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Master's Degree Programme in Knowledge Management and Leadership

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CO-CREATION IN MANAGEMENT LITERATURE AND PRACTICE

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ABSTRACT

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The purpose of this study is to examine co-creation as a phenomenon. The concept has been used in former literature in multiple contexts which has obscured its' profound meaning. The aim is to study how co-creation is generally defined and understood in current literature. Besides summarizing the associate concepts, the author provides a suggestion of a more precise use of the concept.

Furthermore, the aim is to study knowledge co-creation in practice. This is performed by analyzing narratives written by knowledge specialists about their experiences of successful co-creation in teams. Through narrative analysis of 21 essays, the purpose of the empirical part is to find out how and in what kind of circumstances the knowledge co-creation process occurs. Practical findings are ultimately compared with those from former literature. The study is a qualitative research driven by narrative-hermeneutic approach.

The results show that although co-creation is seen in literature with varying knowledge-intensivity, its' essence holds new knowledge creation together with joint creation of value. New knowledge is created through social interaction by creatively combining the diverse skills of specialists. Knowledge creation thrives on shared goals, open atmosphere, lack of competition as well as feelings of trust, respect and equality between the team members. Finally, it is in the hands of leadership to facilitate knowledge creation by supporting these conditions.

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Tutkielman tarkoituksena on tutkia co-creation-yhteistyön käsitettä. Käsite on saanut aiemmassa kirjallisuudessa lukuisia eri määritelmiä ja sitä on käytetty erilaisissa konteksteissa. Tämän vuoksi käsitteen merkitys on hämärtynyt. Tutkimuksen tavoitteena on selvittää miten co-creation-käsite on määritelty ja ymmärretty kirjallisuudessa. Co-creation-yhteiskehittelyyn liitettyjen käsitteiden yhteenvedon lisäksi tekijä ehdottaa käsitteelle tarkempaa määrittelyä.

Lisäksi tavoitteena on tutkia tiedon luomista käytännössä. Tätä tutkitaan analysoimalla eri alojen asiantuntijoiden kertomuksia onnistuneista co-creation-kokemuksista tiimeissä. Perehtymällä näihin 21 tarinaan narratiivisen analyysin keinoin, empiriaosuuden tavoitteena on selvittää miten ja minkälaisissa olosuhteissa uuden tiedon luominen tapahtuu. Tutkielma on kvalitatiivinen tutkimus toteutettuna narratiivis-hermeneuttisella tutkimusotteella.

Tulokset osoittavat, että vaikka co-creation-käsite nähdään kirjallisuudessa vaihtelevan tietointensiivisenä, sen ydin sisältää uuden tiedon luomista yhteisen arvon luomisen osana. Tietoa luodaan sosiaalisessa vuorovaikutuksessa yhdistäen luovasti eri alojen osaajien moninaista tietoa. Tiedon luominen kukoistaa olosuhteissa, joissa tiimin jäsenillä on yhteinen tavoite. Työilmapiiri on avoin ja siinä korostuvat keskinäisen kilpailun puute, tasa-arvoisuus sekä kunnioitus ja luottamus tiimin muita jäseniä kohtaan. Lopulta, johdon tehtävänä nähdään vahvistaa tiedon luomisprosesseja tukemalla soveltuvia olosuhteita.

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1 INTRODUCTION

Characteristic for today's corporate world as well as society as a whole is the ongoing economic and technological change. In this changing business environment, individual efforts are insufficient to tackle the complex tasks in search of commercial success (Andriopoulos & Dawson, 2009). Hence there is a growing demand for successful co-creation. When the organizations address large questions that cannot be solved with solo efforts, the challenging task of building sustained collaborations becomes worthwhile (John-Steiner, 2000).

Co-creation – what does it actually mean? It is a concept used in large number of different meanings describing joint efforts to create value. It is a term that is highly current in business today where collaboration and team work are top priorities that companies regard as ingredients for success. Co-creation has become in recent years a significant management strategy that enables firms to be innovative (Durugbo & Pawar, 2014). Co-creation may be internal within an organization or it may be referred to when talking about co-creation between organizations and their customers or partners. It may occur between two individuals or between teams or other larger groups. Co-creation of value can be defined as a process of integrating resources that are mutually beneficial (Vargo et al., 2008). Besides this kind of general definition, co-creation has been given numerous more specific meanings in literature, some of them describing it as whatever collaboration while some of them regarding it as an advanced phenomenon of collective creativity and creating new knowledge. This kind of diverse use of the concept has somewhat obscured its profound meaning and made it difficult to define.

Global trend of today is also that work is becoming more and more knowledge-intensive. This has been lead to by experts' specializing more and more into specific fields of expertise as well as tasks being more and more complicated requiring this kind of specialist know-how. Digitalization and developing

advanced techniques and platforms for communication has offered new tools for teams for their work both face-to-face and virtually. Experts of different fields may work together from the far ends of the globe and between organizations by combining their joint resources to achieve competitive advantage for their companies. In order to achieve excellent results, the teams need to find methods to co-operate and share their existing knowledge successfully to create new knowledge. Consequently, it is becoming essential to understand how co-creation exactly occurs – when and in what kind of circumstances the creation of new knowledge may take place.

Besides the ability to create new knowledge, creativity is also required from teams in order to achieve the best results possible. Teams in today's organizations may consist of experts within the company in which case teams are able to regularly meet face-to-face. However, a growing tendency is that teams are formed between organizations and may consist of experts from many different fields of business. Due to great geographical distance causing travel expenses, the face-to-face contacts may be rare or the tasks may require collaboration with other experts from very different backgrounds. How to work effectively, be creative and create new knowledge when working with people from different cultures and backgrounds is becoming a relevant question in today's knowledge-intensive organizations.

The underlying question is also what makes people co-creative. Interaction is a source of co-creation according to Ramaswamy (2009) who stresses the role of leadership in creating conditions in favor of co-creation. Managers need to foster the co-creative mindset within an organization by supporting collaboration and observing creative initiatives. In order to become co-creative, organizations need to ensure functional linkages between all necessary groups involved in the co-creation process.

1.1 Purpose of the study

As the concept of co-creation has been used in many contexts, it has taken various different meanings in literature. The purpose of this study is to examine co-creation as a phenomenon. The aim is to identify some main concepts associated to co-creation and to study the similarities and differences of those concepts. The study seeks to summarize the literature from different fields of business economy concerning co-creation whereas a thorough analysis of the concept is left for future research. The study also discusses the process of co-creation in the light of literature as well as in practice. The aim is to study how new knowledge creation occurs in teams and what are the appropriate circumstances for knowledge creation.

