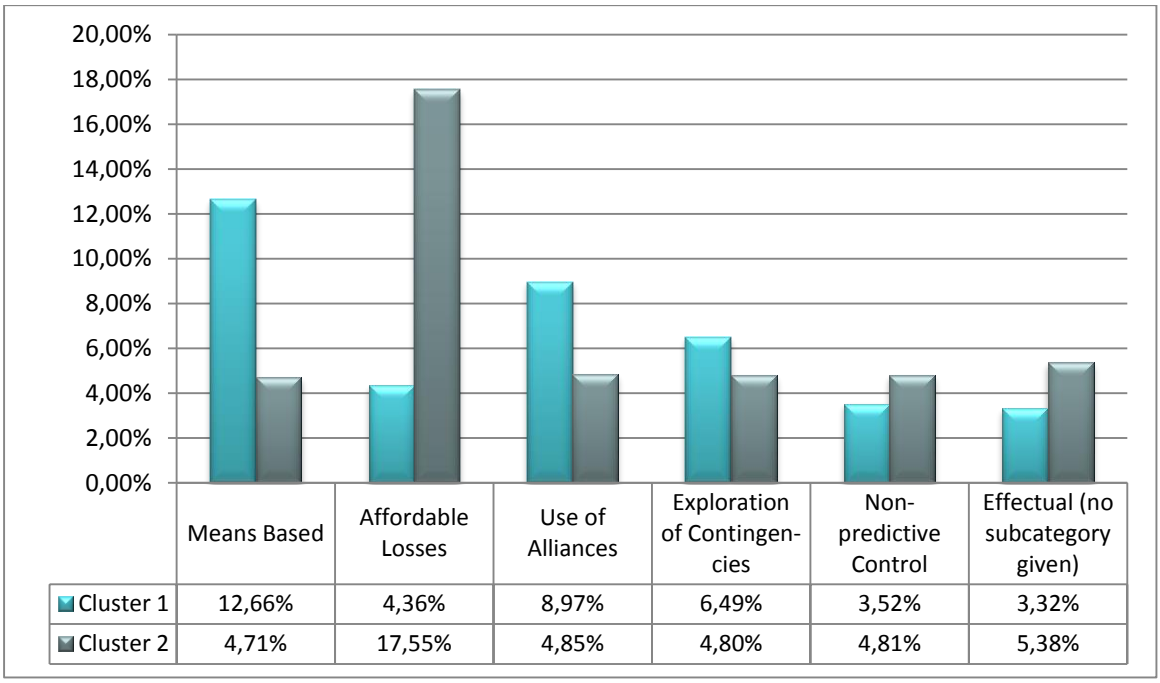
	Cluster 1	Cluster 2
Causation	57,65%	57,56%
Effectuation	42,35%	42,44%

Figure 4: Share causation and effectuation by cluster (based on Appendix 1, Group Statistics)

At first glance, there are virtually no differences in the use of causation and effectuation between the two clusters. To see whether there are differences in the type of reasoning, the hypotheses are discussed in the next section.

4.2 Hypotheses

In order to test the hypotheses, variables had to be created by computing the percentages of each used element of effectuation. The percentages were calculated by adding the scores on elements from each problem area and dividing it by the overall used logic (causation and effectuation combined). This resulted in the following distribution (see Figure 5):



	Means Based	Affordable Losses	Use of Alliances	Exploration of Contingen-cies	Non-predictive Control	Effectual (no subcategory given)
Cluster 1	12,66%	4,36%	8,97%	6,49%	3,52%	3,32%
Cluster 2	4,71%	17,55%	4,85%	4,80%	4,81%	5,38%

Figure 5: Use of elements of effectuation for each cluster (based on Group Statistics in Appendix 2)

The scores for each relevant element of effectuation are tested for a normal distribution per cluster. As can be derived from Table 5, both clusters demonstrate significant values on Non-predictive Control (.000 and .000), Use of Alliances (.003 and .004) and Exploration of Contingencies (.000 and .004) which means the scores on those three elements deviate from a normal distribution and the assumptions for the parametric test are violated. Therefore hypothesis 1, 2 and 3 will be tested with the Mann-Whitney U test, which is the non-parametric equivalent of the independent t-test (Field, 2009). The scores on Affordable Loss for the cluster of Vietnam and China show a value of .696 which is non-significant. These scores are normally distributed. The cluster of the Netherlands and Canada however demonstrate a significant value of .006 which signifies that these scores are not normally distributed. Since a comparison between two groups is made, both groups ought to meet the assumptions of the parametric test. As the cluster of the Netherlands and Canada fails to meet the assumptions, hypothesis 4 will be tested with the Mann-Whitney U test as well.

