Effectual Decision-Making explained through a perceived Loose Cultural Dimension in Potential Entrepreneurs. A case from the Netherlands.

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ABSTRACT:

Nowadays, with the world being globally connected more than ever at an increasing speed, it has enabled more individuals to turn towards entrepreneurship as their main source of income. Effectual decision-making in starting a new venture and its diverse processes has caused an enormous amount of interest among many researchers in the last decade. In entrepreneurial literature, two main angles have been distinguished with regard to decision-making processes in new venture creation: effectual and causal decision-making. When an individual uses effectual logic, he or she will begin with a given set of means, focus on affordable loss, emphasize strategic alliances, exploit contingencies, and seek to control an unpredictable future. When an individual uses causal logic, he or she will begin with a given goal, focus on expected returns, emphasize competitive analyses, exploit pre-existing knowledge, and try to predict an uncertain future. In practice, it has been found that entrepreneurs use a combination of both effectual-causal decision-making sub-constructs and the way they are combined depends of different influencers, culture been one. The purpose of this research paper investigates the cultural dimension of tightness-looseness – which measures how clear and pervasive norms are within societies and how much tolerance there is for deviance from norms – and how this tightness or looseness perceived in society influences entrepreneur's decision making in a determined country. In this research paper, Dutch students of the University of Twente are used, with the purpose of investigating the type of decision-making a potential Dutch entrepreneur exercise, and investigates further, the extent that this is influenced by the perception of tightness-looseness. It has been found that Dutch students perceived to live in a neutral tight-loose society and this does not influence, the found, effectual decision-making of a potential entrepreneur. The results show that the perception of tightness-looseness leads to both causal and effectual decision-making. Neglecting each sub-construct with the exception of the risk sub-construct – focus on affordable loss (effectuation) and focus on expected returns (causation) – which seems to have a positive outcome. In this way, the validity of the whole effectual theory is put into question.

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Keywords

Novice entrepreneurs, entrepreneurial decision-making, effectuation, causation, national culture, loose cultural dimension, tight cultural dimension, The Netherlands.

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1. INTRODUCTION

Nowadays, with the world being globally connected more than ever at an increasing speed, it has enabled more individuals to turn towards entrepreneurship as their main source of income (Bosma, Wennekers, & Amorós, 2012). In that sense, as the overall attention on entrepreneurship is growing, governments stimulate and subsidize innovation programs and startups are increasingly active. Thereby, the research into entrepreneurship has rapidly gained interest in the academic world (Busenitz, West, Shepherd, Nelson, Chandler, & Zacharakis, 2003; Aldrich, 2012). In the field of entrepreneurship, the most common definitions that have been agreed upon, define entrepreneurship as "*the process of creating or seizing an opportunity and pursuing it regardless of the resources currently controlled*" (Timmons & Spinelli, 1994, p. 7) and as the study of "*how opportunities create future goods and services are discovered, evaluated and exploited*" (Shane & Venkataraman, 2000, p. 172). The evolution of entrepreneurship has brought several definitions and conceptual frameworks of the entrepreneurial process (Harvey & Evans, 1995; Low & Abrahamson, 1997; Aldrich, 2012; Venkataraman, 2002; Brockner, Higgins, & Low, 2004; Bae, Qian, Miao, & Fiet, 2014). These different definitions and conceptual frameworks all have a common ground when it comes to defining the entrepreneurial process.

Despite all these definitions and conceptual frameworks, a very large and growing fraction of people in business struggle with abstract and complex decisions every day in different environments and contexts and the thought usage of causal approach thought in many universities around the world has lead to massive detrimental consequences (Andersson, 2011). Saravasthy (2001) states that the implication rises in the moment of making a decision with known or unknown environments which query involves the problem of choosing particular effects that may or may not implement intentional goals. Based and inspired on this issue, Saravasthy (2001) discovered another decision-making reasoning: Effectuation, where goals are unclear and the environment is driven by human life action (Saravasthy, 2001). The theory explains that human life action abounds in contingencies that cannot easily be analyzed and predicted, but can only be seized and exploited, therefore the effectual process are far more frequent and very much more useful in understanding and dealing with spheres of human action (Wiltbank, Read, Dew, & Sarasvathy, 2009). Saravasthy (2001) mentions that this is especially true when dealing with the uncertainties of future phenomena and problems of existence. The work of Saravasthy (2001) on effectual decision-making in starting a new venture and its diverse processes and implications has caused an enormous amount of interest among many researchers in the last decade. Namely, effectuation has created interest in several disciplines, including management (Augier & Sarasvathy, 2004), economics (Dew, Read, Sarasvathy, & Wiltbank, 2009), business strategy (Evald, R., & Senderovitz, 2013), finance (Wiltbank, Read, Dew, & Sarasvathy, 2009), product innovation (Brettel, Mauer, Engelen, & Kupper, 2012; Berends, Jelinek, Reymen, & Stultiëns, 2014), marketing (Read, Song, & Smit, 2009) and social media (Fischer & Reuber, 2011). In addition, effectuation has been investigated further by seeking for possible antecedents and enablers of effectual-causal decision-making such as dynamism, physical distance, international experience (Harms & Schiele, 2012) and individual's careers (Engel, Kleijn, & Khapova, 2013). Furthermore, theory has shown that there has been an increasing amount of entrepreneurs exercising towards an effectual attitude on decision-making, leaving behind the typical neoclassical causal decision-making, which was built by the assumption of market certainty (Sarasvathy S. D., 2001). Next, Kalinic, Sarasvasthy & Forza (2014) explained that; "*a switch from causal to effectual logic allows firms to rapidly increase the level of commitment in the foreign market and may assist in overcoming liabilities of outsidership and, therefore, successfully increase the level of commitment in the foreign market*" (p.639). Still Sarasvathy (2001) stated "*the best entrepreneurs are capable of both causal and effectual reasoning and do use both modes well. But they prefer effectual reasoning over causal reasoning in the early stages of a new venture, and arguably, most entrepreneurs do not transition well into latter stages requiring more causal reasoning*" (p. 2).

The inquiry of the shift towards a more effectual decision-making and tendency to switch between both causal and effectual decision-making may be ease by several factors (Harms & Schiele, 2012). A factor that influences such change is how people perceive its culture (Gelfand, Nishii, & Raver, 2006). Culture, as defined by the famous work of Hofstede (1980), it is "*the collective programming of the mind, which distinguishes the members of one group of people from another*" (p.17). Tung & Verbeke (2010) emphasized the importance of moving beyond traditional cultural dimensions in order to improve and have a better understanding of cross-cultural research. In this context, the work of Gelfand et al. (2011) and more recently of Uz (2014) has shown that the cultural dimension tightness-looseness holds promises for the future in how clear and pervasive norms are within societies and how much tolerance there is for deviance from norms and is related but yet distinct from other cultural dimensions such as Hofstede (1980, 1991) five cultural dimensions, GLOBE value dimensions (House, Hanges, Javidan, Dorfman, Gupta, & , 2004), dimensions of loyal investment (Smith, 2002) and traditional versus self-expression values (Inglehart, 2005) which makes it interesting to grasp on it further. Building on the work of several anthropologist, sociologists, and psychologist (Pelto, 1968; Triandis, 1989), Gelfand (2006) defined tightness-looseness as "*the degree of strength of social norms and the degree of sanctioning within societies*" (p.1226). In a further study, Gelfand (2011) explained that whether a society is more "tight" or "loose" highly depends on the country a society is situated. Nations that are "tight"—have strong norms and a low tolerance of deviant behavior— and those that are "loose"—have weak norms and a high tolerance of deviant behavior (Gelfand M. J., et al., 2011). Consequently, the overall perception of tight or loose society that an entrepreneur perceives to be living in might influence the way they make decisions. Namely, by evaluating the extent to which entrepreneurs rely on effectual decision-making and how these are explained from the country's tight-loose cultural dimension tapped as an influencer. In this research paper, it will be tested whether entrepreneurs use a more effectual or causal decision-making, and whether the cultural dimension of tightness-looseness influences this. Aiming to answer the research question: ***To what extent does the cultural dimension tightness-looseness has an influence on potential entrepreneurs decision-making.***

The next section will describe the theoretical framework posing in more detail the effectual-causal decision-making and thereafter explained the tight-loose cultural dimension. This qualitative exploratory part helps the reader to understand the characteristics of both concepts and its iterations. In addition, this section describes the definition of potential entrepreneurs, and general demographics of the sample (students from The Netherlands), and later provides the hypotheses of this research

paper. Generating the hypothesis and theory, which will be verified later in a quantitative (confirmatory) section of the study. In that sense, the third section will empirically apply the extent that potential entrepreneurs from the Netherlands use effectuation in their journey in form of a questionnaire. In other words, this section will proceed to explain the results from this questionnaire and determine whether the interviewers have a more effectual or more causal decision-making and the degree of tightness or looseness they perceived within their society. Next, the discussion part presents the findings of this research and evaluates the consistency of the questionnaires from a validity and reliability context. Moreover, a conclusion is made of the overall findings on this research paper; the academic and practical contribution this paper has provided to society will be show in this section. Furthermore, the limitations and suggestions for future research will be the last part of this paper.

1.1 Relevance of the Study

This paper aims to make a contribution to literature in the following ways. It contributes to literature by using both qualitative and quantitative research methods with the purpose of elaborating further on effectuation theory as suggested by Perry, Chandler, & Markova, 2012 and moving it from its current exploratory area (Edmondson & McManus, 2007). In a further research, Ghorvel & Boujelbene (2013) implied that "*the body of research on effectuation theory is steadily growing, with more than 120 articles published on effectuation from 1999 to 2011, most of the publications are theory driven, whereas the empirical research on effectuation is limited*" (p.173). The ways that entrepreneurs make decisions is influenced by the environment they are involved in (Sarasvathy S. D., 2001). However Perry, Chandler, & Markova, 2012, remarked the data on which Saravasthy (2001) observed effectual decision-making has been analyzed only from the perspective of the United States. Hence further diverse international country-level knowledge of how entrepreneurs make decisions is needed (Perry, Chandler, & Markova, 2012). The effectuation theory expansion knowledge is relevant to the areas of entrepreneurship research and teaching because it questions the universal applicability of entrepreneurship' causation-based models to the entrepreneurial process (Perry, Chandler, & Markova, 2012). In addition, it provides more knowledge from a country-level' perspective of how Dutch potential entrepreneurs perceive whether they live in a tight or loose society (Triandis, 1989). Triandis (1989) referred on the paper of Gelfand (2006) commented that the construct of tightness-looseness is a critical yet neglected dimension of cultural dimension. Therefore, this paper provides more knowledge from a country-level' perspective of how entrepreneurs perceives how tight or loose their society is. Furthermore, Harms and Schiele (2012) described in their empirical paper several antecedents and influencers of effectual decision-making. However, there can be other antecedents and/or influencers that cause entrepreneurs to have effectual decision-making such as culture. Last but not least, this paper is practical relevant for the current main-stream business textbooks which still rely on a causational approach (Andersson, 2011), effectual reasoning is not a main topic in studies of business administration. The research at hand makes an important contribution, showing effectuation to have a significant added value on entrepreneurial efforts (Nicolai, 2010). In addition, it aims to expand on this work by gathering data from a country basis to understand better how decision-making is made and by further analyzing the perceived influence of a tight or loose cultural perception on potential entrepreneur's decision-making.

2. THEORETICAL FRAMEWORK

The articles used within this research paper have been carefully selected from scholar servers such as EBSCO, JSTOR, Google Scholar, Science Direct and Scopus. The ISIS Web of Knowledge has been consulted to observe the impact power of each of the journals publishing social articles with the purpose of finding the articles with higher impact factor. Hereof, the top 25 social sciences and psychology journals have been taken into consideration and most of the articles previously and following mention are in these journals. Moreover, the articles used within this research paper are widespread state-of-the-art articles that have large impact on the social and psychological fields. These articles are cited at least fifty times in order to be considered into this research paper. Next, the most recent articles from 2011-2015 also have been cited with the purpose of gathering the last most updated findings on both social and psychological field. These articles had to be cited at least ten times to be taken into account in this research paper.

2.1 Effectual-Causal Decision-Making

Effectual-causal decision-making portrays how entrepreneurs use or ignore resources within their control in combination with commitments and constraints from self-selected stakeholders to build ventures, products, opportunities, and markets (Sarasvathy S. D., 2001). There are two decision-making angles in new venture creation. Effectual models begin with given means and seek to create new ends using non-predictive strategies. Causal decision-making, in contrast, happens based on planned behavior. Thus, effectual decision-making is the result of a more intuitive way of thinking. That is, in effectuation decision-making the entrepreneur attempts to take advantage of uncertainty in the environment and to respond to it on the basis of instinct and intuition in order to enact one path from a range of possible alternatives (Mitchell et al. 2007 quoted by Dacin and Tracey, 2011). For that, effectual decision-making entails recognition that failing is an integral part of venturing well - learning to outlive failures by keeping them small and killing them young, and cumulating successes through continual leveraging (Gabrielsson & Gabrielsson, 2013; Sarasvathy, Kumar, York, & Bhagavatula, 2014).

Table 1: Effectual-Causal Decision-Making Sub-Constructs.

