Co-creation profiles of CBS students: What really matters for producing unique and successful ideas?

An empirical study on knowledge heterogeneity and demographic attributes

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Executive Summary

This thesis attempts to provide Copenhagen Business School and other organizations in general, with solid investigations on the governing factors related to the development process towards unique and successful ideas for sustainable innovation. First a review on the most important and latest research in various fields of innovation management is given, including reviewing the literature of co-creation activities, new product development, user engagement, knowledge heterogeneity, and diversity theory following a capability-based view. Knowledge is seen the primary source of competitive advantage. These issues lead to the formulation of a set of research questions for the present thesis.

In order to address a number of hypotheses for the governing factors of unique and successful co-creation processes, a relevant natural experiment was chosen. An in-depth analysis based on a data sample of 56 students, which were invited from Copenhagen Business School to participate in a co-creation project called Instant Innovation Camp as selected .In this event participants were organized in teams and asked to contribute each with five independent innovative ideas with the character of sustainability. Participants consisted of internal students from Copenhagen Business School and external students from foreign and global institutions of higher education. Thus, a pool of diverse students came together to co-create strategy development concepts for Copenhagen Business School to become a global role model in the areas of business research, education, and diffusion. This provided an interesting opportunity to systematically analyze a significant amount of material generated during the co-creation event. Statistical analysis of the impact of participant's knowledge heterogeneity and demographic attributes on their ideation performances revealed several clear messages towards choosing the right persons for co-creation projects.

The findings of this study contribute from a new angle to the discourse of creating competitive advantage in higher educational institutions, where students as customers are viewed as customers rather than users. Recently, the generation of co-created ideas in new product development has become a new trend and a consistent theme among scholars in the management literature. However, one of the open questions regards the engagement of the right participants for contributing to truly unique and successful ideas in terms of innovation.

Thus, the results of this study support the engagement of both, internal and external participants for co-creating unique and successful ideas. Finally, evidence was found for the correlation of related educational and occupational experiences in the area of a given issue to to influence participant's idea generation outcome. Similarly, diversity in nationality and gender were found to be important factors for unique and successful co-creation contributions.

This leads to the recommendation to adjust the search process for co-creation participants accordingly to the organizations needs. To be specific, internal participants are most likely to generate successful ideas but with limited results in terms of uniqueness. The search for external participants is on the contrary recommended in the aim to generate unique ideas. However, succeeding to co-create the most unique and at the same time successful ideas requires a mix of both, internal participants with technological knowledge and external participants with unbiased minds. Empirical evidence for these correlations, their probable origins, as well as consequences for the planning of co-creation activities are all found in the thesis at hand.

Contents

List of Abbreviations and Acronyms

B2C	Business to Customer
BCM	Business Camp Method®
CBS	Copenhagen Business School
DV	Dependent Variable
EEA	European Economic Area
EU	European Union
IIC 2009	Instant Innovation Camp 2009
IV	Independent Variable
FFE	Fuzzy Front End
Ideation	Idea Generation
KBV	Capabilities Based View
NPD	New Product Development
NSD	New Service Development
Q-V82	Questionnaire of Course V82
RQ	Research Question
SD	Standard Deviation
TNIT	Transnational Innovation Teams
VOI	Value of Impact
5NGP	5 New Guiding Principles

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Co-creation process with CBS students: What really matters for developing unique and successful ideas?

"The most valuable natural resource in the world is not oil, diamonds, or even gold; it is the diverse knowledge, abilities, and skills that are immediately available from cultural diversity."

(Richard, Murthi, Ismail, p. 1213, 2007)

1. Introduction

Integrating customers[1] into the new product / service development (NPD-/-NSD) processes has been increasingly recognized as a major contribution for successful product and service innovations (Rothwell et al., 1974; Fitzsimmons, 1985; von Hippel, 1986). Since the middle of 90´s, customers are seen as to contribute to competitive advantage and account for economic growth in organizations (Freeman, 1991; Lengnick-Hall, 1996; Prahalad & Ramaswamy, 2000; 2004). Besides, recent studies detected customers not only as passive contributors but as active creators and self determined innovators of NPD and NSD processes (Reichwald & Piller, 2009). As the paradigm of NPD moved from the traditional view of the passive customer to the active co-creator model, the variable of the human resource has to be considered in a new light.

Furthermore, research proofs that work teams[2] increasingly operate in multinational contexts and organizations therefore require the awareness that national diversity leads to heterogenic knowledge in teams and thus influences their work outcome (Milliken & Martins, 1996; Earley & Mosakowski, 2000).

[1]The perception of the term "customer" in this context is defined in the key term part.
[2]As mentioned by Gino et al. (2009), the literature uses the labels "teams" and "groups" interchangeably while others differentiate between the two terms. In this thesis the term "team" will be the used key term, due to the fact that the term "team" includes the presence of an organizational setting, whereas "group" constitutes a rather general meaning. Looking at the IIC 2009 case, an organizational setting is obviously provided through CBS as the organizational frame of the camp.

As a matter of fact, research results on heterogeneity in work teams assume that diversity is a mixed blessing. On the one hand, study results suggest that diverse work teams enjoy greater range of perspectives which leads to high-quality ideations (e.g., McLeod & Lobel, 1992). On the other hand, diverse work teams show greater levels of dissatisfaction and difficulties to integrate (e.g., Jackson et al., 1991). Additionally, technological level of expertise ranges from low to high and is viewed as a source of bias free knowledge as well as a pitfall for achieving success. Offering an interesting theoretical framework of co-creation processes in NPD-/-NSD, user engagement theory, knowledge heterogeneity, and diversity theory, the present research investigates on the individual level of co-creation participants and not on work team performances. In addition, a managerial perspective of co-creation processes is chosen, which is known as the new key principle for gaining competitive advantage (Prahalad & Ramaswamy, 2004a).

With the aim to contribute to the ongoing discourse of customers in co-creation activities, the objective of this thesis is to present an in-depth analysis on the impact of knowledge heterogeneity and demographic attributes on co-creator contributions in the early stage of NPD activities, namely the Fuzzy Front End (FFE), with particular focus on the ideation process. Furthermore, the main contribution of this thesis is not solely the investigation of the fact that participants of co-creation activities perform different in the early stage of a strategy development process but that heterogeneity of knowledge and demographic attributes affect the uniqueness and success of innovative ideas.

Following the main premise for the current research, a real life case was chosen, to prove that co-creating innovative solutions for organizations can resolve in competitive advantage as it is an additional source of competence. The analysis, based on a 56 participant data sample, wants to enlighten the diverse unique ideas, generated by internal and external graduate students in the Instant Innovation Camp 2009 (IIC 2009) at Copenhagen Business School (CBS). In order to enable constructive comparisons on the ideation process outcome between internal and external participants, descriptive and explanatory study methods were carried out, based on the transcribed quantitative data sample of each IIC 2009 participants qualitative exams. Picking up the idea of creating sustainable business solutions, in this case for CBS, the thesis is designed with an overriding aim to provide CBS with a solid research analysis on heterogeneous co-creation participants. It attempts to do this to supporting future collaborations between co-creation participants and organizations.

Especially in respect to CBS`s new business school strategy with its emphasis on "Business in Society" (CBS Observer, 2010).Finally, as a contribution to the ongoing discourse about co-creating competitive advantage in the early stage of the NPD-/-NSD processes, this thesis opens with the following RQ:

RQ: "How do distance, occupational and educational background, gender and nationality affect the impact on the uniqueness and success of ideas in the early stage of ideation processes of NPD-/-NSD?"

In summary, this thesis offers a new twist of existing theories to shed light on the effects of vast knowledge heterogeneity of participants in ideation processes. An extensive literature exists on how to create innovative businesses through methods and tools. But improving chances for innovative success of organizations demand not only the right employees and suppliers, but also on the right customers to help transferring user demands into valuable ideas.

1.1 Thesis Structure

The structure of the thesis is organized according to its purpose and structured in 8 chapters as shown in Figure 1. Following the aim of building a thorough theoretical understanding of the underlying literature, theories and models will be presented first. Herein, an in-depth analysis builds upon descriptive and explanatory research methods and ends with revealing conclusions.

Figure 1: Thesis Structure

Starting with chapter 1 and its inspiring introduction, the thesis presents the overall premises in combination with the RQ and its sub questions. Hereafter, chapter 2 offers a rich discussion of the existing literature related to the issues at hand as can be seen in Figure 4. Chapter 3 introduces the methodology frame, in which all necessary variables are represented and described. In addition all applied statistical models are presented and discussed. Being provided with the theoretical background and definitions of elements important to this study, chapter 4 provides an interesting in-depth analysis part, whose findings will subsequently be followed by a discussion in chapter 6. However, before starting the discussion, chapter 5 will point out limitations of this study and thus draw a clear view of neglected research fields. In chapter 7, implications for future research are presented and explained in their necessity to contribute to this thesis. Topping off the thesis and bringing loose ends together, enlightening conclusions are provided in chapter 8 and suggestions for future research proposed.

1.2 Problem Statement

Following a personal interest in innovation management, the desire to learn more about the impact of knowledge heterogeneity and demographic influences on individual performance, and CBS´s call for developing 5 New Guiding Principles (5NGP) the master thesis at hand came to existence. Investigating on the mentioned issue, the natural experiment, based on the co-creation process in the IIC 2009, served as a solid pool for investigations. The camp offered the platform for 70 students to co-create sustainable business solutions in a collaboration process with the industry.

Innovation has become one of today's most fundamental determinants of economic growth. If organizations want to succeed, both, locally and globally, the capability to innovate and stand out on the market is crucial. Innovation performance can increase a company's competitiveness and help to address global challenges, such as sustainable development (OECD, 2007). But what does the term "innovation" entail, and what matters most concerning the innovativeness and uniqueness of a co-creation participant's contribution? Which demographic attributes influence the participant's ideas? And who is more capable of utilizing learned tools, applying experiences in education as well as occupation, and exploiting own networks? As a matter of fact, the fundamental question here is which IIC 2009 participants contributed with most successful and most unique ideas in terms of innovation to CBSs strategy development process?

The argument for the importance of this study is that the world of business is undergoing a transformation from the industrial society to a new form of society, in which companies, institutions and society in general will have to change focus. Increasing international pressure and global competition affecting nearly every sector, especially the educational sector, make it crucial to transform knowledge and skills into continuous and sustainable innovation tools. CBS as an institution of higher education has recognized that shift and introduced the IIC course to internal and external international students (EQUIS Re-Accreditation CBS Self Assessment Report, 2005).

1.3 Research Question

Having presented the problem statement and introduced the natural experiment of the IIC 2009 at CBS, the following section provides potential investigative subjects on the possible impact of knowledge heterogeneity and demographic attributes on participant performance. As a matter of fact, the RQ and its sub-questions, that guides and structures this thesis, are the following:

RQ1: "How do knowledge heterogeneity and demographic attributes participants affect the uniqueness and success of participant's ideas in the early stage of the ideation process of NPD-/-NSD?"

RQa: "How do related educational and occupational experiences of a participant affect the performance on both, uniqueness and success of its strategy development idea?"

RQb: "How does the educational heritage of a participant influence the uniqueness and the success of its strategy development idea?"

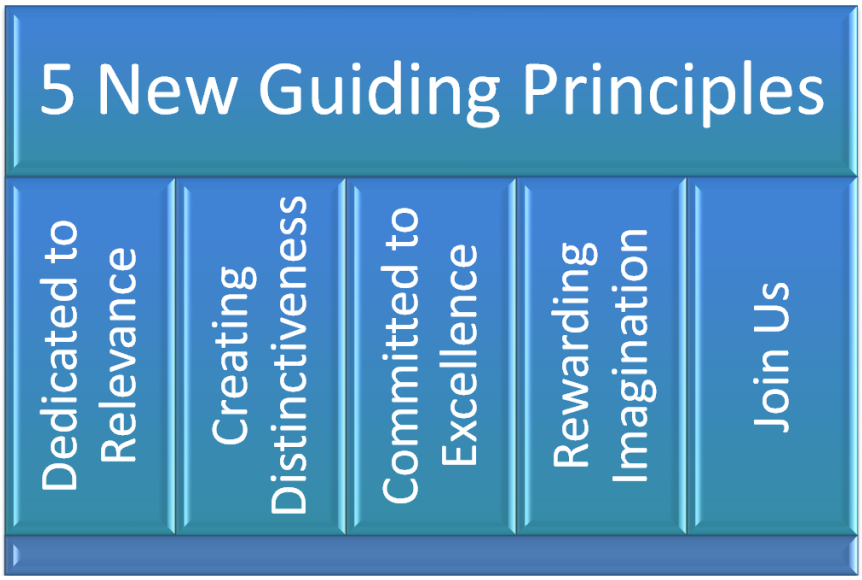
RQc: "How do demographic attributes, such as gender and nationality, affect a participant's impact on uniqueness and success of its strategy development idea?"

The study therefore focuses on the impact of participant's diverse knowledge heterogeneity and demographic attributes on the performance outcome of ideation processes. Further, the overall aim is to clarify and deepen the understanding of knowledge heterogeneity and customer engagement in a highly international environment. A set of assumptions will scrutinize in the following parts through the application of relevant theoretical research and empirical results conducted through empirical statistics.

1.4 Case Description

In 2009, CBS was ranked 3rd best Business School in the entire world, just after Harvard and London Business School3. The ranking was based on the recommendations of 1000 Business School deans and the focus of the ranking aimed on the educational institutions' international significance and prestige. While competing with renowned Business Schools like Harvard, International Institute for Management Development (IMD), etc., CBS is on the way towards becoming a global role model. Johan Roos, the new dean of CBS joined the Business School in 2009. Following an open-minded management style with fast decision taking abilities and the capability to engage external as well as internal networks to formulate a big picture of CBS´s position, Johan Roos offered exactly what CBS was about to need for future competition. That was to develop five new guiding principles for CBS which were to build the base for the upcoming new strategy formation in April 2010. These 5 new guiding principles are as mentioned in Figure 2:

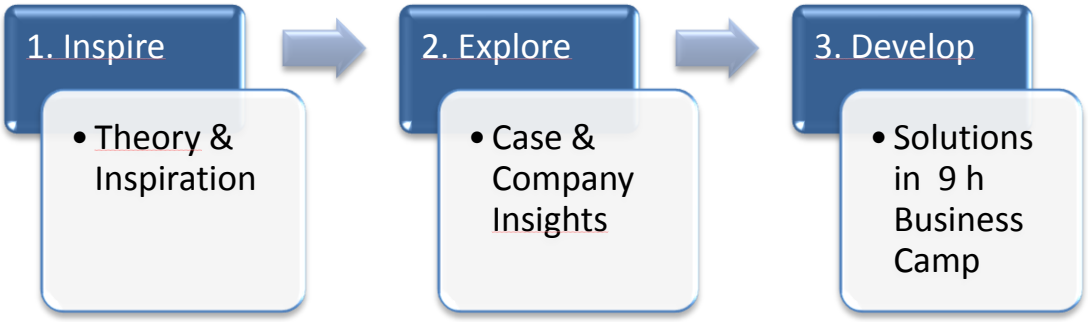
Figure 2: Overview of CBS`s 5 New Guiding Principles



[3] http://www.eduniversal.com/business-school-ranking/country/denmark/56

The case, serving the investigative data for this research, is about the Instant IIC 2009 co-creation process at CBS. The IIC 2009 is an elective course, combining innovation theory, issues of sustainability and business development aspects, to create solutions that benefits users, organizations, and society. Dr. Christoph Hienerth from the Department of Innovation and Organizational Economics at CBS is in charge to run the Elective Course in partnership with Lund University, Øresund Entrepreneurship Academy and Marketing Consulting Services. The course consists of three main parts which can be viewed in Figure 3:

Figure 3: IIC 2009 Course Structure



The concept of the IIC in general is, according to Dr. Christoph Hienerth and Frederikke Kroon from Marketing Consulting Services, a unique course in the world of education[4]. The uniqueness of the course follows The Business Camp Method® (BCM) by Marketing Consulting Services, which is developed to create new strategies, concepts as well as products in just 9 hours. To ensure sufficient results in the camp, a prior detailed analysis about the issue at hand is necessary and covered through the exploration phase of IIC part 2. The aim of the final 9 hour camp is to co-create innovative and sustainable ideas by the students of the camp with expertise influence of an invited competence panel.[5] All student participants were mixed in teams according to their strengths in a range of relevant fields to utilize their knowledge heterogeneity. Specifically, the IIC 2009 consisted of 10 teams and in total of 76 master level students across culture, universities, and study lines.

[4] http://www.instantinnovationcamp.dk/index_students.html
[5] http://www.instantinnovationcamp.dk/campmethod_students.html

The aim was to elaborate on the 5NGP within 5 hours on the 30st November 2009 to enlighten strategies for CBS to become a global role model as a Business School[6]. As a result the outcome of interesting and innovative ideas was striven for.

Finally, the best solutions were decided upon in teams and presented to a panel of judges, to test for practical feasibility and innovativeness[7]. The panel included industry professionals amongst others Jesper Johansen, Head of Human Resources at Novo zymes, along with representatives from within CBS such as Lynn Roseberry, Law Department at CBS.

1.5 The Organization

The industry, on which the case is based, is CBS as an organization. CBS was established in 1917, and has been integrated as an institution of higher education in the Danish education system. CBS is one of the largest Business Schools within Europe with a student population of 18.038 in 2010, whereof 3.531 students were categorized international.8 For students from Non-EU and Non-EEA countries an annual fee of 12.500 € per year is necessary. As a result, CBS earned about 14.5 million € just from student fees in 2008, which is about 10.8% of their total income (www.cbs.dk – CBS Annual Report, 2007-2008).

CBS` philosophy of its own internationalization is intense. Competing on the global market for the best skilled professors, the leading edge of international researchers, CBS holds a membership of The Global Alliance in Management Education and in International Management. The Organization is beyond that involved in international benchmarking as well as accreditations, and offers double degree agreements with other top Business Schools. CBS recognized early on, that the pressure is high to stand out in the crowd. As a Business School, CBS followed strategic milestones such as the internationalization of their education programs, partnerships with Businesses and the establishment of the Learning University, which aims to understand CBS as a place for constant learning and knowledge production in a dynamic organizational environment.

[6] http://www.youtube.com/watch?v=c0SD_JeM9yk
[7] http://www.instantinnovationcamp.dk/campmethod_students.htm
[8] http://uk.cbs.dk/about_cbs_campus

1.6 Key terms and definitions

1.6.1 Competitive Advantage

As the term "competitive advantage" is a crucial part to this thesis and its meaning, a thorough definition is desired. There are several perspectives to what the cause of competitive advantage might be. Michael Porter for instance interprets competitive advantage from the company perspective and focuses thereby on monetary advantages of organizations to differentiate itself from competitors (Porter, 1985). Agreeing with Porter about the matter of strategically increasing an organizations performance, a resource based view on competitive advantage is rather suitable. Hence, the following definition about "resources of an organization" serves as a base of understanding of competitive advantage in this context:

> Competitive advantage refers to "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc" (Barney, 1991, p. 101).

According to Barney (1991), the competitive advantage of an organization is built upon the creation of successful strategies, based on their resources, which cannot be duplicated by competitors. Inviting external participants to the co-creation process of IIC 2009 generated a high and complex net of heterogeneous knowledge and will thus never again be provided in the same constellation.

1.6.2 Customers

Several scholars in social science have discussed the term "students as customers" in the discourse of the changing sector of higher education (Baldwin, 1994; Schwartzman, 1995; Lomas, 2007). Based on qualitative research with input from various sides, students, governments, agencies, and academic staff the results appear two-folded.

The critique is strong from the side of conventional educators, arguing that students are more than just customers with the aim of fast satisfaction (Schwartzman, 1995). At the same time, scholars agree that there are contexts to find in which students are seen as customers. Such as when institutions start to recognize students' voices and view those as an influencing part of the higher education system (Lomas, 2007). With regard to the current study, theories and concepts related to the terms of customers and users are applied. Therefore, students are viewed as customers respectively users in this context and thus contribute to the strategy development project of the co-creation concept.

1.6.3 Innovation

According to McGrath and MacMillan (2000), creating and maintaining sustainable competitive advantage is underlying the means of managerial innovativeness. Rodan and Galunic (2004, p. 558) put it this way:

> "Managerial performance is socially embedded and dependent on the knowledge of others".

Furthermore:

> "Innovation is an important means of creating and maintaining sustainable competitive advantage, and furthering our understanding of managerial innovativeness may help shed light on a factor that matters for firm performance" (McGrath and MacMillan, 2000, as cited in Rodan & Galunic, 2004).

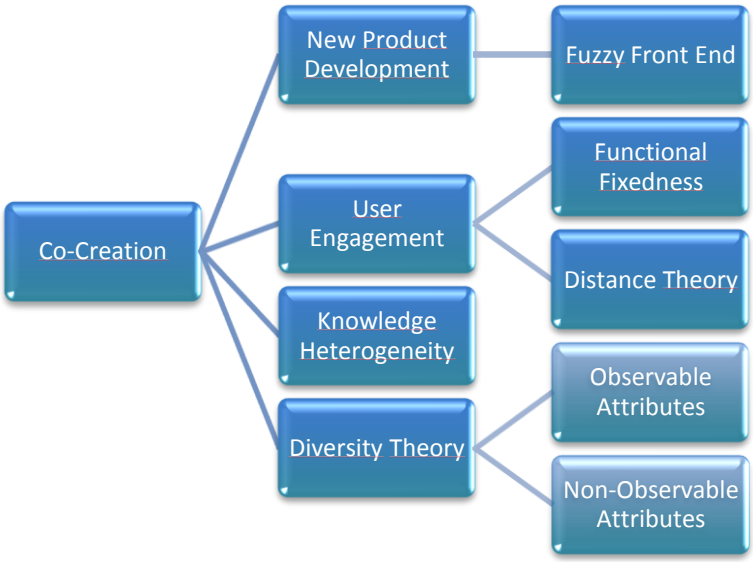
Considering these assumptions about managerial innovativeness and its sources, it is obvious that knowledge is seen as the "wellspring" of innovation in the leading literature of co-creation and user engagement theories. With respect to the applied capability based view (KBV), the aforementioned definitions of innovation are supported.