Tests of Normality				
Element of effectuation	**Cluster**	**Shapiro-Wilk**		
		Statistic	df	Sig.
Non-predictive Control	1	.837	65	.000
	2	.900	67	.000
Use of Alliances	1	.942	65	.004
	2	.941	67	.003
Exploration of Contingencies	1	.940	65	.004
	2	.910	67	.000
Affordable Loss	1	.946	65	.006
	2	.987	67	.696

Table 5: Tests of Normality for the hypothesized elements of effectuation (based on Appendix 3)

Hypothesis 1

Hypothesis 1: Entrepreneurs in the societies of cluster 1, whose cultural background has a stronger emphasis on personal initiative and achievement, will rely more on non-predictive control than entrepreneurs in the societies of cluster 2

As can be seen in Figure 5, with a mean score of 4.81 % cluster 2 relies more on non-predictive control than cluster 1 with a mean score of 3.52 %. This is not in line with the hypothesis, since Canada and the Netherlands (cluster 1) are more individualistic countries than China and Vietnam (cluster 2) (both 80 vs. 20). The Mann-Whitney U test was used in order to check whether the difference in non-predictive control was significant (see Appendix 4). The significance value of the test ($p = 0.135$) gives the two-tailed probability that a test statistic of at least that magnitude is a chance result. This two-tailed value needs to be divided by 2 to calculate the one-tailed probability, since a prediction is made which group would differ from which. This results in a p-value of .068. Because $p > 0.05$ there is no significant difference between the two means. Because the scores are not in line with the hypothesis, hypothesis 1 is rejected.

Hypothesis 2

Hypothesis 2: Entrepreneurs in the societies of cluster 1 who prefer situations to be more structured, clear and predictable will rely more on the use of alliances than entrepreneurs of cluster 2 who are more tolerant to an unpredictable and ambiguous future

As can be derived from Figure 5, with a mean score of 8.97 % cluster 1 relies more on the Use of Alliances than cluster 2 with a mean score of 4.85 %. This is in line with the

hypothesis, since Canada and the Netherlands (cluster 1) score higher on uncertainty avoidance than China and Vietnam (cluster 2) (48 and 53 vs. both 30). The Mann-Whitney U test was used in order to check whether the difference in the use of alliances was significant. As can be seen in Appendix 4, the significance value of the test is .000. Because $p < 0.05$ there is a significant difference between the two means. Therefore, hypothesis 2 is accepted.

Hypothesis 3

Hypothesis 3: Entrepreneurs in the societies of cluster 1, who place a greater emphasis on self-started activities and personal initiative, will rely more on the exploration of contingencies than entrepreneurs in the societies of cluster 2

As can be seen in Figure 5, with a mean score of 6.49 % cluster 1 relies more on Exploration of Contingencies than cluster 2 with a mean score of 4.8 %. This is in line with the hypothesis, since Canada and the Netherlands (cluster 1) are more individualistic countries than China and Vietnam (cluster 2) (both 80 vs. 20). The Mann-Whitney U test was used in order to check whether the difference in exploration of contingencies was significant. The p-value of .044 (see Appendix 4) needs to be divided by two because hypothesis 3 is a one-sided hypothesis. This results in a p-value of .022. Because $p < 0.05$ there is a significant difference between the two means. Therefore, hypothesis 3 is accepted.

Hypothesis 4

Hypothesis 4: Entrepreneurs in the societies of cluster 1 who prefer clearly interpretable and predictable situations will rely more on affordable loss than entrepreneurs of cluster 2 who are more tolerant to ambiguous and unpredictable situations

As can be derived from Figure 5, with a mean score of 17.55 % cluster 2 relies more on affordable loss than the cluster 1 with a mean score of 4.36 %. This is not in line with the hypothesis, since Canada and the Netherlands (cluster 1) score higher on uncertainty avoidance than China and Vietnam (cluster 2) (48 and 53 vs. both 30). The Mann-Whitney U test was used in order to check whether the difference in the use of affordable loss was significant. As can be seen in Appendix 4, the significance value of

the test is .000. Because $p < 0.05$, there is a significant difference between the two means. Because the scores are not in line with the hypothesis, hypothesis 4 is rejected.

4.3 Share of effectuation for each problem area

After testing the hypotheses, a comparison is made between the clusters regarding the share of effectuation for each separate problem area of the case. To keep things in a readily understood format, the ten problems are split up in Figure 6 and Figure 7.