The concept of co-creation has taken interest of many researchers from different fields of sciences and has thus been used widely in research. Besides describing knowledge creation, co-creation has also been used in literature to describe collaboration in general without creative or knowledge-intensive perspective. Under co-creation, plenty of concepts with similar meanings exist. Diverse definitions may be somewhat confusing and the concept can be said to be in need of more precise definition and use in future research. More accurate definition of co-creation may help future scholars to differentiate the related concepts and to avoid overlapping use of concepts – here lies the scientific contribution of this study. Findings from this study may also help managers in knowledge-intensive organizations in practice to create suitable working conditions for their personnel in order to achieve best results from team work.

1.2 Research questions and limitations

The primary goal of the study is to examine co-creation as a phenomenon. The scope is to inspect the concept in the light of literature as well as to study what it means in practice. The literature review provides an overview of the concept of co-creation while the aim of the empirical part is to study the knowledge workers' views and personal experiences in co-creation. Finally, the aim is to examine what kind of corresponding observations from literature can be found in practice. The main research question can be defined as follows:

How is co-creation defined and understood in current literature?

This question deals in defining co-creation based on the theoretical background. The study summarizes the literature concerning co-creation to explain when co-creation is seen as collaboration in general. The study ponders also when the concept of co-creation includes creation of new knowledge – explicit or tacit. Similarly, the study explores situations when co-creation is actually a creative process. To define co-creation, the concepts of collaboration, crowdsourcing, open innovation, collective creativity and co-design are looked into in more detail. These neighboring and to some extent even overlapping concepts discussed frequently in literature are sorted out in order to find a suggestion for a more explicit use of concepts. The aim resulting in these conclusions is to compare how these different co-creation processes differ from each other. The study limits to examining literature from the field of business management.

Besides studying the meanings and comparing the different variations of co-creation, the study seeks to examine knowledge creation between knowledge workers in practice. The empirical part of this study concentrates in examining knowledge co-creation in face-to-face circumstances. Although team work in virtual environments is a growing phenomenon, this study has chosen to limit itself to exploring face-to-face co-creation assuming that face-to-face interaction

allows the best prerequisites for new knowledge co-creation. Following sub-question for the study can thus be set:

How is new knowledge created in co-creation?

The purpose of the empirical part is to clarify how the knowledge workers themselves saw the concept and process of co-creation. The aim is to explore the process of new knowledge co-creation as a whole and how it occurs in practice. The purpose of the first sub-question is to map the process of new knowledge co-creation and to provide a definition of typical processes in practice depending on the team size and type.

Besides the actual process of knowledge creation, this study takes interest into the circumstances in which new knowledge is created. Thus the second sub-question is set as follows:

What kinds of circumstances create the best prerequisites for new knowledge creation?

The presupposition of the author is that successful co-creation depends somewhat on the nature of the meeting situations and circumstances in which the teams operate in. The purpose is to figure out based on the participants' personal experiences whether there are certain elements concerning the circumstances that are particularly stressed or appear repeatedly from the stories examined.

The scope of this research is limited to concern knowledge creation between experts – in teams of two or more people. The study is further limited to study co-creation from the viewpoint and experiences of individual team members. Team members that are studied may work in teams consisting of two experts, teams of experts within one organization or in teams consisting of members beyond organizational boundaries and between different knowledge-intensive organizations.

1.3 Research method

The study is a qualitative research driven by narrative-hermeneutic approach. The literature review includes a discussion of the concept of co-creation and other concepts related to it. It clarifies in which contexts and fields of study these concepts are most commonly addressed to in literature (e.g. marketing, R&D, innovation management) as well as explores what kind of different meanings the concept of co-creation has been given. The idea is to find out what co-creation actually stands for and what are the ingredients for successful co-creation.

In the empirical part, the study seeks to examine the knowledge co-creation process by analyzing narratives written by knowledge workers operating in specialist positions in different fields of business. The purpose of the empirical part is to use narrative analysis in order to find out how and in what kind of circumstances the knowledge co-creation process occurs in practice and to explore how the findings correspond with former literature.

1.4 Structure of the research

In chapter 1, introduction to this study is presented. Introduction includes explaining the purpose of the study together with research questions and limitations. Research method is also briefly described.

Chapter 2 includes the literature review with discussion of the various uses of the concept of co-creation. Knowledge co-creation as a process and circumstances in favor of knowledge creation are also discussed. The end of the chapter provides a summary of the former literature. This is supported by a table included describing the relations of different associate concepts into more detail.

In chapter 3, the research process with its methods and approaches are discussed in more detail. Participants of the study as well as data collection are presented.

Reliability and validity as regards to this study are scrutinized in the end of chapter 3.

Chapter 4 brings forth the empirical part with results of this study. The research data is analyzed using narrative analysis and the results are presented. Moreover, chapter 4 provides a definition of the concept of co-creation as seen by the author in the light of literature. Finally, a discussion is presented of the corresponding findings from the literature and the empirical part of this study. Answers to the three research questions are provided here.

Chapter 5 summarizes and presents the conclusions of this study. Contributions to future research and practice are discussed. To conclude, some ideas for future research are suggested.

2 CO-CREATION IN CURRENT LITERATURE

The concept of co-creation has taken various different meanings in literature. The concept is relatively new and has been used increasingly during last few decades as the knowledge-intensivity in many fields of business has grown. Some of the most common uses of the concept of co-creation are evaluated and summarized in this chapter.

Co-creation has often been used to describe collaboration in general without knowledge-intensive view. It has acquired definitions from basic cooperation to deeper forms of collaborative actions (Prins, 2006; Lee et al., 2012) and knowledge creation (Brännback, 2003). Secondly, co-creation has been used to describe the R&D processes of new products or services together with the consumers either in conjunction with crowdsourcing (Brabham, 2008; Geiger et al., 2011; Estelles-Arolas et al., 2012) or open innovation (Jeppesen & Frederiksen, 2006; Nambisan & Baron, 2009; Füller et al., 2011). These processes of co-creation studied under the concepts of crowdsourcing or open innovation have mainly been used when addressing co-creation in virtual platforms rather than in face-to-face contacts.

Co-creation has also been used in literature with a creative aspect thus addressing it for instance with the concept of collective creativity (Erden et al., 2008; Potts et al., 2008; Harvey, 2014) or co-design (Prahalad & Ramaswamy, 2004; Piller et al., 2005; Sanders & Stappers, 2008). Collective creativity usually refers to creative co-creation processes in groups and teams. Co-design again usually stands for co-creation processes between organization and its customers or other stakeholders and is usually characterized by high creativity. However, the process of co-creation may not always include creativity. All in all, co-creation in literature has been associated with a spectrum of instances describing collaboration of two or more parties.

What this study is mainly concentrating on is the process of co-creation in creating new knowledge. Knowledge creation may be somewhat different when working face-to-face or in virtual environments. Although not covered in this study into greater detail, social software and other means of virtual communication are likely to bring their own novelties into creating new knowledge and to somewhat challenge the traditional views of knowledge management. The concept of co-creation and how it has been used in literature is evaluated into more detail in the following chapters.