Issue	Effectual frame	Causal frame
Approach	Means-oriented	Goal-oriented
Risk	Affordable loss	Expected return
Coalition Query	Partnerships	Competitive analysis
Uncertainty Avoidance	Leveraging	Avoiding
Control	Non-predictive control	Predictive control

Within effectual-causal decision-making theory, Sarasvathy (2001) described five behavioral principles that relate to effectuation and causation. The behaviors linked to these principles, or sub-constructs, she proposed, could be observed and therefore could be tested using methods designed to capture behavior to distinguish effectuation and causation. The sub-constructs are indicated in **Table 1**. When an individual uses effectual logic, he or she will begin with a given set of means, focus on affordable loss, emphasize strategic alliances, exploit contingencies, and seek to control an unpredictable future. When an individual uses causal logic, he or she will begin with

a given goal, focus on expected returns, emphasize competitive analyses, exploit pre-existing knowledge, and try to predict an uncertain future (Perry, Chandler, & Markova, 2012). In practice, it has been found that entrepreneurs use a combination of both effectual-causal decision-making sub-constructs (Sarasvathy S. D., 2001; Dew, Read, Sarasvathy, & Wiltbank, 2009; Chandler, 2011; Harms & Schiele, 2012; Berends, Jelinek, Reymen, & Stultiëns, 2014)

Means vs. Goal Decision-Making Approach

The emphasis on effectual decision-making is on creating something new with existing means rather than discovering new ways to achieve given goals (Sarasvathy S. D., 2001). According to Read, Song & Smit (2009) each individual is awarded with a wide range of means, however only those that are relevant to the venture constitute effectual means and should be considered when measuring new venture performance against effectual strategy. In contrast, the individuals using a causal given goal approach usually have a well-structured and specific method based in their own intuition to accomplish a determine goal when all relevant resources are present (Sarasvathy S. D., 2001, 2009). However, this causal approach presents a rather unflexible method that might usually fail in the long-term (Wiltbank, R., Dew, Read, & Sarasvathy, 2006). In practice, the effectual decision-making approach begins with a central actor (the entrepreneur) who has three categories of means: identity (who I am), knowledge (what I know), and networks (whom I know) (Saravasthy, 2008). Stakeholders imagine possible courses of action based on their means and engage others whose strategies are driven by other types of identity, knowledge, and networks. When exciting overlaps are discovered and valuable new combinations are engineered, stakeholders commit those elements of their means that make worthwhile contributions to the new world being fabricated (Wiltbank, R., Dew, Read, & Sarasvathy, 2006). This focuses the entrepreneurial question on "What can I do?" based on the means at hand rather than "What should I do?" based on a predictive causal analysis (Sarasvathy, Kumar, York, & Bhagavatula, 2014). In her original work, Saravasthy (2001) explained that while causal and effectual logic are integral parts of human reasoning, empirical research has teased out the extent to which means-based logic is used. First, Read et al. (2009) found a significant and positive correlation between a focus on means and new venture performance. Thus, active engagement in social interaction would trigger new cognitions regarding both the entrepreneur's means, and the effects they can create with those means (Fischer & Reuber, 2011). Second, McKelvie, Haynie, and Gustavsson (2011) found that opportunity-specific expertise moderates the effect of uncertainty and action under unpredictable conditions. Experts may be more likely to downplay the importance of prediction and rather focus on their abilities to create new markets and firms based on their expertise (what they know) (Blume & Covin, 2011). Thus these findings go towards a more effectual decision-making of profiting from a given set of means.

Risk: Affordable Loss vs. Expected Returns

Causal models focus on maximizing the potential returns for a decision by selecting optimal strategies while effectual models predetermines how much loss is affordable and focuses on experimenting with as many strategies as possible with the given limited means and taking into consideration a minimization on risks and costs. This usually necessitates taking on outside stakeholders, who themselves may or may not use the affordable-loss principle in committing resources to the budding venture (Chua, Roth, & Lemoine, 2014). By focusing on affordable loss, the need to calculate the resources needed today to predict future returns is eliminated, thus implying less time engaged in planning (Sarasvathy S. D., 2001) and their subjective judgment of what they are able to afford; it is entirely within their control (Wiltbank, R., Dew, Read, & Sarasvathy, 2006). The effectuator prefers options that create more options in the future over those that maximize returns in the present (Saravasthy S. D., 2001). Therefore neglecting the causal decision-making approach of expected returns. Since it is not clear at the early stages of the effectual process what the pie will be; let alone how much each piece will be worth down the road, stakeholders cannot effectively use expected return as their immediate criterion for selecting resource investments (Dew, Read, Sarasvathy, & Wiltbank, 2009). Instead, each has to reconcile within their own mind whether they can live with the loss of what they are investing in the enterprise (Sarasvathy, Menon, & Kuechle, 2013). It is important to denote that the estimation of affordable loss varies from entrepreneur to entrepreneur and even across his or her life stages and circumstances, however, effectual decision makers have shown to take certain risk with the sake to profit (Sarasvathy S. D., 2009). In this way, there are several benefits in utilizing affordable loss on decision-making. First, affordable loss encourages entrepreneurs to incorporate the possible downside in evaluating alternatives so that opportunity failure will not result in greater venture failure (Read, Song, & Smit, 2009); it calculates the downside potential and risk no more than you can afford to lose (Sarasvathy & Dew, 2005) rather than on prediction of possible gains lose (Dew, Read, Sarasvathy, & Wiltbank, 2009; Sarasvathy & Dew, 2008). Second, the affordable-loss principle is evident in the cognitive processes that expert entrepreneurs used to solve the problems assigned to them. In general, they either preferred the cheapest alternative or came up with creative ways of doing things at no cost to themselves (Sarasvathy S. D., 2009). Third, Chandler, DeTienne, McKelvie & Mumford (2011) provide empirical support for the principle of affordable loss, successfully differentiating entrepreneurial action that focuses on only risking what they can afford to lose from more causal approaches, as well as other principles of effectuation. Overall, the usage of the affordable loss principle in innovative research and development projects has been shown to lead to higher process efficiency (Brettel, Bendig, Keller, Friederichsen, & Rosenberg, 2014; Berends, Jelinek, Reymen, & Stultiëns, 2014).

Coalition Query: Strategic Alliances and Commitments vs. Competitive Analysis

The effectual principle involves negotiating with any and all stakeholders who are willing to make actual commitments to the project, without worrying about opportunity costs, or carrying out an elaborate competitive analyses (causal principle) (Saravasthy, 2009). Causation focuses on models such as the Porter model in strategy emphasizing detailed competitive analyses (Saravasthy. 2001). Saravasthy (2001, 2008) emphasized that the usage of models and seen everyone as your enemy is something that has been thought in business courses; a more causal decision-making approach. However, business models rather tend to fail in the long-term and innovative effectuation might be the key of success (Chesbrough, 2010). The effectual decision-making approach risks only resources that can be affordably lost; thus, it also drives partnerships as the central method to expand resources. Rather than engaging in extensive planning and research to identify specific stakeholders to target based on preselected goals, an effectual approach calls for entrepreneurs to rapidly

engage in conversations with a variety of people they already know or come into contact with, some of whom end up making actual commitments to the new venture (Sosniak, 2006) building a market together with customers, suppliers or even prospective competitors (Saravasthy & Dew, 2005). Entrepreneurs may build many relationships, but only those in which both parties share the risk of the venture and benefit from the success of the venture constitute effectual partnerships (Read, Song, & Smit, 2009; Chandler, 2011). One of the implications of this sub-construct emphasizes that inputs from stakeholders who actually make commitments to the venture should be taken into account without regard to opportunity costs as to possible stakeholders who may or may not come on board later. Effectual entrepreneurs focus their efforts on the image of the future coalescing out of a dynamic series of stakeholder interactions rather than crafting a vision up front and then attempting to force it or 'sell' it to targeted stakeholders (Sarasvathy S. D., 2001). There are several benefits of using strategic alliances and pre-commitments. First, effectuation emphasizes strategic alliances and pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty and to initiate entry barriers (Sarasvathy S. D., 2001). Second, new opportunities may be created as a result of the additional means provided by new stakeholders (Read, Song, & Smit, 2009). Third, the strategic alliance and commitments principle dovetails very well with the affordable-loss principle to bring the entrepreneur's idea to market at really low levels of capital outlay (Sarasvathy, Kumar, York, & Bhagavatula, 2014). Overall, because the amount of investments any given entrepreneur can afford to lose is likely to be rather small, it makes sense for the effectual entrepreneur to work with any and all self-selected stakeholders rather than to expend resources in chasing stakeholder targets based upon predictions of where the market for their venture will be (Sarasvathy S. D., 2009).

Nature of Unknowns: Leveraging Environmental Contingencies vs. Exploiting Pre-existing Knowledge.

Any environment and epoch in human affairs contains unexpected contingencies; thus predictions come with disclaimers about degrees of confidence. While predictive causal efforts seek to avoid or hedge against contingencies, effectuation seeks to profit on these occurrences (Evald, R., & Senderovitz, 2013). According to Saravasthy et al. (2014), an effectual approach leverages uncertainty by treating surprises as opportunities to control the newly emerging situation. In that sense, since entrepreneurs often operate in conditions of enhanced uncertainty, effectuation posits that they may benefit from embracing surprises rather than following a linear and goal-oriented process that seeks to avoid deviations from the plan (Sarasvathy, Kumar, York, & Bhagavatula, 2014). Therefore, embracing surprises means that changes are allowed in planning and focus target if this necessary (Sarasvathy S. D., 2001). In addition, where the future is not predictable, the entrepreneur should seek to leverage contingencies, finding new possibilities from contingencies – even negative contingencies (Read, Song, & Smit, 2009; Sarasvathy S. D., 2001; Ghorbel & Boujelbène, 2013). Therefore, embracing new, discomfiting information allows unfruitful experiments to be abandoned and emergent possibilities to be leveraged (Sarasvathy S. D., 2001; Wiltbank, R., Dew, Read, & Sarasvathy, 2006; Chandler, 2011). In other words surprises can be positive, an effectual entrepreneur would leverage them into new opportunities. For that reason, the effectual decision-making would be better for exploiting contingencies that arose unexpectedly over time. (Corner & Ho, 2010; Dew, Read, Sarasvathy, & Wiltbank, 2009). Beyond the realm of entrepreneurial ventures, there are several benefits found in leveraging contingencies in a new venture. First, Brettel et al. (2012) found support for the concept of "acknowledging the unexpected" having a positive impact on R&D output in highly innovative uncertain research settings and new venture creation. The process of embracing contingencies plays out through the effectual process, based on the evolving means, goals, and stakeholders of the venture (Sarasvathy S. D., 2009). In conclusion, acknowledging contingences by leveraging surprises rather than trying to avoid them, overcome them, or adapt to them can be beneficial from an existence and economic point of view in the long term. The nature of unknowns is at the heart of entrepreneurial expertise – the ability to turn the unexpected into the valuable and the profitable (Sarasvathy S. D., 2001).

Control: trying to predict a risky future vs. seeking to control an unpredictable future.

Causal and effectual logics both seek control over the future. But causation focuses on the predictable aspects of an uncertain future (Sarasvathy, 2008). The logical premise for it goes like this: To the extent that we can predict the future, we can control it. Effectuation, on the other hand, focuses on the controllable aspects of an unpredictable future. The logic here is: To the extent that we can control the future, we do not need to predict it (Sarasvathy S. D., 2009). While empirical research has built on Sarasvathy (2001) insight of non-predictive control as an overarching logic embodied in the four principles discussed previously, Sarasvathy (2008) added the control logic as a fifth principle that emphasizes the role of human beings rather than trends in determining the shape of things to come. This new principle is an explicit rejection of inevitable trends (Sarasvathy, Kumar, York, & Bhagavatula, 2014). Faced with a highly uncertain event space, effectual entrepreneurs seek to learn more about it not with a view of updating their probability estimates, but rather with a view of intervening in the event space itself to transform and reshape it, at least partially, thus controlling it (Sarasvathy, Menon, & Kuechle, 2013). In other words, effectual entrepreneurs do not see history running on autopilot, but rather consider themselves one of many who copilot the course of history. Furthermore, this logic is particularly useful in areas where human action (locally or in the aggregate) is the predominant factor shaping the future (Sarasvathy S. D., 2009). The control principle clarifies why we need entrepreneurs in the first place. It harks back to Knight's original thesis about why economics needed a fourth factor of production, in addition to land, labor and capital with their attendant costs of rent, wages and interest, respectively. Neoclassical economics had no room for the entrepreneur (causal approach decision-making). And at equilibrium, profits equaled zero (Sarasvathy S. D., 2009).

2.2 Tight-Loose Cultural Dimension

As mentioned in *section 1.3*, the tightness-looseness cultural dimension holds promises for the future in how clear and pervasive norms are within societies and how much tolerance there is for deviance from norms (Tung & Verbeke, 2010). In other words, the tightness-looseness cultural dimension is defined as "*the strength of social norms and degree of sanctioning within societies*" (Mrazek A. , Chiao, Blizins, Lunk, & Gelfand, 2013). Societal tightness-looseness has two key components: the strength of social norms; how clear and pervasive norms are within societies, and the strength of sanctioning, or how much tolerance there is for deviance from norms within societies (Gelfand, Nishii, & Raver, 2006). In a further study, Gelfand et al. (2011) referred to the difference

between nations that are "tight"—containing strong norms and a low tolerance of deviant behavior— and those that are "loose"—having weak norms and a high tolerance of deviant behavior.

There are several elements that influence a country's likelihood of have tight or loose society. Gelfand et al. (2002, 2012) rationalized that the perceive likelihood of tightness or looseness is part of a complex, loosely integrated system that involves processes across ecological and human-made societal threats (Gelfand, Raver, & Ehrhart, 2002; Gelfand M. J., et al., 2011). Gelfand (2012) explained that the formers increase the need for strong norms and punishment of deviant behavior in the service of social coordination for survival. This is done with the intention to reduce chaos in nations that have high population density, deal with resource scarcity, coordinate in the face of natural disasters, defend against territorial threats, or contain the spread of a disease (Gelfand M. J., et al., 2011). Therefore, these nations would develop strong norms and have low tolerance of deviant behavior in comparison with nations with few ecological and human-made threats, which have much lower need for order and social coordination, affording weaker social norms (Weber & Morris, 2010; Realo, Linnamägi, & Gelfand, 2014; Ozeren, Omur, & Apolloni, 2013).