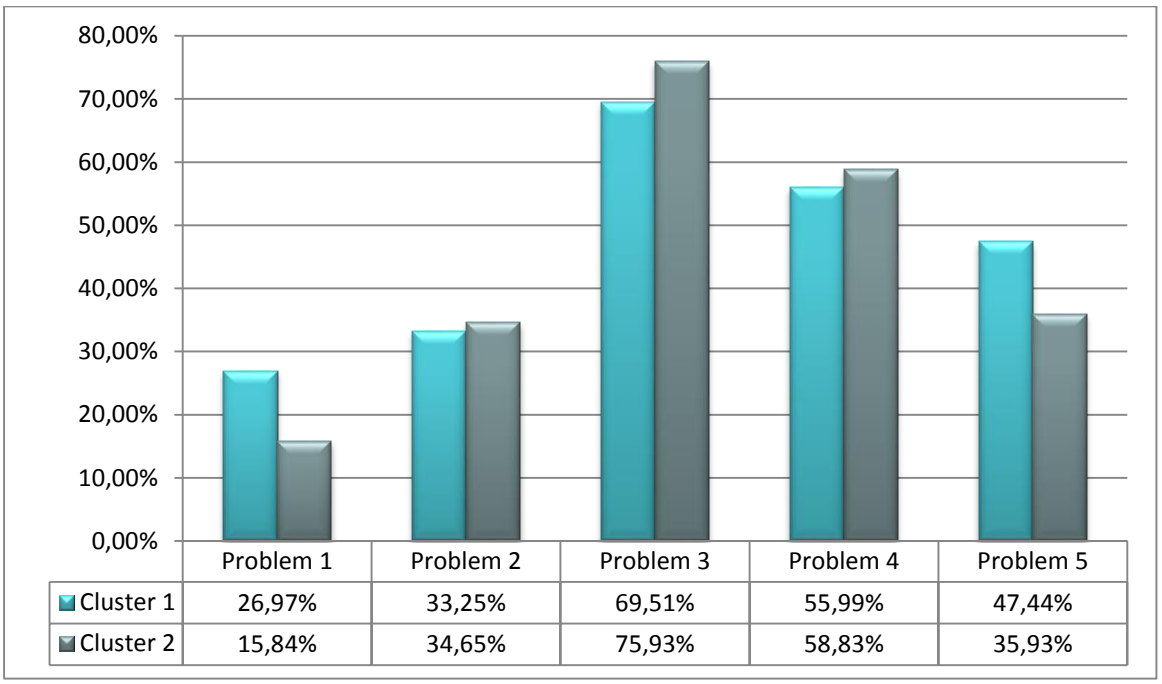


Figure 6: Percentages of effectual reasoning for each cluster part I (based on Appendix 5)

Share of effectuation per problem area					
	Problem 1	**Problem 2**	**Problem 3**	**Problem 4**	**Problem 5**
Mann-Whitney U	1355.000	2168.500	1787.000	1895.000	1825.500
Wilcoxon W	3633.000	4313.500	3932.000	3975.000	4036.500
Z	-3.775	-.041	-1.706	-1.017	-1.507
Asymp. Sig. (2-tailed)	.000	.967	.088	.309	.132

Table 6: Results of the Mann-Whitney U test for problem 1 – 5 (based on Appendix 9)