2.1 Co-creation as collaboration

Organizations are increasingly challenged to collaborate (Prins, 2006). Co-creation needs collaboration but collaboration does not necessarily lead to co-creation. Collaboration may be merely cooperation without knowledge-intensive aspect, but in deeper forms it may result in new knowledge creation as well. Overall, collaboration can be defined as a hypernym of all cooperative actions ranging from simple to highly developed forms of collaboration. According to Lee et al. (2012), the main characteristic of collaboration for co-creation is shared purpose; whether it may be pursuing profits, acquiring new experiences and recognition or simply just for fun. The underlying idea behind collaboration is to develop a value chain consisting of competitive partners or other stakeholders. Besides among organizations, Lee et al. (2012) name several possible forms of collaboration including open-source collaborative communities and social networks for collaboration.

In the field of organizational psychology, Prins (2006) discusses the challenges of multiparty collaboration which at its best is a process through which parties who see different aspects of the problem may explore their differences and expand their limited vision of possible solutions. Successful collaboration is often challenged by leadership issues and emotional challenges brought up by interdependent work. Collaborative groups will have to find an effective way to work in dynamic contexts and form relationships with other stakeholders. This

may succeed by making sense of the conflicts and finding adequate ways to solve them. (Prins, 2006.)

Brännback (2003) brings on the aspect of knowledge creation in discussing collaboration in biopharmaceutical R&D sector. The article studies the role of “ba” in knowledge-creating networks. According to Nonaka et al. (2000), in their famous research concerning the nature knowledge, knowledge creation is context-specific and it needs context of space and time that “ba” offers. “Ba” brings individuals together in shared contexts – both mental and physical – and works as a platform in knowledge creation. Collaboration of separate networks forms new knowledge contexts which through collaboration again form new knowledge contexts, this eventually leading to shared knowledge creation. (Nonaka et al., 2000.) This occurs in collaboration of inter- and intra-organizational networks by expanding organizational boundaries. In the absence of “ba”, without shared purpose, collaboration between networks remains merely co-mingling and does not result in new knowledge creation. In the research from biopharmaceutical R&D, the advantages of collaboration networks were regarded by networks themselves mostly financial and the purpose of shared knowledge creation was ignored. (Brännback, 2003.)

2.2 Co-creation as crowdsourcing or open innovation

Crowdsourcing and open innovation are most often referred to in literature in connection with online co-creation. Although this study has limited itself in studying face-to-face knowledge co-creation, the concepts of crowdsourcing and open innovation are covered here as they are commonly addressed to in literature concerning co-creation. Taking into consideration the concepts of crowdsourcing and open innovation supports the purpose of this study to clarify how co-creation is understood in current literature.

Crowdsourcing stands for working closely with the consumers, suppliers or other stakeholders to obtain relevant information and new ideas from outside the

organization itself. It can also be seen as outsourcing the work traditionally given for a designated employee by using an “open call” directed to large, undefined group of people (Howe, 2008).

Consumer innovations most often arise in technological networks with social aspects involved. In these networks, individual actions and initiatives result in “crowd-sourced” innovations that may become significant new solutions (Potts et al., 2008). Many authors dealing with the concept of crowdsourcing define it as a relatively recent concept. Perhaps consequently, it has not found its proper definition in literature yet.

Brabham (2008) defines crowdsourcing as an online problem-solving model that is distributed and benefits from the wisdom of crowds. Whereas a design team relies on the expertise of its individuals, crowdsourcing takes advantage of the larger crowds with presence of non-experts as well. Brabham studies crowdsourcing in four web-based case organizations offering crowdsourcing applications and concludes that effective crowdsourcing needs interactive web technology to succeed. At its best, crowdsourcing as a business strategy will outperform traditional business models by suggesting new solutions faster and cheaper. Crowdsourcing trusts in people’s collective intelligence – together crowds are smarter than the smartest individuals in them. (Brabham, 2008.)

Estelles-Arolas & González-Ladrón-de-Guevara (2012) have also studied the various definitions of crowdsourcing arguing that it has been referred to in contact with various types of internet-based collaborative activity such as user innovation or co-creation. The concept has also been inspected from different angles such as problem solving or business process improvement. In their research, Estelles-Arolas & González-Ladrón-de-Guevara try to find a proper definition for crowdsourcing through extensive literature review. It can be concluded that crowdsourcing stands for participative online activity through which the crowdsourcer and the participating group receive mutual benefits. The user may receive economical benefits or satisfaction through social recognition or

development of individual skills. The crowdsourcer again will be able to utilize the crowd's work, experience or knowledge for one's own use. (Arolas & González-Ladrón-de-Guevara, 2012.)

Crowdsourcing has also been seen as an umbrella term for various approaches. Geiger et al. (2011) define crowdsourcing this way and regard open innovation as one of the applications of crowdsourcing. Geiger et al. study the process characteristics of crowdsourcing by identifying various process types and characteristics influencing the processes in form of process dimensions. Their research divides the crowdsourcing process into four dimensions: preselection of contributors, accessibility of peer contributions, aggregation of contributions and remuneration for contributions. The authors regard crowdsourcing as co-creation which is defined in their research as consumers' participation in creating value with the producers. (Geiger et al., 2011.)

As mentioned above, very close to crowdsourcing is the concept of open innovation. Judging from the literature, one could draw a conclusion that crowdsourcing is often referred to when receiving bits of information or ideas in smaller scale from the customers. Open innovation is more referred to when allowing customers design larger units or even the whole product. Open innovation usually involves lead users, whereas crowdsourcing depends more on heterogeneous, undefined group of people. However, the concepts of crowdsourcing and open innovation remain very close to each other in their meanings.

Concerning innovating, consumers play a role in innovation and value creation regarding product design, product testing and product support activities (Nambisan & Baron, 2009). Virtual environments have been developed where customers may participate in value co-creation within product development process. Nambisan & Baron (2009) in their study from the field of innovation management claim that in order to motivate customers to voluntarily participate in

product support activities, they need to be offered benefits such as enhanced product knowledge, cognitive stimulation or enjoyment in return.

Innovation as regards to open innovation is also in question in the study of Jeppesen & Frederiksen (2006) concerning customer participation in company-hosted user communities in the music industry. Companies can use innovative online user communities that may be designed for firm-to-user or user-to-user interaction. Received benefits are also proven by Jeppesen & Frederiksen (2006) to be necessary motivators for customers for their participation. When users share their innovations for everyone to see, other users benefit from the new content and fresh features available. Benefits for participating were also seen to be the recognition by the hosting company as well as peers. Participating users can be categorized as hobbyists – lead users – who have good knowledge of the company and its former products. Final motivating factor perceived leading to participation are unfilled customers needs – customers need something that they are not yet receiving but would like to receive in the future. (Jeppesen & Frederiksen, 2006.)