2. Literature Review

Nowadays, organizations need to consecutively gain new knowledge, evolve, and create novel products, processes, and services if they seek to survive (Bunderson & Sutcliffe, 2003; Trott, 2008). Not only increased levels of competition are to be faced, but to meet demands of sophisticated customers too (McGrath et al., 1992). Applying the right strategy to meet those challenges depends mostly on the organization itself and its available resources and skills. Looking at the history of the past two decades of higher education industry in Europe, tremendous changes have occurred. Educational Institutions have faced increased competitive market structures and further consequences of the Bologna agreement for harmonization of the different academic degrees are not predictable yet. Student and professor mobility has increased as boundaries cease to exist and less competitive universities may lose the fight for their students and knowledge capital (Duarte et al., 2010). As a matter of fact, the need for differentiation of non-profit organizations (Ali-Choudhury et al, 2009), such as universities in general and CBS in particular, is inevitable. Similarly Smith (2001) is arguing that differentiation is a necessity for organizations offering the same services, as universities do with regard to the most common study areas such as economics.

Consequently, this section introduces the main theoretical concepts and publications, which serve as the base of this thesis and its analysis. Several research areas are combined and fitted into a reasonable novel framework. Drawing on such an extensive overview over existing literature offers the possibility to interpret the case at hand from a rather theoretical perspective. The following research areas and concepts are used as shown in Figure 4.

Figure 4: Literature Overview



The overview presents the theoretical foundation of this study, which is based on the key themes of the co-creation processes, which are seen as the new key principles of managerial practice for gaining competitive advantage (Prahalad & Ramaswamy, 2000, 2004a). Thereafter, the areas of the NPD-/-NSD, User Engagement, Knowledge Heterogeneity, and Diversity Theory will be addressed and several concepts deepened and eventually lead to hypothesis generation.

Hence, in the following section, an overview of state of the art and recent literature of important research areas touching upon the present RQ is presented and critically discussed.

2.1 Co-creation

In the light of the previous discussion about students as customers and respectively as users of educational institutions and its services, the subsequent literature part concerns the engagement of the aforementioned participants in co-creation processes. The research of co-creation activities thus builds the theoretical umbrella of the entire study.

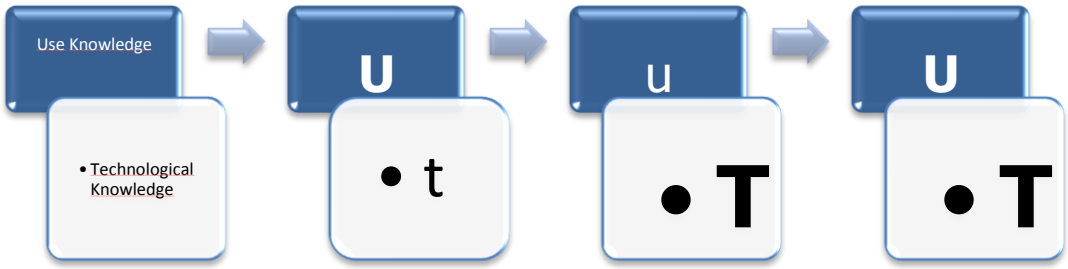
Co-creation and co-production are seen as a process of customer engagement behavior (van Doorn et al., 2010) and has been detected as an attractive approach for organizations to capture competitive advantage over competitors (Prahalad & Ramaswamy, 2004a). That is so, according to Lusch & Vargo (2006), because the co-creation and co-production of value activities are able to assist an organization in pointing out the needs of customers through an improved ideation process via the customer's ideas and input itself. Namely, what successful co-creation and co-production of value require are information about customer needs and about how to solve those needs best (Thomke and von Hippel, 2002; von Hippel, 2005). Customer needs are seen as to be tacit and thus difficult to detect and measure accurately (Franke & Piller, 2004). Eventually, who is able to serve such information in the most accurate way, if not the customer itself in a collaboration process with the company? On the contrary, practitioners are still coping to capture and use the positive effects of user engagement properly. Only organizations with the skills to detect matching users and the ability to manage their capabilities in the right way gain full competitive advantage over competitors (Magnusson et al., 2003).

Especially recent research for suggesting new product ideas concluded that "ordinary users" of products and services created unique and valuable ideas more frequently compared to professional developers. On the contrary, results for creating easily reliable ideas resulted from rather advanced users and professional developers (Kristensson et al., 2004). Literature, adapting the knowledge perspective, differentiates user knowledge into two categories, namely into technological knowledge and use knowledge (von Hippel, 1994; Lüthje, 2004).

"Technological knowledge is constituted by the ability to analyse technical feasibility – the opportunities as well as limitations of a given technology. This knowledge is thus necessary to implement a product idea. Use knowledge, on the other hand, represents the use aspect of innovation and is thus an understanding of what creates value for the user" (Kristensson et al., 2010, p. 148).

As there are various levels of technological and use knowledge to find in customers, a categorization matrix, shown in Figure 5 adapted from Magnusson (2009, p. 591) will serve as the basis of the underlying user discussion in co-creation processes.

Figure 5: Use Knowledge and Technology Knowledge after Magnusson (2009, p. 591)



Use Knowledge and technology knowledge among different types of innovators. Bold font implies an emphasis on which type of knowledge characterizes the group of user. Adapted from Magnusson (2009, p. 591).

Noticeable from Figure 5 is that the ordinary users have an emphasis on use experience and are inferior regarding technological knowledge. Contrary, experts inherit a high level of technological knowledge and normally miss out on the use experience of the product or service at stake. Eventually there are users with both attributes, known as "lead users" (von Hippel, 1986). These users posses technological knowledge as well as the use experience needed to generate not only radical and innovative but also feasible ideas to the ideation process. According to the findings of Magnusson (2009) based on a quasi experimental study on a mobile telephony case and his investigations on the contributions of ordinary users, those generate rather radical and unique solutions as opposed by professional developers. On the contrary, ordinary users thereby lack the underlying technological knowledge.

Magnusson proposes that for direct product or service implementation in the NPD process, contributions of experts or lead users are to be preferred. That is, according to the author's quasi experimental study on mobile telephony, because ordinary users are rarely aware of their own technological limitations and thus, implementation-related concerns are left out. In addition, Prahalad and Ramaswamy (2004b) argue that ordinary users base their ideas on indistinct technology understanding and for that reason degrade user contributions as being limited. Instead, engagement of ordinary users is regarded to stimulate the organization to innovate and learn about their customer's desires during the co-creation process.

Furthermore, co-production and co-creation processes seem to have altered the perspective of, how organizations view their customers. As Wind & Rangaswamy (2001) beautifully pictured, the new perspective of customers as co-producers is, so to speak, viewing customers as partners. And recent literature on the theme of co-creation and co-production has shown that value is not created solely within the firm and that interaction of both sides is of great advantage vice versa. Consequently, a change in perspective from "What can we do for you?" to "What can you do with us?" occurred within companies and organizations.

As the co-creation and co-production of value can occur in a variety of contexts and especially in NPD-/-NSD processes, Bolton and Saxena-Iyer (2009) also discuss the importance of distinguishing between co-creation and co-production of values. Accordingly, Bolton and Saxena-Iyer (2009) acclaim the following argumentation of Lusch and Vargo (2006) respectively, that value can only be created by the customer in the consumption process and through the use of the product or service. Furthermore, Prahalad and Ramaswamy (2005) point out that the basis for value creation is the experience itself. In the successful attempt to create meaning to their theory, Ramaswamy (2008) conducted a real-life experiment on the case of NIKE using the DART co-creation model. That model engages dialogue, access, risk return, and transparency for establishing best practice and ongoing interaction between the customer and the organization. The author especially underlines the importance of rapid and continuous learning by the firm from interactions with customers related to the available options and features if a product or service.

Such a process is also named value-in-use and simultaneously offers companies the possibility to monitor and gain knowledge about customers. Customer participation that uniquely shape the service is thus a process of co-creation of value and relates mostly to co-creation of experiences such as LEGO Mindstorms and Nike Land, where the customer is actively involved in the service and thus adds value to the product or service through personal experiences. Instead, the theme of co-production refers to the interaction between the customer and the organization and is claimed to occur through shared inventiveness and co-designing in NPD and NSD processes (Prahalad & Ramaswamy, 2000, Lusch & Vargo, 2006). Likewise, O`Hern and Rindfleisch (2009, p. 4) lately argued that co-creation is:

> "a collaborative new product development activity in which consumers actively contribute and select various elements of a new product offering".

Respectively, co-creation is used as the overall term for collaborative NPD-/-NSD activities by firms and consumers. In contrast, the process of customer co-production rather determinates the specific execution of a service or product and the customer is therefore seldom a co-producer in the sense of production. [9]

Following up on the latest research about engaging customers into the ideation stage of NPD-/-NSD processes, the subsequent section will introduce various examples and the applied theories. The NPD-/-NSD is known as the arena for generating success and failure products as well as services. Thus, a careful examination of its stages will be undertaken.

[9] Given that the ideation process in the case at hand displays shared innovative ideas in combination with co-designed results in a strategy development process, the activity can thus be classified as co-production. However, the term co-creation will be used throughout this thesis, due to the naturalized term of co-creation.

2.2 New Product Development

Moving on to an increasingly vital area of customer co-creation, the NPD, scholars have been investigating extensively on understanding the various phases and their impact on success and failure rates of products. Seeking to answer the RQ, valuable insights and contributions are found in the reviewed literature of traditional and modern NPD practices.

To begin with, the traditional NPD process consists of several stages as shown in Figure 6, namely: ideation[10], product development, commercialization, and post launch after Hoyer et al. (2010, p. 284).

Figure 6: New Product Development Stages after Hoyer et al. (2010, p. 284)

According to Hoyer et al. (2010), the process of co-creation is valuable at all stages in a NPD project. To attest their assumption, the authors developed a conceptual framework with focus on the degree of co-creation activities throughout each NPD stage. Specifically, Hoyer et al. (2010) focused on the business to customer (B2C) market and thereby pointed out the greatest impediments of co-creation activities in the early stage of the NPD-/-NSD processes, namely the ideation phase. The first is the requirement of an organizations transparency towards the customer and thus potentially to competitors. Secondly, the ownership of intellectual property is to be concerned. The third impediment is the tremendous "wide end" of the NPD funnel, which becomes wider through co-production activities. To be specific, due to the increased complexity of information there might be an overload of co-production activities, especially in projects with tight deadlines.

[10] Ideation is also known as the ideation process in NPD. For the cause of simplicity the term ideation will be used in this study, as it was used by Hoyer et al. (2010).

That phenomenon mainly regards projects with open co-creation activities, involving public requests via Internet websites, email, and social networks for collaboration. The fourth impediment is announced to be the novel but mostly infeasible contributions of ordinary users. Having a closer look at the last stated impediment of co-creation processes, Hoyer et al. (2010) do not stand alone with their research findings. As Magnusson et al. (2003) tested in a 12 day end-user workshop, ordinary user groups contributed rather unique ideas on average than professionally advised teams did. Hence, the author's suggestions point towards that organizations are better off with co-creation activities mainly at commercialization stages. On the contrary, the positive effects of customer co-creation involvement in the early stage of NPD are to be found in saving both, time and expenses as well as the reduced risk of failure of the new product or service.

From the discussion above, it can be concluded that participants from within the organization, known as experts, generate less unique but rather feasible ideas[11] than participants from outside of the organization. Internal participants are expected to have a greater technological knowledge than outsiders and are thus considered pre-biased in their generation of unique ideas. This leads to the first hypothesis to answer the RQ of this thesis:

Hypotheses 1: External participants in ideation processes generate more unique and less successful ideas than internal participants.

Speaking of NPD, an important specification has to be made regarding NSD and NPD processes, as the underlying participants of investigation consider both in their idea variations, products and services. That is due to the two-folded nature of the majority of handed in ideas of IIC 2009 participants. Not only were innovative product suggestions posed, but also service minded strategies. Although NSD originates from NPD, not any steps in the development process are shared. To differentiate between NPD and NSD, the characteristics considered below have to be taken into account.

[11] Feasible ideas are in this context those, which were rated into the final stage of the IIC 2009 and thus considered successful.

Following Johne & Storey (1998), a service product differs in the aspect of development from a tangible product. There are mainly three important differentiations to consider, namely, service products are predominantly intangible, heterogenic and typically simultaneously generated and consumed. Furthermore, Hoyer et al. (2010) point out, that despite the importance of the co-creation phenomenon in NPD and innovation research with regard to the competitive advantage component, little investigations have been undertaken with regard to strategy development activities. Rather specific cases, such as computer software (Open Source Software), PC games (The Sims), toys (LEGO), clothing (T-shirts by threadless.com), and outdoor equipment (kayaking) have been researched on, due to the enormous amount of established online communities behind such products (Grewal et al., 2006; O`Hern & Rindfleisch, 2009; Prügl & Schreier, 2006; Beer, 2007; Hienerth, 2006). However, no research on co-creation collaborations in the field of strategy development activities for an organization appears yet to be carried out.

What these specific cases of co-creation have all in common is that their co-creation activities are not solely focused on the first 2 NPD stages, the ideation and the product development process. As a matter of fact, advertisement is easier for such firms. Threadless.com for instance does not advertise at all. As the Chief Creative Officer of threadless.com mentioned in an interview, the only channel for spreading the word about their product is threadless.com itself. Contributing for ideation and product development of new T-shirt designs makes it necessary for threadless.com users to create an online account. Simultaneous, users register for newsletters and ask their own friends to vote for their design. To be precise, the co-creation processes in these companies also cover the latter stages of the NPD processes, the commercialization and the postlaunch.

As the current research is primarily concerned about ideation it is useful to have a closer look at the first parts of the NPD stages, namely the so-called Fuzzy Front End (FFE).

2.3 Fuzzy Front End

As was stated in Figure 6, the traditional NPD process after Hoyer et al. (2010) consists of four stages, namely Ideation, Product Development, Commercialization, and Post Launch activities. The FFE as scientific term was first popularized by Smith and Reinertsen (1991) and considered to cover the part of ideation before actual team discussion takes place. Thereby is the early part of FFE mainly called the phase of problem/opportunity structuring or identification/recognition phase (Urban & Hauser, 1994) or rather generic known as "up-front homework" (Cooper, 1996). Whereas the later FFE part is charged with activities such as ideation and rough concept development (Cooper, 1990; Urban & Hauser, 1994).

Focusing on the earliest stage of the NPD process means, according to the literature, focusing on the most crucial part. That is because in that very beginning of any new product path great uncertainty exists and turning the curve leads to competitive advantage (Reid & Brentani, 2004). This is related to space of improvement of monetary aspects as well as time issues in that early phase of NPD processes (Smith & Reinertsen, 1991). Several studies provide research findings on time spending claims for generating potential ideas in the initial NPD processes (Urban & Hauser, 1993; Cooper & Kleinschmidt, 1995). Thus, Reid & Brentani (2004) suggest improved processes for the fuzzy front end of NPD projects to provide organizations with successful strategies to develop new products. Furthermore, according to Cooper and Kleinschmidt (1995) and their multi-firm benchmarking study results, the performance of an organization is clearly based on the NPD processes. And as Cooper and Kleinschmidt (1987) early discovered of a study of 203 new products, the most critical steps are to be found in the pre-development activities for product success. To highlight with the authors words, screening the looser from winner ideas, before time and money is going to be waste in the costly development phase.

Concluding from the above discussion, it can be assumed that time and monetary issues can be reduced by involving customers into the ideation of NPD processes. This insight is by no means groundbreaking but is well known for years. But the first step towards the success of creating competitive advantage through customer co-creation projects is to find the right customer. Thus, the following literature part is concerned with theory of user engagement and the indepth comparison of traditional vs. non-traditional product development techniques.

2.4 User Engagement

Research on user engagement and specifically on the variable of the human asset is to be discussed next. Useful contributions about lead users and related research areas will be examined. User Engagement theories appeared while scholars were urging to find sources of innovation. Thus, the following review of user engagement literature contributes to the overall aim of this research.

Looking back to the early 70`s, involving customers into the development of new products and services has already back then been detected as a potential success factor (Rothwell, 1972; Rothwell et al., 1974). One of the classic and popular studies including results of user engagement is the project SAPPHO[12]. Investigations were carried out by the Science Policy Research Unit in Britain and looked at differences among 43 successful and unsuccessful innovations. The interesting finding regarding the engagement of users in the SAPPHO project is that products with customer influence at all stages of the NPD had greater commercial success compared to the traditional developed products. The employed technique for comparing successful and unsuccessful innovations was one of paired comparison, noting any difference of the 122 measures among the products. As the formation, competing for the same market, and success criteria of a pair is commercial, this technique could not find application in the current study case. Neither market shares nor profits could be measured for the elaborated 280 services and products in the IIC 2009 due to the limited request. And yet again, project SAPPHO was based on a rather commercially focused definition of innovation.

Nevertheless, significant difference of successful and unsuccessful products with customer engagement solely concerning the development stage could not be proofed in the SAPPHO project. Another valuable study to mention in this context is Lilien et al. (2002). Their research reports on a quantitative natural experiment on the mobile company 3M. Further evidence was generated on the fact that untraditional techniques in NPD processes contribute marginally less amounts of breakthrough[13] products with respect to commercial success.

[12] Scientific Activity Predictor from Patterns with Heuristic Origins

[13] "Breakthrough" is here descriptive for „new product ideas that form the basis for an entire new line of products or services" (Lilien et al., 2002, p. 1043).

Findings were proven by applying the novel ideation technique "LU method". This untraditional technique to generate ideas for new products is based on two important characteristic, namely on both, needs and ideas for solutions of "lead users". The definition of lead users has its origin in the theoretical thinking of the early research of von Hippel (1986, 2005).

> "Lead users are users whose present strong needs will become general in a marketplace months or years in the future. Since lead users are familiar with conditions which lie in the future for most others, they can serve as a need-forecasting laboratory for marketing research. Moreover, since lead users often attempt to fill the need they experience, they can provide new product concept and design data as well" (von Hippel, 1986, p. 791).

Later concepts such as "user-centered" vs. "manufacturer-centered" (Lilien, 2002) processes, "trend toward democratization of innovation" (von Hippel, 2005) models, and "open innovation" paradigms (Chesbrough, 2003) appeared in social science research. But each theorem inherits the similar basic thought, that of the competitive advantage through customer co-created products. As Ogawa & Piller (2006) mention, companies often lack the ability to fulfill consumer needs accurately and as von Hippel (2005) points out, traditional marketing research methods do not capture all trends in time. As a matter of fact, research has proven that, by involving customers as an active part in the co-production process, severe advantages may be created.

In summary, user engagement concepts have proven to be of valuable contribution to NPD processes and at the same time pointed out to be concerned about the right customer. Hence, in the latter part of the reviewed literature, theories about specific attributes of co-creation participants will be highlighted and discussed.

2.5 Distance Theory

Moving from the general user engagement literature to a rather specific theory, the theorem of distance is to be reviewed. The resulting term of functional fixedness, evolving through the missing distance to a given issue, serves as one of the most crucial effects on the generation of unique ideas in co-creation processes. As a matter of fact, the theory of distance and its impact will be reviewed in the following.

An important issue, regarding the study at hand, involves a citation of Drucker (1985, p. 34). Namely, "Fustest with the Mostest", discusses an entrepreneurial strategy for creating truly novel products and services. Drucker seemed to have an early understanding about the critical possession of too much insider knowledge. As he argues in his book about the discipline of innovation, non-experts and outsiders often do better in terms of novel creativity. And as Schilling (2008) pointed out, innovation rises from new ideas and creativity, characterized as the ability to generate work, which is novel and usable, based on unbiased minds. Von Hippel (1988) however, argued in his early work that it would be reasonable to expect users to be most valuable coming from a specialized field. But this field of specialization does not necessarily include in house sources or regular customers. For instance, car manufacturers have been looking for material innovations in the neighboring industry of aerospace. And Lakhani et al. (2007) describe the "outsider" phenomenon of specialized fields as likely sources of innovative ideas. In other words, the phenomenon of viewing issues with fresh eyes and the application of untraditional concepts to a common problem. And further:

> "...Opening up the scientific problem solving process can yield innovative technical solutions, increase the probability of success in science programs and ultimately boost research productivity" (Lakhani et al., 2007, p. 13).

The authors base their results on an empirical study of innocentive[14] scientific problem solvers, mixing teams of experts in the field of interest and experts from so called "analogous markets". Findings clearly indicated that successful solvers of scientific problems were to find at the boundaries or outside of their fields of expertise. Being at the boundary of a certain market is according to several scholars a source of a broad range of bias free ideas (Rosenkopf and Nerkar, 2001).

However, it is not specified yet how distant a distance market to one's own market is, even though Lakhani (2006) found empirical insights into the effect of the distance effect. In addition, there is a negative effect of being a co-creation participant from its own market, even though technical expertise is assumed to offer advantages in co-creation processes. This negative effect is called "functional fixedness" in literature. That is an effect that occurs to everyone and derives from the real world which can block one's mind. For instance through existing solutions or past experiences, the capability decreases to "live in the future" and innovate without any reservation (von Hippel, 1986). To overcome local search biases it was found that it is important to keep distance between the context of potential problem solvers and the problem holding organization (Lakhani et al., 2006). Therefore solvers from analogous markets, compared to solvers from target markets, seem to provide the broadest range of bias free solutions. Rosenkopf and Nerkar (2001) specialize the theorem of functional fixedness. They move on to investigate indepth on the effects of internal and external "boundary-spanning exploration", in other words, transferring knowledge over boundaries. To test the effect of technological expertise crossing from one type of boundary into other boundaries, patent data including inventor, company, and technological prehistory were used. The findings suggest that expertise in one type of boundary does not necessarily serve as expertise in another type of boundary. Hence, findings support Winter (1987) and his implication that gained knowledge needs context to transform into new knowledge.

As this thesis is following a knowledge and KBV, knowledge is viewed as the primary source of new value creation of heterogeneity, and of competitive advantage. Therefore, it can be concluded that knowledge and expertise from analogous markets or other markets than the target market serve as a valuable source of unique and thus innovative ideation.

[14] Innocentive.com is a an *"open innovation"* company that takes research and development problems in a broad range of domains such as engineering, computer science, math, chemistry, life sciences, physical sciences and business and frames them as "challenge problems" for anyone to solve them (http://www2.innocentive.com/our-innovation-approach, 17.03.2011).

Hence, the current research expects a positive effect from the fact of being an external participant to the IIC 2009 and as a matter of fact, contributes rather unique ideas to the strategy development process. As a matter of fact, Hypothesis 1 is thus further supported and concerns the relationship between the fact of being an external participant to the co-creation process and the assumed higher uniqueness level of its consented idea. As a result, students with an educational background from foreign educational institutions are expected to generate rather unique ideas in comparison to students from within CBS. On the contrary, the missing expertise level of organizational insider knowledge leads to the assumption that external participants are less capable of generating successful ideas as discussed earlier.

Hypotheses 1: External participants in ideation processes generate more unique and less successful ideas than internal participants.

2.6 Knowledge Heterogeneity

One of the thesis main premises is to examine possible relationships of knowledge heterogeneity of diverse team members on the individual level respectively to their ideation performance in the early stage of the NPD process. In the following, the state of the art literature as well as related theoretical concepts of knowledge will be presented and the importance of knowledge heterogeneity regarding the research at hand pointed out.