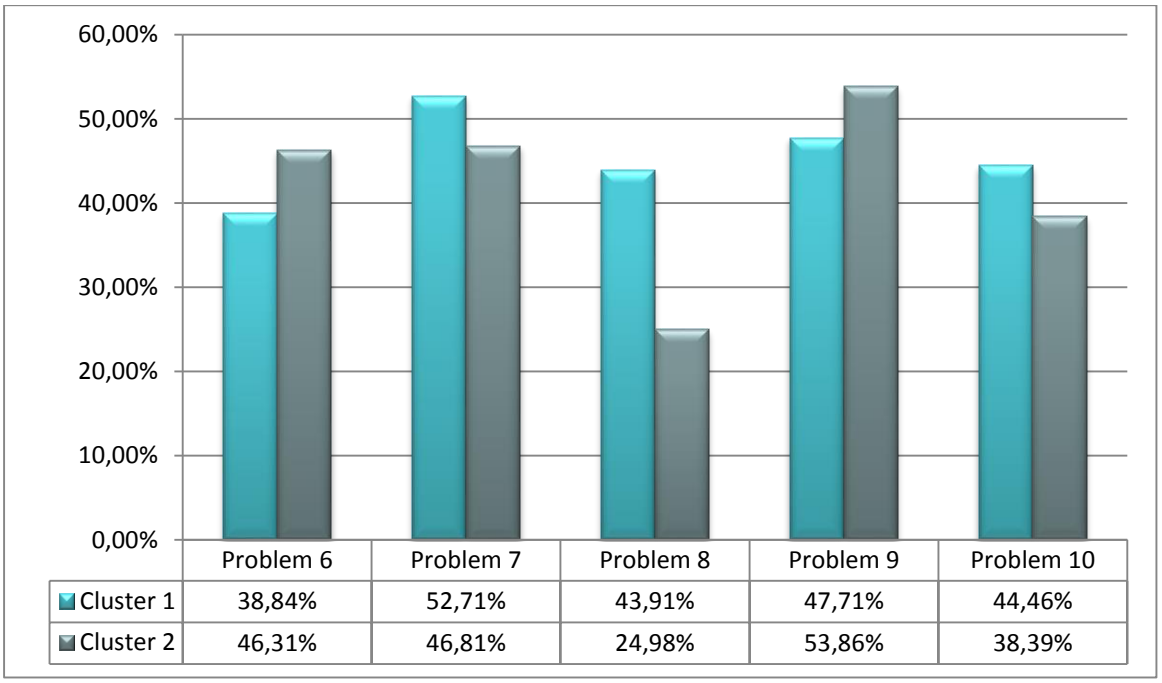


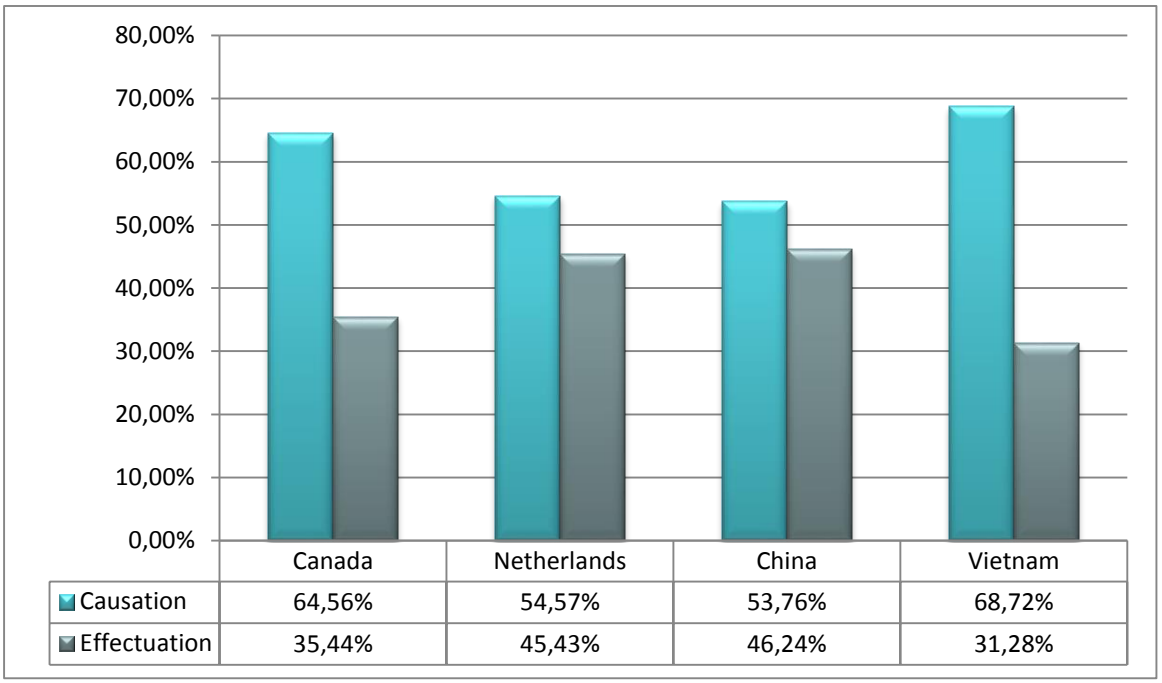
Figure 7: Percentages of effectual reasoning for each cluster part II (based on Appendix 5)

Share of effectuation per problem area					
	Problem 6	**Problem 7**	**Problem 8**	**Problem 9**	**Problem 10**
Mann-Whitney U	1778.000	1840.000	1235.500	1806.000	2015.500
Wilcoxon W	3923.000	3856.500	2946.500	3886.000	4160.500
Z	-1.823	-.996	-3.401	-1.568	-.466
Asymp. Sig. (2-tailed)	.068	.319	.001	.117	.641

Table 7: Results of the Mann-Whitney U test for problem 6 – 10 (based on Appendix 9)

The differences in share of effectuation for each problem area between the clusters were tested on significance with the Mann-Whitney U test since none of the problem areas were normally distributed for both clusters simultaneously (see Appendix 6). Results demonstrate that with a p-value of respectively .000 and .001 only for problem 1 and 8 significant differences were perceived (see Table 6 and 7). In both problem areas entrepreneurs of cluster 1 use significantly more effectual logic than the entrepreneurs of cluster 2. Problem 1 refers to identifying the market and problem 8 refers to hiring professional management. In both problem areas, entrepreneurs of cluster 1 relied more on the use of effectuation than cluster 2. For the remaining problem areas, no significant difference occurred. The ratio of effectuation for both clusters was the highest in problem 3 (meeting payroll). Besides problem 3, problem 4 was the only

problem area where both clusters used more effectual than causal logic. Two out of four hypotheses are accepted and only two out of ten problem areas show significant differences. In the overall use of effectuation and causation there is no significant difference between the two clusters. To examine whether there is an explanation for it, the clusters will be split into the individual countries.