Moreover, Gelfand (2011) and Uz (2014) expounded that the strength of social norms and tolerance of deviant behavior is also afforded by prevailing institutions and practices. Institutions in tight nations have narrow socialization that restricts the range of permissible behavior, whereas institutions in loose nations encourage broad socialization that affords a wide range of permissible behavior (Moukarzel, 2015; Gelfand M. J., 2012). Relative to loose nations, tight nations are more likely to have autocratic governing systems that suppress dissent, to have media institutions with restricted content and more laws and controls, have strict criminal justice systems with higher monitoring, more several punishment (e.g. the death penalty), greater prevention and control of crime and generally they will be more religious (Triandis, 2004; Gelfand M. J., et al., 2011; Gelfand M. J., 2012).

Furthermore, the tight-loose cultural phenomenon is also present in everyday situations in local worlds (e.g. at home, at restaurants, classrooms, public parks, libraries, the workplace) that individuals inhabit (Gelfand M. J., et al., 2011). Strong situations have a more restricted range of appropriate behavior, have high censuring potential, and leave little room for individual discretion (Mittal, 2013). Weak situations place few external constraints on individuals, afford a wide range of behavioral options, and leave much room for individual discretion (Realo, Linnamägi, & Gelfand, 2014). Societal tightness-looseness is expected to relate to preferred ways of gathering, processing, and evaluating information when solving problems, and to adaptor and entrepreneurs, in particular (Gelfand M. J., et al., 2011; Toh & Leonardelli, 2012). From a decision-making perspective, ecological, human-made threats, social norms, tolerance of deviant behavior and events in everyday life affects the decision-making of any person in a society (Triandis, 2004). Therefore, the tightness or looseness cultural judgment will differ depending of the specific features of a country and this will influence the decision-making of an entrepreneur (Weber & Morris, 2010).

2.3 Potential Entrepreneurs

Bae et al. (2014) demonstrated in their empirical work that there is a small yet positive relationship between entrepreneurship education and entrepreneurial intentions. For those universities who seek to stimulate entrepreneurship among their students would impose this in their institutions. One of these institutions is the University of Twente, Enschede, The Netherlands, which applies this motivation to stimulate entrepreneurship initiation, and is therefore the sample of this empirical study. According to Van der Sijde & Ridder (2008), the University of Twente focused on entrepreneurship. This institution was the first to change its strategy and refocus on innovation and entrepreneurial movement, establishing closer contacts with business. The former author implied: "*The university's entrepreneurship-focused policy allowed cross-fertilizing the well-established scientific base with innovation and practice; hence most of the companies' business concepts are knowledge- and technology-intensive*" (p.53). For this, students from the University of Twente are a fair sample of potential entrepreneurs.

2.4 Hypothesis

Research has displayed that "entrepreneurs in countries with a more loose society; those who live in a more certain, stable environment, would be more incline to have a more freer decision-making option" (Gelfand M. J., et al., 2011; Chua, Roth, & Lemoine, 2014). As mentioned in *section 2.3*, the sample of this research is potential entrepreneurs in the Netherlands. From a tight-loose cultural perspective, it has been shown that Dutch entrepreneurs live in a loose society (Gelfand M. J., et al., 2011; Mrazek A. J., Chiao, Blizinsky, Lun, & Gelfand, 2013; Uz, 2014) and thus loose society and effectual decision-making become the two pillars of the first hypothesis. Therefore, it has been hypothesized that entrepreneurs in this society have a more effectual decision-making or as formulated: "*Entrepreneurs with high perceived looseness of the society use more effectual than causal decision-making*" (**H1**). The likelihood of effectual decision-making and the tendency of Dutch people to perceive its society from a loose cultural context will be tested. Thereafter, research has shown that entrepreneurial decision-making can have a combination of both causal and effectual decision-making influenced by task-specification and perceived country' uncertainty (Sarasvathy S. D., 2001; Sarasvathy & Dew, 2013; Dew, Read, Sarasvathy, & Wiltbank, 2009; Chandler, 2011; Harms & Schiele, 2012). With this in mind, it is interesting to evaluate whether the perceived looseness society of The Netherlands might have an influence of a mixture of effectual-causal sub-constructs in the decision-making of potential entrepreneurs. In this sense, the sub-constructs of effectual-causal decision-making will be evaluated to analyze this possible mixture. First, the means versus goal oriented decision-making criteria *(causal: beginning with a given goal or effectual: beginning with a set of means)* is interesting to analyze because while an entrepreneur is collecting the essential means to build a new venture, this may be affected by different events such as ecological, human social made threats in his or her everyday life that might potentially influence the way he or she makes decisions (**H2**). Second, Perry et al (2011) indicated that entrepreneurs might differ in the way they perceived how risky an opportunity is and how much they will considerate to lose by being careful in the amount of experiments exerted. That is in some cases that entrepreneurs might not take a risk at all, therefore, the affordable loss effectual sub-construct might be put into question (Perry et al., 2011) (**H3**). Third, the tendency that entrepreneurs will rely more on partnerships rather than on competitive analysis will be influenced by the culture of the country, assuming that "tight" countries, entrepreneurs might hesitate in forming any alliances nor commitments since their government, religion or society might put upfront barriers to prevent this to happen (Gelfand, 2011). Therefore, it is

interesting to analyze the likelihood of effectuation on formation of partnerships and how this might be influenced by the country's culture (**H4**). Forth, the nature of unknowns where the entrepreneur is involved in might have an influence by the level of social tolerance and the degree of deviant behavior (**H5**). Fifth, there has not been much research on how entrepreneurs predict or control the uncertain environment (Perry, Chandler, & Markova, 2012), therefore, it is interesting to denote how they act within an uncertain environment and to what extent this is influence by a tight or loose society (**H6**). **Figure 1** shows the aforementioned hypotheses.

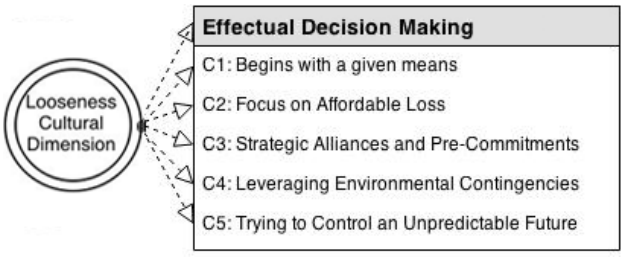

Figure 1: Model of tightness-looseness on effectual decision-making

H1: potential entrepreneurs with high-perceived looseness of the society use more effectual than causal decision-making.

H2: potential entrepreneurs with high-perceived looseness of the society use a more means-based approach to decision-making than a given goals-based approach.

H3: potential entrepreneurs with high-perceived looseness of the society make more use of affordable loss instead of focusing on expected returns.

H4: potential entrepreneurs with high-perceived looseness of the society make more use of strategic alliance and pre-commitments instead of emphasizing on competitive analysis.

H5: potential entrepreneurs with high-perceived looseness of the society make more use of exploitation of contingencies instead of the use of existing market knowledge.

H6: potential entrepreneurs with high-perceived looseness of the society make more use of seeking to control an unpredictable future instead of trying to predict a risky future.

3. METHODOLOGY

This chapter elaborates on the research methods, the sampling specifying the dependent and independent variables, and how the data is analyzed in order to provide a significant answer to the research question at hand.

3.1 Data Collection

As aforementioned students of the University of Twente, Enschede, The Netherlands were the subjects of this study and these were asked to fill out a questionnaire. The questionnaire contains questions on tightness-looseness and effectual-causal. This questionnaire reached a total of 759 responds on which 512 respondents were from the Netherlands, a total of 234 data entries were usable. The mean age of the respondents was 23.33 (SD = 3.76). Non-Dutch students have not been taken into account, as the main purpose of this research is to observe on the effect that a loose cultural environment has on effectual decision-making.

3.2 Analyses

All analyses are conducted with SPSS version 22. The analyses will run an ordinary least squares (OLS) Linear Regression to predict the strength of looseness cultural dimension on effectual decision-making. The goal of this is to observe the responses in the questionnaire and depict a diagram on which the correlation and association of the responses. The OLS estimator is consistent when the regressors are exogenous and there is no perfect multi-collinearity, and optimal in the class of linear unbiased estimators when the errors are homoscedastic and serially uncorrelated. In addition, for all analyses an alpha of 0.05 to test the hypotheses (Field, 2009) and a cronbach's alpha of 0.7 to test the questionnaire (George & Mallery, 2003) are stated.

3.3 Effectual-Causal Decision-Making

The dependent variable of this study is the reliance on the entrepreneurial processes effectuation–causation. To analyze this variable, this paper will use a questionnaire to predict the type of decision-making a potential entrepreneur in the Netherlands has. The effectuation survey contains 25 items; 13 on effectuation, of which control & affordable loss are based on 2 items, the other 3 dimensions; strategic alliances, given set of means and leveraging environment have 3 items. Next, there are 12 items on causation, of which avoiding contingencies and competitive analysis have 3 items while tendency to predict the future, focus on expected returns likelihood and focus on a given goal have 2 items per dimension. Both parts of the questionnaire have answers that are given on a seven-point Likert scale, ranging from "Strongly Disagree" to "Strongly agree". In order to predict the extent that Dutch entrepreneurs have an effectual decision-making the following formula is depict:

$$EffectuationTendency\ (ET) = M_{effectuation} - M_{causation}$$

A positive result on Effectuation Tendency (ET) denotes a tendency towards effectual decision-making. In contrast, a negative result denotes a tendency towards causation. The Cronbach's alphas of the survey data are 0.55 for the effectual survey questions and 0.67 for the causal survey questions, and 0.38 for all survey questions together making up the effectuation tendency. Next, the Shapiro-Wilk test shows statistically significant deviation from a normal distribution for the effectual survey questions ($SW_{(234)} = 0.98$; $p < .05$). This deviation from normality is contradicted due to a small skewness of -0.44 (SE = 0.16) and a low kurtosis of 0.63 (SE = 0.32), treating the effectual survey questions as normally distributed. Thus, the Shapiro-Wilk test shows no statistically significant deviation from a normal distribution for neither the causal survey questions ($SW_{(234)} = 0.99$; $p = .31$) nor for all survey questions together making up the effectuation tendency ($SW_{(234)} = 0.99$; $p = .25$).

3.4 Tight-Loose Cultural Dimension

The independent variable in this study is the degree of tightness-looseness of the society the student entrepreneurs come from. The questionnaire contains 6 different questions with a 6-item Likert Scale, which aim to assessed the degree to which social norms are pervasive clearly defined, and reliably imposed within nations (towards tightness). Predicting thereby whether the subject has a tight cultural pattern than a loose one. If the result of the questionnaire shows a high average of agreement, that would mean that the society is rather tight while if it shows a low average, it would indicate that the society is rather loose. The tight-loose questionnaire has a Cronbach's Alpha of 0.68. Shapiro-Wilk test shows no statistically significant deviation from a normal distribution ($SW_{(234)} = 0.99$; $p = .09$).

3.5 Control Variables

To rule out the influence of the results by other random independent variables, the data is checked with the control variables age, sex, study program and level of education. To verify which control variables are most likely to be influence by culture on their decision-making. A MANOVA analysis was conducted to reveal any possible influence of the control variables on the effectual decision-making dependent variable. The results show no statistically significant influence of the control variables on the dependent variable (Gender: $F_{(1; 158)} = 2.51$; $p = .12$; Study program: $F_{(5; 158)} = 0.19$; $p = .97$; Level of education: $F_{(9;158)} = 1.21$; $p = .29$; Age: $F_{(1;158)} = 1.81$; $p = .18$). Therefore, any likelihood of influence of these other independent variables is discard.

4. RESULTS

Table 2

Descriptives (N = 234)

	Minimum	Maximum	Mean	SD
PercLoose	2,33	5,83	4,01	0,67
Decision-making	1,55	0,05	0,29	0,66
Effectual	3,36	6,50	5,13	0,52
Causal	2,91	6,45	4,83	0,60
Approach	1,00	0,33	1,20	-0,15
Given means	2,00	6,33	4,04	0,79
Given goals	1,00	6,00	2,84	0,94
Risk	0.50	0,50	2,16	0,18
Affordable Loss	1,50	7,00	4,81	1,16
Expected Return	1,00	6,50	2,65	0,98
Coalition Query	0,66	1,33	1,34	0,11
Alliances	2,33	7,00	5,09	0,74
Comp. Analysis	1,67	5,67	3,75	0,63
Unknown Nature	1,34	0,77	1,47	-0,08
Contingencies	2,67	7,00	5,45	0,87
Knowledge	1,33	6,33	3,98	0,95
Control	1,50	1,50	2,49	0,08
Predict Future	2,50	7,00	5,39	0,88
Control Future	1,00	5,50	2,90	0,80

4.1 Descriptives

Table 2 describes the relevant variables with their range (minimum and maximum), mean and standard deviation (i.e. SD). Appendix A displays the correlations between the relevant variables. Noteworthy are the correlations between perceived looseness of society with the effectual-causal decision-making and one of its sub-constructs risks for both effectual (affordable loss) and causal (expected returns) sub-constructs. The result displays a significant correlation at both .05 and .01 level (2-level). Depicting these results, a positive relation is seen of the perception of looseness towards both a more causal and effectual decision-making. Looking at the sub-constructs it is displayed that the more looseness, the more affordable loss mindset is exhibited while the more looseness, the less expected returns mindset is exhibited.