Knowledge appears as a challenging concept to define and even more challenging to measure. It started with Plato and Socrates in ancient times, where both philosophers in the field of epistemology rejected each other's definitions of knowledge. As Plato argued in his dialogue concerning the nature of knowledge, a statement needed to be justified, true, and believed at the same time to be considered true knowledge (White, 1976). Socrates at that time and more recently Edmund Gettier (1963) argued that to fulfill the third condition, being a believed statement, a good reason needs to be addressed. Indeed, such beliefs can be irrational and hence, not scientifically approved. Since then, there does not exist a single agreed definition of what knowledge in particular means. However, looking at the co-creation activity of NPD in a strategy development process, this thesis supports the knowledge and KBV. According to that view, knowledge is the primary resource of new value creation, heterogeneity, and competitive advantage (Barney, 1991; Grant, 1996; Kogut & Zander; 1992; Felin & Hesterly, 2007). By using the key term knowledge heterogeneity, this thesis refers to a variety of knowledge, know-how, and expertise which participants have access to through their own network and educational and occupational experience (Rodan & Galunic, 2004). Being exposed to heterogeneous knowledge is assumed to improve the creative potential of a co-creation participant as well as its ability to implement and apply resulting ideas. Hence, Rodan & Galunic (2004) argue in their study about individual managerial performance in generating innovation, that knowledge heterogeneity and sparse networks positively influence managerial innovation performance. Knowledge heterogeneity was therefore measured on a 4-point Likert scale by coding the participant´s social network structure. In other words, the diverse the knowledge and network environment is, the greater the level of innovativeness. Furthermore, the performance outcome of IIC 2009 participants is expected to differ in terms of a range of diversity attributes. These attributes will be discussed in detail in the subsequent part. In view of the cited research, hypotheses will be stated accordingly.

2.7 Diversity Theory

Research on diversity has been split in the past. Scholars have investigated promising results as a cause of diversity like increased integrative insights, enhanced breadth of perspectives, creativity, innovativeness, and general problem solving (Hoffman & Maier, 1961; Cox et al., 1991; Finkelstein & Hambrick, 1996; Milliken & Martins, 1996; Miller & Triana, 2009; Bouncken & Winkler, 2010). In contrary is known that diversity may provoke conflicts, division, distance between team members and dissolution (Tajfel et al., 1979; Chatman, 1991; Tsui et al., 1995; Bouncken & Winkler, 2010). As this thesis investigates the impact of various diversity attributes regarding performance outcome on the individual level, the following review of literature focuses on the various accounts of diversity theory impacts.

Screening intensively the controversial research on diversity brings one important question to light. What does diversity in the context of social science imply? The term diversity is often used with synonyms such as dissimilarity, dispersion, and heterogeneity by authors. As the Heritage Dictionary of the English Language (2011) articulates diversity in simplicity, it is "A point or respect in which things differ". Viewing diversity from a rather organizational view point and taking into account the complex setting in which diversity might occur, the following definition is applied. Harrison & Klein (2007) for instance suggest the use of the term diversity to describe

> "the distribution of differences among the members of a unit with respect to a common attribute X" (Harrison & Klein, 2007, p. 1).

That common attribute X of a unit can be for instance nationality, occupational experiences, gender, etc. According to several reviews of diversity research, it is concluded that effects of individual diversity and of team effectiveness are to be investigated separately (McLeod & Lobel, 1992; Milliken & Martins, 1996; Williams & O`Reilly, 1998). Therefore the present research investigates the diverse attributes of IIC 2009 participants on the individual level.

Several researchers have been pointing out the importance of categorizing the different types of diversity (Cummings et al., 1993; 2004; Tsui et al., 1992; Williams & O`Reilly, 1998). One of the most common categorical classifications is to distinguish between observable attributes (e.g., age, gender, nationality) and nonobservable attributes of the human being (e.g., educational background, occupational background) (Cummings et al., 1993). The importance behind the categorization lies on the likelihood of pre-biases and stereo type thinking of observable attributes and, thus, has to be treated differently under investigations.

In the following the relevant observable and nonobservable attributes of diversity will be explained, based on the traditional review of diversity attribute categorization (Milliken & Martins, 1996).

2.7.1 Observable diversity attributes

Research on *diversity in nationality* with respect to performance outcome, and especially ideation, has come up with clear results. According to Mc Leod and Lobel (1992), teams with national diversity background were noticed to generate higher quality ideas in brainstorming sessions than more homogeneous teams did. Having a closer look on a longitudinal study of Watson et al. (1993), the scholars found out that homogeneous teams succeeded in being rather effective in the beginning of the research, whereas heterogeneous teams were proven as being similarly effective by the end of the study. In addition, heterogeneous participants offered a broader range of perspectives to the issue at stake than homogeneous teams did. The recognition of difficulties in producing effective outcomes in the beginning of task work in teams may result of behavioral integration problems, as research suggests (Hambrick, 1994). As this research does not touch any behavioral concerns of IIC 2009 participants, this critique will be left out in the analysis. However, diversity in nationality is assumed to be positive related to higher quality of ideation performance, whereas both mentioned studies reported that the quality was higher but the amount of ideas did not vary from those of their control teams. Hence, this research aims to test the aforementioned results regarding the participant's nationality and the innovative quality of generated ideas. Namely, the fact of not being Danish is assumed to result in rather innovative and successful ideas and as a matter of fact be awarded as one of the final ideas in the IIC 2009.

Hypothesis 2: There is a positive relationship between the foreign nationality of participants and the success as well as uniqueness of their generated idea.

Gender diversity research contributed similar results on the performance of ideations than diverse nationalities studies did. According to Ibarra (1992; 1993), females tend to have more diverse social network ties than male have. The author of the study thus concluded, that the reason for broader social networks of females is a result of the unequal career chances of woman in general. Hence, females tend to keep up social resources and that asset turns into valuable sources for innovative outcomes. On the contrary, Miller and Triana (2009) questioned the affect of gender diversity of boardroom members with respect to innovation, based on the behavioral theory of the firm, and found only marginally significant correlations. As the aforementioned studies based their empirical investigations on R&D related innovation performances, the interest of research at hand focuses on the gender diversity effects in a different context. Specifically, generating unique and successful ideas in a co-creation process are to be investigated on. Therefore, the following assumption is going to be tested:

Hypothesis 3: There is a positive relationship between female participants and the uniqueness as well as success of their generated ideas.

Regarding several research studies, age diversity appears to be two-folded in its outcomes. On the one hand, team members of diverse ages seem to generate higher turnover rates and generate more innovative solutions than homogeneous teams (O`Reilly et al., 1989; Chen et al., 2005). On the other hand, effects of age related heterogeneity on performance outcomes, such as innovation, are rated to be low regarding studies in top management teams (Bantel & Jackson, 1989; Wiersema & Bantel, 1992). As research appears to be inconsistent with findings on innovativeness and uniqueness of ideas related to age diversity, no hypothetical assumption is made.

2.7.2 Non-observable diversity attributes

Diversity of educational background is according to scholars related to increase turnover rates based on innovative activities (Cummings et al., 1993, Jackson et al., 1991). Teams with dissimilar educational backgrounds showed higher turnover rates and most significantly members who were the most diverse in terms of educational background (Wiersema & Bird, 1993). Unfortunately is the existence of research about educational diversity and its influence limited to a few recent studies. Nevertheless, Argote and Ingram (2000) support the results of positive educational knowledge effect on information richness. And Bantel and Jackson (1989) found that diversity of educational background had significant influence on innovativeness in top management teams. Their study is based on 199 banks and findings indicate significantly that the more innovative banks are run by the most diversely educated teams.

As research suggests, the more diverse the educational background is, the higher the degree of innovativeness. Pulling information, insights, experiences, skills, and opinions from a diverse pool of knowledge is assumed to offer a new range of creativity source to co-creation participants. Assuming that unrelated educational background in the field of interest results in unique ideation outcome, related educational background in the problem area at stake is supposed to result in opposite outcomes. On the contrary, it is expected that participants with related educational experiences inherit a higher degree of technological knowledge in the related are of interest and thus contribute more feasibility aspects to their ideation outcome. The following hypothesis is aligned accordingly.

Hypothesis 4: Participants with related educational experiences generate less unique and more successful ideas.

Diversity of occupational background is according to Argote and Igram (2000) the representation of heterogeneous information pool of knowledge, experiences, and social ties through occupational activities. The authors claim is based on their empirical studies of effective mechanisms for transferring knowledge. As their research is build upon knowledge transfers within a firm unit, the findings are only partly applicable to the current study.

Nevertheless, their results clearly show that diversity of occupational background and its transfer to neighbor units increases firm performance. Recent research from Gino et al. (2009) on a new theoretical framework for effects of prior occupational backgrounds on team creativity proofed similar results. And as Leary and Devaughn (2009) define their view on diversity on occupational background:

> "In our context, heterogeneity in terms of occupational background and experience suggests that a team has access to knowledge about different industries and also to non-overlapping external network ties, thus enabling such teams to better generate demand and resources for the new venture's launch. This means that entrepreneurial teams that are more homogeneous in occupational background may have a more difficult time producing such benefits, relative to entrepreneurial teams that are more heterogeneous" (Leary & Devaughn, 2009, p. 569).

It is not to question, that occupational background serves as a catalyst for a deep knowledge pool and tremendous industry insights. As a matter of fact, it is assumed that related occupational background impacts the uniqueness and success of ideation processes negatively and positively. That is because related occupational experiences are evidently linked with pre-biased information about the problem area and thus results in less unique and valuable suggestions. Going conform with the presented research results on increased team performance correlated to diversity of occupational background, the following hypotheses is build upon the analysis of the individual level of performance. Specifically, hypothesis 5 reflects on relevant and non-relevant occupational experiences of co-creation participants and the probability to generate ideas which were rated into the final stage of the ideation process. Regarding the mentioned literature and its research assumptions, it is expected that the aforementioned relevant occupational experiences contribute negatively to the uniqueness and success co-creation participant contributions. On the contrary, it is expected that participants with related occupational experiences inherit a higher degree of technological knowledge in the related are of interest and thus contribute more feasibility aspects to their ideation outcome.

The following hypothesis is as a result two-folded:

Hypothesis 5: Participants with related occupational experiences generate less unique and more successful ideas.

Concluding from the discussion above, the inherited knowledge and experiences residing in an ideation participant, whether internal or external, is expected to be both, of positive and negative impact on the success and uniqueness of ideas. Combining the theoretical framework of co-creation activities in the early stage of NPD processes, user engagement theorem of local search biases, functional fixedness, analogous market impacts and the knowledge heterogeneity phenomenon as well as diversity theory with its various observable and nonobservable attributes is aiming to offer empirical insights on the stated RQ at stake.

RQ: "How do distance, occupational and educational background, gender and nationality affect the impact on the uniqueness and success of ideas in the early stage of ideation processes of NPD-/-NSD?"

3. Methodology

The methodology part discussed in this section includes the employed scientific approach, research design and methods, case selection, data collection methods, measures, data analysis of the employed statistical methods. Herein, the selected research approach will be defined and the applied methods for analyzing possible causal effects of knowledge heterogeneity and demographic attributes on participant's ideation performance will be presented. In addition, this section adduces arguments for the research validity as well as its reliability.

3.1 The Scientific Approach

It is commonly agreed that a scientific approach consists of three major parts: The knowledge claim, the strategy of inquiry, and the applied method. According to Creswell (2009), a knowledge claim is the grounded philosophical assumption of what knowledge is to one self, the researcher, and which processes are adopted for studying knowledge. Choosing a philosophical framework that matches the employed case of research as well as displays the believed view of knowledge and truth on which this thesis is build upon is post-positivism. Applying the term of post-positivism, representing one out of four existing schools of thought about knowledge claims, this theoretical part seeks to determine what knowledge is. According to Creswell (2009), post-positive knowledge claims are traditionally known as "the scientific method", "quantitative research", "positivist", post-positivist research", "empirical science" and "post-positivism". Post-positivism refers to the thinking after positivism and historically arose later, as a matter of fact that term will be explained at the latter.

Positivism is defined by Salkind (2009) as a historical term of research in human science, which has come to be closely associated with the idea of fact-based investigations. And as Phillips and Burbules (2000) state, positivism is the belief that knowledge can be organized, that all true knowledge is scientific and measurable.

And furthermore:

> "…the only thing that matters is what we are in contact with, namely, our sense experience, and they accept that it is meaningless to make independent claims about the "reality" to which these experiences "refer" or "correspond" (Phillips & Burbules, p. 14, 2000).

Modern thought theory, as 19th century writers like Comte, criticizes positivism for the fact that social processes are viewed as reducible to relationships and actions between individuals. And that the philosophical view asserts that the only authentic knowledge is based on sense, experience and positive verification (Bullock & Trombley, 1999). Post-positivism on the contrary is challenging the traditional view of the absolute truth of knowledge. Namely, as Phillips and Burbules (2000) articulate, we cannot be "positive" about our claims of knowledge when studying the behavior and actions of humans. Post-positivists see human knowledge rather as conjectures, than as grounded foundations, since they believe in objective truth. Following the post-positivistic philosophical framework for this thesis, the subsequent citation of supports the scientific approach of this research:

> "Any physical theory is always provisional, in the sense that it is only a hypothesis; you can never prove it. No matter how many times the results of experiments agree with some theory, you can never be sure that the next time the result will not contradict the theory. On the other hand, you can disprove a theory by finding even a single observation that disagrees with the predictions of the theory" (Hawking, p. 33, 1988)

As a post-positivist, issues are studied in which causes determine effects and outcomes and as a matter of fact, seek to examine such influences. Beginning with a theory, collecting data to support or refuse theories, and finally test numeric data to explain hypotheses and the RQ at stake. That is different for instance to social constructivism approaches. According to Burr (1995), social constructivism draws on several disciplines such as sociology, linguistics and philosophy.

The basic nature of that scientific approach is its perception of truth and reality constructed by one's own sum of views and feelings. Furthermore, it denies that knowledge is an insight of reality.

Post-positivism offers only one lens to view the nature of knowledge, which is to understand knowledge through careful observation and measurement of objective realities. Preferential studying of individual behavior takes place through numeric measurements for post-positivists (Creswell, 2009). Hence, the chosen scientific approach of post-positivism and its clear vision of knowledge, truth and reality with pure objectivity based on measurements and facts is preferred and applied.

3.2 Research Design

> "Philosophical ideas must be combined with broad approaches to research (strategies) and implemented with specific procedures (methods). Thus, a framework is needed that combines the elements of philosophical ideas, strategies, and methods into the three approaches to research" (Creswell, 2009, p. 4).

Those three approaches to research are known as qualitative, quantitative, and mixed methods and will be explained in the following. The empirical in-depth analysis of potential positive impact of knowledge heterogeneity and demographic attributes of participants in a strategy development process and their ideation performance is most suitable for the setting of a quantitative research approach as discussed by Miller & Salkind (2002). Quantitative research serves as an adequate tool for gathering huge amounts of comparable information and to draw conclusions of those results. Regarding the IIC 2009 case, a quantitative analysis based on former qualitative data was conducted for the purpose of observing relationships among dependent variables (DV) and independent variables (IV).

Three main categories of research design exist in the assignment of participants to teams in quantitative research: Experimental, Quasi-Experimental, and Non-Experimental designs. In experimental designs, members are randomly assigned to teams and the experimenter manipulates the values of the IV so that causal relationships might be supported or denied. Such a study design offers an observation of changing cause-and-effect relationships among variables, since it gives full control to the researcher.

Systematic manipulations of variables strengthen the internal validity of the research through controlled effect observation (Salkind, 2010). In quasi-experimental and non-experimental designs, the test teams already exist.

> "The experimenter cannot randomly assign participants to groups because either the groups were already established (…) or the groups were established by someone other than the researcher for subsequent regression analysis for predicting the values of one variable from another" (Salkind, p. 910, 2010).

As experimental design allows the researcher to actively change the situation, circumstances, conditions, variables, or experiences to which the participants are opposed to, this setting does not apply here. According to Salkind (2010), non-experimental research does not much differ to experimental research, except one circumstance, namely, the absence of manipulation of the research situation, circumstances, and experiences of participants. Dependent on the case at hand and its setting, a non-experimental study design is the appropriate research strategy. That is due to the passive behavior of the researcher during the experiment and the previous establishment of the examined team through the course lecturer. Furthermore, non-experimental research designs can be subdivided into three sub designs.

First, *correlational* designs, in which a range of variables is measured to seek relationships among IV and DV without any actual manipulation. Specifically, in correlational research the examination is based on a single team and relationships between variables are sought through statistical measures. On the contrary, the second type of non-experimental research designs is *comparative* designs and investigations are based on the effect of variables on two or more teams.

Despite the effective establishment of relationships between variables, a significant limitation to the issue of other variables then the chosen IV might influence the DV variable. As a matter of fact, control variables have to be introduced and can thus reinforce the research hypothesis through insignificant impact on the DV variable. The third type of non-experimental research designs is a *longitudinal* design, also known as observational studies (Salkind, 2010). Such a study design is often used to investigate on developmental trends throughout lifetimes.

For instance Ahuja (2000) supported the advantage of weaker ties in acquiring new information among strategic alliances, which results in innovative activities, through a longitudinal research design. As the current study is focusing on the effects of seven different IV which are assumed to affect the two DV, idea uniqueness and idea success, we are talking about a narrow focused correlational study with only a few DV.

Furthermore, research can be grouped into several research categories according to its purpose. *Exploratory studies* for example focus on rather unknown events and serves as a trial study to determine possibilities for bigger studies. Knowing the outcome of study variables, values are to be examined and explained. In order to describe a population or an event, *descriptive research* is the next step to undertake. Possible relations among DV and IV can thus be sought for. Thus, impacts of effects can be denied or supported. The descriptive study design literally describes a phenomenon and offers first insights of understanding social issues within teams. Hereafter follows the *explanatory research* design, which seeks to answer why variables are related to each other and thus tests theories accordingly. The investigator measures variables and provides evidence which either supports or denies the stated hypothesis. Most commonly, descriptive studies are followed by explanatory research designs, to test cause-and-effect relationships among variables (Salkind, 2010). In the light of the current study aim, a combination of descriptive and explanatory research was chosen. The basis of descriptive explanations of the data sample, followed by a discourse of theory implicated cause-and-effect relationships offers solid insights into the IIC 2009 case.

3.3 Research Methods

In the following applied research methods will be discussed in the context of this empirical study. It reports on the context of the research field being studied, the use of the above mentioned theories and concepts from the reviewed literature, the data sample procedures as well as characteristics, and on operationalization of variables

3.3.1 Magnusson`s User Matrix

As there are various levels of technological and use knowledge to find in customers, a categorization matrix, adapted from Magnusson (2009; 591) serves as the basis of the underlying user discussion in co-creation processes. As shown in Figure 5, ordinary users have an emphasis on use experience and are inferior regarding technological knowledge. Whereas experts inherit a high level of technological knowledge and normally miss out on the use experience of the product or service at stake. Eventually there are users with both attributes, known as "lead users" (von Hippel, 1986). These users posses technological knowledge as well as the use experience needed to generate not only radical and innovative but also feasible ideas to the ideation process. According to the findings of Magnusson (2009), those generate rather radical and unique solutions as opposed by professional developers. On the contrary, ordinary users thereby lack the underlying technological knowledge.

With respect to the underlying sample of IIC 2009 participants of this research, a classification based on Magnusson`s user matrix can be considered. As IIC 2009 participants are all students of an institution of higher education, and thus users in the current understanding, certain user knowledge is assumed to reside in each student. Furthermore, the sample consists of 56 master level students, regularly having attended three years of a higher degree, which accounts for a bachelor program and at least one year of a master program at the time the IIC 2009 took place. Being a master level student involves the application of a range of skills and expertise, such as engaging in internationalization through abroad internships, exchange semesters or in house collaborations with foreign students.

Specifically, master level students are explicitly concerned with business research, education and diffusion of such and are able to contribute to a high degree to the product or service use value. Therefore it can be argued, that the level of user knowledge in IIC 2009 students is high and thus supports CBS´s desire to become a global role model in the aforementioned areas.

On the contrary, the level of technological knowledge in students can be rated rather low. According to the previously mentioned definition of Kristensson et al. (2010, p148), technological knowledge is about the ability to analyze feasibility, opportunities and limitations of a given technology. As the current research is not concerned about technology in that sense, the definition will be adopted to the organizational level of knowledge. Namely, feasibility, opportunities and limitations of ideas co-created by the participants for CBS´s strategy development process could become a global role model in higher education. Students generally do not have profound insights into the monetary, labor and facility based resources and limitations of CBS´s organization. In order to supplement the low organizational level of knowledge among students, a panel of experts was invited to the IIC 2009. The expert panel consisted of professionals from various industries (e.g., head of HR at Novo zymes) and administrative experts from within the CBS organization (e.g., Law Department). Thus, it is assumed that the co-creation process among ordinary users and experts leads to both, unique and feasible ideas for CBS`s development strategy.

3.3.2 Impediments of the NPD Process

According to Hoyer et al. (2010), the process of co-creation underlies several obstacles for successful ideation. The first is the requirement of an organizations transparency towards the customer and thus potentially to competitors. Secondly, the ownership of intellectual property is to be concerned. The third impediment is the tremendous "wide end" of the NPD funnel, which becomes wider through co-production activities. The fourth impediment is announced to be the novel but mostly infeasible contributions of ordinary users. Relating these possible impediments to the case at hand, the following explanatory notes have to be considered.

In light of the IIC 2009 case, the transparency of CBS`s organization was not questioned at any time and necessary background information were handed out before the camp started. Furthermore, the expert panel members of CBS`s administration provided answers to any additional question. The ownership of intellectual property by students participating in the camp was disclosed from the beginning and is therefore of no further relevance. Regarding the information overload issue, mentioned by Hoyer et al. (2010), no positive proposition can be made. Each participant was requested to offer a specific amount of ideas to bring to the camp day, in total five. During the camp, those five ideas went through several stages of collaborative considerations. At the end, one final idea per team was selected and suggested to the expert panel for future implementation as CBS`s 5NGP. As a matter of fact, an overload of information did not take place even though the deadline was tight and limited to 9 hours.

Thus, none of the mentioned impediments by Hoyer et al. (2010) could be detected and are not necessary to consider in the later discussion.

3.3.3 Service and Product Determination

Due to the two-fold nature of the majority of handed in ideas of the IIC 2009 participants, a determination of service and product labeling has to be undertaken, as the NPD and NSD processes differ from each other.