Füller et al. (2011) studying innovations in R&D sector mention idea and design competitions as popular means for open innovation. As mostly defined in literature, open innovation is generally targeted for lead users of the products; users who are skilled and innovative. Open innovation may refer to consumers assembling certain products to ultimately creative cases where consumers conceptualize and realize entire products. Füller et al. also study the motivators for users to participate in the value creation and define enjoyable experiences and sense of accomplishment and autonomy as some of the strongest. Co-creation platforms need to have social functions as the sense of community has a positive effect on co-creation experience. (Füller et al., 2011.)

It is clear that in order to co-create value the parties need to be willing to collaborate by sharing their content with others. Von Krogh (2012) studying knowledge management with social software raises the question of knowledge protection and issues of ownership in open innovations. Co-creation of new

content with outside partners may stretch company boundaries in a positive way but the parties need to find effective ways to communicate and share their knowledge yet retaining the value of the firm's internal knowledge.

An increasing amount of innovation activities are performed by temporary units of collaboration making this a significant topic to investigate. Face-to-face innovating is examined in the article by Nisula & Kianto (2016) who study group climate and creativity in temporary innovation camps. Former research has stated four requirements for group creativity; participative safety, task orientation, support for innovation and vision. According to Nisula & Kianto, these requirements should be supplemented by experimentation and creative play, which also have a positive effect on creativity and innovation. Their results showed however, that temporary teams seemed to differ from ongoing ones. Whereas all these elements were regarded significant creativity builders in long-term groups, in short-term groups the correspondence was not as strong. Only the perceived task orientation was clearly linked to creativity proving that short-term groups are highly committed to the task. The results showed that in temporary face-to-face innovation camps, creativity was not as much arisen from team climate rather than from the personal characteristics of the members and their shared will to achieve excellent outcome. (Nisula & Kianto, 2016.) This brings us to discuss group creativity in co-creation which is scrutinized into more detail in the next chapter.

2.3 Creativity in co-creation (co-design)

Co-creation with a creative aspect is often referred to in literature when talking about co-design. Sanders & Stappers (2008) study human-centered design of products and services and concepts related to it such as co-creation, co-design, participatory and user-centered design and collective creativity. They eye the issue from the point of view of marketing and brand development and argue that whereas co-creation as a broad term refers to any act of collective creativity within two or more people, co-design can be seen as collective creativity through

the whole design process. Participatory design is regarded as a synonym for co-design and collaboration is present in all of these activities. Creativity is stressed as essential for co-design and it is required from all parties of the process. In the co-design process, the researcher and user-designer collaborate, the researcher providing necessary tools for ideation thus resulting in knowledge development as well. The success of the outcome depends on the users' expertise and creativity. (Sanders & Stappers, 2008.)

Co-design may also be performed successfully in virtual environments and is not necessarily as dependent on social interaction as knowledge co-creation. Piller et al. (2005) studying co-design in for example sports equipment and toy industries tie the concept of co-design into designing new products in collaboration with the customers. According to Piller et al., collaborative co-design may enhance creativity in product design. In a co-design community, the co-design process proceeds jointly among individual customers in the company or in community platforms integrating comments from a large number of customers. Piller et al. differentiate communities of co-design from communities of innovation by defining co-design communities as being available to all customers whereas communities of innovation employ only lead users and are meant for new product development. The aim in communities of innovation is to find new solutions whereas the communities of co-design seek to create customized products out of existing solutions. Collaborative co-design is a mutual process between individuals and knowledge is created and shared in the process within a community. (Piller et al., 2005.)

Potts et al. (2008) address the issue of collective creativity from the point of view of consumer-producer co-creation and bring out the concept of situated creativity in consumer co-creation. Situated creativity is an extension of situated knowledge which lies in situational contexts of places, spaces and social interactions. Creativity may also be found in those specific situations. Socially situated creativity is a source and essential element of value creation and it is dynamic by nature rather than a static situation. Situated creativity is both an economic and a

cultural opportunity for new ideas and behaviors. When these new ideas are adopted into new practices, the situational creativity turns into compiled creativity. (Potts et al., 2008.)

Co-creation with a creative aspect may as well refer to the work of groups and teams. Group creativity is defined by Nisula & Kianto (2016: 159) as a “collaborative, collective and ongoing process of social, momentary and emergent activity, through which a group can achieve novel outcomes”. High group creativity requires a supportive and encouraging team climate together with a strong vision.

Group tacit knowledge is said to be essential in team work in order to co-create new knowledge. When discussing creativity in the process of co-creation, the quality of group performance is the topic to take notice of. Erden et al. (2008) propose a model with four levels of group tacit knowledge. As the group reaches higher levels, the quality of group tacit knowledge increases. This in turn creates good preconditions as well for knowledge creation as for creativity. The highest level – called “collective improvisation” – enables collective intuition and enhances the creative ability of the group even to call forth radical innovations. Consequently, high quality group tacit knowledge drives the organization towards innovation success and collective creativity. (Erden et al., 2008.)

It can be said that creativity and knowledge usually go hand in hand. To form a high-performing team, the team members need to be competent and possess the necessary knowledge and skills. In creative teams, knowledge acts as a store from which novel combinations of knowledge can be derived. Diversity of team members typically fosters creativity whereas the homogeneity does usually not lead to creative outcomes. In the ideal situation, diverse stimuli from colleagues from different backgrounds provide fresh insights and creative thinking styles. (Andriopoulos & Dawson, 2009.)

Harvey (2014: 324) studying creativity in film industry defines group creativity occurring when “a bounded and recognizable group of individuals works independently to achieve a shared goal of developing outcome that is novel and useful”. Groups tend to be creative when their members have diverse social resources and are supported by environmental factors that motivate to generate and share ideas. To explain what makes co-creation creative, Harvey uses a model of creative synthesis which by combining cognitive, social and environmental resources helps to produce extraordinary creative success. Conflict and opposite views are important elements that in creative synthesis move towards each other. The creativity lies in the connection between the members’ ideas. Harvey identifies three methods that may facilitate creativity through integration of different views: collective attention, enacting ideas and building on similarities. (Harvey, 2014.)

According to Capece & Costa studying teams in ICT-sector (2009), creativity should be considered a necessary step preceding knowledge creation. The creative process includes collective collaboration by the team set off by successful internal communication within the team combining and integrating the creative outputs. If the desired objective of the team is maximum creativity, non-hierarchical team structure has been observed to bring the best results. However, if the main goal is to generate as many new ideas as possible, then the team should concentrate in the participation of each member by effective coordination. (Capece & Costa, 2009.)

Creativity in groups has also been discussed by Choi et al. (2014) studying teams. The authors define that creative contribution consists of three different components that are performed by an individual: generating creative ideas, supporting the creativity of other team members and stimulating the overall creative energy and creative climate in a group. Participative safety and goal orientation are also in scope of the research by Choi et al. (2014) as these are proved to be necessary antecedents for group creativity. Goal orientation may be learning goal orientation which refers to the individual’s desire to improve his/her own performance. Performance goal orientation again refers to the desire of the

individual to be highly regarded by others. High learning goal orientation is likely to improve the creativity of an individual as well as lead to enhancing mutual competence and increased creativity in a group. However, the case of performance goal orientation is seen rather a negative factor for creativity as an individual with high performance orientation seldom challenges routines or concentrates in creative thinking. The concept of participative safety, meaning that the group environment contains a feeling of safety, will encourage group members to actively share ideas, participate in creative thinking and thus increase learning goal orientation. (Choi et al., 2014.)

