The influence of uncertainty avoidance on effectual reasoning

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The theory of effectuation is concerned with two decision making processes, being causation and effectuation. Culture is seen to have an influence on the preference of a causal or effectual logic within new venture creation, which is tested within this study. More specifically, the focus is on the effect of the cultural dimension uncertainty avoidance introduced by the GLOBE study on a preference between causal and effectual logic. This study will firstly use the GLOBE study and the effectuation theory of Sarasvathy in order to sketch the expected relationships and outcomes. These relationships proposed by existing theories will be tested with the analysis of field data gained through the thinking out loud method. The outcomes of this analysis show that the results of this study are the opposite of what is proposed by theory, which yields for an interesting discussion and conclusion. This research contributed in a way for further research, showing that the used sample size might not be a perfect representative of reality. The recommendations to explore relationships with effectuation and influencing factors makes this study a relevant contribution towards the existing literature.

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1. INTRODUCTION

Entrepreneurship is an area within the literature on business society which gained a lot of interest recently (Venaik & Brewer, 2010). Business activities are getting more international and more entrepreneurial companies are started up in an international context. This international context is influenced by the diminishing political and economic barriers between countries (Mueller & Thomas, 2000). Entrepreneurial businesses are those businesses which were started based on opportunities and involved taking risks more than other businesses (Kariv, 2011). This start-up requires making investments without knowing what the distribution of the returns will be (Venkataraman, 1997). Therefore starting an entrepreneurial business goes paired with high uncertainty. Starting a business is involved with certain steps which taken together can be referred to as the entrepreneurial process. However, there is not one approach to this process. Here every entrepreneur experiences influences on this process, both within and without its control. The increasing interest in these fields is the reason why this research has been executed. It will consider entrepreneurial processes and the influence of the international world on new venture creation.

Sarasvathy (2001) introduced two ways of reasoning or decision making processes for entrepreneurs when creating a new venture. These reasoning processes focus on the performance of an individual entrepreneur, rather than on the firm performance (Sarasvathy, 2003). This is an important acknowledgement, since influences on personal decision making and reasoning are considered and therefore the processes introduced by Sarasvathy (2001) are suitable for this research. The first line of reasoning which is introduced is called causation, or planned behavior. The second line of reasoning is effectuation. This is referred to as intuitive behavior.

Causation is the process which is often taught within business studies. However, expert entrepreneurs often experience that surprises are the factors on which the creation of a new venture should be build (Sarasvathy, 2001). Although, the best entrepreneurs are capable to use both effectual and causal reasoning when creating a new venture. However at the early stages frequently a preference is given to effectual reasoning, often this does not transition enough to causal reasoning in a later stage. Sarasvathy (2001) states that this transition is required. From the above, the conclusion can be drawn that expert entrepreneurs are more frequently to be seen using an effectual line of reasoning, both when creating a new venture as well as further into the business lifetime.

Since the introduction by Sarasvathy (2001) effectuation was empirically modeled and tested only in a limited number of studies (Perry, Chandler, & Markova, 2012). Effectuation has captured the interests of researchers because it identifies and questions basic assumptions of how individuals think and behave when starting businesses and it offers an alternative explanation to causation (Perry, Chandler, & Markova, 2012). These assumptions of Perry et al (2012) and Sarasvathy (2001) stating that in practice expert entrepreneurs will show a more effectual line of reasoning instead of the causal line shows why the research on effectuation has become such an interesting and widely discussed topic.

Next to the globalization of the business society and all the changing impacts on entrepreneurial processes, like political support and the quality of institutions, national culture is also seen to have a considerable effect on entrepreneurship (Kariv, 2011). In general, researchers have hypothesized that entrepreneurship is facilitated by cultures that are high in individualism, low in uncertainty avoidance, low in power-distance, and high in masculinity (Hayton, George, & Zhara, 2002). Entrepreneurs are influenced by the culture they grew up in since culture changes the behavior pattern of a person on several levels. Culture is defined by Hofstede (1980) as "*the mental programming of the mind, which is that part of our conditioning that we share with other members of our nation, region, or group but not with members of other nations, regions, or groups.*" (Hofstede G. , 1980, p. 76).

The research of Hofstede (1980) is often used as the base for studies focusing on national culture. However, Hofstede can be criticized for a number of reasons, especially regarding the internal validity of the dimensions and the method of constructing the scales. One of the main critics was McSweeney (2002), who argued that Hofstede confused nations with states, since states could be multinational too. Next to that, the sample size used for the research, being employees of the company IBM worldwide, cannot be seen as a representation for national uniformity. One reason for the GLOBE study being less criticized than Hofstede, might be because there are fewer controversial issues. But a second, perhaps even better reason, is because the GLOBE study is much more recent and therefore researchers have not yet fully analyzed it (Venaik & Brewer, 2010). Taking into account these statements, this study uses the GLOBE study as a base of defining culture and its dimensions.

The GLOBE study by House et al. (2004) was conducted in the mid-1990s, and involved more than 170 investigators within 62 countries. The study was designed to expand on Hofstede's (1980, 2001) work. Survey questionnaires were conducted from more than 17,000 middle managers in 951 organizations across three industries (Venaik & Brewer, 2010). House et al. (2004) introduced nine cultural dimensions within their GLOBE study, being uncertainty avoidance, power distance, collectivism I, collectivism II, gender egalitarianism, assertiveness, future orientation, performance orientation, and humane orientation. It is seen that these dimensions are quite similar to the dimensions introduced by Hofstede (1980), being uncertainty avoidance, power distance, individualism, and masculinity. Although the dimensions are based on slightly different characteristics, it is clear that Hofstede (1980) is used as a basis.