There are mainly three important differentiations to consider, namely, service products are predominantly intangible, heterogenic and typically simultaneously generated and consumed. Taking into account for instance the generated idea "Online Portal" (OP) from the IIC 2009, which on the one hand is a web interface based on a software product. And on the other hand offers a permanent service for multilateral communication between CBS, students, and companies. Regarding the mentioned literature and the co-created ideation for the IIC 2009, the employed term in this thesis for each suggested idea by the participants will thus be "product".

3.4 Measurements

In the following, the underlying DV, IV, and control variables of the employed IIC 2009 data sample are introduced and thorough explained accordingly to their meaning in this context. Each variable serves as a measurement to test the study hypotheses empirically and thus answer the RQ. The DV`s are based on the character of innovative ideas while the IV`s are based on knowledge heterogeneity and demographic attributes of the participants.

3.4.1 Dependent Variables

Following previous research (Lilien, 2002; von Hippel, 2002; 2005; Magnusson, 2009) the crucial aspect of co-creation projects is to find in the uniqueness of generated ideas. Next to other aspects, the uniqueness of ideas serves as a main condition for true innovative results.

The Uniqueness of ideas was measured by the frequency of each announced idea by the IIC 2009 participants in their handed in exam papers. Each categorized idea was labeled to be unique if the frequency of its announcement was not more than two times in the entire data sample. In other words, only ideas which were mentioned twice among the total of 280 are considered unique.

The Success of ideas was measured by its success to reach the final stage in the event of the IIC 2009. Each participant was asked to generate 5 strategy development ideas before the camp started. Throughout the camp day each team elaborated and discussed their ideas accordingly to given contexts. After several pre-selections, ideas were presented in brief stage presentations to the expert panel. Each team had to engage into a judgment discussion with the expert panel about the ideas. Furthermore, members of the expert panel offered additional mentoring throughout the day to the teams and thus co-created ideas with each other. Finally, only 5 ideas of 10 teams reached the final stage of the IIC 2009 for further strategic development of CBS`s 5NGP. Successful ideas are thus considered successful since they were both innovative and feasible enough to the expert panel to be recommended to the next stage of the strategy development process.

3.4.2 Independent Variables

In general, all IV´s were generated by means of the employed literature as well as the accessible data sample. Regarding the demographic attributes of participants, *Gender* was rated with 1 for female and 2 for male participants. Similarly, the educational heritage of participants was categorized into *internal* respectively *external* and rated with 1 for internal and with 2 for external participants of the camp. Those are in specific, students from other educational institutions than from internal CBS. In order to measure the implications of *nationality*, a limitation had to be made, due to the specification of this research. Nationalities are quantified by assigning a value of 1 to a Danish participant and 2 to a foreign participant. No further categorization of the diverse nationalities of IIC 2009 participations were made, due to necessary limitations in the field of individualism-collectivism approach and can be viewed in Appendix A.

Moving on to the knowledge heterogeneity variables, *related educational experiences* were measured based on the available data of the Questionnaire V82[15] (cf. Appendix S). The categorization of educational experiences followed a systematic approach. That means that each participant with educational experiences in the related fields of strategy development, innovation management, creative entrepreneurship and sustainability management were rated with 1 and those with other educational backgrounds received a 2. As research suggests, the diverse the educational background is, the higher the degree of innovativeness. Pulling information, insights, experiences, skills, and opinions from a foreign educational institution then CBS is assumed to offer a new range of creativity source to IIC 2009 participants. These participants are by theory expected to be close to the given issue and thus pre-biased in their ideation activities. The same systematic approach was applied for the variable of *related occupational experiences* of participants. Based on the available IIC 2009 data set, information about each participant's occupational background were gathered and categorized as related when being occupationally experienced in the fields of strategy development, innovation management, creative entrepreneurship and sustainability management. Going conform to the presented research results on increased performance correlated to diversity of occupational background in participants, that measure is of great importance to answer the RQ.

[15] From now on the questionnaire will be referred to as "Q-V82". That is because the IIC 2009 course was labeled V82 at CBS.

With regards to the last IV, a new tool for measuring the participant's abilities to adapt gained knowledge through occupations and educational programs was established. Further, the active use and intensity of participant's network structures were captured through the new tool as well. The variable is called Value of Impact (VOI) and based on a 6 point rating system as shown in the following table:

Table 1: Value of Impact index (VOI)

	VOI – Value of Impact	Points
A	Occupational Experiences	6
A	Educational Experiences	5
B	Pyramiding	4
B	Interviewing	3
B	Broadcasting	2
B	Content Analysis	1
B	Camp Inspiration	0

Notes: A= these variables account for the ability to adapt previous gained knowledge in occupations and educations. B= these variables account for the active use and intensity of participants network structures through learned tools for sourcing innovative ideas.

The rating system is organized in a top-down order, according to the level of demand for activating the source. That means that the most points were credited for using occupational sources to find inspiration for an innovative strategy development idea. Occupational experiences are seen as having the most potential influence on practical and feasible ideas, since those influences are coming from practitioners. The next most valuable source is found to be educational experiences. IIC 2009 participants gathered much information during their educational careers. Not every student is at the same time able to adapt on their inherited knowledge and transform tacit information into explicit ideas.

Next, the introduced sourcing tools by the IIC 2009 course were rated according to their work intensity to activate own networks. Pyramiding is rated with high value since it requires a broad network structure and time intense following up on sources. That is because pyramiding is build upon interviews with contacts to gather valuable information about a given issue. The next step is to get forwarded from the own contact to a new contact with deeper knowledge of the issue area and so forth. In theory one gets to the top of the knowledge pyramid in a given research area (Prügl, 2006). In interviewing, the participants were required to activate their networks or gather informants for interviews which is rated with a moderate intensity of source seeking. The next tool for seeking valuable idea inspiration is seen in broadcasting. The nature of broadcasting is to publish a given issue to various online networks, keep contact with informants and thus acquire useful insights (Lakhani, 2006). In contrast, less intensity and no network structures are necessary when performing a content analysis. Ideas for solving a given problem are sought through screening available products or services. And finally, no points were given for the use of camp inspirited ideas. To be frankly, it does not require much of a participant own abilities and networks to be inspired of the work of others.

All ideas from the participants were thoroughly examined and the sources to acquire their inspiration precisely determined and finally gathered in Appendix B.

3.5 Case Selection

Having focused on various accounts of the management of innovations and related projects in the last theoretical part of this author´s cand.merc.int study program, a wish for analyzing possible impacts of knowledge heterogeneity and demographic attributes of participants and their influence on the outcome in an ideation process emerged. Thus, a particular case was needed which would combine the addressed research areas to competently answer the stated RQ. The IIC 2009 case inherited the mentioned prerequisites with its urge for developing the new guiding principles based on IIC 2009 participant ideas. Further reasons for the appropriateness of the IIC 2009, as being the fundamental case for the current research, are the following.

First, CBS as an educational organization aims to contribute to the creation of value in society and in organizations. The new strategy "Business in Society", based on the introduced ideas by the IIC 2009 participants, was successfully adopted in May 2010. Fundamental milestones of the new strategy are "to put learning into focus", "to contribute more to society", and "to strengthen the region and engage globally"[16]. These facts accompany the researchers aim to investigate on existing theories in innovation management and related research areas as displayed in Figure 4. Second, the available data set of 56 master level students' exam papers, which incorporate each participant`s various ideation sources. Being offered such a rich and detailed data set turned the investigation process into a great on hand experience.

3.6 Data Collection

With reference to the introduced philosophy and research design of this thesis, a deductive approach regarding data collection methods was chosen. That is to support the wish of testing already existing theories within the field of co-creation processes. Deductive reasoning displays a so called "top-down" approach and works from the general to the specific. It begins with a theory about the issue of interest, then moves on to elaborate specific hypotheses for testing. Further, a collection of observations to address the established hypotheses are drawn and finally, the computed data serve to confirm or reject the original theories (Creswell, 2009). As a matter of fact, the theoretical frameworks of co-creation and user engagement as well as knowledge heterogeneity and diversity theory are put on focus.

The collection of data for the present quantitative research contains primary as well as secondary data. The primary data consists of the 56 written exam papers of each IIC 2009 participant. The secondary data was conducted through a Q-V82 (cf. Appendix S) sent out to all participants of the IIC 2009 well in advance of the actual event by. The questionnaire was sent out by the associate professor of the course.

[16] www.cbs.dk/about_cbs_campus, 11.02.2011

In addition, the questionnaire was followed by specific fill out instructions[17] to ensure that every participant used the same approach, irrespective of their status of being an internal or external student of CBS. The Q-V82 can be viewed in Appendix B. Due to confidentiality; the names of participants are coded and only known to the researcher.

Furthermore, the researcher of this thesis was provided with the qualitative content of 56 exam papers, and was thus able to elaborate on an empirical data collection for further investigations. The qualitative data was about approximately a 1.000 pages and were all read by the research self in order to guarantee that the same academic approach was applied throughout the entire transfer process. Each exam paper contained five individual idea suggestions and were read thoroughly, categorized and organized as can be compared in the Appendix B. The data is used to learn and understand the different theories required to answer the RQ.

3.7 Data Analysis

„The social world that we all live in is a complex system and can`t really be understood by looking at one thing at a time: causes interact with each other in complex ways; effects are not always simple to measure"(Easterby-Smith et al., 2008, p 270).

As this research seeks to test theoretical propositions, the methods applied for analyzing the IIC 2009 data set is based on multivariate analysis. The purpose of multivariate analysis is to analyze complex data to enlighten correlations among DV`s and IV`s. Two kinds of multivariate analysis methods exist for analyzing measurement models and methods for analyzing causal effects. While measurement models observe the common factor of IV`s, causal models look at possible causalities among DV`s and IV`s. In the following the measurement models of standard deviations (SD), mean, correlations and t-tests will be explained. Hereafter, the causal effect model for logistic regressions will be presented.

[17] Specific fill out instructions: „The "study line/special subject" means the focus area of your studies. Are you specializing on something, like innovation, marketing, finance, etc.? For CBS students that might be reflected in the study line they have chosen. For external students that might be called a specialization. In a second field, called "special knowledge/skills" you can even go more in detail: what are your personal skills that you have built up, what is the knowledge that you have acquired specifically in your university career so far. So here you can write something even more specific or personal. Under the category "prior, relevant work experience", please write if you have any work experience that is somehow connected to the course topics".

3.7.1 Standard Deviations & Mean

The SD represents the average amount of the variability among a range of data (Salkind, 2008). That means the larger the SD is from one score to another, the larger is the average distance of each score points from the mean, which is the average. Computing the SD is a common statistical measure to see how the SD population of a given data sample is spread. Similarly is the measurement of the mean an important value to know from a data sample. The mean basically consists of the sum of all values in a sample, divided by the number of values and thus showing the average of a data sample.

3.7.2 Pairwise Correlations

At the beginning, descriptive statistics are used to contribute to a first understanding of the data. The correlation model is a method for examining the relationship between two variables symmetrically. It cannot be assumed that one variable is dependent on the other. That means that the pairwise correlation is not a model for testing causality of variables. The correlation coefficient[18] is a numerical index that reflects strengths of possible relationships among variables. A rule of thumb suggests the categorization following a correlation coefficient value table, as illustrated in Table 2 after Salkind (2008, p. 85). However, according to Cohen (1988) such criteria are rather random and should not be used as strict guidelines for statistical analysis. The interpretation needs to be viewed regarding the entire context and thus analyzed accordingly. Thus, the following value table 2 is used as a counseling indicator.

[18]The correlation coefficient is also known as ”bivariate correlation coefficient” and ”Pearson product-movement correlation coefficient” (Salkind, 2008).

Table 2: Correlation Coefficient Table (Salkind, 2008, p.85).

Interpreting a Correlation Coefficient	
.8 to 1.0	Very Strong Relationship
.6 to .8	Strong Relationship
.4 to .6	Moderate Relationship
.2 to .4	Weak Relationship
.0 to .2	Weak Relationship

3.7.3 T-tests

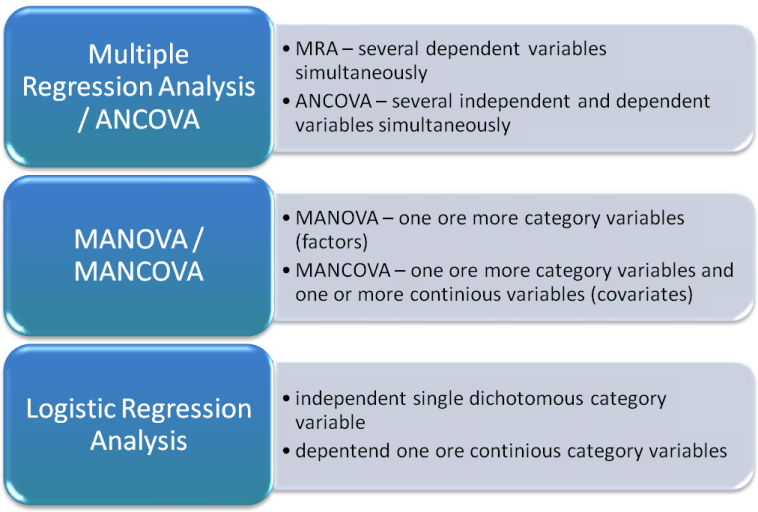
Before an analysis of the values from the pairwise correlations in Table 2 could be undertaken, the level of significance needed to be determined. That is because not each of the displayed relationship among variables is indeed likely to be true. As a matter of fact, the likelihood of a relationship indicator computed by chance in the data sample is aimed to be avoided. Proofing the significance of the computed correlation coefficients in the pairwise correlation, the level of probability had to be measured. Employing two-tailed t-tests for measuring each significance level of the paired variables offered various significance levels and these are indicated in Table 2 with related markings.

3.7.4 Logistic Regression

As it is possible to prove correlations between variables it is on the contrary not possible to prove their causality. Fortunately multivariate statistics offer three general classes of models, which can be addressed to analyze causal relationships. These methods are designed to include several variables in a single analysis as well as concurrently allow investigating each variable detached from each other.

Specifically the core of multivariate statistics is to create a conceptual model which mirrors the hypotheses of research and its relationships. Those multivariate models are named "causal models" and shown in the following (Easterby-Smith et al., 2008).

Table 3: Multivariate Methods - Causal Method Analysis (Easterby-Smith et al., p. 285, 2008).



As the IIC 2009 data sample is concerned, the DV`s are of binary and thus dichotomous type. In specific, the DV`s, idea uniqueness and idea success, are rated with 1 for a negative and 2 for a positive character. Namely, each participant received either a 1 or a 2, according to their performance in uniqueness and successful ideation. As a matter of fact, a binomial regression had to be applied to test the probability of predicting an event through adding data to a logit function, also called "*Logistic Regression*". The model of logistic regression is appropriate in social science fields for predictive influences on DV`s. Considering the relative small size of the IIC 2009 data sample, the standardized coefficient ("Exp (B)") was examined in favor of the unstandardized coefficient ("B") (Kremelberg, 2011). The results are given in odd ratios and indicate a predictive value for the DV when manipulating the IV.

The model was conducted in the expectation to add further meaning to the earlier findings and consequently lead to answer the RQ. Unfortunately, in the event of writing this thesis and computing all necessary statistical models, it occurred to the researcher that the goodwill of fit for the logistic regression model lacked significance. Additionally, most of the given results in the model were not statistically significant, too.

In order to secure the reliability and validity of this empirical study, the logistic regression model is not an active part. However, the model and its analysis are to find in Appendix T in a condensed version.

3.8 Validity and Reliability

Having introduced the methodological foundation of this research, a significant point has to be alluded. As Singer (1961) pointed it out in his early work about the level of analysis in international relations, any analytical model assures reliable prediction. He also mentions the importance of explanation and description of analytical models. Nevertheless, Singer goes strong against the popular belief that prediction demands less of a model, than explanation or description do. To picture his point of view with his own words:

> "For example, any informed layman can predict that pressure on the accelerator of a slowly moving car will increase its speed; that more or less of the moon will be visible tonight than last night; or that the normal human will flinch when confronted with an impending blow. These predictions do not require a particularly elegant or sophisticated model of the universe, but their explanation demands far more than most of us carry around in our minds. Likewise, we can predict with impressive reliability that any nation will respond to military attack in kind, but a description and understanding of the processes and factors leading to such a response are considerably more elusive, despite the gross simplicity of the acts themselves" (Singer, 1961, p. 79).

Taking into account the numbers of observed participant contributions, namely 56, the reliability of the undertaken analysis can be considered as moderate. Nevertheless, the analysis may have suffered from various obstacles since the researcher had no active influence on the case and its design and can thus only be ensured from the moment of starting this study.

Reliability of statistical models is expressed through the consistency of the applied measurements and use of the same subjects each time. Thus, reliability is ensured through the application of the same systematic approaches with regards to the collection, coding, use of models, and analysis of the IIC data sample. No one else than the researcher of this thesis can be accounted for this study and its computations, hence, internal reliability is given. With respect to the content validity of the employed tests, all possible items of the data sample are represented. Furthermore, the empirical models demonstrate that there is an association between the test values and the theoretical based predictions and thus have construct validity.

Further reliability and validity is given, based on the empirical data and the employed literature. The data is used to learn and understand the various theories applied to answer the RQ sufficiently. The use of academic articles and books on co-creation, NPD, user engagement, knowledge heterogeneity and diversity theory is partly explicitly applied to add meaning to the study and partly used to gain deeper background knowledge. Moreover, reliability and validity was also ensured through the use of acknowledged search engines.

Finally, the applied models, theories and literature from leading authors in the fields of interest to this study are brought together under reliable and valid circumstances.

4. Data Analysis

In the proceeding chapter, the descriptive analysis of the data sample and the pairwise correlation table of DV and IV as well as each outcome of the two tailed t-tests for statistical significance of correlations are presented. The applied scientific models are sufficient to compute statistical significant results and thus, aforementioned hypothetical assumptions are able to be tested and lead to answer the RQ and its sub-questions.

4.1 Descriptives

Descriptive statistics are commonly used to display the characteristics of employed data sample in empirical studies. Beginning with the central findings, the peripheral results are taken into account next and thus build an overall picture of correlated findings among variables to answer the RQ. Providing the following overview of DV and IV in the correlation Table 2 regarding the IIC 2009 case, the indepth analysis part starts thereafter.

Table 4: Means, Standard Deviations and Pairwise Correlations

	Variable	*Mean*	*SD*	*1*		*2*		*3*	*4*		*5*		*6*		*7*	*8*
1	Unique Idea [a / x]	1,45	0,07													
2	Successful Idea [b / x]	1,71	0,06	-0,31	**											
3	Age [y]	26,84	2,46	0,30		-0,30										
4	Gender [c / y]	1,59	0,50	0,09	†	0,11	†	0,02								
5	Internal / External [d / x]	1,38	0,49	0,27	**	-0,24	***	0,20	0,12	*						
6	Nationality Code [e / x]	1,52	0,50	0,22		-0,21	**	0,05	-0,08		0,67	*				
7	Related Study Program [f / x]	1,77	0,43	-0,10	***	0,03		0,02	-0,03	*	-0,27		-0,11	**		
8	Related Occupational Experience [g / x]	1,09	0,72	0,24	**	-0,03		0,32	0,16		0,21	*	0,22	***	0,25	
9	VOI [h / x]	18,52	7,96	0,30		-0,07		0,05	-0,18		0,27		0,33		-0,19	0,21

n=56, a: 1=no; 2=yes, b: 1=no; 2=yes, c: 1=female; 2= male, d: 1= internal; 2= external, e: 1= DK; 2= foreign; f: 1= no; 2= yes, g: 1= no; 2= yes,
h: 6 point rating scale: 1= Camp Inspiration, 2= Content Analaysis, 3= Interviewing, 4= Pyramiding, 5= Educational Experiences, 6= Occupational Experiences
† p<0.10; * p<0.05; ** p<0.01; *** p<0.001 (x=two-tailed t-test; y=one-tailed t-test)

Table 2 displays the means, standard deviations (SD), and pairwise correlations among the nine study variables. The descriptive results offer previous insights into the distribution and possible relationships among chosen variables of IIC 2009 participants.

As it is explained in the methodology part about the employed DV and IV, most of them are binary values. As a result, the displayed mean values from the pairwise correlation table do not significantly vary in terms of high values. Nevertheless, important facts can be drawn from mean values and thus help to understand averages and proportions of the data sample at hand. Starting with the first DV *unique idea,* a mean of 1.45 indicates that there are slightly less unique ideas to find in the data sample than common idea proposals. The mean value of 1.71 of the second DV *successful idea* expresses a higher rate of generated successful ideas. Looking at both binary DV suggests that the IIC 2009 participants indeed generated less unique ideas but that most of the ideas were rated into the final stage of the camp and thus defined as successful. Hence, out of the entire range of announced strategy development ideas (124), the majority of participants offered in fact successful but not simultaneously unique ideas.

Moving on to one of the continuous category IV`s and the demographic value of *age*, a mean of 26.84 is displayed. Taking into account the level of previous graduations in bachelor and other educational programs of master students, the average of age is not surprisingly high. In addition with the value of 2.45 in standard deviation for the variable age, the variation from the average of 26.84 is fairly low. In fact, the range of age of the IIC 2009 varies only between 22 and 33 (cf. Appendix A). As the age of participants serves only as control variable in the current research, its measure is not of deep interest. However, the next demographic variable, concerning the *gender* of IIC 2009 participants, is of importance. As the data sample consists of an unequal population, the average was expected to be uneven in gender. From the mean value of 1.59 it can be seen that the data sample consists of more male participants than females, since 1 represents females and 2 males, respectively.

Concerning the IV of being an *internal* or *external* participant of the IIC 2009, the result is 1.38, whereof 1 indicates internal and 2 the external attendees. Thus, the fractional minority of the data sample stems from an external educational institution with a ratio of 34 internals to 22 externals (cf. Appendix A). However, the emphasis of gender and internal respectively external educational heritage is random and not set up.

Speaking of the last demographic measure in the data sample, the *nationality* of participants, a value of 1.52 was reached. Being interested in the impact of diverse nationality on uniqueness and success rates of co-created ideas, nationalities were rated into two categories. That is, a categorization of 1 for holding a Danish nationality and a 2 for holding a foreign nationality. Respectively, the average of 1.52 in nationality indicates an almost equal balance Danish and foreign nationalities in the current data sample. Looking at the mean values of the *related educational experiences* respectively to the issue at hand in the IIC 2009, an average of 1.77 is displayed. Following the same architectural procedure, 1 was given for no related educational experiences to the issue at stake and a 2 for participants with related educational experiences. Therefore, the value of 1.77 indicates that the majority of IIC 2009 participants do have related educational experiences in the fields of strategy development, innovation management, creative entrepreneurship and sustainability management. As the current research assumes that related experiences influence negatively the uniqueness of generated ideas and positive effects the success, further investigations will focus on the relationship among these variables. Moving on to the next IV, a low value of 1.09 attracts attention to the reader of Table 2.