Even though creative co-creation requires familiarity and mutual understanding between collaborative partners and the partners need to be specialized, Bilton (2007) brings out the possible problems that creative teams may face related to these; the problems of over-familiarization and over-specialization. When the team becomes too familiarized with each other they may start to fall towards excessive like-mindedness smoothing the internal diversity thus hindering creativity. Over-specialization in turn occurs when individual expertise is stressed too much leading the individuals to lock into their own corners thus preventing them to see the problems in large. The challenging task of management is to sustain the diversity within teams as well as the balance between specialist expertise and general understanding. (Bilton, 2007.)

“Creativity is intelligence having fun” – was said by Albert Einstein once upon a time. This elaborately describes the profoundness of the concept of creativity. It calls for deep understanding and expertise of the task at hand creating successful and motivating circumstances for new knowledge-creation as well.

2.4 Co-creation in creating new knowledge (explicit/tacit)

“Knowledge is a justified true belief” – as was put to words by Plato in ancient philosophy. Knowledge is making sense of issues and can be seen as a construction of reality. Knowledge creation again stands for a human process

involving feelings and beliefs even sub-conscious. Knowledge is both codified explicit knowledge and tacit knowledge which lies in senses, skills, individual perceptions and experiences. Even though tacit knowledge is understood by its meaning, it has been found challenging in organizations to come to terms with it in practice. Sharing tacit knowledge demands the individuals' sharing of their personal opinions or beliefs with other team members. Finding successful methods to use tacit knowledge and understanding the value of it are essential for a knowledge-creating company. (Von Krogh et al., 2000.)

Knowledge creation requires deep collaboration but collaboration does not necessarily include knowledge creation. In studies of knowledge creation and collaborative innovation, collaboration may be defined as relational or transactional collaboration (Blomqvist & Levy, 2006). Transactional collaboration does not lead to knowledge co-creation which needs deeper collaborative relationship. Trust, commitment and communication are the essential elements in building collaborative relationships which in turn are necessary antecedents of knowledge creation and transfer as well as collaborative innovation (Blomqvist & Levy, 2006).

2.4.1. The process of new knowledge creation

Co-creation is always about value, meaning that the essence of co-creation is the value it brings. The achieved value depends on the quality of the co-creation process. Deeper processes that include new knowledge creation are likely to increase the amount of perceived value. In these kind of situations where collaboration is deep and social interaction high, co-creation turns from mere collaboration into a process of new knowledge creation.

Knowledge creation process can be illustrated with the SECI-model (figure 1) of Nonaka et al. (1994, 2000). The model describes the four stages of the process; socialization, externalization, combination and internalization of knowledge. Socialization means sharing tacit knowledge between individuals by social

interaction. Externalization stands for the modification of tacit knowledge into explicit by using concepts and models. Externalized and theoretical knowledge is the basis for creating new knowledge. Combination means combining externalized explicit knowledge to larger unities. In the internalization phase, understanding explicit knowledge turns it into tacit knowledge which becomes a part of individuals' personal knowledge base. At this point the knowledge spiral returns to the socialization phase as the individual shares the adapted knowledge silently. The amount of knowledge increases and the individuals' previous perceptions may change. Explicit and tacit knowledge interact as a continuous cycle which leads to creation of new knowledge.

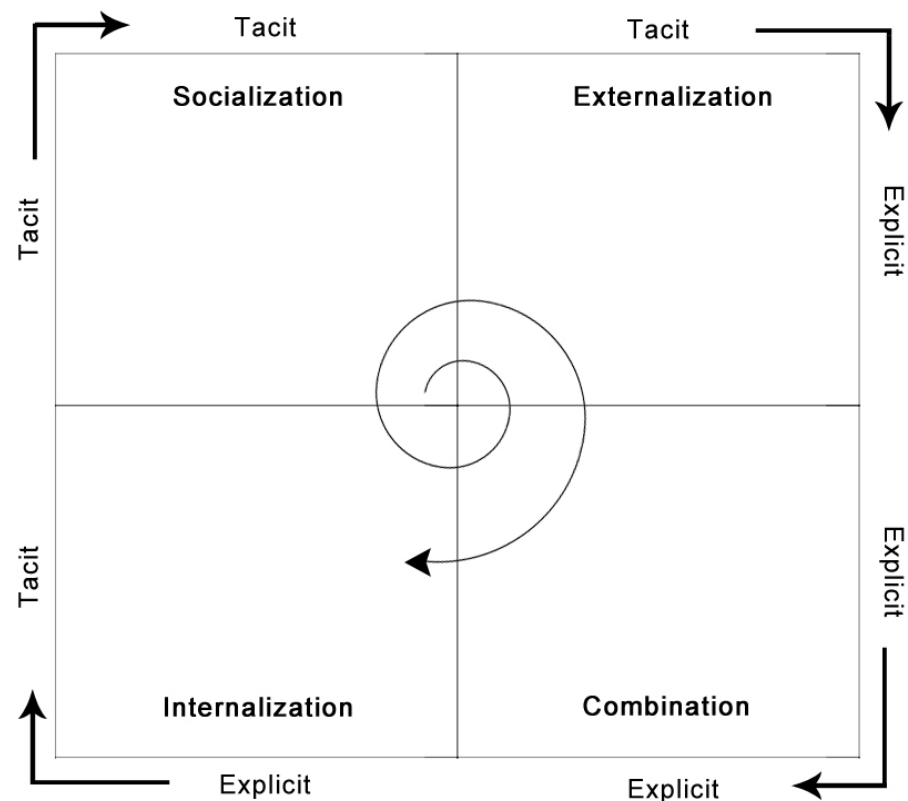


Figure 1. The SECI-model of creating new knowledge (Nonaka et al., 2000).

Nonaka et al. (2000) suggest that organizational knowledge creation actually requires the interaction and combination of three elements; the SECI process, “ba” and knowledge assets. Leadership has a strong role in facilitating knowledge creation process by understanding its nature and utilizing it effectively.

Vargo et al., (2008) confirm the above in their research studying co-creation from the viewpoint of service systems and the value it brings to collaborating parties. According to Vargo et al., value co-creation occurs by integrating existing resources with resources available in other service systems. New resources are adapted with existing ones and new knowledge is thus created in the process.

Baets (1998) studying organizational learning and knowledge technologies brings out the importance of reference framework in creating new knowledge. Knowledge is typically not stored in any units but lies in this framework created by individuals through experimenting and learning. Once the individuals work as a team, they are able to access a common repository of knowledge. These groups addressed to as knowledge networks work interactively and to tackle a given problem, they confront each other's reference frames and dynamically come up with the needed knowledge. (Baets, 1998.)