	Canada	Netherlands	China	Vietnam
Causation	64,56%	54,57%	53,76%	68,72%
Effectuation	35,44%	45,43%	46,24%	31,28%

Figure 8: Ratio causation and effectuation by country

As can be seen in Figure 8, there are considerable differences in the use of causation and effectuation between the four countries that made up the clusters. For all of the four countries, the use of causation and effectuation is normally distributed (see Appendix 7). Results from the independent t-test indicate that within cluster 1 a significant difference (.000) occurs between Canada and the Netherlands in the overall use of causation and effectuation (see Appendix 8). The same applies to the countries within cluster 2; China and Vietnam where a significant (.000) difference was perceived (see Appendix 8).

5. Conclusions and discussion

5.1 Conclusions

The general objective of this research was to gather empirical evidence to what extent effectual behavior in new venture creation differs between entrepreneurs with different cultural backgrounds. Distinguishing marks of two cultural dimensions (Hofstede, 2001) – individualism and uncertainty avoidance – were linked to elements of effectuation, as they raise similar issues. Based on corresponding cultural backgrounds, two clusters were composed to test the hypotheses. After re-analyzing the protocols, two out of four hypotheses were accepted. Although hypothesis 4 was rejected, a significant difference was found in the contrary direction. Entrepreneurs of cluster 2 relied more on affordable loss, which was not in line with the hypothesis. It can be explained by persisting Confucian values in China and Vietnam. An important Confucian value is thrift, which implies sparing resources and moderation (Hofstede, 2001). This corresponds well with the affordable loss principle. The results of the hypotheses points to the fact that the cultural background indeed influences the focus specific effectual elements. When the share of effectuation was separately calculated per problem area, significant differences only occurred at 2 problems. The preference for specific elements however, was left out whereas the results of the hypotheses showed that at on this subject the biggest differences were perceived. On the basis of the hypotheses, it was expected that Western entrepreneurs who score high on IDV and medium on UAI would make more use of effectuation than the entrepreneurs from the Confucian countries that score low on IDV and low on UAI. At first glance, the results demonstrate virtually no differences in the overall use of causation and effectuation whereas there is a big cultural difference between the two clusters. Each country is composed of a unique configuration of cultural dimensions and therefore it is very difficult to cluster countries. Some interesting results have become apparent when the clusters were split up into four individual countries. Between the countries that make up the clusters, significant differences in the use of effectuation can be found. Remarkably, of the four countries Chinese entrepreneurs rank the highest on the overall use of effectuation. In addition, the overall use of effectuation of Canadian entrepreneurs turns out to be much lower

than expected. The differences between the countries that composed the clusters give a distorted view of the ratios represented by the clusters. The particular configuration of high IDV and medium UAI does not automatically implicate a greater reliance on effectuation. The high use of causation of Canadian entrepreneurs is a case in point. On the other hand, the configuration of low IDV and low UAI does not automatically implicate a greater reliance on causation, which is demonstrated by the Chinese entrepreneurs. The arguments given above prove that the configuration of cultural dimensions is not a predictor for the reliance on causation or effectuation. This is however a hesitant conclusion and needs to be explored more profoundly for instance with other countries.

The following conclusion can be drawn regarding the main research question: *Is effectual behavior in new venture creation driven by the cultural background of an entrepreneur?* Rather than acting as a predictor for the overall ratio between effectuation and causation, the national cultural background of an entrepreneur definitely reinforces the use of specific elements. On balance, this is supported with the acceptance of two hypotheses and the significant difference found in the fourth hypotheses and therefore the research question could be answered in the affirmative. Cultural dimensions that represent the cultural background of an entrepreneur are influencing elements of effectuation, or effectual behavior in new venture creation.

5.2 Discussion

This research makes a contribution to the theory of effectuation by establishing a new link between effectuation and culture. The relationship of effectuation with the construct of culture has not been examined in previous literature and provides new empirical evidence, which is expanding on effectuation theory. A number of findings and limitations of this research could act as a starting point for future research and recommendations will be discussed.

Problems 1 (identifying the market) and 2 (defining the market) of the case relate to the startup phase of a new venture, which is the ideal situation to apply effectual reasoning (Sarasvathy, 2001a). Based on the theory, it was expected that entrepreneurs form both clusters would rely on more effectual logic in these two problem areas. Results

demonstrate the opposite. Of all the problem areas, the ratio of causation (for both clusters) was the highest in problem 1 and 2. This could be explained by looking at the phrasing and the presentation of the problems. The subjects were asked about potential customers, potential competitors and what information they would seek. The segments were already demarcated, data of market research were presented and cost estimates were provided (all elements of causation). By these means, subjects could have been directed to the use of causation. However in an initial test of the case (Sarasvathy, 2008), where the problems were presented in a similar way, 74 per cent of the subjects (all expert entrepreneurs) used effectuation with regard to the segment decision made in problem 2. Only four of the 27 subjects selected a price range predicted by a causal paradigm and none of the expert entrepreneurs focused on calculating the optimal market segment, even though market research data were provided (Sarasvathy, 2008). This points to the fact that the subjects have not been directed to the use of causal reasoning. The study of Dew et al. (2009) demonstrate that expert entrepreneurs relied more on the use of effectual logic than novice entrepreneurs. The fact that the sample of this research was only composed of student entrepreneurs could be an alternative explanation for the high ratio of causation in problem 1 and 2. To improve the reliability and generalizability of the findings, expert entrepreneurs should be included in future research samples.