4.2 A-Priori Analyses

From an effectual-causal decision-making perspective, checking whether potential Dutch entrepreneurs display more effectual than causal decision-making tendencies a paired samples t-test is conducted and this paired t-test is also used for the sub-constructs of effectual-causal decision-making. The t-test shows a statistically significant difference between effectual and causal decision-making ($t_{(233)} = 6.85$; $p < .05$). Potential Dutch entrepreneurs use more effectual decision-making with mean 5.13 (SD = 0.52) than causal decision-making with mean 4.83 (SD = 0.60). The first sub-construct shows whether Dutch entrepreneurs might rely more on their given means than rely more on given goal for decision-making. The t-test shows a statistically significant difference between effectual and causal decision-making ($t_{(233)} = 15.67$; $p < .05$). Potential Dutch entrepreneurs use more given means 4.04 (SD = 0.79) than given goals 2.84 (SD = 0.94). The second sub-construct shows whether potential Dutch entrepreneurs focus on either affordable loss (effectuation) or focus more on their expected returns (causation). The t-test shows a statistically significant difference between effectual and causal decision-making ($t_{(232)} = 19.30$; $p < .05$). Potential Dutch entrepreneurs tend to exploit more affordable loss 4.81 (SD = 1.16) rather than focusing on expected returns 2.64 (SD = 0.98). The third sub-construct shows whether potential Dutch entrepreneurs rely more on either forming strategic alliances and pre-commitments (effectuation) or exercising competitive analysis (causation). The t-test shows a statistically significant difference between effectual and causal decision-making ($t_{(232)} = 18.84$; $p < .05$). Potential Dutch entrepreneurs tend to embrace strategic alliances and pre-commitments 5.10 (SD = 0.74) rather than relying on performing a competitive analysis 3.75 (SD = 0.63). The fourth sub-construct shows whether potential Dutch entrepreneurs might rely more on either leveraging their environment (effectuation) or rely more on their already known knowledge (causation). The t-test shows a statistically significant difference between effectual and causal decision-making ($t_{(232)} = 21.56$; $p < .05$). Potential Dutch entrepreneurs tend to exploit more leveraging contingencies 5.45 (SD = 0.88) rather than relying on their pre-existing knowledge 3.98 (SD = 0.95). The fifth sub-construct shows whether potential Dutch entrepreneurs might to seek more on controlling an unpredictable future (effectuation) or try to predict the risk of the future (causation). The t-test shows a statistically significant difference between effectual and causal decision-making ($t_{(233)} = 27.43$; $p < .05$). Potential Dutch entrepreneurs tend to rely more on controlling an unpredictable future 5.39 (SD = 0.88) rather than trying to predict a risky future 2.90 (SD = 0.80). Furthermore, a one-sample t-test has been conducted to check whether potential Dutch entrepreneurs perceived to live in a more lose than tight society. The t-test shows no statistically significant of the perception of tightness-looseness in Dutch society from the intermediate point of the 7-point Likert-scale, ($t_{(233)} = 0.27$; $p = .79$). Potential Dutch entrepreneurs tend to perceive the Dutch society to not show a deviation from a perceived middle point, 4.01 (SD = 0.67). This particularly interesting since every member of a society would perceive his or her own society as the norm, therefore tend to give it a mean score. That is, the perception of the potential entrepreneur is neither tight nor loose. This result shows that tightness-looseness of a society needs a reference point to work in an international context (Gelfand M. J., et al., 2011; Mrazek A. J., Chiao, Blizinsky, Lun, & Gelfand, 2013; Uz, 2014). However, the perceived tightness-looseness of a society still gives clues about individual perceptions and can therefore still serve to answer the question posed in this paper.

4.3 Hypothesis 1

H1: potential entrepreneurs with high-perceived looseness of the society use more effectual than causal decision-making.

The OLS linear regression analysis shows that there is no statistically significant association between perceived looseness of the society and decision-making ($F_{(1;\ 232)} = 0.03$; $p = .87$). In other words, no clear direction towards effectual or causal decision-making is given by the perceived looseness of the society. For this reason, two linear regressions have been conducted with decision-making split into effectual and causal. The results show a statistically significant association between perceived looseness of the society and effectual decision-making ($F_{(1;232)} = 5.48$; $p < .05$). More perceived looseness of the society is associated with more effectual decision-making ($B = 0.12$; $SE_B = 0.05$; $t = 2.34$; $p < .05$). The results also show a statistically significant association between perceived looseness of the society and causal decision-making ($F_{(1;232)} = 4.95$; $p < .05$). More perceived looseness of the society is associated with more causal decision-making ($B = 0.13$; $SE_B = 0.06$; $t = 2.23$; $p < .05$). Therefore, the results of these two linear regressions show that more perceived looseness of the society is associated with both more effectual and more causal decision-making. This is in contrast to effectuation theory.

4.4 Hypothesis 2

H2: potential entrepreneurs with high-perceived looseness of the society use a more means-based approach to decision-making than a given goals-based approach.

The OLS linear regression analysis shows that there is no statistically significant association between perceived looseness of the society and the element (means versus goals) that the decision-making approach is based on ($F_{(1;\ 232)} = 0.99$; $p = .32$). In other words, no clear direction towards means- or goals-based approach to decision-making is given by the perceived looseness of the society. For this reason, two linear regressions have been conducted with decision-making split into a means- or goals-based approach. The results show no statistically significant association between perceived looseness of the society and means-based approach to decision-making ($F_{(1;232)} = 0.23$; $p = .63$). The results also show no statistically significant association between perceived looseness of the society and goals-based approach to decision-making ($F_{(1;232)} = 0.84$; $p = .36$). Thus, the results of these two linear regressions show that more perceived looseness of the society is not associated with neither more means based nor more goal based decision-making approach.

4.5 Hypothesis 3

H3: potential entrepreneurs with high-perceived looseness of the society make more use of affordable loss instead of focusing on expected returns.

The OLS linear regression analysis shows that there is no statistically significant association between perceived looseness of the society and the element that is exploited (use of affordable loss versus focusing on expected returns) for the decision-making ($F_{(1;\ 232)} = 0.99$; $p = < .05$). More perceived looseness of the society is associated with more effectual or causal decision-making ($B = 0.55$; $SE_B = 0.17$; $t = 3.31$; $p = < .05$). For this reason, two linear regressions have been conducted with decision-making split into the use of existing market knowledge and the exploitation of contingencies to predict which decision-making logic is used the most. The results show a statistically significant association between perceived looseness of the society and the use of affordable loss ($F_{(1;231)} = 8.77$; $p = < .05$). More perceived looseness of the society is associated with more use of affordable loss ($B = 3.48$; $SE_B = 0.45$; $t = 7.67$; $p < .05$). The results show a statistically significant association between perceived looseness of the society and the use of expected returns ($F_{(1;232)} = 5.30$; $p = < .05$). More perceived looseness of the society is associated with more focus on expected returns ($B = -0.22$; $SE_B = 0.10$; $t = -2.30$; $p < .05$). Therefore, the results of these two linear regressions show that more perceived looseness of the society is associated with more use of affordable loss and less focus in expected returns approach. This is in accordance with effectuation theory.

4.6 Hypothesis 4

H4: potential entrepreneurs with high-perceived looseness of the society make more use of strategic alliance and pre-commitments instead of emphasizing on competitive analysis.

The OLS linear regression analysis shows that there is no statistically significant association between perceived looseness of the society and the element that is exploited (use of strategic alliance and pre-commitments versus emphasizing on competitive analysis) for the decision-making ($F_{(1;\ 231)} = 0.40$; $p = .53$). In other words, no clear direction towards the use of strategic alliance and pre-commitments or the emphasis on competitive analysis is given by the perceived looseness of the society. For this reason, two linear regressions have been conducted with decision-making split into the use of existing market knowledge and the exploitation of contingencies. The results show no statistically significant association between perceived looseness of the society and the more use of strategic alliance and pre-commitments ($F_{(1;232)} = 0.04$; $p = .42$). The results also show no statistically significant association between perceived looseness of the society and the emphasis on competitive analysis ($F_{(1;231)} = 0.65$; $p = .16$). Therefore, the results of these two linear regressions show that more perceived looseness of the society is not associated with neither using strategic alliance and pre-commitments nor emphasizing on competitive analysis.

4.7 Hypothesis 5

H5: potential entrepreneurs with high-perceived looseness of the society make more use of exploitation of contingencies instead of the use of existing market knowledge.

The OLS linear regression analysis shows that there is no statistically significant association between perceived looseness of the society and the element that is exploited (existing knowledge versus contingencies) for the decision-making ($F_{(1;\ 231)} = 2.43$; $p = .12$). In other words, no clear direction towards the use of existing market knowledge or the exploitation of contingencies is given by the perceived looseness of the society. For this reason, two linear regressions have been conducted with decision-making split into the use of existing market knowledge and the exploitation of contingencies. The results show no statistically significant association between perceived looseness of the society and the use of existing market knowledge ($F_{(1;232)} = 0.07$; $p = .80$). The results also show no statistically significant association between perceived looseness of the society and the exploitation of contingencies ($F_{(1;231)} = 1.99$; $p = .16$). Therefore, the results of these two linear regressions show that more perceived looseness of the society is not associated with neither exploiting contingencies nor current knowledge based decision-making approach

4.8 Hypothesis 6

H6: potential entrepreneurs with high-perceived looseness of the society make more use of seeking to control an unpredictable future instead of trying to predict a risky future.

The OLS linear regression analysis shows that there is no statistically significant association between perceived looseness of the society and the element that is exploited (seeking to control an unpredictable future versus trying to predict a risky future) for the decision-making ($F_{(1;\ 232)} = 1.60$; $p = .21$). In other words, no clear direction towards the use of seeking to control an unpredictable future nor the attempt to predict a risky future is given by the perceived looseness of the society. For this reason, two linear regressions have been conducted with decision-making split into the use of the tendency to seek to control an unpredictable future and the attempt to try to predict a risky future. The results show no statistically significant association between perceived looseness of the society and the tendency to control an unpredictable future ($F_{(1;232)} = 1.93$; $p = .17$). The results also show no statistically significant association between perceived looseness of the society and the attempt of predicting a risky future ($F_{(1;232)} = 1.93$; $p = .17$). Therefore, the results of these two linear regressions show that more perceived looseness of the society is not associated with making more use of seeking to control an unpredictable future or trying to predict a risky future.

5. DISCUSSION

Through this research, an understanding has emerged of the differential usage of effectual and causal decision-making and how the cultural dimension of tightness-looseness has an effect on the decision-making of potential Dutch entrepreneurs. The pre-findings on this research paper have shown that potential Dutch entrepreneurs have a more effectual than causal decision-making. Moreover, Dutch potential entrepreneurs do not perceive to live in a tighter or looser society. This seems to contradict the findings discovered by previous research (Gelfand M. J., et al., 2011; Mrazek A. J., Chiao, Blizinsky, Lun, & Gelfand, 2013; Uz, 2014), which have stated that Dutch people senses, its culture as more loose. However, the survey did not include a point of reference whereby the self-report data tends to regress to the mean, thusly showing no tendency towards either tight or loose perception of the society. Other independent variables: age, sex, study program and level of education have been tested within this research. However, the likelihood of influence of these other independent variables was discard within this research paper. Next, the questionnaire of this research paper has been inspired by previous surveys done by Wiltbank et al (2009) for effectual-causal approaches, risks, coalition query and nature of unknowns sub-construct, Brettel et al. (2012) questionnaire for the effectual-causal control sub-construct and Gelfand (2011) for the questionnaire on the perception of a tight or loose culture in the context of which social norms are pervasive, clearly defined, and reliably imposed within nations. These surveys have used 7 Likert scale for each of its questions, they have used and Cronbach's alpha to show the strong reliability on the questions and have proved to be reliable by careful formulating each question based on literature. This research has used the aforementioned questions and methods to test the validity and reliability of the former questionnaire of this research. On the one hand, from a reliability point of view, the distribution and logic of the questionnaire seems to be well in track except for all the Cronbach's alpha scores. All of the Cronbach's alphas are below the agreed 0,7 minimum score (George & Mallery, 2003). The results of the Cronbach's alphas of this research paper are not hanging together properly and this can be cause by the lack of items/questions asked (Weng, 2004). This is rather the case for the effectual-causal overall Cronbach's alpha result of 0.38. Moreover, this can be a problem of the number of respondents who answered the questions of effectual-causal decision-making and tight-loose cultural dimension (Lozano, Garcia-Cueto, & Muniz, 2008). As mentioned in the Data Collection sub-section, this questionnaire reached a total of 759 responds on which 512 respondents were from the Netherlands, a total of 234 data entries were usable. The missing responses might have made a difference in the reliability of this questionnaire. According to Lozano, Garcia-Cueto & Muniz (2008), the more responses there are within a questionnaire, the higher the Cronbach's alpha of the questionnaire This seems to be the case for the tight-loose cultural dimension which Cronbach's alpha is just slightly below the required 0.7. On the other hand, from a validity point of view, it would had been more valid to customized the questionnaire based on the research found within this research paper instead of taking a secondary source research that might pose a threat to the validity of this research paper.