When working in knowledge-based environments, knowledge-integration capability becomes an important factor for new knowledge co-creation. Gardner et al. (2012) study how teams may achieve a knowledge-integration capability that integrates the team members' individual resources into greater performance. The authors base their research on three sets of resources that are critical for team performance: relational resources meaning the familiarity within teams, experiential resources meaning the collective work experience and structural resources meaning the distribution of the relational and experiential resources across all team members. The research of Gardner et al. states that capability for knowledge-integration is built through a process containing effective and collaborative communication. The authors call out for managers to pay close attention to knowledge-integration capability in teams and to make sure it is not harmed by uncertainty within teams. Allocating correct individuals for every team is a crucial issue in order to achieve the optimal relational resources. Dynamic and changing work environments also require teams to make ongoing readjustments regarding their problem solving processes.

2.4.2 The conditions in favor of new knowledge creation

Von Krogh et al. (2000) examining knowledge creation argue that knowledge management in companies tends to lean too much on information technology and process controlling. On the contrary, knowledge management with its somewhat uncontrollable processes needs to be handled more delicately by supporting rather than controlling. Consequently, it is worthwhile to examine the conditions that create the best prerequisites for new knowledge creation.

Von Krogh et al. (2000) argue that instead of knowledge management one could speak of knowledge enabling; facilitating knowledge sharing and creating conditions in favor of sense of belonging and encouraging creativity. The traditional forms of compensation and hierarchical organizational structures are not motivational for knowledge workers of today – instead the focus needs to turn to the human side. The authors suggest five knowledge enablers: instilling a knowledge vision with initiatives throughout the company, managing and encouraging conversations, mobilizing knowledge activists for inspiration and coordination, creating the right context and globalizing local knowledge. (Von Krogh et al., 2000.)

Regarding the team conditions in favor of new knowledge creation, the relationship between successful knowledge gathering and project performance is recognized by Haas (2006). Haas studies the ideal conditions for functional knowledge gathering and stresses the importance of conditions that enhance team processing, sense making and buffering capabilities in busy team work environments. Overload of tasks often results in settling for satisfactory solutions instead of superior ones. Haas suggests three capability enhancing conditions to improve team performance: slack time, work experience and decision-making autonomy. Slack time allows teams to reserve an extra time for finding the best possible solutions if the minimum time set for a project proves to be insufficient. Work experience again refers to team members' prior experience that enhances

their capabilities of assimilating, interpreting and applying new knowledge. Finally, the decision-making autonomy creates motivating conditions that allow team members to make critical task-related decisions thus improving their performance. (Haas, 2006.)

Erden et al. (2008) studying organizational knowledge creation bring into discussion the concept of group tacit knowledge; the shared understanding achieved by collective action. Co-creation in creating new knowledge requires high levels of shared understanding within a group and it depends not on individuals' actions but collective actions of a group with shared mental models. As Erden et al. (2008) describe it, the group becomes a collective body and mind in familiar situations and knows exactly what the function of each member is, this enabling smooth and successful actions.

Rosendaal (2009) defines cooperating in knowledge-intensive work as a social process in which identification and organizational climate have a strong impact. Today's tendency in organizations is that knowledge-intensive work is mostly done in groups and teams which is also where most of the knowledge creation occurs. Diversity in the expertise – not values – of members is said to be an advantage for a team but on the other hand members with different cultural and educational backgrounds working together poses challenges for the development of social ties which also are prerequisite for successful team work. Rosendaal's study of social identification and knowledge sharing in corporate teams suggests a strong relation between these two issues. The organizational climate has to be supportive and teams need to feel a sense of belongingness and trust to reach the maximum leverage on others knowledge. Strong social identification with the team makes members regard themselves as representatives of the team and enhances their knowledge sharing. (Rosendaal, 2009.)

Social ties are also discussed as major influencing factor in innovative teams' knowledge sharing by Wang et al. (2006) studying IT-product innovations in R&D teams. The authors separate the sharing of explicit and tacit knowledge.

Whereas explicit knowledge is easier to share, tacit knowledge lies in individual's skill base or experience, judgement or awareness of subjects or situations. Knowledge co-creation calls for knowledge receiver's understanding of knowledge holder's mental model that is more than mere language or communication process. Environments of high-trust encourage team members to collaborate and share knowledge and in order to build trust there needs to be open communication channels and a shared objective. (Wang et al. 2006.)

Trust has also been recognized as a significant factor in knowledge creation by Levin & Cross (2004) who study trust as the mediating factor in dyadic – two-party – knowledge transfer. The research of Levin & Cross examines the interrelations of three factors effecting knowledge transfer: social networks, trust and organizational learning. It has been discussed in literature that trust makes people more willing to share and absorb others' knowledge. Trust reduces conflict and thus makes knowledge transfer more effective and less costly. Trust can occur in forms of benevolence basing on affection or competence basing on cognition. Levin & Cross argue that competence-based trust is important throughout knowledge exchange whereas benevolence-based trust is most significant in exchanging tacit knowledge. Levin & Cross bring into discussion stronger and weaker ties and their role in knowledge transfer. Evidence exists that strong ties result in better knowledge transfer. As two people create strong ties they learn about the other person's skills and competence while also developing a common way of thinking and communicating. Weak ties again provide access to nonredundant information. Consequently, organizations may benefit from the trusted weak ties as well. (Levin & Cross, 2004.)

Knowledge work in groups may be referred to under terms knowledge communities or knowledge collectivities. Lindqvist (2005) examines the differences between communities-of-practice and so-called collectivities-of-practice. Whereas communities-of practice refer to groups working closely together, collectivities-of-practice are short-term teams put together for a certain assignment or project. In this case the relationships between the experts involved

are shallower. By comparing the characteristics of these two group types, Lindqvist argues that it is important to separate these forms of groups because of their different conditions for creating new knowledge. Communities-of-practice with its members committed and having shared values developed during a longer period of time have better preconditions for new knowledge creation than mere collectivities with shallow social ties. Sharing tacit knowledge in specific requires social connections as the knowledge is largely embedded in situations and practice rather than in an individual's mind. Only by working closely in face-to-face situations and through practice it is possible to effectively transfer tacit knowledge. Even these knowledge collectivities however may with skillful management and coordination be able to create a successful pattern of interaction. The knowledge of these collectivities is distributed and relies largely on individuals' knowledge and competences that need to be connected. (Lindqvist, 2005.)

Besides strong social ties and diversity in skills between the team members, equality is also named as a significant element in creating the optimal circumstances for new knowledge creation. Baets (1998) states that equality of members in knowledge networks plays a major role in the knowledge process. The sense of equality promotes in dynamic knowledge creation as well as interaction of the members' reference networks.