Every cultural dimension of House et al. (2004) has its own impact on people and society. For example, a high future orientation leads to future-oriented behavior. This has another effect on business practices compared to countries in a high humane orientation, where businesses encourage individuals to be fair and friendly towards others. These two dimensions bring two whole diverse norms to a person. These differences make culture a broad concept which therefore cannot be seen as one general influencing factor. Every dimension needs its own analysis and has its own effects. To keep focus within this study, only uncertainty avoidance will be analyzed. Uncertainty avoidance is chosen within this study for several reasons. The first reason is the observability of this dimension due to its clear characteristics, which will be explained later. Secondly, uncertainty avoidance is closely related to entrepreneurship since entrepreneurship is involved with lots of uncertainties, especially in the start-up phase of the company (Venkataraman, 1997). Therefore the degree of uncertainty avoidance is expected to have a more noticeable effect on the causal share of entrepreneurs in contrast to the other dimensions of the GLOBE study.

The effectuation theory of Sarasvathy (2001) is a main contributor towards entrepreneurship and the way entrepreneurs operate. Next to that it is seen that national culture has an influence on entrepreneurship because every individual is influenced by its own and external cultural values. Therefore it is interesting to see to what extent culture is related to the

preference for an effectual or either causal view for entrepreneurs. This leads to the following research question:

To what extend is uncertainty avoidance related to the preference for a higher effectual share or a higher causal share within the approach of creating a new international venture?

The theories of Sarasvathy (2001) and House et al. (2004) are the basis of this paper. The theory of House et al. (2004) will be combined with the framework of Sarasvathy (2001), to see if the literature suggests that higher uncertainty avoidance leads to an effectual decision making pattern or conducts towards a more causal-driven decision-making. This paper will contribute to the literature by researching if uncertainty has an effect on entrepreneurial behavior. First, the concepts effectuation, causation, and uncertainty avoidance will be conceptualized and operationalized. Secondly, these operationalized concepts will allow us to draft a hypothesis, which will be tested. Afterwards the results will be discussed and concluded.

2. THEORETICAL BACKGROUND

2.1 Effectual theory

Sarasvathy discussed that there are three elements that constitute the effectual problem space: (Sarasvathy, 2009, p. 70)

1. Knightian uncertainty – it is impossible to calculate probabilities for future consequences.
2. Goal ambiguity – preferences are neither given nor well ordered.
3. Isotropy – it is not clear what elements of the environment to pay attention to and what to ignore.

These three elements give a clear overview of effectuation. Next to the overall effectual problem space, the literature shows two possible courses of action within this theory. Causation and effectuation both were already briefly introduced. This section will explore these concepts further and operationalize these concepts. Causal reasoning is concerned with the process where actions are based on a pre-determined goals and a given set of means. With these goals and means, the optimal alternative is identified and executed (Sarasvathy, 2001). Effectual reasoning begins with a given set of means which allows goals to emerge from those means and other interactions like people and diverse aspirations of the founders (Sarasvathy, 2001). The given set of means used for effectual reasoning are composed of three categories that entrepreneurs start with; (1) they know who they are (traits, tastes and abilities), (2) what they know (education, training, expertise and experience) and (3) whom they know from their social and professional networks (Sarasvathy, 2001). While combining these means certain several effects can be created. Due to the different existing means there are multiple possibilities of outcomes and goals using these means. This means that there is no possible prediction of actions, wherefore the process of effectuation does not include elaborated planning and the setting of goals. Plans are made during the process based on outcomes of means and interactions with stakeholders (Sarasvathy, 2001). Using effectuation for new venture creation will not involve a certain (optimal) type of firm, but the structure of the firm is shaped during the process based on the best experience. Within the effectual theory there are five elements which characterize effectuation and causation, which are (1) the view on the future; (2) the basis of taking action; (3) predisposition towards risk and resources; (4) attitudes towards outsiders; and (5) attitudes towards contingencies (Dew, Read, Sarasvathy, & Wiltbank, (2009); Sarasvathy, (2001)). The five sub-constructs include: (1) trying to predict a risky future or seeking to control an unpredictable future; (2) beginning with a given goal or beginning with a set of given means; (3) focusing on expected returns or on affordable loss; (4) emphasizing competitive analysis or strategic alliances and pre-commitments; and (5) exploiting preexisting knowledge or leveraging environmental contingencies (Perry et al., 2012). A summary of these elements and the distribution of these elements can be found in table 1. These elements are important because of the fact that a person never has a total causal or effectual approach, but both approaches are conducted by an individual and one of both is dominant. From this we can conclude that effectuation and causation are dichotomous and therefore can exist both at the same time.

Issue	Effectual frame	Causal frame
View on the future	Non-predictive control	Predictive control
Basis for taking action	Means-oriented	Goal-oriented
Risk and resources	Affordable loss	Expected return
Outsiders	Partnerships	Competitive analysis
Unexpected contingencies	Leveraging	Avoiding

Table 1: Effectuation theory elements

2.2 Uncertainty avoidance

Within the GLOBE study of House et al. (2004), Sully du Luque and Javidan (2004) defined uncertainty avoidance as "*the extent to which members of collectives seek orderliness, consistency, structure, formalized procedures and laws to cover situations in their daily lives*" (p. 603). Thus, high uncertainty avoidance leads to people relying on structures, regulations and expert knowledge in order to reduce the level of uncertainty (Mueller & Thomas, 2000). Important to note is that uncertainty avoidance should not be mixed with risk avoidance, since they are not the same thing. In contrast with risk, uncertainty has no probability to it and is not focused on a specific event. In an uncertain situation anything can happen, this means the outcome is unknown. Uncertainty avoidance implies the reduction of ambiguity rather than the reduction of risk (Hofstede G. , 2001).