6. CONCLUSION

6.1 Hypotheses Outcomes

As discussed, there are some influencers of effectual decision-making; one antecedent is culture. This paper tested the cultural dimension of tightness-looseness. The analysis is conducted by evaluating the extent to which entrepreneurs rely on effectual decision-making and how these are explained from country's tight-loose cultural dimension tapped as an antecedent and therefore influencer. Aiming to answer the research question: **To what extent does the cultural dimension tightness-looseness has an influence on potential entrepreneurs' decision-making?** When evaluating the perceived effect of looseness on effectual decision-making; results found in this report that the perception of cultural looseness has a determine influence on the entrepreneurial processes used by entrepreneurs for hypothesis 1. That is, the results of these two linear regressions show that more perceived looseness of the society is associated with both effectual and causal decision-making. As it has been proved that the tightness-looseness cultural dimension leads to both effectual-causal reasoning, elaborating in each of the sub-constructs is more interesting. The results of hypotheses 2-6 have shown different outcomes. It has been found that the more perceived looseness of the society is not associated with neither the rational approach **(H2),** coalition query **(H4)**, nature of unknowns **(H5)** and control **(H6)** sub-constructs decision-making approach towards neither effectual nor causal decision-making. However, it was found that more perceived looseness of the society is associated with both more use of affordable loss (effectual approach) and on focus in expected returns approach (causal approach) **(H3)**. As mentioned in *section 2.2*, the causal decision-making approach focuses partly on maximizing the potential returns for a decision by selecting optimal strategies while the effectual decision-making approach partly predetermines how much loss is affordable and focuses on experimenting with as many strategies as possible with the given limited means. The effectuator prefers options that create more options in the future over those that maximize returns in the present. However, the results of hypothesis 3 does not demonstrate whether the perception of tightness leads entrepreneurs to take risk utilizing affordable loss or expected returns. One of the observations that Perry et al. (2012) did on their research paper was the lack of connectivity with the sub-constructs of effectuation at hand, the authors challenged whether this sub-constructs are really

measuring what they are supposed to measure. If the effectual decision-making theory would go consistently to one side, either being influenced by the cultural dimension of tightness or looseness or the opposite, then it would be agreed that the connectivity of effectuation and its sub-constructs is consistent. However, as noted, it has been discovered that the risk sub-construct of affordable loss versus expected returns results is contradictory in comparison to the other effectual sub-constructs, implying that risk effectual sub-construct might not be part of the effectual decision-making theory or this is the only sub-construct valid in the whole effectual decision-making theory making a more formative result. This result is consistent to previous findings (Read, Song, & Smit, 2009; Chandler, 2011; Sosniak, 2006; Perry, Chandler, & Markova, 2012). First, Read, Song & Smith (2009) found a negative relationship between affordable loss and new venture performance while the author found a positive relationship towards the other sub-constructs which implies that the connectivity of the effectual theory and its sub-constructs is put into query. Second, Chandler et al. (2011) and Sosniak (2006) proposed that affordable loss is part of a formative result of a new sub-construct paradigm of effectuation. In that way, the validity and connectivity of this risk sub-construct is cast doubt on.

6.2 Scientific Relevance

Saravasthy (2001) observed the effectual decision-making approach on data gathered in the United States. Further diverse international knowledge of how entrepreneurs make decisions is needed (Perry, Chandler, & Markova, 2012). This need is enhanced by Chandler et al. (2011), Perry, Chandler & Markova (2012) and Edmonson and McManus (2007) defining the state of research into effectuation as nascent towards intermediate, advocating for more research on both the theoretical as well as the empirical literature. Additionally, this research provides more knowledge from a country-level' of how Dutch potential entrepreneurs perceive whether they live in a tight or loose society (Triandis, 1989). Furthermore, the impact of tightness or looseness on effectual decision-making has been tested within this research.

6.3 Practical Relevance

Last but not least, this paper is practical relevant for the current main-stream business textbooks still relying on a causational approach (Andersson, 2011) through looking at the world through a model. Effectual reasoning is not a main topic in studies of business administration. The research at hand makes an important contribution, to literature by showing effectuation to have a significant added value on entrepreneurial efforts gathering the most recent findings on effectual theory and to understand this decision-making approach through a cultural sphere (Nicolai, 2010). Furthermore, this paper is practical relevant from a country-level as it aims to expand on this work by gathering data from The Netherlands to look for a pattern on decision-making principles and by further test whether culture influences the decision-making of an entrepreneur. This contributes to the understanding of people who aim to make business in The Netherlands by understanding the Dutch decision-making behavior and how this is influenced by culture.

7. LIMITATIONS AND FURTHER RESEARCH

This empirical research focus in the five dimensions of effectual-causal decision-making enthused by Saravasthy (2001, 2008). These dimensions have shown that the cultural dimension tightness-looseness has no impact on how potential Dutch entrepreneurs make decisions. It would be interesting to demonstrate whether other dimensions of effectual decision-making such as the ones formulated by Chandler et al. (2011) (experimentation, affordable loss, flexibility and pre-commitments) have an influence by the perception of the cultural dimension tightness-looseness. In addition, as explained by Field (2009), the neutral overall answer given on the questionnaire set of tightness-looseness can be due to a lack of understanding of the concept itself. Therefore, it would be interesting to re-evaluate students answers and perceptions on this questionnaire or re-run the whole questionnaire to see whether there is a consistent or drives to a different result. A consistent result would enforce the reliability of the empirical results of this research paper and would lead to a more agreeable understanding that Dutch entrepreneurs have a rather neutral perception of tightness-looseness. Next, the reason of the lack of influence of the cultural dimension tightness-looseness can be due the lack of items/questions on this cultural dimension (Field, 2009). As mentioned in the discussion section, the previous questions have been inspired by the empirical work of Wiltbank et al (2009), Gelfand et al. (2011) and Brettel et al. (2012); however, these authors have used the questionnaires who were designed and tailored specially to a determine topic and were fitted to a different context. However, there might in the formulation of these questions, threatening the validity and reliability of this study. In Appendix B, a new questionnaire has been formulated that tackles more aspects of effectual-causal decision-making based in recent literature and this has been customized to potential entrepreneurs. Thus, it would be interesting to test this questionnaire to raise the validity and reliability of this paper. Moreover, this study looks into one dimension of the construct culture – tightness-looseness. Further research should focus on other cultural dimensions identified by different anthropological researchers. Next, while looking at the sample that was used in this study, it is display that the sample consisted solely of student-entrepreneurs limiting somewhat the validity of the results. However, as explained in *section 2,3*, students of the University of Twente are a good sample for novice-potential-entrepreneurs. This is a good example of novice entrepreneurs, however, the significant relations found might not be transferable to expert entrepreneurs (Chandler, 2011). For this reason, further research can be made to expand the sample to include expert entrepreneurs. Moreover, it would also be interesting to compare the expert entrepreneurs with the student-entrepreneurs. This could show whether the use of entrepreneurial processes is influenced by the level of experience an entrepreneur has. This level of experience could be divided into 'working experience in general' and 'entrepreneurial experience' to fully understand the influence of the construct. Furthermore, there are many business students, these are thought to have a more causal reasoning and been thought to consider the restrictions on their environment (more tight study mindset) (Andersson, 2011) while other studies might have a more effectual reasoning and/or loose perception of the society. For that, it would be interesting to exclude business students to contemplate whether the outcome changes towards a more loose perception on the society and this could produce an effectual mind-set.

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8. APPENDIX A: SPSS DATA GATHERED

8.1 Cronbach' Alphas

Cronbach Alpha for Effectual Decision-Making

Item Statistics

	Mean	Std. Deviation	N
D1_Effectuation_Q62_The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.	4,33	1,441	233
D1_Effectuation_Q63_The decisions I make when starting my new venture will be based on the resources I have available.	5,17	1,288	233
D2_Effectuation_Q68_Decisions will be primarily based on minimization of risks and costs.	4,68	1,493	233
D2_Effectuation_Q70_I only spend resources I have available and I am willing to lose.	4,94	1,387	233
D3_Effectuation_Q65_Decisions will be made together with stakeholders based on our competences.	5,17	1,085	233
D3_Effectuation_Q75_I will ask my private network to help me out with starting my new venture.	5,50	1,134	233
D3_Effectuation_Q78_I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.	4,63	1,264	233
D4_Effectuation_Q58_I allow changes in my planning if needed, even during the implementation process of my new venture.	5,81	1,009	233
D4_Effectuation_Q61_I expect to change my original target when confronted with new findings.	5,57	1,213	233
D4_Effectuation_Q64_I allow delays during the development of my new venture when new opportunities emerge.	5,01	1,273	233
D5_Effectuation_Q67_I will try to control the future by creating it.	5,26	1,222	233
D5_Effectuation_Q69_I will talk to people I know to enlist their support in making opportunities a reality.	5,54	1,013	233

Case Processing Summary

		N	%
Cases	Valid	233	99,1
	Excluded[a]	2	,9
	Total	235	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,546	12

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1_Effectuation_Q62_The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.	57,27	32,605	,151	,543
D1_Effectuation_Q63_The decisions I make when starting my new venture will be based on the resources I have available.	56,43	31,445	,281	,508
D2_Effectuation_Q68_Decisions will be primarily based on minimization of risks and costs.	56,93	33,430	,088	,562
D2_Effectuation_Q70_I only spend resources I have available and I am willing to lose.	56,66	32,966	,143	,544
D3_Effectuation_Q65_Decisions will be made together with stakeholders based on our competences.	56,43	31,928	,332	,501
D3_Effectuation_Q75_I will ask my private network to help me out with starting my new venture.	56,10	34,188	,128	,544
D3_Effectuation_Q78_I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.	56,98	34,012	,106	,551
D4_Effectuation_Q58_I allow changes in my planning if needed, even during the implementation process of my new venture.	55,80	32,765	,293	,511
D4_Effectuation_Q61_I expect to change my original target when confronted with new findings.	56,04	31,244	,329	,498
D4_Effectuation_Q64_I allow delays during the development of my new venture when new opportunities emerge.	56,60	32,759	,192	,531
D5_Effectuation_Q67_I will try to control the future by creating it.	56,35	32,098	,258	,515
D5_Effectuation_Q69_I will talk to people I know to enlist their support in making opportunities a reality.	56,06	30,845	,471	,474

Cronbach Alpha for Causal Decision-Making

Item Statistics

	Mean	Std. Deviation	N
D1_Causation_Q59_Before starting my new venture, I will first acquire all resources needed to achieve my target .	5,11	1,270	232
D1_Causation_Q66_I take a clearly pre-defined target as a starting point of the new venture.	5,20	1,134	232
D2_Causation_Q55_Decisions will be primarily based on analysis of potential future returns.	5,07	1,334	232
D2_Causation_Q60_Beforehand, I will calculate how many resources I need to achieve the expected returns.	5,63	1,125	232
D3_Causation_Q74_I will focus on early identification of risks through market analysis.	4,85	1,165	232
D3_Causation_Q77_I will try to identify risks by a thorough competitors analysis.	5,03	1,100	232
D4_Causation_Q56_I will always pay attention that my initially defined target will be met.	5,16	1,218	232
D4_Causation_Q73_My first priority is reaching my pre-set target without any delay.	3,80	1,432	232
D4_Causation_Q76_My planning will be set before I start the implementation process and cannot be altered afterwards.	3,07	1,507	232
D5_Causation_Q71_I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	5,09	1,172	232
D5_Causation_Q79_I will try to control the future based on predictions of my previously obtained knowledge.	5,09	1,005	232

Case Processing Summary

		N	%
Cases	Valid	232	98,7
	Excluded[a]	3	1,3
	Total	235	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,673	11

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1_Causation_Q59_Before starting my new venture, I will first acquire all resources needed to achieve my target .	47,98	36,337	,331	,650
D1_Causation_Q66_I take a clearly pre-defined target as a starting point of the new venture.	47,89	37,127	,333	,650
D2_Causation_Q55_Decisions will be primarily based on analysis of potential future returns.	48,02	36,099	,320	,652
D2_Causation_Q60_Beforehand, I will calculate how many resources I need to achieve the expected returns.	47,46	37,254	,327	,651
D3_Causation_Q74_I will focus on early identification of risks through market analysis.	48,24	34,643	,511	,619
D3_Causation_Q77_I will try to identify risks by a thorough competitors analysis.	48,06	35,958	,443	,633
D4_Causation_Q56_I will always pay attention that my initially defined target will be met.	47,94	35,559	,411	,636
D4_Causation_Q73_My first priority is reaching my pre-set target without any delay.	49,29	37,775	,181	,680
D4_Causation_Q76_My planning will be set before I start the implementation process and cannot be altered afterwards.	50,02	36,549	,230	,673
D5_Causation_Q71_I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	48,00	37,481	,290	,657
D5_Causation_Q79_I will try to control the future based on predictions of my previously obtained knowledge.	48,00	38,996	,239	,664

Cronbach Alpha for Effectual-Causal Decision-Making

Item Statistics

	Mean	Std. Deviation	N
D1_Effectuation_Q62_The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.	4,33	1,444	231
D1_Effectuation_Q63_The decisions I make when starting my new venture will be based on the resources I have available.	5,17	1,294	231
D2_Effectuation_Q68_Decisions will be primarily based on minimization of risks and costs.	4,68	1,496	231
D2_Effectuation_Q70_I only spend resources I have available and I am willing to lose.	4,94	1,390	231
D3_Effectuation_Q65_Decisions will be made together with stakeholders based on our competences.	5,17	1,088	231
D3_Effectuation_Q75_I will ask my private network to help me out with starting my new venture.	5,52	1,130	231
D3_Effectuation_Q78_I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.	4,63	1,268	231
D4_Effectuation_Q58_I allow changes in my planning if needed, even during the implementation process of my new venture.	5,81	1,013	231
D4_Effectuation_Q61_I expect to change my original target when confronted with new findings.	5,57	1,217	231
D4_Effectuation_Q64_I allow delays during the development of my new venture when new opportunities emerge.	5,01	1,270	231
D5_Effectuation_Q67_I will try to control the future by creating it.	5,25	1,226	231
D5_Effectuation_Q69_I will talk to people I know to enlist their support in making opportunities a reality.	5,54	1,016	231