The dimensions of Hofstede can be used to measure and analyze the intensity of cultural values, however they cannot be used to determine the relative importance of each dimension (Yeganeh et al., 2009). Therefore, Hofstede's model fails to indicate which of the dimensions are central to the reliance on elements of causation and effectuation, because each country has its own configuration of dimensions. In addition, in this study the scores on the dimensions were secondary data; they were retrieved from a table (Hofstede, 2010) and not verified with the Values Survey Module. Verified data were partly available in the SPSS masterfile, but would have fallen outside the scope of this bachelor thesis. The time period in which the dimensions were developed is 1967-1973. The reliability of 40-year-old data is questionable and the conclusions are therefore merely indicative. There is growing empirical evidence that cultures are changing, which

is contrary to Hofstede's view (Taras, Steel, & Kirkman, 2012). The study by Taras et al. (2012) offers updated national cultural scores which could be used in future research.

The think aloud method could be a fair challenge for people in China and Vietnam, since the (Western) assumption that talking is related to thinking is not shared in the East (Kim, 2002) This could have impacted the results and should be examined in further research. Another limitation to the think aloud method concerns the coding. Although the protocols have been coded by different researchers in order to improve inter-rater reliability, it is still a subjective task depending on the researcher's judgment.

In this study, no control variables were included. Therefore, confounding variables could be correlated with the dependent or independent variable. The perceived relationship between cultural dimensions and elements of effectuation might be spurious when confounding variable(s) are involved.

5.3 Recommendations for future research

One of the most important findings of this study is that the cultural background of an entrepreneur reinforces the use of specific elements of effectuation and causation. For future research it is very interesting to examine which particular characteristic feature of a cultural dimension reinforces which specific element of effectuation or causation. Therefore, nuances in effectuation theory and consulting can be customized.

To improve the reliability and generalizability of statements, expert entrepreneurs should be included in the research sample. Therefore, the influence of culture on the use of effectuation is more isolated since expert entrepreneurs rely more on the use of causation than novice entrepreneurs (Dew et al., 2009) Equally distributed samples composed of both expert and novice entrepreneurs would rule out the level of entrepreneurial experience as a confounding factor. To control for other confounding factors, already accessible variables in the SPSS masterfile like for instance age, gender and education level should be included in the statistical analysis.

When the model of Hofstede is used for analyzing culture, verified and primary data of the scores on dimensions should be used instead of secondary data. Verified data are partly available for a range of countries and are included in the SPSS masterfile. For the

remaining countries and countries where future studies will be carried out, researchers should collect primary data with the Value Survey Method. In addition, meta-analytic indices of Taras et al. (2012) should be used to control for the influence of cultural change on the dimensions. By these means, the limitation of outdated data will be eliminated.

In future research, the conception of Kim (2002) that the connection of talking and thinking is not shared in every culture should be borne in mind. It should be examined if talking affects the cognitive process of entrepreneurs in the country of research, since this could introduce bias to the results.

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Appendix 1: Test results ratio causation/effectuation per cluster

Group Statistics

	Cluster	N	Mean	Std. Deviation	Std. Error Mean
Percentage_Caus	Can + Neth	65	,5765	,09846	,01221
	Chi + Vie	67	,5756	,10519	,01285
Percentage_Eff	Can + Neth	65	,4235	,09846	,01221
	Chi + Vie	67	,4244	,10519	,01285

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Cluster	Statistic	df	Sig.	Statistic	df	Sig.
Percentage_Caus	Can + Neth	,057	65	,200*	,988	65	,775
	Chi + Vie	,077	67	,200*	,984	67	,540
Percentage_Eff	Can + Neth	,057	65	,200*	,988	65	,775
	Chi + Vie	,077	67	,200*	,984	67	,540

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percentage_Caus	Equal variances assumed	,462	,498	,051	130	,960	,00090	,01775	-,03421	,03601
	Equal variances not assumed			,051	129,836	,960	,00090	,01773	-,03417	,03597
Percentage_Eff	Equal variances assumed	,462	,498	-,051	130	,960	-,00090	,01775	-,03601	,03421
	Equal variances not assumed			-,051	129,836	,960	-,00090	,01773	-,03597	,03417