Related occupational experiences in the aforementioned fields of interest are displayed with a fairly low value, indicating that only a few IIC 2009 participants had hands-on experiences to contribute expertise knowledge to the source of issue. As mentioned above, user engagement literature assumes expertise knowledge to contribute positively to the generation of successful ideas, and thus the few participants with expertise knowledge are expected to contribute accordingly. The remaining variable is the *VOI* measure and underlies a specific rating system of each camp participant's idea as mentioned in the methodology part. The displayed mean value of 18.52 is a fairly moderate value, considering the maximum reached value of the data sample of 44 (cf. Appendix A). This low result might be due to the fact that the data sample consists of only 39% external and 61% internal participants. According to the assumption that external participants have a greater range of diverse knowledge to draw from than internal, the fairly low value of VOI might be explained.

However, having explained the raw display of employed DV and IV of the current data sample and it mean values, a rough impression on the IIC 2009 participants emerges. Moving from the visible measures of the data sample to the invisible relationships among variables, the pairwise correlations from Table 2 will reveal further significant results.

4.2 Pairwise Correlations

As the initial proposition it is assumed that being distant to the issue at stake, educational and occupational experiences, gender and nationality affect the outcome of ideas in the early stage of ideation processes of NPD activities in terms of uniqueness and success, significant correlations among variables are to be observed. As a matter of fact, it has to be focused on the grave relationships between the concerned DV`s and IV`s. Thus, assumptions about correlated coefficients of variables will be made according to their value to each other.

The strongest visible relationship between the variables of the underlying data sample, the most strong and simultaneous most significant relationship, according to the pairwise correlation table, is to find among the DV of unique ideas and successful ideas (-0.31; $p < 0.01$). As the detected value carries a negative sign, an inverse correlation exists between these two variables. This means that, if the IV increases in value, the DV will decrease in value at the same time. Contrary, if the IV decreases in value, the DV will increase. In fact, the correlation here indicates that there are to find both, unique and at the same time successful rated ideas in the IIC 2009 data sample. A manipulation of one variable indicates that the value of the other variable changes accordingly. Thus, lowering the amount of successful ideas would result in a higher value for unique generated ideas.

Further investigations on the IIC 2009 data sample revealed that the amount of participants with successful rated ideas is higher than the amount of participants with unique rated ideas (cf. Appendix A). In addition, only a few ideas were both successful and unique. A plausible explanation for that result can be found in the VOI measures. The VOI index was solely generated for comparing the participant's ability to adopt gained knowledge and the skill to exploit their existing occupational and educational networks. As the VOI index reveals the diverse sources used by IIC 2009 participants a significant fact was found. Several participants declared the camp itself as inspiration for their generated idea (cf. Appendix A; B). Thus, a negative spiral of fancying the work of others resulted indeed in the generation of successful ideas but reduced their level of uniqueness.

Further, a strong negative and significant correlation between the fact of being an internal respectively external participant and the success factor of an idea was revealed (-0.24; $p < 0.001$). Supporting the hypothesis of negative effects on ideation success caused by the participant's technical distance to the source of issue, this correlation was thus expected (cf. Figure 5). As a matter of fact, inviting less external participants to the camp would decrease the result of the IV value closer to 1, which stands for the internal participants, and consequently increases the measure of successful generated ideas. Previous assumptions about the lack of technological expertise in participants and the effect on the generation of feasible and thus successful ideas are supported.

On the contrary, a moderate and significant correlation could be detected among the uniqueness of an idea and the participant`s related occupational experiences (0.24; $p < 0.05$). The positive correlation suggests that an increased amount of related occupational experiences to the source of issue also increases the possibility of creating rather unique ideas. Regarding the assumption of positive effects through technical distance (organizational distance) to the issue at hand, practical distance to related fields of strategy development, innovation management, creative entrepreneurship and sustainability management seems to benefit conversely. This finding leads to a new angle on the occupational experiences and its impact on uniqueness. Further explanations will be deepened in the discussion part.

Another expected correlation could be identified among the uniqueness of an idea and the fact of being an internal respectively external participant of the IIC 2009 (0.27; $p < 0.01$). As suggested by H1, external participants generate more unique and less successful ideas than internal participants do. According to the positive correlation, a hypothetical raise in invitations of external participants to the camp might cause higher amounts of unique ideas. Hence, the effect of functional fixedness on internal participants seems to be true and the outsider phenomenon to be real.

Table 2 also reveals a weak relationship between the nationality of participants and their level of related occupational experiences with a value of 0.22 and a very strong statistical significance measure of $p < 0.001$. The argument here is that participants with more occupational experiences in the aforementioned related areas are non Danish. Hence, inviting more participants with foreign nationalities would positively affect the level of unique ideas. In addition, there is also a significant inverse correlation between the success of an idea and the nationality of the participant (-0.21; $p < 0.01$). Meaning that the more Danish participants dominate the camp, the more successful ideas would be generated. Considering these two latter correlations, a positive effect of inviting more participants with Danish nationality would result in rather successful ideas.

On the contrary, a weak relationship was found between the nationality and the uniqueness of ideas. Accordingly, the more non Danish participants that are invited to the camp, the more unique ideas will be generated. While the correlation value is 0.22 and missed out on statistical significance for the pairwise correlation model, this effect might have occurred by random chance and is thus statistically irrelevant. A plausible conclusion from those results can be found in the theoretical assumption of H1, that local search bias of internal participants represses their generation of unique ideas. External participants seem to draw more unique appearing ideas from their diverse networks. On the contrary, external participants fail to generate successful ideas which can be related to their missing technological knowledge.

Furthermore, a marginally significant but low inverse correlation was found, among related educational experiences and the nationality of participants (-0.11; $p < 0.05$). This finding suggests that those participants with Danish nationality are rather active in the educational fields of strategy development, innovation management, creative entrepreneurship and sustainability management. This discovery serves as an important element to the study, since it reveals that Danish participants are closer to the issue of the IIC 2009 request and thus are assumed to be pre-biased. As this research supports the theory of functional fixedness, a low level of unique ideas was expected of participants with related educational experiences and earlier supported. An additional interesting finding to mention in this context is that related educational experiences had no effect on the success of ideas. As a matter of fact, Danish participants are rather likely to generate less unique ideas, which were supported earlier in this section.

In addition, the pairwise correlation table also reveals a weak but highly significant inverse relationship among the uniqueness of an idea and the related educational experiences of participants (-0.10; $p < 0.001$). Thus, it can be interpreted from the measures that inviting participants with unrelated educational experiences will lead to an increased amount of unique generated ideas. Since it was found that most participants with unrelated educational experiences are those with foreign nationalities, inviting less Danish participants would thus increase the amount of unique ideas. This perspective additionally supports the theory of functional fixedness and thus puts emphasis on hypothesis 4.

Looking at the strongest relationship among the IV and DV of the IIC 2009 case, attention lies on the correlation value of 0.67 and its probability level of $p < 0.05$. Unfortunately, the strong result of correlated nationalities and the fact of being an internal respectively external participant is not of a big interest to the underlying study. Although the measure reveals that students with non Danish nationalities were predominantly from external educational institutions. In fact, this result is not ground breaking, since it seems natural that invited students from foreign global universities were indeed not Danish.

The next fairly correlated and significant relationship to examine is to find between being an internal respectively external participant and having related occupational experiences (0.21; $p < 0.05$). The value indicates that internal participants have fewer occupational experiences that are related to the issue at hand. This result surprises, because of the fact that internal students showed a respectively high interest in the related educational programs. One would assume that students follow their educational interests in same or similar fields of occupation. Nevertheless, supporting the theorem of positive effects through knowledge heterogeneity of occupational experiences, further investigations into this would be interesting for future research.

Concerning the correlations among gender and age with respect to other variables, only vague or none relationships were detected. Age revealed a moderate correlation of 0.32 with respect to the amount of related occupational experiences but did not show any significance. Thus, the model assumes that the value among the variables was generated rather by chance. However, it seems natural that the amount of occupational experiences increases as one grows older. On one hand, gender was characterized significant ($p < 0.05$) with being an internal respectively external participant but on the other hand lacked the proof of correlation with a low measure of only 0.12. Although, the indication makes clear that the group of internals consisted mostly of female participants.

Additionally, female participants were detected as having the most related educational experiences (-0.03; $p < 0.05$) and as expected, with respect to the pre-bias issue, also the least unique generated ideas of the IIC 2009 (0.09; $p < 0.10$).

Finally, the IV of VOI shows moderate positive correlations related to the uniqueness of ideas (0.30), being an internal respectively external participant (0.27), the nationality (0.33), and an inverse correlation with related educational experiences (-0.19) as well as with gender (-0.18). As none of these values showed a statistical significance, the relationships among these variables are considered being computed by randomness. The VOI index combines the use of various tools for generating ideas and considers exploitation of educational and occupational experiences of participants as shown in Table 2. The pairwise correlation reveals moderate positive relationships among the aforementioned variables and thus suggests that the VOI index varies with the nationality of participants. In specific, non Danish nationalities seem to inherit a greater ability to use the learned tools in the IIC course and exploit their networks in favor of the ideation process. The correlations also indicate also that participants with higher VOI levels generate more unique ideas. Furthermore, it was found that external participants received higher VOI levels, indicating that CBS students used less advanced sources to generate ideas for the IIC 2009 than students from other educational institutions. In addition, the VOI level is suggested to increase in value as participants are invited with no experiences in related educational experiences in the fields strategy development, innovation management, creative entrepreneurship and sustainability management. Finally, females tended to use their diverse knowledge and networks better than man did, which supports the diversity theory of gender. These results are interesting in two aspects. First, it adds confirmation to several mentioned theoretical theories about the positive and mutually negative influences of knowledge heterogeneity in general, such as functional fixedness and sparse networks. Second, it shows that thoughts of the researcher about a measurement index about participants abilities to adopt gained knowledge and active use of network structure is reasonable.

On the contrary, no correlations were indicated by Table 2 among the success of ideas and both, related educational experiences and occupations. Farther, no indications were shown of any correlation between successful ideas and the level of VOI. These facts lead to the suggestion that there are different causations to find, then the heterogeneity of knowledge for generating successful ideas in the IIC 2009 case.

Nevertheless, assumptions about the positive effect of knowledge heterogeneity and demographic diversity can be made, related to the pairwise correlation **Error! Reference source not found.** Namely, that there are relationships to find among the IV and DV of the IIC 2009 data sample. Specifically, significant correlations were revealed, indicating that the heterogeneity of knowledge does have positive as well as negative influences on the uniqueness and successful ideation outcome. Moreover, demographic diversity seems to have more emphasis on the success of ideas than on the uniqueness factor. To end with, being an internal respectively external participant of the IIC 2009 showed significant and moderate correlations with both, the uniqueness and the success of ideas and thus supports the overall aim of this study. Further analysis will investigate on these first results and thus build solid support for each hypothesis.

Summarizing the entire analysis of this study, some theoretical effects that have been anticipated by scholars seem to be fairly strong while others failed to be positive. Having introduced a rich empirical analysis of the underlying data sample, a fruitful discussion of the findings is going to be present next.

5. Limitations

Now having displayed the various findings for answering the RQ, we move on to highlight some of the limitations of this master thesis before turning to the discussion.

First of all, the design of this study is based on theoretical theories and empirical data collected through a natural experiment. As the collection of the data was gathered post-ex, no active intervention could be done. Neither was it possible to set up control groups in advance of the camp to compare certain effects directly. Second, the master thesis leaves some questions unanswered due to the delimitations in the applied research areas. For instance in the field of diversity theory and the nationality of participants, the measurement had to be limited in its diversity. It was indeed found that nationality affects the co-creation process. But the causal relationships are best explained through the application of social categorization theory (Earley & Mosakowski, 2000). Third, as this study is based on the individual level of ideation outcome, no investigations were undertaken to screen behavioral theory in the teams. Thus, correlations of in-team effects are left out, which is suggested to add meaning to the surprising findings of female's low ideation values while having used broader network ties than their counterparts. Forth, this thesis neglects to investigate on the possession of different dimensions of attitudes, values, and norms that reflect the participant's cultural heritage. Hofstede`s (1980) study of value differences in 40 nations, namely individualism-collectivism theory, suggests that other intense cross-cultural studies show how cultural heritage accounts for variances in work goal priorities (Triandis 1989, Cox et al., 1991, Triandis, 1995). That is, because the underlying information to conduct investigations on individualism-collectivism were inaccessible to the researcher of this study.

And finally, as the Q-V82 is concerned, it is to assume that each participant answered in all conscience (cf. Appendix S). Nevertheless, there is space for doubts since the researcher of this study did not have the chance to conduct personal interviews to gather the necessary information.

6. Discussion

This study attempts to answer the following questions: What really matters for generating unique and successful ideas? And how much does heterogeneity of knowledge and demographic attributes actually matter in a co-creation project? Therefore, the empirical analysis of this thesis has identified a number of important determining factors from the literature, which might influence the ideation process of participants in a co-creation activity. The literature review shows that technological knowledge is expected to influence the uniqueness of ideation processes negatively, and that practical experiences in related fields seem to benefit conversely. It was also found that diversity theory of gender have shown a generally broader network use of female participants. Surprisingly, female participants were not able to transform their diverse knowledge sources into more unique or successful ideas with respect to male participants in the event of the IIC 2009. In addition, it was shown that external participants contribute to the uniqueness of ideas while internal participants are rather able to cover the aspect of successful ideation.

Nevertheless, these factors are not to predict with precise and unambiguous answers as it was learned from the employed scientific approach. The post-positivist view upon knowledge, truth and reality is grounded on objectivity. Thus, the following discussion is build upon careful observations, facts and measurements of the objective reality. The architecture of the discussion part is organized accordingly to the three sub RQs to answer the main RQ of this thesis. The first question regards related educational and occupational experiences, the second to the educational heritage of participants and the third to the effects of demographic attributes on the ideation outcome.

6.1 Related Educational and Occupational Experiences

RQa: "How do related educational and occupational experiences of a participant affect the performance on both, uniqueness and success of its strategy development idea?"

The theoretical basis for the hypotheses 4 and 5 to answer RQa was drawn from various statistical test results in the user engagement research area of distance theory and non-observable diversity theory. Results from the descriptive statistics proved a lower level of generated ideas with the predicate *unique* related to this study. The level of uniqueness was determined by the frequency of an announced idea in the IIC 2009 and as the results indicate, fancying the ideas of team members was common (cf. Appendix B). As diversity theory of non-observable attributes suggests, diverse educational background leads to higher turnover rates based on innovative activities through external knowledge sharing (Cummings et al., 1993; Jackson et al., 1991). Support was found through the pairwise correlations that the less related educational experiences participants announced, the higher the probability for generating unique ideas. These findings suggest that organizations may benefit from the diverse educational background of participants in co-creation ideation processes when looking for unique ideas. The findings of lower VOI index values in participants with related educational experiences serves as further support. The index indicates that participants with knowledge in the field of a given issue use less advanced sources for idea inspiration. For the present study this suggests that those students rather apply precast ideas from their educational background instead of actively generating ideas. Thus, support is provided for the non-observable diversity theory of increased information richness through diverse educational experiences. According to the findings, evidence was found that participants with other educational backgrounds than in the fields of strategy development, innovation management, creative entrepreneurship and sustainability management benefited from viewing issues with un-biased minds.

One explanation can be found in the distance theory assumptions of functional fixedness theorem. According to the discipline of functional fixedness, outsiders or non-experts of a given issue area are known of inheriting too much insider knowledge. Existing solutions or past experiences are thus an issue of *functional fixedness* and can be overcome through keeping distance between the context of the potential problem solver and the issue at stake. Hence, less novel ideas in terms of creativity and thus, uniqueness, are generated in a co-creation process. Another explanation might be found in the fact that the related educational areas to the issue at hand circle around research fields of intense communication levels. In other words, participants with related educational experiences in related fields are used to share their knowledge in teams, meetings, etc., about innovative ideas. That is because the nature of strategy development, innovation management, creative entrepreneurship and sustainability management is build upon the generation and exchange of innovative outcome in related fields to the issue at stake. The development of a strategy for CBS to become a global role model for higher education institutions based on sustainability groundings is thus a familiar task for those participants. Hence, it is assumed that innovative outcomes are more often central discourse aspects and shared with others, resulting in higher frequencies of same or similar ideas.

Looking at correlated variables towards the uniqueness of generated ideas to the IIC 2009 and related educational experiences, the mix of nationalities appeared to influence the outcome, too. Participants with other nationalities than Danish were found to have relatively fewer experiences in related educational study fields than Danish participants. There might be a correlation between the fact that most internal participants were Danish, thus participated in similar educational programs, and external participants coming from universities around the globe and hence, participated in rather diverse educational programs. As the pairwise correlation (-0.10; $p < 0.001$) indicate an inverse relationship, it can be assumed that increasing the amount of participants with unrelated educational experiences results in more unique ideas. Concerning the level of success for participants with related educational experiences, no correlation was found (0.03). An answer to this finding may be found in the fact, that the success of ideas was determined not only by its creativity, but also by its level of feasibility.

No direct proof is available for this interpretation but there is certainly an amount of uniquely rated ideas in the data sample which appears to be difficult to implement. As a matter of fact, the negative relationship of H4 is thus confirmed towards the uniqueness. On the contrary, H4 would be denied in relation to the success of ideas and related educational experiences and the alternative H4b favored in the case of idea success.

The second part of RQa concerns the related occupational experiences of IIC 2009 participants and the success, as well as uniqueness of their ideation outcome, captured in H5. To begin with, the findings show that as technological knowledge is by theory expected to influence the uniqueness of ideation processes negatively, practical experiences in related fields seem to benefit converse. As non-observable diversity literature suggests, diversity of occupational background may increase firm performance and creativity outcome (Argote & Ingram, 2000; Gino et al., 2009). That it is, because of increased insider knowledge about different industries and access to non-overlapping external network ties (Leary & Devaughn, 2009). In addition, as related occupational experiences cover practical experiences of strategy development, innovation management, creative entrepreneurship and sustainability management, a positive relationship towards idea success was expected. Following the KBV view it is natural to support the catalyst approach of diverse occupational background impact on ideation activities. Thus, unrelated occupational experiences are expected to result in unique ideas and related occupational experiences in successful ideas, as H5 claimed. As the pairwise correlation revealed, no correlation among the success of ideas and related occupational experiences was to find (0.03).

However, assuming that the low value is a positive one, an increase in occupational experiences would result in more successful ideas. It can thus, hypothetically be suggested that practical experiences in related fields of the issue at hand provides participants with an increased ability to generate ideas that are successful in the context of IIC 2009. Regarding the vague correlation among the variables, a comparison of the descriptive statistics offers more insights. The mean value of related occupational experiences reveals that only a few IIC 2009 participants announced hands-on experiences in the related fields of research. Thus, the low correlation and missing statistical significance is justified. Furthermore, the apparent inconsistency with the reviewed literature on high benefits of related occupational experiences can be explained through the limited information about occupational facts of the IIC 2009 data sample.

It remains open how long and how deep the experiences in the related fields were for the participants. Therefore it is difficult to determine whether an announced experience is accountable for the success of ideas in this case.

Regarding the second assumption of H5, related occupational experiences were regarded to have a negative impact on the uniqueness of ideas. Unexpectedly, a moderate and significant correlation could be detected among the uniqueness of an idea and the participant`s related occupational experiences. As it was mentioned earlier, several studies proofed the positive effect of occupational experiences towards practical implications. But with respect to the uniqueness of ideation activities, related experiences would result in pre-bias solutions and thus in functional fixedness. Surprisingly, those reflections were not to find in the IIC 2009 data sample. As it was found a positive and moderate relationship exists between occupational experiences and generating unique ideas. Hence, it can be statistically assumed that practical on-hands experiences benefited the ideation outcome for unique ideas in the camp. Comparing the balance of internal and external participants in the camp (cf. Appendix A) it was found that only 12 (27 %) participants were internal and 28 (73 %) external participants with unique ideas. If one relates the findings of the increased uniqueness level of external participants, based on the distance theory assumptions of analogous market benefits, it seems natural that the value of uniqueness is higher than expected.

In summary, the statistical results for H4 and H5 are controversy. There was empirical support for the assumption that related educational experiences result in fewer unique and more successful ideas. Contrarily, related occupational experiences seem to benefit differently in the case at hand. Higher values of unique ideas and no relations towards successful ideas were measured as a function of the related occupational experience level.

6.2 Educational Heritage

RQb: "How does the educational heritage of a participant influence the uniqueness and success of its strategy development idea?"

To begin the discussion about the effects of participant's educational heritage, being an internal or external participant of the IIC 2009, related to unique ideation outcome results, it is interesting to quote the following statement. It originates from one IIC 2009 participant that reflects on the situation in the camp regarding applied heterogeneous knowledge of the participants:

"When it comes to knowledge used in coming up with the ideas, it was quite evident that they were very much influenced by each individual's personal knowledge and experiences (e.g., the team members from the US would be very much in favor of re-organizing CBS according to the US standards; the Danish participants would be much more in favor of less radical adjustments so as to preserve the nature of CBS). This is particularly the case because of the specifics of the case – all of us have been studying at CBS ourselves, and each of us has a strong opinion about the necessary adjustments. This might also partially explain the lack of very creative (the outside-the-box kind of ideas), since all of the other participants have been at different educational institutions for many years" (M-AV, exam paper, p. 15).

The quote captures the overall RQ of this paper and supports especially the assumption of H1 and the influence of educational heritages towards the uniqueness of generated ideas. The theoretical basis for the H1 is to find in the literature of distance theory and empirical evidences of co-creation projects. With respect to the educational institution of the participants in the IIC 2009 the majority were internals, namely 34 persons out of 56 (cf. Appendix A). Indications of the pairwise correlation table offered significant and positive relationships of being an external participant and generating unique ideas to the strategy development process of CBS.

These results are consistent with those of prior research (Drucker, 1985; von Hippel, 1986; 1988; Lakhani, 2007; Schilling, 2008) in showing that the phenomenon of the *"outsider"* of a given issue is more likely to generate unique ideas. A major reason for this effect is viewed in the unbiased minds of participants with specializations in analogous markets to the issue at stake. Namely, the employment of similar concepts from other educational fields, here, such as Cultural Studies, Business Psychology, Software Engineering, Financial Auditing and Law. Thus, a majority of unique ideas were expected and empirically justified.