Case Processing Summary

		N	%
Cases	Valid	231	98,3
	Excluded[a]	4	1,7
	Total	235	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,379	23

	Mean	Std. Deviation	N
D2_Causation_Q55_Decisions will be primarily based on analysis of potential future returns.	2,93	1,335	231
D2_Causation_Q60_Beforehand, I will calculate how many resources I need to achieve the expected returns.	2,37	1,126	231
D3_Causation_Q74_I will focus on early identification of risks through market analysis.	3,14	1,153	231
D3_Causation_Q77_I will try to identify risks by a thorough competitors analysis.	2,97	1,101	231
D4_Causation_Q56_I will always pay attention that my initially defined target will be met.	2,84	1,212	231
D4_Causation_Q73_My first priority is reaching my pre-set target without any delay.	4,20	1,434	231
D4_Causation_Q76_My planning will be set before I start the implementation process and cannot be altered afterwards.	4,94	1,509	231
D5_Causation_Q71_I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	2,90	1,166	231
D5_Causation_Q79_I will try to control the future based on predictions of my previously obtained knowledge.	2,91	1,007	231

Cronbach Alpha for Effectual-Causal Decision-Making (Continuation)

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1_Effectuation_Q62_The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.	92,15	50,312	,145	,356
D1_Effectuation_Q63_The decisions I make when starting my new venture will be based on the resources I have available.	91,31	52,998	,037	,383
D2_Effectuation_Q68_Decisions will be primarily based on minimization of risks and costs.	91,81	59,207	-,264	,462
D2_Effectuation_Q70_I only spend resources I have available and I am willing to lose.	91,54	54,023	-,029	,400
D3_Effectuation_Q65_Decisions will be made together with stakeholders based on our competences.	91,32	53,834	,022	,384
D3_Effectuation_Q75_I will ask my private network to help me out with starting my new venture.	90,97	53,986	,007	,387
D3_Effectuation_Q78_I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.	91,85	57,074	-,173	,429
D4_Effectuation_Q58_I allow changes in my planning if needed, even during the implementation process of my new venture.	90,68	50,662	,255	,339
D4_Effectuation_Q61_I expect to change my original target when confronted with new findings.	90,92	48,111	,342	,311
D4_Effectuation_Q64_I allow delays during the development of my new venture when new opportunities emerge.	91,47	48,894	,274	,326
D5_Effectuation_Q67_I will try to control the future by creating it.	91,23	51,641	,127	,362
D5_Effectuation_Q69_I will talk to people I know to enlist their support in making opportunities a reality.	90,94	52,601	,118	,365

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1_Causation_Q59_Before starting my new venture, I will first acquire all resources needed to achieve my target .	93,60	50,989	,154	,355
D1_Causation_Q66_I take a clearly pre-defined target as a starting point of the new venture.	93,68	52,174	,116	,365
D2_Causation_Q55_Decisions will be primarily based on analysis of potential future returns.	93,56	52,569	,053	,379
D2_Causation_Q60_Beforehand, I will calculate how many resources I need to achieve the expected returns.	94,12	53,678	,026	,383
D3_Causation_Q74_I will focus on early identification of risks through market analysis.	93,35	48,810	,325	,318
D3_Causation_Q77_I will try to identify risks by a thorough competitors analysis.	93,52	51,660	,158	,356
D4_Causation_Q56_I will always pay attention that my initially defined target will be met.	93,65	49,698	,246	,334
D4_Causation_Q73_My first priority is reaching my pre-set target without any delay.	92,29	48,961	,217	,336
D4_Causation_Q76_My planning will be set before I start the implementation process and cannot be altered afterwards.	91,55	47,449	,271	,318
D5_Causation_Q71_I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	93,58	53,044	,057	,377
D5_Causation_Q79_I will try to control the future based on predictions of my previously obtained knowledge.	93,58	55,758	-,093	,403

Cronbach Alpha for Tightness-Looseness CD

Item Statistics

	Mean	SD	N
There are many social norms that people are supposed to abide by in my home country.	4,23	1,19	531
In my home country, there are very clear expectations for how people should act in most situations.	4,26	1,13	531
People agree upon what behaviours are appropriate versus inappropriate in most situations in my home country.	4,44	,968	531
People in my home country have a great deal of freedom in deciding how they want to behave in most situations.	4,45	1,25	531
In my home country, if someone acts in an inappropriate way, others will strongly disapprove.	3,92	1,21	531
People in this country almost always comply with social norms.	3,95	1,17	531

Case Processing Summary

		N	%
Cases	Valid	531	70,0
	Excluded[a]	228	30,0
	Total	759	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,680	,683	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
There are many social norms that people are supposed to abide by in my home country.	21,02	11,532	,368	,534
In my home country, there are very clear expectations for how people should act in most situations.	20,99	10,615	,554	,454
People agree upon what behaviours are appropriate versus inappropriate in most situations in my home country.	20,81	11,631	,511	,488
People in my home country have a great deal of freedom in deciding how they want to behave in most situations.	20,79	15,616	-,125	,733
In my home country, if someone acts in an inappropriate way, others will strongly disapprove.	21,33	11,289	,395	,522
People in this country almost always comply with social norms.	21,30	11,126	,440	,502

8.2 Shapiro Wilk Test

Effectual-Causal DM Shapiro-Wilk Test

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
EffectualDM	234	99,6%	1	0,4%	235	100,0%
CausalDM	234	99,6%	1	0,4%	235	100,0%
DMDeltaeffectualcausal	234	99,6%	1	0,4%	235	100,0%

Descriptives

			Statistic	Std. Error
EffectualDM	Mean		5,1262	,03399
	95% Confidence Interval for Mean	Lower Bound	5,0592	
		Upper Bound	5,1932	
	5% Trimmed Mean		5,1383	
	Median		5,1667	
	Variance		,270	
	Std. Deviation		,52001	
	Minimum		3,36	
	Maximum		6,50	
	Range		3,14	
	Interquartile Range		,75	
	Skewness		-,442	,159
	Kurtosis		,628	,317
CausalDM	Mean		4,8317	,03902
	95% Confidence Interval for Mean	Lower Bound	4,7549	
		Upper Bound	4,9086	
	5% Trimmed Mean		4,8400	
	Median		4,9091	
	Variance		,356	
	Std. Deviation		,59686	
	Minimum		2,91	
	Maximum		6,45	
	Range		3,55	
	Interquartile Range		,76	
	Skewness		-,214	,159
	Kurtosis		,124	,317
DMDeltaeffectualcausal	Mean		,2945	,04300
	95% Confidence Interval for Mean	Lower Bound	,2097	
		Upper Bound	,3792	
	5% Trimmed Mean		,2905	
	Median		,2727	
	Variance		,433	
	Std. Deviation		,65781	
	Minimum		-1,35	
	Maximum		2,38	
	Range		3,73	
	Interquartile Range		,79	
	Skewness		,164	,159
	Kurtosis		,459	,317

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EffectualDM	,084	234	,000	,982	234	,005
CausalDM	,067	234	,012	,993	234	,310
DMDeltaeffectualcausal	,046	234	,200*	,992	234	,246

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

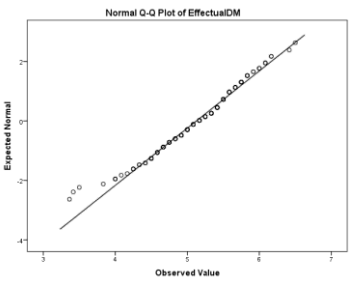
a. Lilliefors Significance Correction

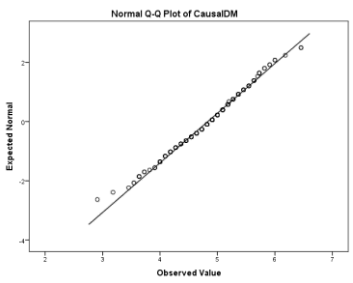
Extreme Values

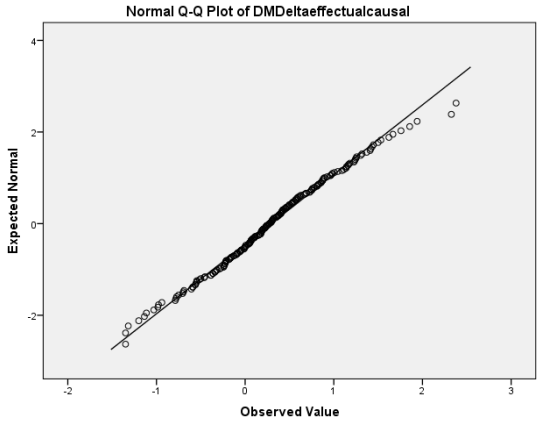
			Case Number	Value
EffectualDM	Highest	1	144	6,50
		2	680	6,42
		3	79	6,17
		4	140	6,17
		5	84	6,08[a]
	Lowest	1	8	3,36
		2	38	3,42
		3	132	3,50
		4	31	3,83
		5	404	4,00[b]
CausalDM	Highest	1	144	6,45
		2	595	6,45
		3	677	6,18
		4	16	6,00
		5	286	6,00
	Lowest	1	118	2,91
		2	3	3,18
		3	406	3,45
		4	569	3,55
		5	474	3,55
DMDeltaeffectualcausal	Highest	1	406	2,38
		2	680	2,33
		3	27	1,94
		4	482	1,86
		5	118	1,76
	Lowest	1	677	-1,35
		2	31	-1,35
		3	132	-1,32
		4	25	-1,20
		5	184	-1,14

a. Only a partial list of cases with the value 6,08 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 4,00 are shown in the table of lower extremes.







Tightness Looseness Cultural Dimension Shapiro-Wilk Test

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PercLoose	234	99,6%	1	0,4%	235	100,0%

Descriptives

			Statistic	Std. Error
PercLoose	Mean		4,0117	,04362
	95% Confidence Interval for Mean	Lower Bound	3,9257	
		Upper Bound	4,0976	
	5% Trimmed Mean		4,0122	
	Median		4,0000	
	Variance		,445	
	Std. Deviation		,66726	
	Minimum		2,33	
	Maximum		5,83	
	Range		3,50	
	Interquartile Range		,83	
	Skewness		-,020	,159
	Kurtosis		-,008	,317

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PercLoose	,070	234	,008	,990	234	,093

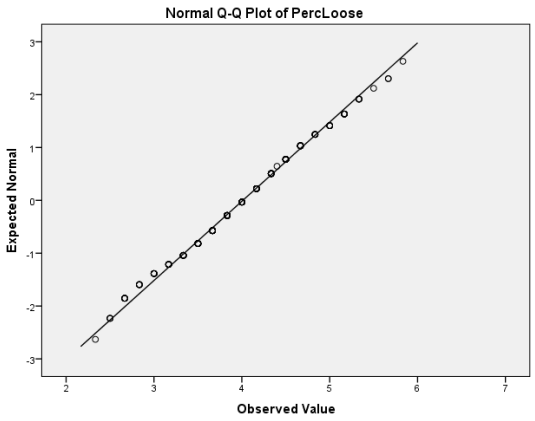
a. Lilliefors Significance Correction

Extreme Values

			Case Number	Value
PercLoose	Highest	1	122	5,83
		2	23	5,67
		3	410	5,67
		4	489	5,50
		5	4	5,33[a]
	Lowest	1	303	2,33
		2	118	2,50
		3	37	2,50
		4	27	2,50
		5	715	2,67[b]

a. Only a partial list of cases with the value 5,33 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 2,67 are shown in the table of lower extremes.



8.3 Influence of Control Variables on Effectual-Causal DM

Between-Subjects Factors

		Value Label	N
What is your gender?	1	Male	129
	2	Female	46
What is/was your study program?	0		14
	1		146
	2		1
	3		4
	4		9
	99		1
What is your current level of education?	1	VWO	2
	3	bachelor student (Applied Sciences/HBO)	17
	4	bachelor student (University/WO)	84
	5	pre-master student	4
	6	masterstudent	43
	7	PhD student	1
	8	graduated (Bachelor)	4
	9	graduated (Bachelor/applied sciences/HBO)	4
	10	graduated (Master)	15
	11	graduated (PhD)	1

Tests of Between-Subjects Effects

Dependent Variable: EffectualDM

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3,855[a]	16	,241	1,062	,396
Intercept	30,903	1	30,903	136,163	,000
Q99_Gender	,094	1	,094	,413	,521
Q102_Study_program	1,940	5	,388	1,709	,135
Q100_Level_of_education	1,555	9	,173	,761	,652
AGE	,061	1	,061	,268	,605
Error	35,859	158	,227		
Total	4752,667	175			
Corrected Total	39,714	174			

a. R Squared = ,097 (Adjusted R Squared = ,006)

Tests of Between-Subjects Effects

Dependent Variable: CausalDM

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6,329[a]	16	,396	1,125	,337
Intercept	35,930	1	35,930	102,153	,000
Q99_Gender	,451	1	,451	1,282	,259
Q102_Study_program	2,352	5	,470	1,338	,251
Q100_Level_of_education	4,647	9	,516	1,468	,164
AGE	,340	1	,340	,967	,327
Error	55,573	158	,352		
Total	4149,950	175			
Corrected Total	61,902	174			

a. R Squared = ,102 (Adjusted R Squared = ,011)

Extreme Values

			Case Number	Value
EffectualDM	Highest	1	144	6,50
		2	680	6,42
		3	79	6,17
		4	140	6,17
		5	84	6,08[a]
	Lowest	1	8	3,36
		2	38	3,42
		3	132	3,50
		4	31	3,83
		5	404	4,00[b]
CausalDM	Highest	1	144	6,45
		2	595	6,45
		3	677	6,18
		4	16	6,00
		5	286	6,00
	Lowest	1	118	2,91
		2	3	3,18
		3	406	3,45
		4	569	3,55
		5	474	3,55
DMDeltaeffectualcausal	Highest	1	406	2,38
		2	680	2,33
		3	27	1,94
		4	482	1,86
		5	118	1,76
	Lowest	1	677	-1,35
		2	31	-1,35
		3	132	-1,32
		4	25	-1,20
		5	184	-1,14

a. Only a partial list of cases with the value 6,08 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 4,00 are shown in the table of lower extremes.