Appendix 2: Use of elements causation/effectuation in % per cluster

Group Statistics

	Cluster	N	Mean	Std. Deviation	Std. Error Mean
Goal Driven	Can + Neth	65	,0959	,04552	,00565
	Chi + Vie	67	,0499	,04817	,00589
Expected Returns	Can + Neth	65	,1086	,05753	,00714
	Chi + Vie	67	,1327	,08257	,01009
Competitive Analysis	Can + Neth	65	,0770	,03611	,00448
	Chi + Vie	67	,0758	,03650	,00446
Existing Market Knowledge	Can + Neth	65	,0826	,05416	,00672
	Chi + Vie	67	,0927	,07544	,00922
Predictions of Future	Can + Neth	65	,0903	,04937	,00612
	Chi + Vie	67	,0599	,03696	,00452
Emphasis Analysis Data	Can + Neth	65	,0621	,04203	,00521
	Chi + Vie	67	,1087	,06594	,00806
Causal (no subcategory given)	Can + Neth	65	,0599	,06997	,00868
	Chi + Vie	67	,0559	,07684	,00939
Means Based	Can + Neth	65	,1266	,11793	,01463
	Chi + Vie	67	,0471	,04447	,00543
Affordable Losses	Can + Neth	65	,0436	,03308	,00410
	Chi + Vie	67	,1755	,08337	,01019
Use of Alliances	Can + Neth	65	,0897	,05278	,00655
	Chi + Vie	67	,0485	,03624	,00443
Exploration of Contingencies	Can + Neth	65	,0649	,04814	,00597
	Chi + Vie	67	,0480	,04183	,00511
Non-predictive Control	Can + Neth	65	,0352	,03398	,00422
	Chi + Vie	67	,0481	,04527	,00553
Distrusting or Opposing (Marketing) Research	Can + Neth	65	,0303	,02975	,00369
	Chi + Vie	67	,0035	,00834	,00102
Effectual (no subcategory given)	Can + Neth	65	,0332	,03945	,00489
	Chi + Vie	67	,0538	,04005	,00489

Appendix 3: Tests of Normality for hypothesized elements of effectuation

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Cluster	Statistic	df	Sig.	Statistic	df	Sig.
Non-predictive Control	Can + Neth	,158	65	,000	,837	65	,000
	Chi + Vie	,170	67	,000	,900	67	,000
Use of Alliances	Can + Neth	,130	65	,008	,942	65	,004
	Chi + Vie	,091	67	,200*	,941	67	,003
Exploration of Contingencies	Can + Neth	,105	65	,075	,940	65	,004
	Chi + Vie	,126	67	,010	,910	67	,000
Affordable Losses	Can + Neth	,094	65	,200*	,946	65	,006
	Chi + Vie	,078	67	,200*	,987	67	,696

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix 4: Mann-Whitney U test for the hypotheses

Ranks

	Cluster	N	Mean Rank	Sum of Ranks
Non-predictive Control	Can + Neth	65	61,49	3997,00
	Chi + Vie	67	71,36	4781,00
	Total	132		
Use of Alliances	Can + Neth	65	83,20	5408,00
	Chi + Vie	67	50,30	3370,00
	Total	132		
Exploration of Contingencies	Can + Neth	65	73,27	4762,50
	Chi + Vie	67	59,93	4015,50
	Total	132		
Affordable Losses	Can + Neth	65	37,69	2450,00
	Chi + Vie	67	94,45	6328,00
	Total	132		

Test Statistics[a]

	Non-predictive Control	Use of Alliances	Exploration of Contingencies	Affordable Losses
Mann-Whitney U	1852,000	1092,000	1737,500	305,000
Wilcoxon W	3997,000	3370,000	4015,500	2450,000
Z	-1,496	-4,944	-2,009	-8,527
Asymp. Sig. (2-tailed)	,135	,000	,045	,000

a. Grouping Variable: Cluster

Appendix 5: Share effectuation per problem area for each cluster

Group Statistics

	Cluster	N	Mean	Std. Deviation	Std. Error Mean
P1_Share_Eff	Can + Neth	65	,26965	,167654	,020795
	Chi + Vie	67	,15840	,147801	,018057
P2_Share_Eff	Can + Neth	65	,33248	,225624	,027985
	Chi + Vie	67	,34645	,270294	,033022
P3_Share_Eff	Can + Neth	65	,69509	,261482	,032433
	Chi + Vie	66	,75934	,285850	,035186
P4_Share_Eff	Can + Neth	64	,55994	,286516	,035814
	Chi + Vie	66	,58829	,288483	,035510
P5_Share_Eff	Can + Neth	65	,47436	,395812	,049094
	Chi + Vie	66	,35930	,334969	,041232
P6_Share_Eff	Can + Neth	65	,38839	,260031	,032253
	Chi + Vie	67	,46307	,201848	,024660
P7_Share_Eff	Can + Neth	65	,52710	,256406	,031803
	Chi + Vie	63	,46805	,321838	,040548
P8_Share_Eff	Can + Neth	65	,43914	,320536	,039758
	Chi + Vie	58	,24975	,350203	,045984
P9_Share_Eff	Can + Neth	64	,47708	,308419	,038552
	Chi + Vie	67	,53856	,326666	,039909
P10_Share_Eff	Can + Neth	65	,44462	,426795	,052937
	Chi + Vie	65	,38386	,349295	,043325

Appendix 6: Tests of Normality for share effectuation per problem area for each cluster