House et al. (2004) used four items within the GLOBE study interviews in order to measure the uncertainty avoidance level of managers:

(1) The rate of perceived orderliness in society
(2) The rate of structure within lives
(3) The presence of societal requirements and instructions
(4) Societal rules or laws to cover situations

Concluding, if the outcomes of these four items are high, the rate of uncertainty avoidance is high and if the outcome is low, uncertainty avoidance is also low.

An important aspect of the GLOBE study and its dimensions is the split between "should be", which is connected to values, and "as is", which is connected to practices (House et al., 2004). GLOBE measured its dimensions on these two scales, giving two sets of outcomes for each participating country. This is done on the basis that it pursued to capture both the tangible (e.g. policies and practices) and the intangible attributes of culture, being cultural norms and values (Venaik & Brewer, 2010). House et al. (2004) stated that these two scores are the same for every country within every dimension.

Past research on national culture has shown two alternative approaches to the description of culture: values versus

descriptive norms, which equals values and practices (House, Hanges, Javidan, Dorfman, & Gupta, 2004). The values perspective is by far the dominant approach within international business and cross-cultural research (Stephan & Uhlaner, 2010). But House et al. (2004) and Stephan and Uhlaner (2010) argued that values might be considered to be only loosely related to entrepreneurial activity, since people do not necessarily act in line with their expressed personal preferences. This statement leads to a possible negative relationship between values a practices introduced in the GLOBE study. Within the GOBE study by House et al. (2004) it is seen that for the overall dimension uncertainty avoidance, the country scores for practices and values are negatively related. This means, a low values score will lead to a high practice scores. So if a country values low uncertainty avoidance, they act for high uncertainty avoidance. This split between values and practices creates an interesting effect on the effectual theory, since values and practices could have a positive effect. This will be further elaborated through the paper.

3. HYPOTHESES

In this chapter the two theories used will be combined in order to create hypotheses to explain the relationship between the two. The first hypothesis is concerned with the overall degree of effectual or causal patterns within entrepreneurs. Like mentioned in paragraph 2.1, causation and effectuation are dichotomous and therefore never exclude the other. This doesn't mean one can't overrule the other. The second and third hypotheses focus on elements of causation and effectuation which are the "base for taking action" and "predisposition towards risk and resources".

3.1 Effectual problem space and uncertainty avoidance

The three elements of the effectual problem space, being Knightian uncertainty, goal ambiguity, and isotropy, are combined with uncertainty avoidance. This allows us to determine the overall relationship between uncertainty avoidance and the effectual theory. Knightian uncertainty suggests an approach for low uncertainty, since it is hardly possible to calculate probabilities of future events, which is creating high uncertainty. Goal ambiguity too is related to a low level of uncertainty avoidance, since when there are no preferences there is uncertainty about future events. Furthermore, isotropy is concerned as well with low uncertainty avoidance due to the fact that again things are unknown, which will lead to an increase in uncertainty. These three elements of the effectual problem space are therefore possible only when an individual does not have a tendency to avoid uncertainty. Consequently, a high share in effectual reasoning is only possible in a low uncertainty avoiding country. Hence, high uncertainty avoidance is expected to be related to a high share of causal reasoning. The following hypotheses are formulated in order to test this relationship.

H_0: High uncertainty avoidance is correlated with a lower share of causal logic for entrepreneurs within new venture creation

H_A: High uncertainty avoidance is correlated with a higher share of causal logic for entrepreneurs within new venture creation

The hypothesis created above is based on the literature. However, as seen in chapter 2.2, values and practices are negatively related. This may result into an opposite effect on causal reasoning for values and practices. Due to this, two hypotheses are needed. The one introduced above is used for the uncertainty avoidance score which is positive correlated with causal logic share. The next hypothesis is used for the uncertainty avoidance score which is negatively related with causal logic. This one is used for either the practice analysis or the values analysis, depending on their relationship with causal logic.

H_0: High uncertainty avoidance is correlated with higher share of causal logic for entrepreneurs

H_A: High uncertainty avoidance is correlated with a lower share of causal logic for entrepreneurs

3.2 Effectuation elements and uncertainty avoidance

After creating a hypothesis for the overall influence of uncertainty avoidance on effectual behavior, it is also interesting to focus on two elements of the effectual theory and look at the effect of uncertainty avoidance on these specific areas. Therefore we use the elements "basis for taking action" and "predisposition towards risk and resources", which were introduced in chapter 2.1.

3.2.1 Basis for taking action

Actions within effectual reasoning are means based, where goals emerge from those means. The goal-oriented reasoning within causality will induce for decision making leading towards pre-determined goals. High uncertainty avoidance is concerned with structure and orderliness which suggests a goal-oriented approach, since having goals leads to a structured plan. Therefore low uncertainty avoidance will lead to a means-oriented approach and high uncertainty avoidance to a goal-oriented approach. This results in the following hypothesis.

H_0: High uncertainty avoidance is correlated with a lower share of goal-oriented decision making for entrepreneurs

H_A: High uncertainty avoidance is correlated with a higher share of goal-oriented decision making process for entrepreneurs

An opposite hypotheses is introduced. This hypothesis will be used for the country which score has a negative relationship with causal logic. The hypothesis is:

H_0: High uncertainty avoidance is correlated with a higher share of goal-oriented decision making for entrepreneurs

H_A: High uncertainty avoidance is correlated with a lower share of goal-oriented decision making process for entrepreneurs

3.2.2 Predisposition towards risk and resources

Causation models focus on pursuing the maximum potential return for a decision by selecting optimal strategies and raising the required resources. But under true uncertainty the prediction of expected returns is impossible. This highly structured strategy is preferred within high uncertainty avoidance since high uncertainty avoiding individuals take more moderate calculated risks. Effectual reasoning will focus on the affordable losses, where decisions and strategies are created with the focus on the resource which can be afforded. Low uncertainty avoidance will result in an effectual logic because they are less calculating when taking risks.