8.4 Correlation Matrix

Table 4

Correlation matrix between the relevant variables

	1	**2**	**2.1**	**2.2**	**3**	**3.1**	**3.2**	**4**	**4.1**	**4.2**	**5**	**5.1**	**5.2**	**6**	**6.1**	**6.2**	**7**	**7.1**	**7.2**
1. PercLoose	1.00	-.01	.15*	.15*	.07	.03	-.06	.06	.19**	-.15*	-.03	.01	-.05	.10	.02	-.09	.05	.09	-.04
2. Decision-making		1.00	.51**	-.66**	.11	.44**	.39**	.25**	.03	.29**	.38**	.15*	.35**	-.10	.57**	.63**	.43**	.31**	.21**
2.1 Effectual			1.00	.31**	.53**	.46**	-.23**	.13*	.43**	-.34**	.45**	.59**	-.09	.49**	.61**	.03	.26**	.66**	-.39**
2.2 Causal				1.00	.34**	-.08	-.62**	-.16*	.34**	-.61**	-.03	.35**	-.46**	.54**	-.10	-.67**	-.25**	.23**	-.57**
3. Approach					1.00	.76**	-.57**	.03	.19**	-.19**	.16*	.25**	-.08	.26**	.18**	-.13	.10	.23**	-.12
3.1 Given means						1.00	.10	.03	.03	.01	.13*	0.11	.05	.16*	.27**	.08	.09	.12	-.02
3.2 Given goal							1.00	.00	-.25**	.30**	-.07	-.24**	.19**	-.20**	.07	.29**	-.05	-.19**	.15*
4. Risk								1.00	.68**	.50**	-.05	-.06	.01	-.12	-.19**	-.05	.01	-.01	.02
4.1 Afford. Loss									1.00	-.29**	.00	.05	-.05	.12	-.06	-.19**	-.05	.14*	-.22**
4.2 Exp. Return										1.00	-.08	-.14*	.07	-.30**	-.19**	.15*	.07	-.18**	.29**
5. Coal. Query											1.00	.69**	.52**	.13	.18**	.02	.14*	.27**	-.12
5.1 Alliances												1.00	-.26**	.22**	.12	-.12	.01	.36**	-.39**
5.2Comp.Analysis													1.00	-.09	.10	.19**	.18**	-.06	.30**
6. Unknowns														1.00	.52**	-.62**	.04	.25**	-.23**
6.1 Contingency															1.00	.36**	.12	.27**	-.14*
6.2 Knowledge																1.00	.07	-.03	.12
7. Control																	1.00	.66**	.56**
7.1 Predict Fut.																		1.00	-.25**
7.2 Control Fut.																			1.00

*. Correlation is significant at the .05 level (2-tailed).

**. Correlation is significant at the .01 level (2-tailed).

8.5 Prior Analysis for Effectual-causal DM, Tightness-Looseness CD.

Paired Samples t-test: Effectual-Causal Decision-Making (Whole)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EffectualDM	5,1262	234	,52001	,03399
	CausalDM	4,8317	234	,59686	,03902

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	EffectualDM & CausalDM	234	,312	,000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	EffectualDM - CausalDM	,29446	,65781	,04300	,20973	,37918	6,848	233	,000

Paired Samples t-test: Effectual-Causal Decision-Making (1st Construct)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S1givenmean	4,0399	234	,79419	,05192
	S1givengoal	2,8440	234	,94155	,06155

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	S1givenmean & S1givengoal	234	,103	,116

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	S1givenmean - S1givengoal	1,19587	1,16753	,07632	1,04550	1,34624	15,668	233	,000

Paired Samples t-test: Effectual-Causal Decision-Making (2nd Construct)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S2AffLoss	4,8112	233	1,15537	,07569
	S2ExpectReturns	2,6438	233	,97586	,06393

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	S2AffLoss & S2ExpectReturns	233	-,289	,000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	S2AffLoss - S2ExpectReturns	2,16738	1,71451	,11232	1,94608	2,38868	19,296	232	,000

Paired Samples t-test: Effectual-Causal Decision-Making (3rd Construct)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S3Partnersh	5,0959	233	,73946	,04844
	S3CompAnaly	3,7511	233	,63051	,04131

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	S3Partnersh & S3CompAnaly	233	-,260	,000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	S3Partnersh - S3CompAnaly	1,34478	1,08933	,07136	1,20417	1,48538	18,844	232	,000

Paired Samples t-test: Effectual-Causal Decision-Making (4th Construct)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S4prexitknowl	3,9843	233	,95253	,06240
	S4levenvconting	5,4492	233	,87561	,05736

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	S4prexitknowl & S4levenvconting	233	,358	,000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	S4prexitknowl - S4levenvconting	-1,46495	1,03753	,06797	-1,59887	-1,33103	-21,553	232	,000

Paired Samples t-test: Effectual-Causal Decision-Making (5th Construct)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S5controlunpredfuture	5,3910	234	,88495	,05785
	S5predictriskyfuture	2,9038	234	,80125	,05238

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	S5controlunpredfuture & S5predictriskyfuture	234	-,254	,000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	S5controlunpredfuture - S5predictriskyfuture	2,48718	1,33613	,08735	2,31509	2,65927	28,475	233	,000

One Sample t-test: Tightness-Looseness Cultural Dimension

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
PercLoose	234	4,0117	,66726	,04362

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
PercLoose	91,969	233	,000	4,01168	3,9257	4,0976

8.6 LINEAR REGRESSIONS

OLS Linear Regression: Hypothesis 1 Effectual-Causal DM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,011[a]	,000	-,004	,65918

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,012	1	,012	,028	,866[b]
	Residual	100,809	232	,435		
	Total	100,821	233			

a. Dependent Variable: DMDeltaeffectualcausal

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,338	,263		1,285	,200
	PercLoose	-,011	,065	-,011	-,169	,866

a. Dependent Variable: DMDeltaeffectualcausal

OLS Linear Regression: Hypothesis 1 Effectual DM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,191[a]	,037	,032	1,13649

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,329	1	11,329	8,771	,003[b]
	Residual	298,362	231	1,292		
	Total	309,691	232			

a. Dependent Variable: S2AffLoss

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,484	,454		7,671	,000
	PercLoose	,331	,112	,191	2,962	,003

a. Dependent Variable: S2AffLoss

OLS Linear Regression: Hypothesis 1 Causal DM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,145[a]	,021	,017	,59186

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,734	1	1,734	4,950	,027[b]
	Residual	81,271	232	,350		
	Total	83,004	233			

a. Dependent Variable: CausalDM

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,313	,236		18,252	,000
	PercLoose	,129	,058	,145	2,225	,027

a. Dependent Variable: CausalDM

OLS Linear Regression: Hypothesis 2 Effectual-Causal DM (1st Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,065[a]	,004	,000	2,88067

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8,212	1	8,212	,990	,321[b]
	Residual	1925,194	232	8,298		
	Total	1933,406	233			

a. Dependent Variable: DMDeltaeffectualcausal_H2

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,303	1,150		4,611	,000
	PercLoose	,281	,283	,065	,995	,321

a. Dependent Variable: DMDeltaeffectualcausal_H2

OLS Linear Regression: Hypothesis 2 Effectual DM (1st Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,031[a]	,001	-,003	2,38652

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,299	1	1,299	,228	,633[b]
	Residual	1321,351	232	5,695		
	Total	1322,650	233			

a. Dependent Variable: DMeffect_givenmeans

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11,671	,953		12,248	,000
	PercLoose	,112	,234	,031	,477	,633

a. Dependent Variable: DMeffect_givenmeans

OLS Linear Regression: Hypothesis 2 Causal DM (1st Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,060[a]	,004	-,001	1,88374

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,979	1	2,979	,840	,360[b]
	Residual	823,247	232	3,548		
	Total	826,226	233			

a. Dependent Variable: DMcausation_givengoals

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,368	,752		8,467	,000
	PercLoose	-,169	,185	-,060	-,916	,360

a. Dependent Variable: DMcausation_givengoals

OLS Linear Regression: Hypothesis 3 Effectual-Causal DM (2nd Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,213[a]	,045	,041	1,67879

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30,938	1	30,938	10,978	,001[b]
	Residual	651,034	231	2,818		
	Total	681,972	232			

a. Dependent Variable: S2EffectuationInfluence

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,025	,671		-,038	,970
	PercLoose	,546	,165	,213	3,313	,001

a. Dependent Variable: S2EffectuationInfluence

OLS Linear Regression: Hypothesis 3 Effectual DM (2nd Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,191[a]	,037	,032	1,13649

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,329	1	11,329	8,771	,003[b]
	Residual	298,362	231	1,292		
	Total	309,691	232			

a. Dependent Variable: S2AffLoss

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,484	,454		7,671	,000
	PercLoose	,331	,112	,191	2,962	,003

a. Dependent Variable: S2AffLoss

OLS Linear Regression: Hypothesis 3 Causal DM (2nd Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,149[a]	,022	,018	,96650

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,947	1	4,947	5,295	,022[b]
	Residual	216,717	232	,934		
	Total	221,663	233			

a. Dependent Variable: S2ExpectReturns

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,523	,386		9,131	,000
	PercLoose	-,218	,095	-,149	-2,301	,022

a. Dependent Variable: S2ExpectReturns

OLS Linear Regression: Hypothesis 4 Effectual-Causal DM (3rd Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,041[a]	,002	-,003	1,09075

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,472	1	,472	,397	,529[b]
	Residual	274,831	231	1,190		
	Total	275,303	232			

a. Dependent Variable: ScTHREEEffectuationP

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,074	,436		2,466	,014
	PercLoose	,067	,107	,041	,630	,529

a. Dependent Variable: ScTHREEEffectuationP

OLS Linear Regression: Hypothesis 4 Effectual DM (3rd Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,014[a]	,000	-,004	,74108

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,023	1	,023	,043	,837[b]
	Residual	127,415	232	,549		
	Total	127,438	233			

a. Dependent Variable: S3Partnersh

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,032	,296		17,008	,000
	PercLoose	,015	,073	,014	,206	,837

a. Dependent Variable: S3Partnersh

OLS Linear Regression: Hypothesis 4 Causal DM (3rd Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,053[a]	,003	-,001	,63098

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,260	1	,260	,653	,420[b]
	Residual	91,969	231	,398		
	Total	92,229	232			

a. Dependent Variable: S3CompAnaly

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,952	,252		15,684	,000
	PercLoose	-,050	,062	-,053	-,808	,420

a. Dependent Variable: S3CompAnaly

OLS Linear Regression: Hypothesis 5 Effectual-Causal DM (4th Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,102[a]	,010	,006	3,10307

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23,361	1	23,361	2,426	,121[b]
	Residual	2224,313	231	9,629		
	Total	2247,674	232			

a. Dependent Variable: DMDeltaeffectualcausal_H3

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,483	1,244		1,995	,047
	PercLoose	,476	,306	,102	1,558	,121

a. Dependent Variable: DMDeltaeffectualcausal_H3

OLS Linear Regression: Hypothesis 5 Effectual DM (4th Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,092[a]	,009	,004	2,85152

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16,183	1	16,183	1,990	,160[b]
	Residual	1878,298	231	8,131		
	Total	1894,481	232			

a. Dependent Variable: DMeffect_existingknowl

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13,544	1,143		11,845	,000
	PercLoose	-,396	,281	-,092	-1,411	,160

a. Dependent Variable: DMeffect_existingknowl

OLS Linear Regression: Hypothesis 5 Causal DM (4th Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,017[a]	,000	-,004	2,62868

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,450	1	,450	,065	,799[b]
	Residual	1603,110	232	6,910		
	Total	1603,560	233			

a. Dependent Variable: DMcausation_exploitationofcontingencies

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16,091	1,050		15,331	,000
	PercLoose	,066	,258	,017	,255	,799

a. Dependent Variable: DMcausation_exploitationofcontingencies

OLS Linear Regression: Hypothesis 6 Effectual-Causal DM (5th Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,083[a]	,007	,003	1,33442

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,847	1	2,847	1,599	,207[b]
	Residual	413,115	232	1,781		
	Total	415,962	233			

a. Dependent Variable: Sc4EffectuationP

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,823	,533		3,421	,001
	PercLoose	,166	,131	,083	1,264	,207

a. Dependent Variable: Sc4EffectuationP

OLS Linear Regression: Hypothesis 6 Effectual DM (5th Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,091[a]	,008	,004	,88320

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,502	1	1,502	1,925	,167[b]
	Residual	180,970	232	,780		
	Total	182,471	233			

a. Dependent Variable: S5controlunpredfuture

b. Predictors: (Constant), PercLoose

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,908	,353		13,919	,000
	PercLoose	,120	,087	,091	1,387	,167

a. Dependent Variable: S5controlunpredfuture

OLS Linear Regression: Hypothesis 6 Causal DM (5th Dimension)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,091[a]	,008	,004	,88320

a. Predictors: (Constant), PercLoose

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,502	1	1,502	1,925	,167[b]
	Residual	180,970	232	,780		
	Total	182,471	233			

a. Dependent Variable: S5Predthefuture

b. Predictors: (Constant), PercLoose

9. APPENDIX B: QUESTIONNAIRE PROPOSAL

Questionnaire Proposal

The following section presents a set of question made on the previous used questionnaire and has developed further questions based on the literature found on this research paper. A new questionnaire is required to increase the low cronbash alpha that was acquired within this study and by further measure each of the sub-constructs of this research paper. Moreover, some of the questions have been modified within this questionnaire and as aforementioned new questions have been elaborated. The questions presented in color blue are new in the questionnaire and their motivation based on effectual-causal decision-making research. Furthermore, the format of this research will cover two main parts, first the part that it is cover and second the part that it is missing and this will be explained next.