2.5 Co-creation in different fields of science (R&D, innovation, marketing)

The concept of co-creation has been used in connection with R&D in describing collaboration of groups and teams within their field of business. According to Brännback (2003), R&D networks benefit from being regional as proximity is regarded an advantage in developing trust and allowing repeated interactions with deliberate knowledge spillovers acting as knowledge catalysts.

Wang et al. (2006) study team work in IT R&D sector within different groups. The group with face-to-face contacts was found to argue that they still

communicated and exchanged thoughts through internet even though they sat in the same office. This may be characteristic for IT-sector in case. The knowledge sources used were considered a significant factor in building social networks. Teams set to develop incremental innovations used mostly senior team members as knowledge sources. Teams designed to develop radical innovations in turn contacted external knowledge sources and knowledge across team boundaries. In each case, social ties were considered vital for trust and sharing of implicit knowledge. (Wang et al. 2006.)

Lee et al. (2012) discuss the development of innovation during past decades into a broader concept of co-innovation. Innovation has developed from closed to collaborative innovation and again to open innovation. Co-innovation is based on collaboration and includes engagement, co-creation and value creation. This value gained by co-innovation is difficult to imitate by competitors. The basis for co-innovation is a platform of innovation for convergence of ideas, collaboration among participating organizations and co-creation of shared value with customers. (Lee et al., 2012.)

Innovation from the point of view of knowledge creation is in scope in the research by Peschl & Fundneider (2008) studying emergent innovation in organizations. The authors argue that creating radically new knowledge is essential for every organization whose product or service is based on knowledge. Innovation processes are challenging for they are based on future which is impossible to accurately predict. Knowledge creation and innovation go hand in hand; there is no one without the other. Emergent innovation according to Peschl & Fundneider stands for “learning from the future as it emerges”. Therefore coping with change is a key element of the innovation process. There are four methods that facilitate adapting to change: Reacting and downloading, restructuring and adaptation, redesign and redirection and finally, reframing. To maximize the ability to be innovative, organizations need to focus on the processes of cognition and reflection, questioning and observation. The

organization has to be attentive and to some extent learn to wait instead of forcing innovation. (Peschl & Fundneider, 2008.)

Perks et al. (2012) examine how co-creation occurs in radical service innovations which most often result from inter-firm collaboration networks. The authors define innovation as the outcome of co-creation; in other words joint creation of value by the firm and its networks. The challenge in co-creation according to literature is often multi-party interaction due to role conflicts. Also, the authors identify the need for organizations to cherish the creative practices within networks and enhance independent innovation activity in networks. Articulating and visualizing the advances accomplished by networks is crucial. (Perks et al., 2012.)

Prahalad & Ramaswamy (2004) study co-creation from the view of marketing. Their study defines co-creation as joint creation of value by the company and the customer and as resulting from negotiation between these groups. In association to co-creation, the authors talk about co-constructing personalized services to suit the customers' context. Prahalad & Ramaswamy argue that co-creation is not mere outsourcing of activities to customers for customization. In their opinion, co-creation is more fundamental involving the co-creation of value through personalized interactions defined by how the individuals want to interact with the company. High-quality interaction enables customers to co-create unique experiences with the company and it enables the company to co-shape customer expectations in constant dialogue which unlocks new sources of competitive advantage. Co-creation turns the market into a forum. (Prahalad & Ramaswamy, 2004.)

From the point of view of marketing, Payne et al. (2008) combine the concept of co-creation with co-production. Co-creation in their perspective can be described as an activity in which customer and supplier engage in a process of co-designing products where the company's role is to gather profound customer insights. Each of the actors benefits from the joint value creation. Payne et al. also take notice of

knowledge management in managing co-creation processes. Effective ways to capture the various elements of customer knowledge – tacit or explicit – need to be ensured. (Payne et al., 2008.)

2.6 Co-creation as a process according to literature

Aarikka-Stenroos & Jaakkola (2012) discuss the value co-creation process in knowledge-intensive business services. In their opinion, value co-creation requires effective dialogue and occurs through a collaborative dyadic problem solving process between supplier and customer. The process reaches from problem identification to solution implementation. Collaborating parties should concentrate in creating procedures that enable active participation and continuous dialogue concerning the objectives of collaboration. Possible misunderstandings need to be identified and treated as possible opportunities for seeing the parties' various viewpoints. Both parties – supplier and customer – have a significant role in value co-creation. (Aarikka-Stenroos & Jaakkola, 2012.)

Potts et al. (2008) define consumer co-creation as a process where consumers participate in the whole process of both innovation and production. In other words, co-creation between consumer and producer is a more comprehensive process than mere co-innovation. As an important element in co-creation, Potts et al. bring out situational creativity which is embedded in the relationships and systems of social interaction. Situated creativity can be defined as an extension of situational knowledge which lies in contexts and places and other forms of social interaction. (Potts et al., 2008.)

Besides the above definitions of co-creation process as a process between supplier and customer or between consumer and producer, co-creation processes occur in teams and alliances of different sizes and objectives. Co-creation may be ongoing during a longer period of time but the team may as well operate for a limited duration only. Teams may be composed only to perform a certain project or to achieve a specific well-defined goal. According to Nooteboom (1999), an alliance

has a life cycle reaching from emergence through performance and adaptation to finally decline. Nooteboom argues that the team members need to see the relation as a continuum and on the other hand as something that needs to adapt and will most likely end at some point. A sense of continuity is necessary for team members to build mutual trust and understanding whereas adaptation is needed to observe the changed goals and conditions in markets or technology. (Nooteboom, 1999.)

To further analyze the process of co-creation, Durugbo & Pawar (2014) suggest a model for co-creation. The knowledge of existing values determines the need for co-creation and the selection of co-creation strategies concerning techniques and involvement. Participants need to be willing and motivated and collective actions are needed in order to succeed. Techniques may include methods such as focus groups, workshops or story boarding. Workshops in particular were regarded by the authors as successful methods of co-creation with their emphasis on collective actions and informal settings where idea generation was high. The senses of liberation and ownership for the project were found crucial. Durugbo & Pawar examine co-creation from the point of view of customer co-creation but the process can be found similar in dyadic co-creation between knowledge workers. (Durugbo & Pawar, 2014.)

John-Steiner (2000) studying creative collaboration between dyads and small groups brings out the interdependence of collaborators and dynamical processes as important characteristics of co-creation. The collaborative groups may vary in intensity and duration as well as interactional methods. The author states that the difference between collaborative groups also called as thought communities and mere cooperative groups is that thought communities take emotional and intellectual risks in order to build a shared vision. Complementarity is the essence of co-creation, meaning that the collaborating partners complete each other and are able to come up with solutions they would not be able to create by themselves. Complementarity may be supportive as well as oppositional complementarity. Due to complementarity and mutual appropriation the partners are able to stretch

the human possibilities providing personal benefits in addition to completing the joint tasks. According to John-Steiner, collaboration is stimulated by diversity of perspectives and by constructive dialogues between collaborating partners. Differences of experiences and opinions are merged into shared vision. Besides shared vision, talent and perseverance are required from the partners. The participation and roles in these groups are voluntary and informal. Such as Potts et al. (2008), also John-Steiner emphasizes the importance of situated and contextual modes of thinking. In ideal cases where collaboration has been given a long period of time to reach its best integrative impacts, the collaboration thrives on dialogue and a common set of beliefs is created in order to help the partners through times of insecurity. (John-Steiner, 2000.)