H_0: High uncertainty avoidance is correlated with a lower share of focus on expected returns for entrepreneurs

H_A: High uncertainty avoidance is correlated with a higher share of focus on expected returns

Once more, an opposite hypothesis is used, for the score which has a negative relationship with causal logic. The hypothesis used will be as follows:

H_0: High uncertainty avoidance is correlated with a higher share of focus on expected returns for entrepreneurs

H_A: High uncertainty avoidance is correlated with a lower share of focus on expected returns

4. METHODOLOGY

The data collection method used consisted of think-aloud sessions with student-entrepreneurs. The think aloud method implies that subjects are required to think aloud continuously during a specific interview for their domain of expertise. In other words, the subject solves problems while speaking out loud whatever thoughts come to mind (van Someren, Barnard, & Sandberg, 1994). What they say is recorded by the protocol leader and used as data for analysis of the cognitive processes that are used. Due to several advantages the thinking out loud method is used. One advantage is that no data is lost due to interruptions and it avoids interpretation by the subject. Lastly the verbal protocols that are created through the think-aloud sessions are treated as data, which creates an objective method (van Someren, Barnard, & Sandberg, 1994). Another advantage is that this method 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). This method increases the amount of observed cognitive information and behavior compared to other methods. This method is therefore highly recommended when looking for specific behavior patterns (Ericsson, Krampe, & Tesch-Römer, 1993).

4.1 Data collection

The data used in this study was collected within the EPICC research study. Student entrepreneurs with over 20 different nationalities were interviewed and given a case study. For this study the countries Germany, Russia, Hungary and Denmark are selected due to its score on the uncertainty avoidance dimension within values and practices. The research will be both conducted for countries related to values and practice scores, due to the negative relationship between both.

For a high values score, Germany has been chosen with a score of 5.22. For a low values score, Russia, with a score of 2.88 was chosen. For a high practice score, Denmark will be taken into consideration with a score of 5.22. And lastly, for a low practice score, Hungary is chosen, with a score of 3.12. These countries and scores are listed in Table 2, in order to create a better overview. Table 3 shows the descriptive statistics of the overall scores of the 62 countries. The minimum, maximum and mean which makes it possible to control if these two countries indeed score high and low on these dimensions compared to the whole sample of 62 countries.

	High	**Low**
Values	Russia	Germany
Score	5.07	3.32
Practices	Denmark	Hungary
Score	5.22	3.12

Table 2: Chosen countries per dimension, including dimensional scores (Based on data of House et al., 2004)

	Mean	**Max**	**Min**	**SD**
Values	4.62	5.61	3.16	0.61
Practices	4.16	5.37	2.88	0.60

Table 3: Specifications of values and practices scores of uncertainty avoidance (House et al., 2004)

Choosing these countries, for the values analysis it results in a total of 19 German student entrepreneurs and 20 Russians student entrepreneurs. The study has one less German student, due to the fact that one of the subjects was not originally German. Since this study focusses on culture this is an important characteristic for the participants. Details can be found in table 4. This data is part of the data collected within the EPICC study.

Country	**Male**	**Female**	**Total**
Germany	14	5	19
Russia	10	10	20

Table 4: Specification of the research sample Germany and Russia

For the practices analysis it results in 18 Hungarian participants and 20 Danish participants. One Hungarian participant is missing due to missing answers on the case. Details can be found in table 5. The data of these countries too is selected from the data obtained within the EPICC study.

Country	**Male**	**Female**	**Total**
Hungary	16	2	18
Denmark	18	2	20

Table 5: Specification of the research sample Hungary and Denmark

The problems presented to the participants consisted of a case where a coffee company on the campus of the University of Twente was founded. Ten business problems were given to the participants, which were based on the different steps of founding this fictional company. These problems were for example market identification, defining the market, and meeting payroll. All these problems were discussed by the entrepreneurs during a think aloud session. These interviews were coded according to the coding scheme shown in table 6. Different text blocks were coded according to the behavior pattern the subject was showing. In that was, it is possible to create an overview of the effectual or causal reasoning of the student entrepreneur.

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

Table 6: Coding scheme

4.2 Analysis

4.2.1 Dependent variable

The dependent variable of this study is the extent to which student entrepreneurs show a high share in causation. To analyze this variable, frequency counts were used. For each student-entrepreneur it will be analyzed how many times he or she expresses causal thoughts, and how many times he or she expresses effectual thoughts. This is done by using the previous introduced coding scheme. The share of causation is calculated as a percentage of the total blocks coded. It will also be analyzed if there is a higher share in goal-oriented methods and a higher share with the focus on upside potential. For the first hypothesis, the overall share of causation will be used. For hypotheses 2 and 3 the share will be calculated by taking the total count of goal-oriented and expected returns codes divided by the total coding of the specific element of taking action.

4.2.2 Independent Variable

The independent variable is the score of the entrepreneurs on the cultural dimension uncertainty avoidance. Country dummies are used to measure this, where countries were chose which represent the desired scores. These country dummies exist of the data of the participating student entrepreneurs, as has been stated in table 4 and 5. The corresponding scores are introduced in the GLOBE study and stated in table 2. These scores were stated in paragraph 3.1.

4.2.3 Control variables

To exclude influences from other variables, the control variables age and gender will be used. These variables are possible influencers on the research, where gender is not normally distributed within the samples. All samples, except for Russia, have a low amount of female participants. Therefore, this makes for a good control variable. Next to that, age is a control variable.