In order to answer H1, a second effect of correlated variables has to be discussed. Drawing on distance theory and Magnusson`s user matrix of technology knowledge in participants, it was argued that external participants generate less successful ideas than their counterparts. According to that theorem, participants of the IIC 2009 were categorized as users with low technological knowledge and high user knowledge. To be specific, the IIC 2009 participants can be classified between the well known lead-user and expert category. Looking at the findings at hand, a significant and positive correlation was found (-0.24; $p < 0.001$), suggesting that external participants generated less successful ideas. The fact of being distant to a given issue is thus statistically related to less successful ideation measures. The theory of technological expertise, resulting in ideas that are considered more valuable to the strategy development process in the IIC 2009 case, is thus supported. Regarding the user matrix of Magnusson, it can be argued that internal participants have a higher level of technological expertise in this context than external participants. Indeed, it was argued that all participants inherit a low level of technological knowledge, here organizational knowledge, as they are just students and seldom have access to specific in-house facilities.

This organizational knowledge encompasses, according to the meaning of technology in this case, feasibility, opportunities and limitations on the organizational level. But internal participants might be more familiar with in-house facilities, history of CBS as an institution of higher education and financial opportunities and limitations, since they are students of CBS. This finding goes conform to recent studies about user levels and the generation of valuable ideas (Kristensson et al., 2004; Magnusson, 2009). There is statistical evidence for a moderate relationship between the fact of being an internal respectively external participant of the IIC 2009 and the generation of unique and successful ideas.

As the pairwise correlation revealed, increasing the invitations of external participants to the camp will result in more unique but less successful ideas in the context of the case at hand. Therefore, H5 is to be accepted based on empirical findings at hand. The study has thus sufficiently answered RQb, showing that external participants contribute to the uniqueness of ideas while internal participants are rather able to cover the aspect of successful ideation.

6.3 Demographic Attributes

RQc: "How do demographic attributes, such as gender and nationality, affect a participant's impact on uniqueness and success of its strategy development idea?"

Theoretical assumptions about the impact of nationality on participants of ideation activities are based upon the categorization of diversity theory (Cummings et al., 1993; 2004). According to the discussed literature and the predicted results, H2 and H3 are concerned with the observable diversity attributes of IIC 2009 participants.

Comparing the descriptive results revealed a well balanced spread of Danish and foreign nationalities in the event of the camp. Regarding the level of successful ideas, Danish participants were more successful in elevating their ideas to the final stage rather than participants with foreign nationalities did (-0.21; $p < 0.01$). Hence, it can be assumed that the more Danish participants would attend the camp, the more successful ideas will be generated. These findings were expected and supported by research studies in the field of national diversity in ideation activities of teams (Mc Leod & Lobel, 1992). Due to limitations of this research, it is not possible to draw any conclusions between the success of generated ideas and specific differences in nationalities. However, as the citation of participant M-AV (p. 51) indicated, team members from the US for instance would follow a certain pattern of ideation towards a re-organization of CBS as an institution of higher education. Similar, students from within CBS also followed a certain pattern of ideation and were more in favor of maintaining the nature of their Business School. On the one hand, the empirical findings do support the diversity theory of national heterogeneity.

On the other hand, critical attention is needed regarding the effects of diverse nationality. That is because national heterogeneity requires a more thorough investigation in order to explore distinct cultural characteristics (Bartlett & Ghoshal, 1997). As a matter of fact, findings suggest the need for further qualitative studies along those lines. As the quantitative results are concerned, Danish participants generated relatively more successful ideas than their counterparts did, which might be related to the theory of technological knowledge, since most Danish participants were at the same time students from within CBS, and thus inherit a certain level of organizational knowledge. On the opposite, no significant correlation between the nationalities of participants and the uniqueness of ideas could be found, although, the pairwise correlation table indicates a weak positive relationship. Such a weak correlation might indicate that, as more foreign participants are invited to the camp, the level of unique ideas will increase. That finding supports the realm of knowledge heterogeneity and diversity theory, as foreign nationalities draw ideas from a broader and more diverse pool of knowledge, than Danish participants do. Hence, ideation outcomes are rather diverse spread and the frequency of mentioned ideas decreases. Thus, H2 is confirmed.

Moving on to the second part of RQc, the non-observable attribute of gender diversity was analyzed. The literature on gender diversity research provides similar results on the performance of ideations as the diverse nationality studies did. Surprisingly, female participants generated slightly less unique ideas than male participants, according to a vague correlation value (0.09; $p < 0.10$). Looking at other variables, which might have caused this surprising result, a significant but vague relationship of related educational experiences in female participants was found. Taking into account, that participants with experiences in the same market are in theory pre-biased, it seems natural that female participants did not generate more unique ideas than their counterparts. Contrarily, according to Ibarra (1992; 1993), females tend to have more diverse social network ties than male have and thus generate rather unique ideas. Scholars are used to apply questionnaires and as a result be able to characterize the participant's network ties. As the possibilities of this study are restricted to the quantitative data sample of IIC 2009, a different approach to test the aforementioned research suggestion had to be applied. Comparing each single indicated source for ideation inspiration, the VOI index detected a positive but not significant measure between the gender and the VOI (0.18). Surprisingly, the results indicate that male participants received higher VOI levels and thus, inherit higher abilities of exploiting their network structures actively.

As research proved, female participants tend to have broader social networks, based on unequal career chances for women in general. Hence, females are more likely to keep in contact with social resources and that asset can turn into valuable sources for innovative outcomes (Miller & Triana, 2009). Challenging the assumption that sparse networks result in higher levels of knowledge heterogeneity, Rodan and Galunic (2004) argue that there is no guarantee for gaining access to heterogeneous knowledge through a broad network. The empirical data from the present study seems to support this latter idea. One plausible explanation is thus, that female participants evidently had broader network sources to draw inspiration from but that they were not able to transform the output into more unique or successful ideas with respect to man. Based on the aforementioned results, H3 has to be rejected and the alternative hypothesis to be accepted. Thus, in the case of IIC 2009, female participants generated fewer unique ideas than the male participants.

Similar results were displayed among the success of ideas and female participants. Male participants generated slightly more successful ideas than female participants did. As the descriptive results indicated that the majority of IIC 2009 participants were male, there might be an influence of gender dominated pressure. As ideas were presented to the expert panel several times throughout the day on a stage, only a few team members were in charge for idea presentations and even fewer of them were female. Thus, it can be argued that male participants were more often in the position to elevate their ideas. As this study is based on the individual level of ideation outcome, no investigations were undertaken to screen behavioral theory in the teams.

In sum, diversity theory of gender claims a broader network use of female participants. But female participants were not able to transform their diverse knowledge sources into more unique ideas with respect to man. Hence, Rodan & Galunic (2004) are supported in their critique that there is no guarantee for gaining necessary knowledge from a broad and sparse network. Participants also need to have the right abilities to capture and transform knowledge to make ad hoc use and similar where the results for successful idea outcomes of female participants. Whether these findings are based upon missing transfer skills of diverse network sources, predominance of male participants or functional fixedness effects of related educational experiences, a clear answer is to seek for. As a result, H3 can be rejected and the alternative H3b accepted. Female IIC 2009 participants generate less unique and successful ideas in a co-creation process.

In the light of this discussion, all three sub research questions were answered. Related educational experiences hence stimulate the generation of both, unique and successful ideas. At the same time, related occupational experiences influenced solely the uniqueness of ideation values and showed no correlation with respect to the success rates of generated ideas. Furthermore, the dominant literature suggests that external participants are to generate a high amount of unique ideas but with a rather low success rate. Finally, nationality was found to influence the uniqueness of ideas to the extent that non Danish participants are rather diverse in their ideation processes. However, nationality was not found to be accountable for successful ideas. And most surprisingly, female participants seem to miss abilities for exploiting their network structures effectively and elevate their ideas to the final stage a co-creation process.

The latter part of the thesis is reserved for future implications of research and the final conclusion of findings and their theoretical discussion. As all three sub questions to the main RQ were answered, an overall and summarized picture of this empirical study will be given.

7. Implications for Future Research

This master thesis concludes with several suggestions for further research after a thorough study on the various impacts on co-creation participants in NPD. Across the theoretical literature, data analysis and finally the discussion, some interesting implications for future research have been noticed. Especially while discussing the findings, various open research subjects came to existence.

On the event of writing this piece of research it was learned that there are important correlations to find when investigating observable and non-observable attributes on co-creation participants. And some influences seem stronger than others. As the limitation section pointed out, the ex-post design of the IIC 2009 case made it impossible to vary the variables in a certain trend to observe direct correlations in control groups. Collecting external participants as well as internal participants partly in their own groups would offer a new angle of investigation. How do participants perform in teams with similar attributes?

Furthermore, it will be interesting to find out if alike results can be generated when participants do know about an investigation of their contributions? Additionally, when participants are found to be distinct from each other in dimensions of their nationality, further investigations on the possession of their attitudes, values, and norms that reflect the participant's cultural heritage are suggested to examine. Based on Hofstede`s (1980) individualism-collectivism theory, a cross-cultural study on co-creation participants is to encourage.

One of the most surprising findings of this research has been the co-creation results of female participants. One the one hand, females exploited their own network structure more often in the event of the IIC 2009 than man did. One the other hand, women were not using their sources effectively enough to generate more unique and successful ideas than their counterparts. One of the possible future implications to suggest here is the application of qualitative research methods. A contextualized description of this phenomenon seems inevitable regarding scholar´s advice to study diversity theories with a certain consideration their social identities (Tajfel, 1979; Garcia-Prieto et al. 2003).

The same call for a qualitative study applies to the detected pattern of participants when formulating a strategy for ideation activities. As this study found, participants would follow their personal and learned considerations about an organization and directly or indirectly imply those internal blueprints to new situations.

Finally, this thesis solely has focused on the individual level of analysis of co-creation participants, it would be interesting to see similar studies conducted on the team level. The investigated general assumptions of knowledge heterogeneity and demographic attributes as influence factors on uniqueness and success of ideation results are applicable for co-creation processes. But it is relevant to mention that further examinations are necessary to find the right balance of participants to take full advantage of synergy effects for effective competitive advantage.

8. Conclusions

In summary, the aim of this thesis was to achieve a comprehensive insight into the impact of knowledge heterogeneity and demographic attributes on the performance of individuals in terms of their unique and successful contributions in a co-creation process. A specific natural experiment, the Instant Innovation Camp 2009 held at CBS, was selected for an in-depth analysis of the empirical data collected after the event. The insight and decisive factors pointed out in this thesis might be particularly valuable to CBS, but also to organizations, that strive for competitive advantage through modern co-creation activities.

The current theoretical framework of co-creation activities in NPD, user engagement theory, knowledge heterogeneity and diversity theory was reviewed. On this basis a set of hypotheses were formulated regarding the decisive background factors for innovative co-creation.

The primary findings in the attempt to answer the RQ in this study clearly showed that external participants of co-creation activities are valuable sources to the formation of unique ideas and thus confirms and contributes to the dominant literature. By examining the used network sources of external participants it was also found that they had been activating their sources respectively more intense, than internal participants did. The empirical research also showed that external participants were less successful with their ideation performances and thus could not elevate their ideas into the final stage of the camp as often as internal participants. These findings corroborate several theoretical paradigms such as functional fixedness (von Hippel, 1986; Franke et al., 2006; Lüthje et al., 2002) and Magnusson`s user theorem of user and technological knowledge in participants. The present study further supports the claim that if technological knowledge among the participants is low, the success of their ideas suffers in terms of feasibility. Consequently, organizations should focus on the right balance of invited participants to their co-creation projects according to their expected vision. Thus, organizations who wish to co-create truly unique ideas, should center their attention on external participants and their diverse knowledge pools and networks. Contrarily, if organizations rather strive forward for successful ideas, internal participants are rather equipped with the necessary information of feasibility, opportunities and limitations on the organizational level.

The present thesis further revealed that women made significantly more often use of their network structures and applied diverse sources for idea inspirations than men did. This supports scholars in the area of gender diversity and performances of co-creation activities of women with regards to their social networks (Ibarra, 1992; 1993).

Surprisingly, it was also detected that the women in the present natural experiment could not exploit their inherited diverse knowledge and network structures as effectively as the men. Both their unique and successful ideas were fewer than those of male participants. The subsequent question here is why women had difficulties to transfer their broad social ties into efficient use? It is suggested that to make the most valuable out of sparse and broad networks the context and the right abilities to capture and transform knowledge are necessary (Rodan & Galunic, 2004). Furthermore, it was revealed that the female participants had more related educational experiences in the entire data sample. This observation was explained in terms of the functional fixedness effect. However, whether these findings are based upon missing transfer skills of diverse network sources, the predominance of male participants in elevating their ideas or functional fixedness effects of related educational experiences, female participants seem to need more attention to activate their advantages for co-creation activities.

Moreover, national diversity results have shown that participants with nationalities from other countries than Denmark generated more unique ideas than Danish participants in the IIC 2009. It is suggested that there are causal effects to find in the cultural heritage of participants, which account for variances in work performances (Triandis 1989, Cox et al., 1991, Triandis, 1995). However, it seems also plausible that external participants from other countries indeed have foreign nationalities and generate more unique ideas with respect to their distance to the given issue. Thus, a certain amount of participants with foreign nationalities are favorable when organizations look for unique ideation performance.

It is thus recommended for organizations to look for certain characteristics in co-creation participants when searching for valuable sources to gain competitive advantage. Those characteristics are, based on the empirical findings in this study, to look for persons with little technological knowledge as well as related educational knowledge when striving for unique ideations. In addition, foreign nationality and being an external participant to the organization is of advantage for novel ideas. On the contrary, internal participants with high technological knowledge and related occupational experiences are to prioritize when aiming to generate successful ideas.

In summary, this thesis aimed to find the right blend of customers for engagement in co-creation processes in order to gain competitive advantage in organizations. To conclude in general, organizations are recommended to find a sufficient balance of external and internal customers to meet their goals. Attention should also be paid to the participant's educational and occupational experiences in related fields of the given issue to solve. Depending on the required outcome of the co-creation process, participants should thus be chosen.

Finally, to conclude in specific, CBS is still in the process of building up and strengthening their new strategy "Business in Society" built on 5 initiatives. These initiatives all contain various ideas from the IIC 2009 strategy development ideas. It is recommended to build upon the engagement of external and internal students to fulfill the upcoming implementation phases and to succeed in becoming a global role model as an institution of higher education. Thus, synergy effects of internal organizational knowledge and external diverse heterogeneity can lead to competitive advantage through valuable co-creation.

Moreover, contributing to the discourse of viewing students as customers rather than users of higher educational institutions, competitive advantage is thus necessary to create. In the end it is the customers who know what they need and want. Organizations and institutions of higher education are asked to open up their NPD processes and co-create with the most powerful knowledge source they have, their own customers.

6.4 Appendix

Appendix A **Coded Results**

No	Name	Age	VOI	Gender	I / E	Nationality	N-Code	Related Educational Experiences	Related Occupational Experiences	Successful	Unique
1	M-TS	25	6	2	1	DK	1	2	0	1	1
2	M-AV	22	44	1	2	LV	2	2	2	1	1
3	M-LD	28	20	2	1	DK	1	2	1	1	1
4	M-JK	32	24	2	2	DK	1	1	1	1	2
5	M-LH	29	23	1	1	DK	1	2	0	1	2
6	M-YR	28	22	1	1	GER	2	2	1	1	2
7	M-JA	26	23	2	1	DK	1	1	0	1	1
8	M-LV	27	19	2	1	DK	1	2	2	1	2
9	M-MN	27	10	2	1	DK	1	2	1	1	2
10	M-DS	26	16	1	1	DK	1	1	1	1	1
11	M-AL	26	17	2	2	USA	2	2	2	1	2
12	G-NV	30	26	2	2	USA	2	2	1	1	2
13	G-EC	30	22	2	1	DK	1	2	2	2	2
14	G-MP	26	18	1	1	POR	2	2	1	2	1
15	G-TS	30	15	2	2	ISR	2	1	1	2	2
16	G-LR	30	26	1	2	CAN	2	2	2	2	2
17	G-EM	25	32	2	1	ARG	2	2	2	1	2
18	G-LB	30	24	1	1	DK	1	2	2	2	2
19	G-MR	25	17	2	1	DK	1	2	1	1	1
20	G-JS	32	24	1	2	USA	2	2	2	1	2
21	G-AE	28	19	2	1	NO	2	2	2	1	1
22	G-PF	28	0	1	1	DK	1	2	1	1	1
23	G-MC	25	19	2	1	DK	1	1	0	1	1
24	G-LK	25	21	1	1	DK	1	2	0	1	1
25	S-NA	27	22	2	1	DK	1	2	1	2	1
26	S-AE	26	21	1	1	DK	1	2	0	1	1
27	S-CT	25	15	1	1	DK	1	2	0	1	1
28	S-EM	29	25	2	2	USA	2	2	2	1	2
29	S-CE	23	1	2	1	DK	1	2	0	1	1
30	S-DT	26	29	2	2	LT	2	1	2	1	1
31	S-HR	26	18	2	1	GER	2	2	1	2	1
32	S-JP	26	16	2	1	DK	1	2	2	1	1
33	S-MB	33	27	1	2	CA	2	1	1	1	1
34	S-MP	23	21	1	2	FR	2	1	1	2	2

No	Name	Age	VOI	Gender	I / E	Nationality	N-Code	Related Educational Experiences	Related Occupational Experiences	Successful	Unique
35	S-MR	27	26	2	2	CAN	2	2	2	2	2
36	S-GL	26	12	2	1	DK	1	2	1	1	2
37	S-BA	24	18	2	2	BG	2	2	1	1	1
38	A-EP	25	19	1	1	GER	2	2	0	1	1
39	A-LG	23	19	1	2	USA	2	1	0	1	1
40	A-CB	30	16	1	1	NOR	2	2	2	2	1
41	A-BM	24	21	2	2	FR	2	1	0	1	2
42	A-XL	29	11	1	2	USA	2	2	1	2	1
43	A-MB	25	7	1	1	DK	1	2	2	1	1
44	A-HH	30	23	2	2	CN	2	1	1	2	2
45	A-KD	24	23	1	1	AU	2	1	1	1	2
46	A-AZ	29	21	2	2	GER	2	2	1	2	2
47	O-JS	26	15	2	1	DK	1	2	1	2	1
48	O-EC	26	26	1	1	DK	1	2	1	1	2
49	O-JH	28	1	2	2	USA	2	2	1	1	1
50	O-MH	29	0	2	1	DK	1	2	1	1	1
51	O-GT	24	19	2	2	IT	2	2	1	1	1
52	O-AB	26	10	2	2	GER	2	2	2	2	2
53	O-FA	26	21	1	1	DK	1	2	1	2	1
54	O-KO	25	20	1	2	GER	2	2	0	1	2
55	O-ML	27	11	2	1	DK	1	2	2	1	1
56	O-LG	26	16	2	1	DK	1	1	1	2	2
				23	34		27	13	12		
				33	22		29	43	27		
									17		

Appendix A

1	F
2	M

0	None
1	no
2	yes

1	Internal
2	External

1	DK
2	Foreign

Appendix B **All Ideas**

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
1	CS	Corporate Syllabus		1	2					2	2	1
2	FSW	Free Student workforce in company for ECTS			1					1	2	1
3	OP	Online Portal – Network	2	9	2	1	1	7	10	#	1	2
4	TMP	Triangular Mentorship Program		1		1			1	3	1	1
5	MI	Mandatory Internship	1	4	8	1	3	2	3	#	1	2
6	PCE	Public Course Evaluations		2	1	1	2	1	1	6	1	1
7	MPA	More Practical Academics		1	2	1		1	1	3	1	1
8	WTF	Watchdog Task Force		1	1			1		1	2	1
9	IPA	Incorporate Practical Aspects		4	2	1	2	1		6	1	1
10	PHD	PHD Preparation Course			1			1		2	2	1
11	SOC	Self organizing Courses			1					1	2	1
12	BSG	Business Simulation Game						1		1	2	1
13	ASP	Avoiding SPAM		1	1					1	2	1
14	IMC	Innovation Management Center		1	1			1		2	2	1
15	ES	Establish Subsidiaries			2					1	2	1
16	EIT	Enhance Invited Talks		2	2			1		5	1	1
17	ISC	International Sports Competition		1	1			1		2	2	1

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
18	EECTS	Extracurricular ECTS		1	2					3	1	1
19	ORD	Open R&D		1						1	2	1
20	ASRW	Accreditation of Study Relevant Work			1					1	2	1
21	MPHD	Mini PHD Projects			1					1	2	1
22	RPBJ	Research & Practitioner Based Journals					1			1	2	1
23	HBRM	Harvard Business Review Model						1		1	2	1
24	RCE	Research Center of Entrepreneurship		1			1	1		3	1	1
25	ELC	Experimental Learning Center		1						1	2	1
26	IC	Interdisciplinary Courses with other Schools		2	1					3	1	1
27	ED	Encourage Diversity		1	1		1			2	2	1
28	FC	Flexible Curriculum					1	1		1	2	1
29	CSRB	CSR Backbone		2						1	2	1
30	PCI	Paper Campus Initiative	1							1	2	1
31	CFC	Climate Friendly Cafeteria		1						1	2	1
32	PCSR	Participation in CSR Course		1						1	2	1
33	GICP	Grading on In-Class Participation		1						1	2	1
34	CNBS	Carbon Neutral Business School		1	1					1	2	1
35	SEM	Sustainable Event Management		1	1					1	2	1

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
36	IECA	Incorporate Extra Curricular Activities		2	1	1	1		1	5	1	1
37	CBSB	CBS Brand		1					1	2	2	1
38	SW	Sustainabaility Windmill			1		1	1	1	1	2	1
39	SA	Sustainable Architecture			1		1	3		2	2	1
40	MM	More Minors			3	1	1	1		2	2	1
41	IWF	Innovation Walk of Fame				1				1	2	1
42	SRB	Supersized Receycling Bottle						1		2	2	1
43	SS	Sustainability Strategy		1	1			1		4	1	1
44	CCPC	Create Cross Line Projects & Classes		2	2	1		2	1	6	1	1
45	MSC	Mandatory Sustainability Courses	1	2	4			1		6	1	1
46	GC	Green Campus		1	1			3		5	1	1
47	IS	Incorporate Sustainability in all courses			1	1	1			2	2	1
48	PPY	Practical Projects 1. Year					1			1	2	1
49	CCCP	Cross Collaborative Climate Project	1				1		1	2	2	1
50	SBCP	Sustainable Business Certificate Program		1			1			1	2	1
51	ESCBS	English Speaking CBS			2					2	2	1
52	JD	Joint Degrees		1	1			2		3	1	2
53	RMU	Research Marketing Unit		1	2	1	1	1	2	7	1	1
54	ISL	Information Streamlining		1	1					1	2	1