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Cluster	Statistic	df	Sig.	Statistic	df	Sig.
P1_Share_Eff	Can + Neth	,161	63	,000	,946	63	,008
	Chi + Vie	,194	54	,000	,905	54	,000
P2_Share_Eff	Can + Neth	,085	63	,200*	,962	63	,052
	Chi + Vie	,121	54	,046	,932	54	,004
P3_Share_Eff	Can + Neth	,190	63	,000	,894	63	,000
	Chi + Vie	,313	54	,000	,766	54	,000
P4_Share_Eff	Can + Neth	,112	63	,049	,943	63	,006
	Chi + Vie	,151	54	,004	,929	54	,003
P5_Share_Eff	Can + Neth	,196	63	,000	,843	63	,000
	Chi + Vie	,252	54	,000	,856	54	,000
P6_Share_Eff	Can + Neth	,103	63	,093	,952	63	,015
	Chi + Vie	,077	54	,200*	,978	54	,420
P7_Share_Eff	Can + Neth	,113	63	,045	,961	63	,046
	Chi + Vie	,097	54	,200*	,932	54	,004
P8_Share_Eff	Can + Neth	,170	63	,000	,907	63	,000
	Chi + Vie	,333	54	,000	,725	54	,000
P9_Share_Eff	Can + Neth	,140	63	,004	,916	63	,000
	Chi + Vie	,123	54	,042	,930	54	,004
P10_Share_Eff	Can + Neth	,233	63	,000	,793	63	,000
	Chi + Vie	,193	54	,000	,843	54	,000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix 7: Tests of Normality for ratio causation and effectuation per individual country

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Country	Statistic	df	Sig.	Statistic	df	Sig.
Percentage_Caus	Canada	,114	20	,200*	,946	20	,309
	Netherlands	,072	45	,200*	,988	45	,915
	China	,091	50	,200*	,978	50	,465
	Vietnam	,118	17	,200*	,931	17	,229
Percentage_Eff	Canada	,114	20	,200*	,946	20	,309
	Netherlands	,072	45	,200*	,988	45	,915
	China	,091	50	,200*	,978	50	,465
	Vietnam	,118	17	,200*	,931	17	,229

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix 8: Independent Samples Test for share causation/effectuation

Group Statistics

	Country	N	Mean	Std. Deviation	Std. Error Mean
Percentage_Caus	Canada	20	,6456	,08805	,01969
	Netherlands	45	,5457	,08724	,01301
Percentage_Eff	Canada	20	,3544	,08805	,01969
	Netherlands	45	,4543	,08724	,01301

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percentage_Caus	Equal variances assumed	,040	,841	4,250	63	,000	,09991	,02351	,05293	,14690
	Equal variances not assumed			4,234	36,219	,000	,09991	,02360	,05207	,14776
Percentage_Eff	Equal variances assumed	,040	,841	-4,250	63	,000	-,09991	,02351	-,14690	-,05293
	Equal variances not assumed			-4,234	36,219	,000	-,09991	,02360	-,14776	-,05207

Group Statistics

	Country	N	Mean	Std. Deviation	Std. Error Mean
Percentage_Caus	China	50	,5376	,08496	,01201
	Vietnam	17	,6872	,07617	,01847
Percentage_Eff	China	50	,4624	,08496	,01201
	Vietnam	17	,3128	,07617	,01847

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percentage_Caus	Equal variances assumed	,393	,533	-6,428	65	,000	-,14958	,02327	-,19605	-,10311
	Equal variances not assumed			-6,788	30,608	,000	-,14958	,02204	-,19455	-,10461
Percentage_Eff	Equal variances assumed	,393	,533	6,428	65	,000	,14958	,02327	,10311	,19605
	Equal variances not assumed			6,788	30,608	,000	,14958	,02204	,10461	,19455

Appendix 9: Results of the Mann-Whitney U test for problem 1-10

Test Statistics[a]

	P1_Share_Eff	P2_Share_Eff	P3_Share_Eff	P4_Share_Eff	P5_Share_Eff
Mann-Whitney U	1355,000	2168,500	1787,000	1895,000	1825,500
Wilcoxon W	3633,000	4313,500	3932,000	3975,000	4036,500
Z	-3,775	-,041	-1,706	-1,017	-1,507
Asymp. Sig. (2-tailed)	,000	,967	,088	,309	,132

a. Grouping Variable: Cluster

Test Statistics[a]

	P6_Share_Eff	P7_Share_Eff	P8_Share_Eff	P9_Share_Eff	P10_Share_Eff
Mann-Whitney U	1778,000	1840,000	1235,500	1806,000	2015,500
Wilcoxon W	3923,000	3856,000	2946,500	3886,000	4160,500
Z	-1,823	-,996	-3,401	-1,568	-,466
Asymp. Sig. (2-tailed)	,068	,319	,001	,117	,641

a. Grouping Variable: Cluster