4.3 Method of analysis

As has been stated in chapter 2.2 and chapter 3, for the overall dimension uncertainty avoidance the country scores for practices and values are negatively correlated. This will be tested using a correlation test. This test will point out if values or either practices scores are negatively related to the causal share of the entrepreneurs. The hypothesis are used in order to test if there is a significant difference between the total shares of causation of the two selected countries. Due to the opposite situation, the opposite hypothesis introduced will be the hypothesis used for the score which has a negative relationship, according to the outcome of the correlation test. Possibly, they both have the same relation with the share of causal logic, what will result in using only one hypothesis.

The share of causation and the country dummies representing uncertainty avoidance scores will be used in order to perform an independent sample t-test. This test will measure the existence of a significant difference between the two means of causal share of the two used countries. The hypotheses will be tested in both a values analysis and a practice analysis. The independent t-test will be used, after testing on normality. In case the data is not normally distributed, a Man-Whitney U test will be used in order to test this significant difference.

Finally, the effect of the control variables gender and age will be tested by performing a semi-partial correlation.

5. RESULTS

First, a correlation test will be used in order to find how practices and values are related with the share of causality. The correlation test shows that within the countries Germany and Russia, used for the values dimension, a significant positive relationship of r = .674 with a p-value of .000 (<.001) is seen between cultural score and share of causation (see Appendix A). Therefore, the hypothesis for a positive relationship will be used, where a higher score on uncertainty avoidance will lead to a higher causal share.

Within practices scores, where the countries Hungary and Denmark are used, a negative relationship of r = -.751 with a p-value of .000 (<.001) is found. The hypothesis for the negative relationship is therefore used, for this hypothesis a higher score on uncertainty avoidance will result in a lower share of causation. This outcome can be found in Appendix A.

5.1 Effectual problem space and uncertainty avoidance

A comparison is made between the overall use of causation and effectuation by student entrepreneurs of Russia and Germany for the values analysis and Hungary and Denmark for the values analysis. Percentages are calculated by taking the overall average scores on causal and effectual reasoning. These shares can be found in figure 1.

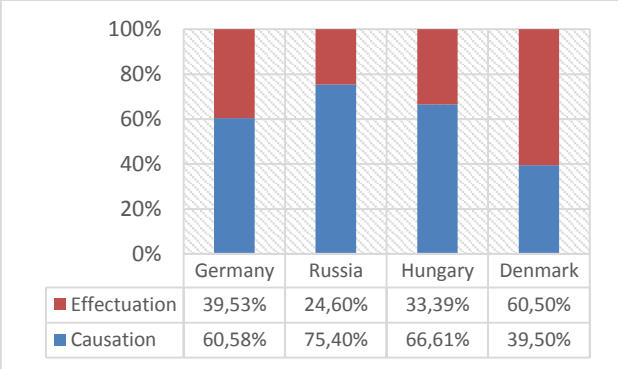

Figure 1: Share causation and effectuation

5.1.1 Values analysis

The share of causation is tested for normality, to see if it is possible to conduct an independent t-test. The outcome (see appendix B) shows that the data of the share of causation for Germany and Russia is distributed normally, with a p-value of .297 (>.05). Therefore an independent t-test can be performed to see if there is a significant difference between the means of Germany and Russia. Performing the independent t-test (see appendix B), the results show that equal variance is not assumed, due to a p-value of .026 (<.05). There is a significant difference between the means of causal share of the two countries with a p-value of .000 (<.001). This means that the null hypothesis is rejected.

5.1.2 Practice analysis

The share of causation is again tested for normality. The outcome (see appendix B) shows that the data is distributed normally, with a p-value of .257 (>.05). Therefore again, an independent t-test is used. After performing the independent t-test, the results show that equal variance is assumed, due to a p-value of .776 (>.05). When looking at these results, there is a significant difference with a p-value of .000 (<.001) between the means of causal share of the two countries. Therefore, the null hypothesis is rejected.

5.2 Effectuation elements and uncertainty avoidance

5.2.1 Basis for taking action and uncertainty avoidance

A comparison is made between the use of causation and effectuation within the element basis for taking action by student entrepreneurs of all included countries. Here, a causal approach is expressed in a focus on expected returns and effectual as a focus on affordable loss. Percentages are calculated by taking total coded text blocks within the element divided by the count of goal-oriented codes within this element. These shares can be found in figure 2.

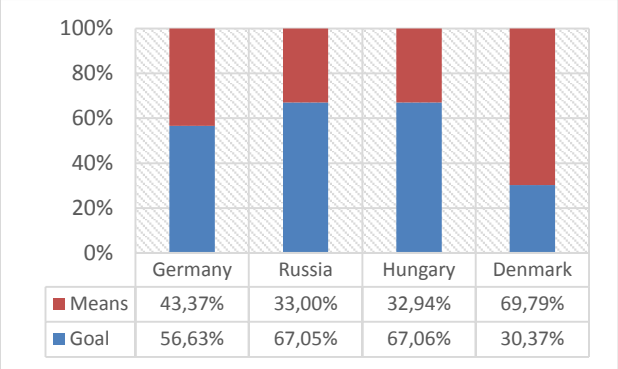

Figure 2: Share goal-oriented and means-based

5.2.1.1 Values analysis

The share of goal-oriented action taking, firstly is tested for normality in order to see if it is possible to conduct an independent sample t-test. The outcome (see appendix C) shows that the data is not distributed normally, with a p-value of .000 (<.001). Therefore, an independent t-test cannot be performed to see if there is a significant difference between the means of Germany and Russia. Due to this, the Man-Whitney U test for nonparametric data will be used. Performing this (see appendix C), the results show that there is no significant difference, due to a p-value .296 divided to get the 1-tailed outcome, resulting in a p-value of .143 (>.05). This means that the null hypothesis is not rejected.