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
55	PL	Podcasting Lectures	1		2			1		3	1	1
56	SC	Sustainability Cluster		1				2		2	2	1
57	ACI	Adopt a Class Initiative		1						1	2	1
58	SO	Sustainability Office			1			1	1	3	1	1
59	ROAS	Retention Office for Alumni Students		1	4			4		7	1	1
60	CC	Case Classes		1						1	2	1
61	CBSR	CBS Research in Class Involvement			3				1	3	1	1
62	PET	Promote Excellent Teacher		1		1	2		1	4	1	1
63	AUN	Active Undergrade Networking		1	2			1	2	3	1	1
64	FCBSO	Flexible CBS Organization		2	2		1	1	1	5	1	1
65	CQC	Course Quality committee			1				1	1	2	1
66	MCP	Mandatory Class Participation		1	1		1	1		2	2	1
67	IET	Introduce Elective Treks			1			1		1	2	1
68	SCO	Student Consulting Organization		1	1		1		1	2	2	1
69	CCC	Case Creation Class						1	1	1	2	1
70	SL	Student Lounge						1		1	2	1
71	TPO	Transferring Paperwork Online		1	1					1	2	1
72	ESA	Employing Students in Administration		1	1				1	1	2	1

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
73	EC	Examination Customization			1		2			3	1	1
74	CCOC	Collegiate Code of Conduct			1					1	2	1
75	ESAM	Employee and Student Award Magazine				1	1			1	2	1
76	BLBS	Benchmarking Leading Business Schools					1			1	2	1
77	TE	Teacher Exchange	1		1			1		2	2	1
78	COE	Center of Excellence		1						1	2	1
79	CBSEC	CBS Excellence Contest	1							1	2	1
80	NN	Network Nexus			1					1	2	1
81	PF	Project Fund		2				1		3	1	1
82	CCR	Corporate Course Ratings		1						1	2	1
83	TC	Translocation Center						1		1	2	1
84	CSD	Company Speed Dating			1			1		2	2	1
85	OMI	Offering Micro Internships						1		1	2	1
86	CBSOM	CBS O Meter		1				1		1	2	1
87	CBSW	CBS Watch					1			1	2	1
88	MEXA	Mendatory Extra Currcular Activities				1				1	2	1
89	SHD	Student Help Desk			1					1	2	1
90	IMCD	Increasing Methodology Courses		1		1				1	2	1
91	BCC	Binding Contracts with Companies			1					1	2	1

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
92	MIPM	Master in Innovation & Project Management			1					1	2	1
93	BSP	Breaking Social Patterns		1		1		2		2	2	1
94	PF	Project Fair					1			1	2	1
95	MSS	Mandatory Soft Skills					1			1	2	1
96	HIC	Host International Conferences			1		1	1		2	2	1
97	FP	Five Pillars of CBS			2		1	1		2	2	1
98	TGS	The Grand Summit					1	1		1	2	1
99	TGBG	The Grand Book of Genesis		1				1		1	2	1
100	MP	Missionary Program		1						1	2	1
101	RSS	Raise Student Satisfactory			1					1	2	1
102	ABC	Add Brainstorming Courses			1					1	2	1
103	FRE	Focus Resources on Entrepreneurship		1						1	2	1
104	VCC	Venture Course and Contest		1				1		2	2	1
105	NGOP	NGO Partnership		1				1		1	2	1
106	IBID	Idea Box and Idea Day			2		1	1		2	2	1
107	NSS	No Study Time Slot						1		1	2	1

	Code	Idea	Occupational (O)	Educational (E)	Interviewing (I)	Pyramiding (P)	Broadcasting (B)	Content Analysis (CA)	Camp Inspiration (CI)	Frequency	Uniqueness	Final Idea
108	IRI	Independent Research Institution							1	1	2	1
109	CSRC	CSR Competitions	1							2	2	1
110	ISCH	Imagination Scholarship		1						1	2	1
111	IDEP	Imagination Department	1							1	2	1
112	ICC	Internal Case Competitions			2			2		2	2	1
113	CF	Creativity Fund			1			1		1	2	1
114	ACSO	Activity Center for Student Organizations					1		1	2	2	2
115	PY	Printed Yearbook			1			1		1	2	1
116	CFHS	Cooperation with FHS			1			1		1	2	1
117	UDSS	UN Day – Students vs. Staff	1		1					1	2	1
118	CCBS	Case Competitions vs. other BS			1			1		1	2	1
119	WN	Weekly Newsletter	1							1	2	1
120	MCC	Minor Case Competition			1					1	2	1
121	RCOI	Reducing CO2 Initiative					1	1		1	2	1
122	CCI	Corporate Clothing – Identity			1		1			1	2	1
123	WRP	Web Radio Podcast						1		1	2	1
124	IF	Idea Flow	1					2		3	1	2

Appendix C **Descriptive Statistics**

Age		*Gender*		*Internal/External*	
Mean	26,83928571	Mean	1,589285714	Mean	1,375
Standard Error	0,328096424	Standard Error	0,066336342	Standard Error	0,065279121
Median	26	Median	2	Median	1
Mode	26	Mode	2	Mode	1
Standard Deviation	2,455248817	Standard Deviation	0,496415724	Standard Deviation	0,48850421
Sample Variance	6,028246753	Sample Variance	0,246428571	Sample Variance	0,238636364
Kurtosis	-0,24349811	Kurtosis	-1,93115182	Kurtosis	-1,78336827
Skewness	0,44471397	Skewness	-0,37304456	Skewness	0,530720624
Range	11	Range	1	Range	1
Minimum	22	Minimum	1	Minimum	1
Maximum	33	Maximum	2	Maximum	2
Sum	1503	Sum	89	Sum	77
Count	56	Count	56	Count	56

Nationality Code		*Related Educational Experiences*	
Mean	1,517857143	Mean	1,767857143
Standard Error	0,067376975	Standard Error	0,05692939
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0,504203113	Standard Deviation	0,426020547
Sample Variance	0,254220779	Sample Variance	0,181493506
Kurtosis	-2,06987585	Kurtosis	-0,31187768
Skewness	-0,07345658	Skewness	-1,30405812
Range	1	Range	1
Minimum	1	Minimum	1
Maximum	2	Maximum	2
Sum	85	Sum	99
Count	56	Count	56

Related Occupational Experience		*VOI*	
Mean	1,089285714	Mean	18,5178571
Standard Error	0,096284163	Standard Error	1,06386671
Median	1	Median	19
Mode	1	Mode	19
Standard Deviation	0,720524701	Standard Deviation	7,96124949
Sample Variance	0,519155844	Sample Variance	63,3814935
Kurtosis	-1,01976123	Kurtosis	1,75715179
Skewness	-0,13549912	Skewness	-0,213683
Range	2	Range	44
Minimum	0	Minimum	0
Maximum	2	Maximum	44
Sum	61	Sum	1037
Count	56	Count	56

Appendix D **Pairwise Correlations**

Variables	*Unique Idea*	*Successful Idea*	*Age*	*Gender*	*Internal / External*	*Nationality Code*	*Related Educational Experiences*	*Related Occupational Experiences*	*VOI*
Unique Idea									
Successful Idea	-0,307								
Age	0,296	-0,302							
Gender	0,093	0,115	0,019						
Internal / External	0,269	-0,245	0,203	0,122					
Nationality Code	0,220	-0,215	0,054	-0,079	0,674				
Related Study Program	-0,102	0,027	0,016	-0,029	-0,273	-0,107			
Related Occupational Experience	0,240	-0,032	0,317	0,155	0,213	0,221	0,246		
VOI	0,296	-0,074	0,046	-0,175	0,272	0,331	-0,189	0,210	

Appendix E **T-tests**

t-Test: Two-Sample Assuming Equal Variances

	Unique Idea	*Successful Idea*
Mean	1,446428571	1,714285714
Variance	0,251623377	0,207792208
Observations	56	56
Pooled Variance	0,229707792	
Hypothesized Mean Difference	0	
Df	110	
t Stat	2,957293195	
P(T<=t) one-tail	0,001899581	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,003799162	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Unique Idea	*Age*
Mean	1,446428571	26,83928571
Variance	0,251623377	6,028246753
Observations	56	56
Hypothesized Mean Difference	0	
Df	60	
t Stat	-75,82811353	
P(T<=t) one-tail	1,35418E-61	
t Critical one-tail	1,670648865	
P(T<=t) two-tail	2,70837E-61	
t Critical two-tail	2,000297804	

t-Test: Two-Sample Assuming Equal Variances

	Unique Idea	*Internal / External*
Mean	1,446428571	1,375
Variance	0,251623377	0,238636364
Observations	56	56
Pooled Variance	0,24512987	
Hypothesized Mean Difference	0	
Df	110	
t Stat	0,763401242	
P(T<=t) one-tail	0,223429175	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,044685835	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Unique Idea	*Nationality Code*
Mean	1,446428571	1,517857143
Variance	0,251623377	0,254220779
Observations	56	56
Pooled Variance	0,252922078	
Hypothesized Mean Difference	0	
Df	110	
t Stat	-0,751549533	
P(T<=t) one-tail	0,226963486	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,453926971	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Unique Idea	*Related Educational Experiences*
Mean	1,446428571	1,767857143
Variance	0,251623377	0,181493506
Observations	56	56
Pooled Variance	0,216558442	
Hypothesized Mean Difference	0	
Df	110	
t Stat	-3,65490367	
P(T<=t) one-tail	0,000198019	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,000396038	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Unique Idea	*Related Occupational Experiences*
Mean	1,446428571	1,089285714
Variance	0,251623377	0,519155844
Observations	56	56
Pooled Variance	0,38538961	
Hypothesized Mean Difference	0	
Df	110	
t Stat	3,044184589	
P(T<=t) one-tail	0,001459634	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,002919267	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Unique Idea	*VOI*
Mean	1,446428571	18,51785714
Variance	0,251623377	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
Df	55	
t Stat	-16,01482807	
P(T<=t) one-tail	1,14861E-22	
t Critical one-tail	1,673033966	
P(T<=t) two-tail	2,29721E-22	
t Critical two-tail	2,004044769	

t-Test: Two-Sample Assuming Unequal Variances

	Successful Idea	*Age*
Mean	1,714285714	26,83928571
Variance	0,207792208	6,028246753
Observations	56	56
Hypothesized Mean Difference	0	
Df	59	
t Stat	-75,29145224	
P(T<=t) one-tail	1,24539E-60	
t Critical one-tail	1,671093033	
P(T<=t) two-tail	2,49078E-60	
t Critical two-tail	2,000995361	

t-Test: Two-Sample Assuming Equal Variances

	Successful Idea	*Gender*
Mean	1,714285714	1,589285714
Variance	0,207792208	0,246428571
Observations	56	56
Pooled Variance	0,22711039	
Hypothesized Mean Difference	0	
df	110	
t Stat	1,387939474	
P(T<=t) one-tail	0,083980171	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,167960341	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Successful Idea	*Internal / External*
Mean	1,714285714	1,375
Variance	0,207792208	0,238636364
Observations	56	56
Pooled Variance	0,223214286	
Hypothesized Mean Difference	0	
df	110	
t Stat	3,8	
P(T<=t) one-tail	0,000118846	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,000237692	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Successful Idea	*Nationality Code*
Mean	1,714285714	1,517857143
Variance	0,207792208	0,254220779
Observations	56	56
Pooled Variance	0,231006494	
Hypothesized Mean Difference	0	
df	110	
t Stat	2,162577001	
P(T<=t) one-tail	0,016369709	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,032739418	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Successful Idea	*Related Educational Experiences*
Mean	1,714285714	1,767857143
Variance	0,207792208	0,181493506
Observations	56	56
Pooled Variance	0,194642857	
Hypothesized Mean Difference	0	
df	110	
t Stat	-0,642529405	
P(T<=t) one-tail	0,260933231	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,521866463	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Successful Idea	*Related Occupational Experiences*
Mean	1,714285714	1,089285714
Variance	0,207792208	0,519155844
Observations	56	56
Pooled Variance	0,363474026	
Hypothesized Mean Difference	0	
df	110	
t Stat	5,485577338	
P(T<=t) one-tail	1,33034E-07	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	2,66068E-07	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Successful Idea	*VOI*
Mean	1,714285714	18,51785714
Variance	0,207792208	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	55	
t Stat	-15,76898124	
P(T<=t) one-tail	2,31612E-22	
t Critical one-tail	1,673033966	
P(T<=t) two-tail	4,63224E-22	
t Critical two-tail	2,004044769	

t-Test: Two-Sample Assuming Unequal Variances

	Age	*Gender*
Mean	26,83928571	1,589285714
Variance	6,028246753	0,246428571
Observations	56	56
Hypothesized Mean Difference	0	
df	59	
t Stat	75,43271975	
P(T<=t) one-tail	1,11624E-60	
t Critical one-tail	1,671093033	
P(T<=t) two-tail	2,23249E-60	
t Critical two-tail	2,000995361	

t-Test: Two-Sample Assuming Unequal Variances

	Age	*Internal / External*
Mean	26,83928571	1,375
Variance	6,028246753	0,238636364
Observations	56	56
Hypothesized Mean Difference	0	
df	59	
t Stat	76,12016388	
P(T<=t) one-tail	6,57094E-61	
t Critical one-tail	1,671093033	
P(T<=t) two-tail	1,31419E-60	
t Critical two-tail	2,000995361	

t-Test: Two-Sample Assuming Unequal Variances

	Age	*Nationality Code*
Mean	26,83928571	1,517857143
Variance	6,028246753	0,254220779
Observations	56	56
Hypothesized Mean Difference	0	
df	60	
t Stat	75,59918105	
P(T<=t) one-tail	1,62056E-61	
t Critical one-tail	1,670648865	
P(T<=t) two-tail	3,24111E-61	
t Critical two-tail	2,000297804	

t-Test: Two-Sample Assuming Unequal Variances

	Age	*Related Educational Experiences*
Mean	26,83928571	1,767857143
Variance	6,028246753	0,181493506
Observations	56	56
Hypothesized Mean Difference	0	
df	58	
t Stat	75,28984045	
P(T<=t) one-tail	7,58493E-60	
t Critical one-tail	1,671552763	
P(T<=t) two-tail	1,51699E-59	
t Critical two-tail	2,001717468	

t-Test: Two-Sample Assuming Unequal Variances

	Age	*Related Occupational Experiences*
Mean	26,83928571	1,089285714
Variance	6,028246753	0,519155844
Observations	56	56
Hypothesized Mean Difference	0	
df	64	
t Stat	75,30723872	
P(T<=t) one-tail	1,67009E-64	
t Critical one-tail	1,669013026	
P(T<=t) two-tail	3,34018E-64	
t Critical two-tail	1,997729633	

t-Test: Two-Sample Assuming Unequal Variances

	Age	*VOI*
Mean	26,83928571	18,51785714
Variance	6,028246753	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	65	
t Stat	7,47449221	
P(T<=t) one-tail	1,25219E-10	
t Critical one-tail	1,668635976	
P(T<=t) two-tail	2,50438E-10	
t Critical two-tail	1,997137887	

t-Test: Two-Sample Assuming Equal Variances

	Gender	*Internal / External*
Mean	1,589285714	1,375
Variance	0,246428571	0,238636364
Observations	56	56
Pooled Variance	0,242532468	
Hypothesized Mean Difference	0	
df	110	
t Stat	2,302434542	
P(T<=t) one-tail	0,011596186	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,023192372	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Gender	*Nationality Code*
Mean	1,589285714	1,517857143
Variance	0,246428571	0,254220779
Observations	56	56
Pooled Variance	0,250324675	
Hypothesized Mean Difference	0	
df	110	
t Stat	0,755438561	
P(T<=t) one-tail	0,225800225	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,45160045	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Gender	*Related Educational Experiences*
Mean	1,589285714	1,767857143
Variance	0,246428571	0,181493506
Observations	56	56
Pooled Variance	0,213961039	
Hypothesized Mean Difference	0	
df	110	
t Stat	-2,04278961	
P(T<=t) one-tail	0,021731974	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,043463948	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Gender	*Related Occupational Experiences*
Mean	1,589285714	1,089285714
Variance	0,246428571	0,519155844
Observations	56	56
Pooled Variance	0,382792208	
Hypothesized Mean Difference	0	
df	110	
t Stat	4,276293211	
P(T<=t) one-tail	2,03244E-05	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	4,06489E-05	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Gender	*VOI*
Mean	1,589285714	18,51785714
Variance	0,246428571	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	55	
t Stat	-15,881461	
P(T<=t) one-tail	1,6789E-22	
t Critical one-tail	1,673033966	
P(T<=t) two-tail	3,3578E-22	
t Critical two-tail	2,004044769	

t-Test: Two-Sample Assuming Equal Variances

	Internal / External	*Nationality Code*
Mean	1,375	1,517857143
Variance	0,238636364	0,254220779
Observations	56	56
Pooled Variance	0,246428571	
Hypothesized Mean Difference	0	
df	110	
t Stat	-1,522773975	
P(T<=t) one-tail	0,065342481	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,013068496	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Internal / External	*Related Educational Experiences*
Mean	1,375	1,767857143
Variance	0,238636364	0,181493506
Observations	56	56
Pooled Variance	0,210064935	
Hypothesized Mean Difference	0	
df	110	
t Stat	-4,535622358	
P(T<=t) one-tail	7,35615E-06	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	1,47123E-05	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Internal / External	*Related Occupational Experiences*
Mean	1,375	1,089285714
Variance	0,238636364	0,519155844
Observations	56	56
Pooled Variance	0,378896104	
Hypothesized Mean Difference	0	
df	110	
t Stat	2,456127465	
P(T<=t) one-tail	0,007804303	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,015608605	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Gender	*VOI*
Mean	1,589285714	18,51785714
Variance	0,246428571	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	55	
t Stat	-15,88146104	
P(T<=t) one-tail	1,6789E-22	
t Critical one-tail	1,673033966	
P(T<=t) two-tail	3,3578E-22	
t Critical two-tail	2,004044769	

t-Test: Two-Sample Assuming Equal Variances

	Nationality Code	*Related Educational Experiences*
Mean	1,517857143	1,767857143
Variance	0,254220779	0,181493506
Observations	56	56
Pooled Variance	0,217857143	
Hypothesized Mean Difference	0	
df	110	
t Stat	-2,834217156	
P(T<=t) one-tail	0,002733533	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,005467067	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Equal Variances

	Nationality Code	*Related Occupational Experiences*
Mean	1,517857143	1,089285714
Variance	0,254220779	0,519155844
Observations	56	56
Pooled Variance	0,386688312	
Hypothesized Mean Difference	0	
df	110	
t Stat	3,646881971	
P(T<=t) one-tail	0,000203608	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	0,000407217	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Nationality Code	*VOI*
Mean	1,517857143	18,51785714
Variance	0,254220779	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	55	
t Stat	-15,94749495	
P(T<=t) one-tail	1,39088E-22	
t Critical one-tail	1,673033966	
P(T<=t) two-tail	2,78175E-22	
t Critical two-tail	2,004044769	

t-Test: Two-Sample Assuming Equal Variances

	Related Educational Experiences	*Related Occupational Experiences*
Mean	1,767857143	1,089285714
Variance	0,181493506	0,519155844
Observations	56	56
Pooled Variance	0,350324675	
Hypothesized Mean Difference	0	
df	110	
t Stat	6,066514238	
P(T<=t) one-tail	9,44022E-09	
t Critical one-tail	1,658824188	
P(T<=t) two-tail	1,88804E-08	
t Critical two-tail	1,981765221	

t-Test: Two-Sample Assuming Unequal Variances

	Related Educational Experiences	*VOI*
Mean	1,767857143	18,51785714
Variance	0,181493506	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	55	
t Stat	-15,7219596	
P(T<=t) one-tail	2,65074E-22	
t Critical one-tail	1,673033966	
P(T<=t) two-tail	5,30148E-22	
t Critical two-tail	2,004044769	

t-Test: Two-Sample Assuming Unequal Variances

	Related Occupational Experiences	*VOI*
Mean	1,089285714	18,51785714
Variance	0,519155844	63,38149351
Observations	56	56
Hypothesized Mean Difference	0	
df	56	
t Stat	-16,31560447	
P(T<=t) one-tail	3,06594E-23	
t Critical one-tail	1,672522304	
P(T<=t) two-tail	6,13188E-23	
t Critical two-tail	2,003240704	

Appendix F **Dependent & Independent Variables**

	Dependent Variables		Independent Variables						
Name	**Unique Idea**	**Successful Idea**	**Age**	**Gender**	**I / E**	**N-Code**	**Related Study Program**	**Related Occupational Experience**	**VO**
M-TS	1	2	25	2	1	1	2	0	
M-AV	1	2	22	1	2	2	2	2	4
M-LD	1	2	28	2	1	1	2	1	2
M-JK	2	2	32	2	2	1	1	1	2
M-LH	2	2	29	1	1	1	2	0	2
M-YR	2	2	28	1	1	2	2	1	2
M-JA	1	2	26	2	1	1	1	0	2
M-LV	2	2	27	2	1	1	2	2	1
M-MN	2	2	27	2	1	1	2	1	1
M-DS	1	2	26	1	1	1	1	1	1
M-AL	2	2	26	2	2	2	2	2	1
G-NV	2	2	30	2	2	2	2	1	2
G-EC	2	2	30	2	1	1	2	2	2
G-MP	1	2	26	1	1	2	2	1	1
G-TS	2	1	30	2	2	2	1	1	1
G-LR	2	1	30	1	2	2	2	2	2
G-EM	2	1	25	2	1	2	2	2	3
G-LB	2	1	30	1	1	1	2	2	2
G-MR	1	2	25	2	1	1	2	1	1
G-JS	2	1	32	1	2	2	2	2	2
G-AE	1	2	28	2	1	2	2	2	1
G-PF	1	2	28	1	1	1	2	1	
G-MC	1	2	25	2	1	1	1	0	1
G-LK	1	2	25	1	1	1	2	0	2
S-NA	1	2	27	2	1	1	2	1	2
S-AE	1	2	26	1	1	1	2	0	2
S-CT	1	1	25	1	1	1	2	0	1
S-EM	2	2	29	2	2	2	2	2	2
S-CE	1	2	23	2	1	1	2	0	
S-DT	1	2	26	2	2	2	1	2	2
S-HR	1	2	26	2	1	2	2	1	1
S-JP	1	2	26	2	1	1	2	2	1
S-MB	1	1	33	1	2	2	1	1	2
S-MP	2	2	23	1	2	2	1	1	2
S-MR	2	2	27	2	2	2	2	2	2
S-GL	2	1	26	2	1	1	2	1	1
S-BA	1	1	24	2	2	2	2	1	1
A-EP	1	2	25	1	1	2	2	0	1
A-LG	1	2	23	1	2	2	1	0	1
A-CB	1	2	30	1	1	2	2	2	1
A-BM	2	2	24	2	2	2	1	0	2
A-XL	1	1	29	1	2	2	2	1	1
A-MB	1	2	25	1	1	1	2	2	
A-HH	2	1	30	2	2	2	1	1	2
A-KD	2	2	24	1	1	2	1	1	2
A-AZ	2	1	29	2	2	2	2	1	2
O-JS	1	2	26	2	1	1	2	1	1
O-EC	2	1	26	1	1	1	2	1	2
O-JH	1	1	28	2	2	2	2	1	
O-MH	1	2	29	2	1	1	2	1	
O-GT	1	2	24	2	2	2	2	1	1
O-AB	2	2	26	2	2	2	2	2	1
O-FA	1	2	26	1	1	1	2	1	2
O-KO	2	1	25	1	1	2	2	0	2
O-ML	1	2	27	2	1	1	2	2	1
O-LG	2	1	26	2	1	1	1	1	1

1=no	1=female	1= internal	1=DK
2=yes	2=male	2=external	2=foreign

Appendix G **Logistic Regression Output - Success – SPSS**

[DataSet1] s:\Desktop\MT 07-03-11\Logistic Regression - Success.spv.sav

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	56	96,6
	Missing Cases	2	3,4
	Total	58	100,0
Unselected Cases		0	,0
Total		58	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value		Internal Value
dimensio	1	0
n0	2	1

Classification Table[a,b]

	Observed		Predicted		
			SuccessIdea		
			1	2	Percentage Correct
Step 0	SuccessIdea	1	0	16	,0
		2	0	40	100,0
	Overall Percentage				71,4

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	,916	,296	9,595	1	,002	2,500

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Age	5,097	1	,024
		Gender	,738	1	,390
		InternalExternal	3,360	1	,067
		NationalityCode	2,582	1	,108
		RelatedStudyProgram	,040	1	,841
		RelatedOccupationalExperiences	,056	1	,813

	VOI	,304	1	,581
	Overall Statistics	9,092	7	,246

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	9,066	7	,248
	Block	9,066	7	,248
	Model	9,066	7	,248

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerk Square
1	57,941[a]	,149	

a. Estimation terminated at iteration number 5 because parameter esti changed by less than ,001.