Dimension 1: Approach

What is there?

The questions covered within this questionnaire cover general and specific definitions of both given means and given goals. The questions of "I start my new venture without defining a clear target" and "I take a clearly pre-defined target as a starting point of the new venture" are main elements of both effectual and causal approaches. On one hand, the question of "The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities" cover the given means of "Who I am" and "What I know" is covered within this questionnaire. The second question; "The decisions I make when starting my new venture will be based on the resources I have available." Is covered by the "What I know" means covered by Saravasthy (2009) and the concept of "What I can do" described by Saravasthy, Kumar, York & Bhagavatula (2014). This mean mindset is to utilize what is available today and profit from it in the present. On the other hand, the causal given goals sub constructs cover with its question "Before starting my new venture, I will first acquire all resources needed to achieve my target." Saravasthy (2001) described this given goals approach as "the individuals using a causal given goal approach usually have a well-structured and specific method to accomplish a determine goal when all relevant resources are present"

What is missing?

The given means of "Whom I know" means inspired by Saravasthy is missing within this questionnaire. With the purpose of covering the whole construct the following question has been proposed; "I will contact the people necessary to establish and control a good venture". Research has shown that "active engagement in social interaction would trigger new cognitions regarding both the entrepreneur's means, and the effects they can create with those means" (Fischer & Reuber, 2011) and "Experts may be more likely to downplay the importance of prediction and rather focus on their abilities to create new markets and firms based on their expertise (what they know)" (Blume & Covin, 2011). Moreover, two questions for the causal given goal to give the same amount of questions for effectual and causal decision-making. First, the question "I will keep the idea to myself, develop it and accomplish it" is used as to contrast the findings of Fischer & Reuber (2011) and Blume & Covin (2011) of reliance of network. This causal given goal logic goes along with what Saravasthy (2001, 2009) stated about the causal given goal approach: "the individuals using a causal given goal approach usually have a well-structured and specific method based in their own intuition to". Second, the question "The uncertainty of a market will block one since it will inhibit accomplishing my goal" is inspired as an opposite of the effectual decision-making question "The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities." According to Saravasthy (2001, 2009) accomplishing a determine goal when all relevant resources are present from a causal given goal perspective.

1. Decision-Making Approach	
Effectuation: Given set of means	**Causation: Given goal**
1. The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities. 2. The decisions I make when starting my new venture will be based on the resources I have available. 3. I start my new venture without defining a clear target. 4. I will contact the people necessary to establish and control a good venture.	1. The uncertainty of a market will block one since it will inhibit accomplishing my goal 2. Before starting my new venture, I will first acquire all resources needed to achieve my target. 3. I take a clearly pre-defined target as a starting point of the new venture. 4. I will keep the idea to myself, develop it and accomplish it

Dimension 2: Risk

What is there?

The effectual question "Decisions will be primarily based on minimization of risks and costs" and the causal question; "Decisions will be primarily based on analysis of potential future returns" fit well along the literature of this sub-construct. According to Saravasthy (2001), causal models focus on maximizing the potential returns for a decision by selecting optimal strategies while effectual models predetermines how much loss is affordable and focuses on experimenting with as many strategies as possible with the given limited means taking into consideration a minimization on risks and costs. Next, the effectual question "I only spend resources I have available and I am willing to lose" and "Beforehand, I will calculate how many resources I need to achieve the expected returns" goes along with what Saravasthy (2001) stated "by focusing on affordable loss, the need to calculate the resources needed today to predict future returns is eliminated, thus implying less time engaged in planning. The effectuator prefers options that create more options in the future over those that maximize returns in the present"

What is missing?

The estimation of affordable loss does not depend on the venture but varies from entrepreneur to entrepreneur and even across his or her life stages and circumstances, however, effectual decision makers have shown to take certain risk with the sake to profit. With the purpose of checking whether entrepreneurs do take a risk while launching a new business the effectual question "I will take a risk to profit in the future" and causal question **"**I will avoid taking risk to profit in the future" have been created. Moreover, according to Saravasthy (2009), the estimation of affordable loss does not depend on the venture but varies from entrepreneur to entrepreneur and even across his or her life stages and circumstances, however, effectual decision makers have shown to take certain risk with the sake to profit. The purpose of the forth questions, for effectual; when investing, I prefer the cheapest alternative or come up with creative ways of doing things at no cost to myself and for causal, when investing, I prefer the perceived best alternatives and I do this with my own money and judgment have been set to check whether entrepreneurs do take the cheapest option and make alliances to lose and risk the least they can.

2. Risk	
Effectuation: Affordable Loss	**Causation: Expected Returns**
1. Decisions will be primarily based on minimization of risks and costs. 2. I only spend resources I have available and I am willing to lose. 3. I will take a risk to profit in the future 4. When investing, I prefer the cheapest alternative or come up with creative ways of doing things at no cost to myself.	1. Decisions will be primarily based on analysis of potential future returns. 2. Beforehand, I will calculate how many resources I need to achieve the expected returns. 3. I will avoid taking risk to profit in the future 4. When investing, I prefer the perceived best alternatives and I do this with my own money and judgment

Dimension 3: Coalition Query

What is there?

The effectual question "Decisions will be made together with stakeholders based on our competences" and causal question "I will try to identify markets by a thorough market analysis" goes along with what Saravasthy (2009) stated on her paper; "the effectual principle involves negotiating with any and all stakeholders who are willing to make actual commitments to the project, without worrying about opportunity costs, or carrying out an elaborate competitive analyses (causal principle" Moreover, the effectual decision-making approach risks only resources that can be affordably lost; thus, it also drives partnerships as the central method to expand resources. Rather than engaging in extensive planning and research to identify specific stakeholders to target based on preselected goals, an effectual approach calls for entrepreneurs to rapidly engage in conversations with a variety of people they already know or come into contact with, some of whom end up making actual commitments to the new venture (Sosniak, 2006). This goes along with both causal questions "I will ask my private network to help me out with starting my new venture" and "I will ask my network to pre-commit to my new venture in order to reduce". Noting that the second question has been slightly modified to keep the asymmetry of the questions and keep it easier to read for people who answer this questionnaire. This is done in order to avoid any misinterpretation on the question itself and to keep it more simple for the surveyor. Next, the causal questions of effectuation "I will focus on early identification of risks through market analysis"

and causation "I will try to identify risks by a thorough competitors analysis" goes along the statement of Sosniak (2006).

What is missing?

Saravasthy (2001) emphasis that strategic alliances and pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty and to initiate entry barriers. Two questions have been elaborated in order to evaluate whether entrepreneurs do take this into account. For the effectual question, "I will ask my network to pre-commit to my new venture in order to initiate entry barriers" and for the causal question "I will seek for a competitive advantage by myself and by defect initiate entry barriers" have been formulated. In addition, Read, Song & Smit (2009) have found that new opportunities may be created as a result of the additional means provided by new stakeholders. This is tested by asking the effectual question "I will embrace my network to create new opportunities" and the causal question "I will seek for new opportunities by myself". Furthermore, Effectual entrepreneurs focus their efforts on the image of the future coalescing out of a dynamic series of stakeholder interactions rather than crafting a vision up front and then attempting to force it or 'sell' it to targeted stakeholders (Saravasthy, 2001). This is intended to be tested with the effectual question; I will build my vision together with my stakeholders and the causal question I will create my own vision based on my current situation.

3. Coalition Query	
Effectuation: Strategic Alliances & Pre-Commitments	**Causation: Competitive Analysis**
1. Decisions will be made together with stakeholders based on our competences. 2. I will ask my private network to help me out with starting my new venture. 3. I will ask ~~customers and suppliers~~ my network to pre-commit to my new venture in order to reduce risks. 4. I will ask my network to pre-commit to my new venture in order to initiate entry barriers 5. I will embrace my network to create new opportunities 6. I will build my vision together with my stakeholders	1. I will try to identify markets by a thorough market analysis. 2. I will focus on early identification of risks through market analysis. 3. I will try to identify risks by a thorough competitors analysis. 4. I will seek for a competitive advantage by myself and by defect initiate entry barriers 5. I will seek for new opportunities by myself 6. I will create my own vision based on my current situation.

Dimension 4: Nature of Unknowns

What is there?

According to Saravasthy et al. (2014), an effectual approach leverages uncertainty by treating surprises as opportunities to control the newly emerging situation. In that sense, since entrepreneurs often operate in conditions of enhanced uncertainty, effectuation posits that they may benefit from embracing surprises rather than following a linear and goal-oriented process that seeks to avoid deviations from the plan (Sarasvathy, Kumar, York, & Bhagavatula, 2014). Therefore, embracing surprises means that changes are allowed in planning and focus target if this necessary (Sarasvathy S. D., 2001). The first and second question of effectuation: "I allow changes in my planning if needed, even during the implementation process of my new venture" and "I expect to change my original target when confronted with new findings" confirms previous findings. The first and second question of causation "I will always pay attention that my initially defined target will be met" and "my first priority is reaching my pre-set target without any delay" contradicts the effectual decision-making and corroborates to a more causal decision-making. Next, Brettel et al. (2012) has shown that plausibility and investment is necessary to have a positive outcome in R&D projects. To evaluate this pattern, this questionnaire has set a effectual question; "I allow delays during the development of my new venture when new opportunities emerge" and the causal "my planning will be set before I start the implementation process and cannot be altered afterwards" to test this behavior in potential Dutch entrepreneurs.

What is missing?

The embracement or avoidance of positive and negative contingencies is quite not completely cover within this questionnaire. According to Saravasthy (2001), acknowledging contingences by leveraging surprises rather than trying to avoid them, overcome them, or adapt to them can be beneficial from an existence and economic point of view in the long term. While causal models almost always seek either to avoid the unexpected or to achieve predetermined goals in spite of contingencies. The nature of unknowns is at the heart of entrepreneurial expertise – the ability to turn the unexpected into the valuable

and the profitable. For this the effectual question; "I embrace positive and negative contingencies to reach potential opportunities" and causal question; "I ignore positive and negative contingencies to reach potential opportunities" have been formulated.

4. Nature of Unknowns	
Effectuation: Leverages Environmental Contingencies	**Causation: Exploit Pre-Existing Knowledge**
1. I allow changes in my planning if needed, even during the implementation process of my new venture. 2. I expect to change my original target when confronted with new findings. 3. I allow delays during the development of my new venture when new opportunities emerge. 4. I embrace positive and negative contingencies to reach potential opportunities.	1. I will always pay attention that my initially defined target will be met. 2. My first priority is reaching my pre-set target without any delay. 3. My planning will be set before I start the implementation process and cannot be altered afterwards. 4. I ignore positive and negative contingencies to reach potential opportunities.

Dimension 5: Control

What is there?

The effectual question "I will try to control the future by creating it" and "I will study expert predictions on the direction the market is heading, to determine what course of action my new venture will follow goes along with what Evald & Senderovitz (2013) have stated "Causal and effectual logics both seek control over the future. But causation focuses on the predictable aspects of an uncertain future. The logical premise for it goes like this: To the extent that we can predict the future, we can control it. Effectuation, on the other hand, focuses on the controllable aspects of an unpredictable future. The logic here is: To the extent that we can control the future, we do not need to predict it". Moreover, the effectual question; "I will talk to people I know to enlist their support in making opportunities a reality" and causal question **"**I will try to control the future based on predictions of my previously obtained knowledge" goes along with Sarasvathy, Kumar, York, & Bhagavatula, 2014 effectual entrepreneurs do not see history running on autopilot, but rather consider themselves one of many who copilot the course of history. Therefore, copiloting the plane with others to control the future.

What is missing?

The control principle clarifies why we need entrepreneurs in the first place. It harks back to Knight's original thesis about why economics needed a fourth factor of production, in addition to land, labor and capital with their attendant costs of rent, wages and interest, respectively. Neoclassical economics had no room for the entrepreneur (causal approach decision-making). And at equilibrium, profits equaled zero (Sarasvathy S. D., 2009). For that reason, an entrepreneur is expected to have a more intuitive decision-making behavior rather than a systematic protocol to predict the future and the role and behavior of it is the inspiration of the latter question.

5. Control	
Effectuation: Seeking to Control an Unpredictable Future	**Causation: Seeking to Predict a Risky Future**
1. I will try to control the future by creating it. 2. I will talk to people I know to enlist their support in making opportunities a reality. 3. I will follow my intuition to predict the risky future	1. I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow. 2. I will try to control the future based on predictions of my previously obtained knowledge. 3. I will follow a systematic protocol to predict the future