5.2.1.2 Practice analysis

The share of goal-oriented action taking is again tested for normality. The outcome (see appendix C) shows that the data is distributed normally, with a p-value of .257 (>.05). Therefore, an independent t-test can again be performed to see if there is a significant difference between the means of Denmark and Hungary. Equal variance is assumed, with a p-value of .920 (>.05), resulting in a significant difference, due to a p-value .000 (<.001) (see appendix C). This means that the null hypothesis is rejected.

5.2.2 Predisposition towards risk and resources

The method used is the same as the previous tests. Here, a causal approach is expressed in a focus on expected returns and effectual as focus on affordable loss. Percentages are calculated by taking total coded text blocks within the element divided by the count of goal-oriented codes within this element. The deviation of the share in expected returns and the average share of affordable loss are shown in figure 3.

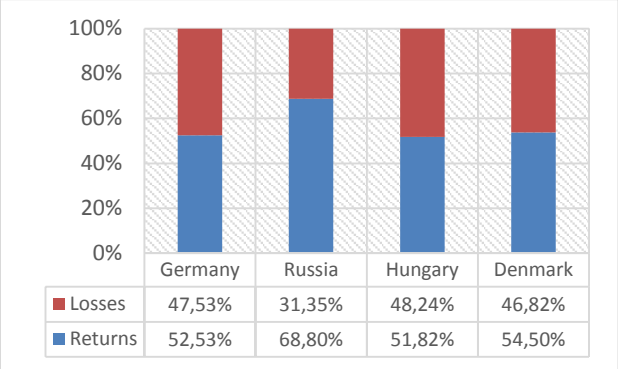

Figure 3: Share expected returns and affordable loss

5.2.2.1 Values analysis

The test for normality (see appendix D) shows that the share of expected returns is not distributed normally, with a p-value of .024 (<.05). Therefore, the Man-Whitney U test for nonparametric data will be used. Performing this (see appendix D), the results show that there is a significant difference, due to a p-value .081 divided to get the 1-tailed outcome, resulting in a p-value of .0405 (<.05). Although, the significance is not strong, this means that the null hypothesis is rejected.

5.2.2.2 Practice analysis

The test for normality (see appendix D) shows that the data is distributed normally, with a p-value of .070 (>.05). Performing the independent t-test (see appendix D), equal variance is assumed with a p-value of .070 (>.05), resulting in no significant difference due to a p-value .728. This is divided to get the 1-tailed outcome, resulting in a p-value of .364 (>.05). This means that the null hypothesis is not rejected.

5.3 Effects of control variables

The previous results are tested for two control variables, the gender of the entrepreneur and the age. To control for gender, the categorical variable with 1 = male and 2 = female is created. To control for age, the sample is split in two age group, where 1 = ≤25 and 2 = >25. A semi-partial correlation between country and share of causation with control variables age and sex is performed. This is done for both the values and the practice subjects.

For the group Germany and Russia, performing the semi-partial correlation, it still shows a significant positive relationship (r=.632, P<.001) with the level of uncertainty avoidance, even after controlling for age and gender. For the group Denmark and Hungary, it shows that after performing the semi-partial correlation, still a significant (r=-.776, P<0.001) negative relationship with uncertainty avoidance level can be found, even after controlling for age and gender (See Appendix E). These two relationships do not deviate from the relationships shown at the beginning of this chapter, which means the control variables have no influence on the outcomes of this study.

6. DISCUSSION

"*To what extend is culture related to the preference for a higher effectual share or a higher causal share within the approach of creating a new international venture?"* is what is aimed to be measured in this study. The results show a different effect on the causal share for practices scores and values scores. For the overall causal share, the results express that countries with a high values score on uncertainty avoidance have a higher share of causal reasoning compared to countries on low uncertainty avoidance. Countries with a high practice score on uncertainty avoidance have a lower share in causal practices. An overview of the outcomes is stated in table 7.

	Hypothesis 1	**Hypothesis 2**	**Hypothesis 3**
Values	Rejected	Not rejected	Rejected
Practices	Rejected	Rejected	Not rejected

Table 7: Outcomes hypotheses

As would be expected and as assumed in paragraph 2.2, values and practices of a society are likely to be positively related, even though they may be different. Values are the most deeply rooted aspects of a culture, forming the basis for cultural practices. When Hofstede conducted his study, his perspective was that values drive practices (Hofstede G. , 1980). This statement supports the assumption that values and practices are positively related (Hofstede G. , 2006). However, the GLOBE study shows

that some dimensions within the study, including uncertainty avoidance, have a significantly negative relationship between values and practices, meaning that high uncertainty avoiding values lead to low uncertainty avoiding practices and vice versa. This is one of the most interesting findings within GLOBE because it is counter-intuitive and thus challenges our understanding of the way culture impacts (Venaik & Brewer, 2010). The authors of the GLOBE study however state that for them it is basically unclear why the relationship is negative rather than positive (House et al., 2004, p. 729). The GLOBE study unintentionally highlighted some of the so far neglected difficulties with the values surveys approach to measuring culture conducted by Hofstede. House et al. (2004) and Stephan and Uhlaner (2010) too argued that values might be considered to be only loosely related to entrepreneurial activity, since people do not necessarily act in line with their expressed personal preferences. Now the question is, where does this negative relationship come from?