Classification Table[a]

Observed			Predicted		
			SuccessIdea		
			1	2	Percentage Correct
Step 1	SuccessIdea	1	7	9	43,8
		2	2	38	95,0
	Overall Percentage				80,4

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	-,276	,142	3,767	1	,052	,759
	Gender	,576	,725	,632	1	,427	1,780
	InternalExternal	-,763	,978	,608	1	,436	,466
	NationalityCode	-,594	,907	,429	1	,512	,552
	RelatedStudyProgram	-,314	,888	,125	1	,723	,730
	RelatedOccupationalExperiences	,401	,551	,530	1	,467	1,494
	VOI	,001	,046	,001	1	,978	1,001
	Constant	9,607	4,608	4,346	1	,037	14870,782

a. Variable(s) entered on step 1: Age, Gender, InternalExternal, NationalityCode, RelatedStudyProgram, RelatedOccupationalExperiences, VOI.

Appendix H **Logistic Regression Output – Unique – SPSS**

[DataSet0] S:\Desktop\MT - 02-03-11\Logistic Regression 1.spv

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	56	100,0
	Missing Cases	0	,0
	Total	56	100,0
Unselected Cases		0	,0
Total		56	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
dimensio 1	0
n0 2	1

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted		
			Uniqueness		
			1	2	Percentage Correct
Step 0	Uniqueness	1	31	0	100,0
		2	25	0	,0
	Overall Percentage				55,4

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-,215	,269	,640	1	,424	,806

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Age	4,891	1	,027
		Gender	,480	1	,488
		InternalExternal	4,051	1	,044
		NationalityCode	2,698	1	,100
		RelatedStudyProgram	,580	1	,446
		RelatedOccupationalExperiences	3,222	1	,073
		VOI	4,912	1	,027
	Overall Statistics		11,714	7	,110

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	12,851	7	,076
	Block	12,851	7	,076
	Model	12,851	7	,076

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke Square
1	64,137[a]	,205	

a. Estimation terminated at iteration number 5 because parameter estim
changed by less than ,001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	3,346	7	,851

Classification Table[a]

Observed			Predicted		
			Uniqueness		Percentage Correct
			1	2	
Step 1	Uniqueness	1	26	5	83,9
		2	12	13	52,0
	Overall Percentage				69,6

a. The cut value is ,500

Logistic Regression results on Uniqueness

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age	,247	,143	2,961	1	,085	1,280
	Gender	,535	,677	,624	1	,429	1,707
	InternalExternal	,283	,896	,100	1	,752	1,327
	NationalityCode	,360	,856	,177	1	,674	1,433
	RelatedStudyProgram	-,373	,815	,210	1	,647	,689
	RelatedOccupationalExperiences	,253	,514	,242	1	,623	1,288
	VOI	,075	,045	2,764	1	,096	1,078
	Constant	-9,661	4,520	4,569	1	,033	,000

a. Variable(s) entered on step 1: Age, Gender, InternalExternal, NationalityCode, RelatedStudyProgram, RelatedOccupationalExperiences, VOI.

Appendix I **Team 1**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact		
1	I	CBS	M-TS	CS	I	3	x	x=unique
				FSW	I	3	x	successful
				OP	CI	0		
				TMP	CI	0	x	
				MI	CI	0		
						6		
2	E	Norwegian School of Economics	M-AV	PCE	P	4		
				MPA	P / I / CA	8	x	
				WTF	E / P / I	12	x	
				IPA	E / P / I	12		
				MI	E / I	8		
						44		
3	I	CBS	M-LD	IC	E	5	x	
				MI	B / I	5		
				MEXA	P	4	x	
				SHD	I	3	x	
				EIT	I	3	x	
						20		
4	E	Aalborg University	M-JK	IMCD	P – E	9	x	
				MI	CA – I	4		
				BCC	I	3	x	
				MIPM	I	3	x	
				BSP	CA – P	5	x	
						24		
5	I	CBS	M-LH	PHD	CA	1	x	
				MI	E / P	9		
				OP	O / I	9		
				SOC	I	3	x	
				BSG	CA	1	x	
						23		
6	I	CBS	M-YR	ASP	E / I	8	x	
				IMC	I / CA	4	x	
				IPA	B / CA	3	x	
				PCE	E / CA	6		
				MI	CA	1		
						22		
7	I	CBS	M-JA	MPA	E	5	x	
				ES	I	3	x	
				MI	O / I	9		
				EIT	E	5		
				ISC	I	1	x	
						23		

Appendix J **Team 2**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact		
1	I	CBS	M-LV	EECTS	E	5	x	x=unique
				ORD	E	5	x	successful
				ASRW	I	3	x	
				MPHD	I	3	x	
				Mi	I	3		
						19		
2	I	CBS	M-MN	Mi	B	2		
				RPBJ	B	2	x	
				HBRM	CA	1	x	
				RCE	B	2	x	
				EIT	I	3		
						10		
3	I	CBS	M-DS	ELC	E	5	x	
				RCE	CA	1	x	
				IC	I	3	x	
				TMP	P	4	x	
				Mi	I	3		
						16		
4	E	University of British Columbia	M-AL	TMP	E	5	x	
				PF	B	2	x	
				MI	E	5		
				MSS	B	2	x	
				HIC	CA – B	3	x	
						17		

Appendix K **Team 3**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact		
1	E	University of Washington	G-NV	ED	E / B	7	x	x=unique
				IPA	B	2		successful
				OP	E / P	9		
				FC	B / CA	3	x	
				CSRB	E	5	x	
						26		
2	I	CBS	G-EC	IECA	E	5		
				OP	CA – I	4		
				FP	CA – I	4	x	
				TGS	CA – B	3	x	
				TGBG	CA – E	6	x	
						22		
3	I	CBS	G-MP	JD	CA – E	6	x	
				OP	I	3		
				FCBSO	CA – I	4		
				RMU	CI	0		
				MP	E	5	x	
						18		
4	E	Tel Aviv University	G-TS	ESCBS	I	3	x	
				IS	I	3	x	
				RSS	I	3	x	
				ABC	I	3	x	
				AUN	I	3	x	
						15		
5	E	University of Columbia	G-LR	PCI	O	6	x	
				CFC	E	5	x	
				PCSR	E	5	x	
				GICP	E	5	x	
				PCE	E	5		
						26		
6	I	CBS	G-EM	CNBS	E / I	8	x	
				SEM	E / I	8	x	
				IECA	E / I	8		
				CBSB	E	5	x	
				ES	I	3	x	
						32		
7	I	CBS	G-LB	SW	I / B / CA	6	x	
				Sa	I / B / CA	6	x	
				MM	P / I	7	x	
				IWF	P	4	x	
				SRB	CA	1	x	
						24		

Appendix L **Team 4**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact		
1	I	CBS	G-MR	SS	I	3		x=unique successful
				CCPC	E	5		
				MSC	I	3		
				GC	CA	1		
				OP	E	5		
						17		
2	E	Brainbridge Graduate Institute	G-JS	IS	P – B	6	x	
				PPY	B	2	x	
				CCCP	B – P	8		
				SBCP	B – E	7	x	
				GC	CA	1		
						24		
3	E	CBS	G-AE	ESCBS	I	3	x	
				JD	I	3	x	
				RMU	P	4		
				ISL	I – E	8	x	
				PL	CA	1	x	
						19		
4	I	CBS	G-PF	CCCP	CI	0		
				SW	CI	0	x	
				OP	CI	0		
				CBSB	CI	0	x	
				MI	CI	0		
						0		
5	I	CBS	G-MC	OP	I – O	9		
				SC	CA	1	x	
				MI	E	5		
				CCPC	CA	1		
				GC	I	3		
						19		
6	I	CBS	G-LK	ACI	E	5	x	
				SO	CA	1	x	
				OP	E	5		
				ROAS	E	5		
				OP	E	5		
						21		

Appendix M **Team 5**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact	
1	I	CBS	S-NA	CC	E	5	x
				CCPC	E	5	
				PL	I	3	x
				OP	CA	1	
				PHD	E – I	8	x
						22	
2	I	CBS	S-SN	OP	E – CI	5	
				CBSR	I	3	x
				PET	CI	0	
				AUN	CI – CA – E	6	x
				FCBSO	B – E	7	
						21	
3	I	CBS	S-CT	CQC	I – CI	3	x
				MPA	I – CI	3	x
				CBSR	I – CI	3	x
				AUN	I – CI	3	x
				PCE	I – CI	3	
						15	
4	E	Ohio State University	S-EM	MCP	E	5	x
				IET	CA – I	4	x
				SCO	B – I – E	10	x
				CCC	CA – CI	1	x
				OP	CI – E	5	
						25	
5	I	CBS	S-CE	OP	CI	0	
				SCO	CI	0	x
				SL	CA	1	x
				FCBSO	CI	0	
				RMU	CI	0	
						1	
6	E	Aarhus School of Business	S-DT	TPO	I – E	8	x
				RMU	I	3	
				EIT	E	5	
				ESA	CI – I – E	8	x
				OP	CI – E	5	
						29	

Appendix N **Team 6**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact		
1	I	CBS	S-HR	OP	B	2		x=unique
				PL	O – I	9	x	successful
				EC	B	2	x	
				CCOC	I	3	x	
				PCE	B	2		
						18		
2	I	CBS	S-JP	ESAM	P – B	6	x	
				RMU	B	2		
				BLBS	B	2	x	
				OP	CI	0		
				PET	B – P	6		
						16		
3	E	Yor University	S-MB	PET	B	2		
				TE	O – CA	7	x	
				MSC	O – E	11		
				PCE	B	2		
				COE	E	5	x	
						27		
4	E	Rouen Business School	S-MP	MCP	CA – B – I	6	x	
				CBSEC	O	6	x	
				OP	CI – I	3		
				TE	I	3	x	
				CBSR	I	3	x	
						21		
5	E	Sauder School of Business	S-MR	MSC	I – E	8		
				NN	I	3	x	
				PF	E	5	x	
				OP	E	5		
				CCR	E	5	x	
						26		
6	I	CBS	S-GL	TC	CA	1	x	
				CSD	CA	1	x	
				OMI	CA	1	x	
				CBSOM	CA – E	6	x	
				CBSW	CA – B	3	x	
						12		
7	E	INSEEC Paris	S-BA	SO	CI	0	x	
				GC	E	5		
				RMU	E	5		
				IMC	E	5	x	
				MSC	I	3		
						18		

Appendix O **Team 7**

	Internal / External	University	Code-Name	Idea	Sources	Value of Impact		
1	I	CBS	A-EP	PF	E	5	x	x=unique
				PET	E	5		successful
				OP	B	2		
				EC	B	2	x	
				IC	E	5	x	
						19		
2	E	Willamette University	A-LG	FRE	E	5	x	
				SS	E	5		
				VCC	E	5	x	
				IF	CA	1	x	
				MI	I	3	x	
						19		
3	I	CBS	A-CB	IF	CA	1	x	
				IPA	E	5	x	
				EECTS	I	3	x	
				ROAS	CA – I	4		
				FCBSO	I	3		
						16		
4	E	Euromed Marseille	A-BM	IF	O	6	x	
				NGOP	CA – E	6	x	
				CSRC	E	5	x	
				VCC	CA	1	x	
				CSD	I	3	x	
						21		

Appendix P **Team 8**

	Internal / External	University	Code Name	Idea	Sources	Value of Impact		
1	E	California State University	A-XL	EIT	I	3		x=unique
				ROAS	I	3		successful
				PF	CA	1	x	
				IBID	I	3	x	
				NSS	CA	1	x	
						11		
2	I	CBS	A-MB	ROAS	CA	1		
				IRI	CI	0	x	
				EECTS	I	3	x	
				EC	I	3	x	
				MI	CI	0		
						7		
3	E	China Europe International Business School	A-HH	HIC	I	3	x	
				CSRC	O	6	x	
				ISCH	E	5	x	
				IDEP	O	6	x	
				MM	I	3	x	
						23		
4	I	CBS	A-KD	OP	CA	1		
				MI	B – I	5		
				ICC	B – I	5	x	
				MM	CA – B – I	6	x	
				IBID	CA – B – I	6	x	
						23		
5	E	Kiel University	A-AZ	CF	CA – I	4	x	
				CS	I – E	8	x	
				ROAS	CA – I	4		
				RCE	E	5	x	
				/	/	0		
						21		

Appendix Q **Team 9**

	Internal / External	Universtity	Code Name	Idea	Sources	Value of Impact	
1	I	CBS	O-JS	OP	CA – O	7	
				ICC	CA – I	4	x
				GC	CA	1	
				ACSO	B	2	x
				JD	CA	1	x
						15	
2	I	CBS	O-EC	CCPC	P – I	7	
				PY	CA – I	4	x
				CFHS	CA – I	4	x
				UDSS	O – I	6	x
				FP	B – I	5	x
						26	
3	E	Ohio State University	O-JH	SA	CA	1	x
				/	/	0	
				/	/	0	
				/	/	0	
				/	/	0	
						1	
4	I	CBS	O-MH	OP	CI	0	
				ACSO	CI	0	x
				/	/	0	
				/	/	0	
				/	/	0	
						0	
5	E	Bocconi University	O-GT	ISC	CA – E	6	x
				ROAS	CA	1	
				OP	CA – E	6	
				WRP	CA	1	x
				FCBSO	E	5	
						19	
6	E	Flensburg University	O-AB	OP	I	3	
				OP	CA	1	
				BSP	CA - E	1	x
				CCBS	CA – I	4	x
				MSC	CA	1	
						10	
7	I	CBS	O-FA	RMU	CA – I	4	
				OP	CA – I	4	
				WN	O	6	x
				CCPC	CA – I	4	
				MCC	I	3	
						21	

Appendix R **Team 10**

1	Internal / External	University	Code Name	Idea	Sources	Value of Impact		
	I	CBS	O-KO	RCOI	CA – B	3	X	x=unique
				CCI	B – I	5	X	successful
				IECA	B – P	6		
				MSC	I	3		
				SO	I	3	X	
						20		
2	I	CBS	O-ML	IPA	I – E	8	X	
				ROAS	I	3		
				CCPC	CI	0		
				IECA	CI	0		
				OP	CI	0		
						11		
3	I	CBS	O-LG	SC	CA – E	6	X	
				ED	I	3	X	
				SA	CA	1	X	
				SS	CA	1		
				IPA	E	5		
						16		

Appendix S **Q-V82**

First name	Last name	University	Study line/special subject	Special knowledge/skills	Prior, relevant work experience	Country	Email	Mobile phone

Please fill in your data in the green line according to the categories in the header (the black line). The information required is simple, let me just explain three of them that may cause misunderstandings:

The "study line/special subject" means the focus area of your studies. Are you specializing on something, like innovation, marketing, finance, etc.? Then please mention that there. For CBS students that might be reflected in the study line they have chosen. For external students that might be called a specialization. In a second field, called "special knowledge/skills" you can even go more in detail: what are your personal skills that you have built up, what is the knowledge that you have acquired specifically in your university career so far. So here you can write something even more specific or personal. Under the category "prior, relevant work experience", please write if you have any work experience that is somehow connected to the course topics.

Logistic Regression

As discussed earlier, the innovative outcome of co-creation participants in this context is to be measured upon the uniqueness and success of their generated ideas in the IIC 2009. In order to supplement the descriptive facts and correlated measurements of the IV`s and DV`s, the following statistical calculations are to consider. The binomial regression had to be applied to test the probability of predicting an event through adding data to a logit function, also called "*Logistic Regression"*. The model will thus add meaning to the earlier findings in the data analysis findings. In the following, Table 4 and the results of the logistic regression model will be analyzed.

Table 4: Logistic Regression Model – Uniqueness and Success of Ideas

Independent Variable	DV (1) - Uniqueness Y/N[a]	DV (2) - Success Y/N[b]
Age	1.28 (p <0.08) †	0.76 (p <0.10) †
Gender	1.71 (p <0.43)	1.78 (p <0.43)
Internal / External	1.33 (p <0.75)	0.47 (p <0.44)
Nationality Code	1.43 (p <0.67)	0.55 (p <0.51)
Related Educational Experiences	0.69 (p <0.65)	0.73 (p <0.72)
Related Occupational Experiences	1.29 (p <0.62)	1.50 (p <0.47)
VOI	1.08 (p <0.09) †	1.00 (p <0.98)
Nagelkerke R^2	0.214	0.274
-2 Log Likelihood	57.94	64.14
DF	7	7
N	56	56

a) Unique ideas were only named three times in the course of the IIC 2009 (n=124)

b) Successful ideas were rated as final stage ideas in the course of IIC 2009 (n= 124)

† p<0.10; * p<0.05; ** p<0.01; *** p<0.001 (two-tailed test)

Hypothesis 1 proposes that external participants of the IIC 2009 generate more unique and less successful ideas than internals do and as it was revealed by the pairwise correlations in Table 2 there is a moderate and significant relationship among these variables. According to this

positive correlation, a raise in invitations of external participants to the camp suggests a cause of more unique ideas.

In order to support the displayed correlations from the correlation table and predict the level of unique ideas according to a change in the IV, a logistic regression was computed as shown in Table 4. The result of the odd ratio for internal respectively external participants displays a value of 1.32 and no statistical significance level (0.75). In other words, the probability for a computed result by chance and not through correlated effect among variables is rated here with 75 %. However, even if the likelihood is great, that the predictive value of 1.32 is caused by randomness, an interpretation of the value will be given. As the value for internal and external participants is positive, it indicates a positive or direct relationship to the uniqueness of ideas. As a matter of fact, increasing the number of invited external participants to the camp by the factor 1 would increase the ratio for successful ideas by the factor of 1.32. In other words, exchanging one internal participant with one external participant would increase the IV by 1 and thus the possibility for more unique generated ideas raise by 1.32 times as large. Even though the value of odd ratio is conform to the result of the pairwise correlation, the missing level for statistic significance is present. Indeed, there is evidence that external participants generated more unique and less successful ideas than their counterparts did. H1 is thus supported and adds meaning to the applied theoretical assumptions.

In order to support H2, the nationality of participants and their outcome of success as well as unique ideas were under investigation. As it was discussed earlier, inviting more Danish participants is assumed to result in rather successful ideas as it was expected by H2. As the odd ratio predicts, decreasing the IV by 1 and thus inviting one more Danish participant to the camp would increase the amount of successful ideas by 0.55 times. Contrariwise, only a weak relationship was found between the nationality and the uniqueness of generated ideas. Nevertheless, inviting more participants with foreign nationalities is supposed to increase the amount of unique ideas by 1.43 times. As a result, H2 is only partly carried and the results are two-folded in their meanings. As it was found earlier, correlations with related occupational experiences, related educational experiences, and gender were statistically significant towards the generation of unique ideas. Looking at the ratio odds for the aforementioned variables, the logistic regression table signalizes positive correlations as well. Hence, increasing the amount of male participants is suggested to increase the likelihood for unique ideas by 1.71 times. Likewise

were the findings towards male participants and their generation of successful ideas, which is expected to have an odd ratio of 0.43.

Nevertheless, female participants showed a higher index of VOI and thus were able to use their knowledge absorb abilities and social networks more often than man did. Surprisingly, those facts were not increasing the likelihood for woman to generate more unique or successful ideas. As a matter of fact, H3 is not supported.

With respect to related educational experiences, odd ratios of 0.69 (0.65%) for an increase of unique ideas and 0.73 (72%) for successful ideas were observed. In other words, increasing the amount of participants with unrelated educational experiences in the field at stake, an increase of unique and successful ideas is expected to occur. These finding are only partial conform to H4. Surprisingly, related educational experiences lead to more unique ideas than it was expected by the literature.

Additionally, increasing the amount of participants with related occupational experiences, an emphasis of 1.29 times on unique and 1.50 times on successful ideas is expected. Opposed to the mentioned literature and the negative expectation of related knowledge in the given field of the problem issue, increasing the amount of participants with related occupational experiences increases the amount of unique ideas by an odd ratio of 1.29 (62%) times. While the odd ratio for an increase of successful ideas is slightly higher and displayed with 1.50 (47%) times. Thus, H5 is only partly supported and regarding the assumption of positive effects through technical distance to the issue at hand, practical distance to related fields of strategy development, innovation management, creative entrepreneurship and sustainability management seems to benefit converse. This finding leads to look at occupational experiences and its impact on uniqueness from a new angle.

Finally, the logistic regression model adds a note of prediction and forecasting to the previous revealed correlations. Unfortunately, significance levels of the tested variables in this model are not statistically significant enough to draw predictions. As a matter of fact, odd ratio results are not taken into account for answering the RQ in this context.