Firstly, Hofstede (2006) argued that this negative relationship was a result of a design flaw within the questionnaires used in the GLOBE study, where according to him the subjects are unable to describe practices independent of their values. More specifically, the results reported by the GLOBE study indicate that values surveys fail to measure true cultural values. Secondly, Maseland and van Hoorn (2009) argued that the principle of "diminishing marginal utility" explains this negative relationship. The crucial difference here is between relative weights and marginal preferences. Marginal preferences is the value that an individual attaches to something, considering given the current situation. Relative weights however refers to how much value an individual attaches to something, regardless of the current situation (Maseland & van Hoorn, 2009). Values, taking Hofstede's definition, are ''*broad tendencies to prefer certain states of affairs over others''* (Hofstede G. , 2001, p. 5). This definition corresponds to relative weights, however this is not what values surveys appear to measure. The results that values correlate negatively with practices indicates that these surveys primarily provoke marginal preferences rather than relative weights. Maseland and van Hoorn (2009) concluded from the surveys of the GLOBE study, that the values questionnaire is not appropriately set up, and therefore give results which are not accurately corresponding to values. Therefore when concluding the results of this study, the focus will be on the outcome of the practice analysis, since this appears to give a better view on the validity of county dimension scores.

Another discussion point on possible malfunctions on the outcomes is the usage of the think aloud method. This could possibly influence the validity of this research. Due to differences within cultures concerning norms and values, some may be resistant towards the think aloud method. For example, individuals from a culture with a high respect towards privacy may not feel comfortable saying all their thoughts aloud. 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 reliability, it is still a subjective task depending on the researcher's judgment.

7. CONCLUSION

This study focusses on the effectual theory and the preference for causal or effectual reasoning. The main question here was if the level of uncertainty avoidance of an individual is influencing this preference. In view of this study and all corresponding theories, a positive influence of a country's level of uncertainty avoidance was expected on its total share for causal tactics. Since the dimensions of the GLOBE study exist of both values and practices scores, both scores were taken into account when conducting the research. The discussion shows that the ranking outcomes of values are no accurate representation of a country's true score on this dimension. Therefore, only the results of the practice analysis will be considered to conclude on the relationship between uncertainty avoidance and the share of causal preference.

At the beginning it was stated that within the two countries used for the practice analysis, being Hungary and Denmark, a negative relationship was found between the level of uncertainty avoidance and the share in causation. This means a higher score on uncertainty avoidance leads to a lower share of causation. This deviates from the original hypothesis, where a positive relationship was expected. For the first hypothesis, concerning the overall share of causation, with significance is shown that a higher level of uncertainty avoidance leads to a lower share of causation. This is also true for the second hypothesis concerning the element "basis for taking action", where there too is a significant negative relationship. But this is not true for the element of "risk and resources", where no significant difference is found between the shares of focus on expected returns.

From that we can conclude that overall effectuation is influenced by uncertainty avoidance, and some elements are dependent on culture, where some are used by all entrepreneurs and are not influenced by culture. To answer the research question stated before, being "*To what extent is uncertainty avoidance related to the preference for a higher effectual share effectual or a higher causal share within the approach of creating a new international venture?"*, the answer is that culture does influence a preference for an effectual or causal approach. The direction this relationship has is negative, meaning that high uncertainty avoidance leads to a lower share in causal logic, therefore in a higher share of effectual logic. However, this relationship is in the opposite way as it was expected to be according to the accompanying theory.

Perry et al. (2011) recommended an exploration of the relationships between effectuation and influencing factors, in order to move the research into the next stage. With these results this report has made a contribution to this recommendation, being the introduction of the cultural paradigm into the effectuation theory. This study found a significant difference in the preference for causal reasoning between student-entrepreneurs with a difference in cultural values. This suggests that the level of uncertainty avoidance of an individual has an influence on the entrepreneurial processes preferred by this individual. Another contribution is that the results show that even though the general relationship holds, it does not hold for both elements of effectual and causal reasoning. This suggests that there are elements of effectual reasoning that are influenced by culture and thus differ from society to society, but other elements are used by all entrepreneurs regardless of culture.

The findings have two practical implications. First of all the results of this study suggest that national culture should be a factor in the way business schools teach business management courses, since it influences management. In the introduction, it was said that the causal logic is mainly used within business studies. This study implies that only people in low uncertainty avoiding countries societies use these measures to start up a new venture. All other countries use an effectual logic, which is not taught within business studies. Therefore, dealing with effectual logic should also be part of the curriculum of a business student, even though there is no specific way to teach it. Secondly, the results found in this study impact the way entrepreneurs do business, either in their own country or abroad. Since more and more businesses are started up internationally, the entrepreneur

should be aware of the impacts a certain country or culture has on practices, in order to adapt their way of creating a new venture.

8. LIMITATIONS

As shown in the conclusion, the presented test results do not represent the theory in any way. This can be due to several factors. Firstly, the theory could be totally wrong, but this is not expected to be the case. However, there can be a possible gap between theory and practice, coming from the fact that the answers subjects gave are not necessarily corresponding with their actual decisions when they are faced with a situation mentioned in the case. Another limitation is the inaccuracy within the GLOBE study concerning the differences in values and in practice scores, since the values analyses did show a significant positive relationship.

Looking at the sample which is used, one can assume that the sample is not an appropriate representation of the reality. There are several limitations due to the sample size of this study. Firstly, this study has a small sample size. For the values dimension sample it is 39, where for the practice sample size it is only 38. This small sample size can result in a wrong representation of reality. Next to that, only student entrepreneurs were subject to this sample, who could deviate in their practices and values compared to expert entrepreneurs.

For future research more accurate sample sizes should be used in order to be sure it is indeed representing reality. This can be done by including all kind of other entrepreneurs like expert entrepreneurs, next to only student entrepreneurs. Next to that, as found in this study, there is still something going on concerning the negative relationship of practices and values within the GLOBE study. The assumption made in this study is solely based on only two papers, but further research should be done in order to conclude what this negative relationship means and what kind of influence it has on the scores provided per country. Lastly, due to the fact that this study only focuses on the dimension uncertainty avoidance, other dimensions, or national culture as a whole, could be researched to have an effect on entrepreneurial processes.

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10. APPENDIX

10.1 Appendix A

Correlations

		Share_Total_Caus	Country_number
Share_Total_Caus	Pearson Correlation	1	,674**
	Sig. (1-tailed)		,000
	N	39	39
Country_number	Pearson Correlation	,674**	1
	Sig. (1-tailed)	,000	
	N	39	39

**. Correlation is significant at the 0.01 level (1-tailed).

Table 1: Outcomes correlation test Germany and Russia

Correlations

		Country_number	Share causation (%) total
Country_number	Pearson Correlation	1	-,751**
	Sig. (1-tailed)		,000
	N	38	38
Share causation (%) total	Pearson Correlation	-,751**	1
	Sig. (1-tailed)	,000	
	N	38	38

**. Correlation is significant at the 0.01 level (1-tailed).

Table 2: Outcomes correlation test Hungary and Denmark

10.2 Appendix B

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Share causation (%) total	,089	38	,200*	,966	38	,297

Table 1: Outcomes of test of normality for causation share Germany and Russia

Group Statistics

	Country_number	N	Mean	Std. Deviation	Std. Error Mean
Share_Total_Caus	1	19	,6053	,10238	,02349
	2	20	,7554	,06262	,01400

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
Share_Total_Caus	Equal variances assumed	5,351	,026	-5,557	37	,000	-,15015	,02702	-,20490	-,09541
	Equal variances not assumed			-5,491	29,535	,000	-,15015	,02735	-,20603	-,09427

Table 2: Outcomes independent sample t-test Germany and Russia

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Share causation (%) total	,089	38	,200*	,966	38	,297

Table 3: Outcomes of test of normality for causation share Hungary and Denmark

Group Statistics

	Country_number	N	Mean	Std. Deviation	Std. Error Mean
Share causation (%) total	1	18	,6666	,10724	,02528
	2	20	,3946	,13520	,03023

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
Share causation (%) total	Equal variances assumed	,084	,774	6,818	36	,000	,27200	,03989	,19108	,35291
	Equal variances not assumed			6,902	35,474	,000	,27200	,03941	,19203	,35196

Table 4: Outcomes independent sample t-test Hungary and Denmark

10.3 Appendix C

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
share_goal	,136	39	,066	,871	39	,000

Table 1: Outcomes of test of normality for goal-oriented share Germany and Russia

Ranks

	Country_number	N	Mean Rank	Sum of Ranks
share_goal	1	19	18,03	342,50
	2	20	21,88	437,50
	Total	39		

Test Statistics[a]

	share_goal
Mann-Whitney U	152,500
Wilcoxon W	342,500
Z	-1,067
Asymp. Sig. (2-tailed)	,286
Exact Sig. [2*(1-tailed Sig.)]	,296[b]

Table 2: Outcomes Man-Whitney U test for goal-oriented share Germany and Russia

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
share_goal	,096	38	,200*	,964	38	,257

Table 3: Outcomes of test of normality for goal-oriented share Hungary and Denmark

Group Statistics

	Country_number	N	Mean	Std. Deviation	Std. Error Mean
share_goal	1	18	,6702	,20924	,04932
	2	20	,3179	,20986	,04693

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
share_goal	Equal variances assumed	,010	,920	5,173	36	,000	,35223	,06809	,21414	,49032
	Equal variances not assumed			5,174	35,605	,000	,35223	,06808	,21411	,49035

Table 4: Outcomes of independent sample t-test for goal-oriented share Hungary and Denmark

10.4 Appendix D

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Share_return	,133	39	,078	,934	39	,024

Table 1: Outcomes of test of normality for expected return share Germany and Russia

Ranks

	Country_number	N	Mean Rank	Sum of Ranks
Share_return	1	19	16,74	318,00
	2	20	23,10	462,00
	Total	39		

Test Statistics[a]

	Share_return
Mann-Whitney U	128,000
Wilcoxon W	318,000
Z	-1,746
Asymp. Sig. (2-tailed)	,081
Exact Sig. [2*(1-tailed Sig.)]	,084[b]

Table 2: Outcomes of Man-Whitney U test for expected return share Germany and Russia

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Share_return	,091	34	,200*	,947	34	,100

Table 3: Outcomes of test of normality for expected return share Hungary and Denmark

Group Statistics

	Country_number	N	Mean	Std. Deviation	Std. Error Mean
Share_return	1	18	,5078	,22054	,05198
	2	16	,5443	,37437	,09359

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
Share_return	Equal variances assumed	3,516	,070	-,351	32	,728	-,03644	,10395	-,24819	,17530
	Equal variances not assumed			-,340	23,693	,737	-,03644	,10706	-,25756	,18467

Table 4: Outcomes of independent sample t-test for expected return share Hungary and Denmark

10.5 Appendix E

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	,324	,061		5,304	,000			
	Country_number	,139	,025	,647	5,566	,000	,664	,690	,629
	Age_group	,068	,024	,317	2,801	,008	,283	,433	,316
	Sex_group	,034	,025	,155	1,339	,189	,306	,224	,151

a. Dependent Variable: Share_Total_Caus

Table 1: Outcomes of semi-partial correlation with control variable age and sex Germany and Russia

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1,038	,150		6,919	,000			
	Country_number	-,269	,042	-,808	-6,354	,000	-,801	-,798	-,766
	Age_group	-,054	,043	-,155	-1,277	,214	-,153	-,257	-,154
	Sex_group	-,013	,081	-,021	-,164	,872	,250	-,034	-,020

a. Dependent Variable: Share causation (%) total

Table 2: Outcomes of semi-partial correlation with control variable age and sex Hungary and Denmark