2.7 Summarizing the phenomenon of co-creation

To conclude and summarize the different views of co-creation in the light of literature, a following table is proposed. The table describes the characteristics and differences of the concepts brought out by the literature review.

Table 1. Characteristics and differences of the concepts of crowdsourcing, open innovation, co-design and co-creation.

	Collaboration	Creativity	Knowledge-Creation
Crowdsourcing	X		
Open innovation	X	X	X
Co-design	X	X	X
Co-creation	X	X	X

In Table 1, the nature of the four concepts is evaluated in respect to their containing collaboration, creativity and/or knowledge-creation. As seen from the table, all of the concepts discussed may be addressed to as collaboration. Collaboration is a kind of umbrella term for all cooperative actions in pursuit of common interests – with or without knowledge-intensive aspect.

Crowdsourcing can be defined as collaboration but often lacks the aspects of creativity and knowledge-creation. Crowdsourcing can be characterized as “asking for advice” from the mass of consumers. Crowdsourcing measures are mainly operated in virtual platforms and typically lack the face-to-face aspect in literature. Open innovation going a little bit further may besides collaboration contain aspects of creativity and knowledge creation though not necessarily – thus the crosses marked lighter. Such as crowdsourcing, majority of open innovation operations occur in virtual platforms and online communities with little or no face-to-face contact. Difference between crowdsourcing and open innovation is that open innovation actions usually employ lead users of a product or service thus making the process more creative than mere crowdsourcing.

Co-design brings on the creative aspect and usually stands for deeper collaboration that demands for creativity as well as knowledge-creation but again may as well be limited to more superficial level of collaboration. The word “design” refers more to designing concrete products or services and thus has been seen in literature as very close to the concepts of crowdsourcing or open innovation. Co-design however containing more creative and knowledge-intensive aspects may usually require face-to-face contacts at least when the process contains new knowledge creation. Co-design process according to literature typically includes designers or other specialists who are involved in the process in addition to employer organization and possibly its customers.

The author of this study argues that co-creation process should contain all the three elements depicted in Table 1; collaboration, creativity and knowledge-creation. Based on the literature studied here, a conclusion about co-creation may be drawn as follows: Co-creation is a complicated process which contains deep, knowledge-intensive collaboration and creativity. Mere collaboration without these aspects should not be called co-creation. A successful co-creation process contains knowledge sharing and leads to new knowledge creation. The process of co-creation is best succeeded in face-to-face circumstances containing vivid social

interaction. To avoid ambiguity, co-creation should be addressed to only when referring to a process where new knowledge is created.

The concepts discussed in the previous literature review are summoned in the table below. The table discusses the main studies used as references according to their viewpoints of co-creation along with their conceptualizations and findings. The purpose is to demonstrate the multiple meanings of co-creation in literature and how the different concepts overlap and intertwine to each other.

Table 2. Summary of concepts related to co-creation.

	Reference	Conceptualization	Theoretical background	Research context	Method	Results
C o l l a b o r a t i o n	Lee, Olson & Trimi (2012)	Collaboration stands for developing a value chain with competitive partners. "In addition to collaboration among organizations, many different forms of collaborative work exists such as open-source collaborative community, social networks for collaboration etc." (Lee et al., 2012: 828.)	Capitalization, society and megatrends (Fukuyama, 1992; Friedman T.L., 2005; Aburdene, 2007; Naisbitt & Naisbitt, 2010; Friedman F., 2011). Open innovation (Chesbrough, 2011; Lichtenthaler et al., 2011). Collaboration (Tapsott, 2006; Adler et al., 2011). Dynamic capabilities (Teece, 2009; Lee et al., 2010).	Global market place	Conceptual study	Co-creation for collaboration is characterized by shared purpose. To achieve shared value, the collaborative and co-creative ideas must be converted into value by co-innovation. The key element resulting in co-innovation is an equal and compelling experience of all the participants concerning value creation.
	Brännback (2003)	Collaboration and knowledge creation occur in networks. "These networks can be between departments in a university or a business, between universities, between companies, or between universities and companies. Each of these elements form separate contexts, Ba, which through the network(s) form new knowledge context(s)." (Brännback, 2003: 29.)	Knowledge creation (Nonaka, 1991; Nonaka & Takeuchi, 1995; Nonaka et al., 2000). Organizational learning (Cohen & Levinthal, 1990; Kogut & Zander, 1992; Leonard-Barton, 1992; Levinthal & March, 1993).	Knowledge-creating R&D networks	Conceptual study	A network needs five basic elements – people, shared purpose and links, multiple leaders, independence of members and interactive levels that tie the network together. "Proximity allows for repeated interactions that build not only shared identities and trust but also geographically localized knowledge spillovers acting as knowledge catalysts." (Brännback, 2003: 36.)

	Prins (2006)	Collaboration is "a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible" (Prins, 2006: 336).	The psychodynamic perspective in organizational research (Trist & Murray, 1990; Gould, Stapley, & Stein, 2001; Huffington et al., 2004). Collaboration (Gray, 1989; Huxham, 1996, 2005; Page, 2003).	Inter-organizational project group	Case study via action research	Making sense of the inevitable tensions and conflicts is essential in collaborative work. The role of facilitator may help in adapting and creating good relationships. Parties need to learn how to develop new practices that enable anxiety and conflicts to be worked through.
C r o w d s o u r c i n g	Estelles-Arolas & González-Ladrón-de-Guevara (2012)	"Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task" (Estelles-Arolas & González-Ladrón-de-Guevara, 2012: 197).	Innovation (Kleeman et al., 2008; Ribiere et al., 2010). Open innovation (Sloane, 2001). Online communication (Grier, 2011; Bederson & Quinn, 2011; Alonso & Lease, 2011). Marketing (Whitla, 2009).	Former literature	Conceptual study via literature review	In literature, crowdsourcing refers to any type of internet-based collaboration and is in need of more precise definition. Crowdsourcing in literature overlaps with the associated concepts of open innovation and open source development.
	Brabham (2008)	"Crowdsourcing is an online, distributed problem-solving and production model that has emerged in recent years" (Brabham, 2008: 75).	Computer-based collaboration (Smith, 1994; Severin, 2001; Kelemen et al., 2001). Online content creation (Lenhart et al., 2005; Madden, 2005; Jenkins, 2006).	Web-based companies	Case study	Crowdsourcing outperforms traditional business models with effectivity and value-creation. Crowdsourcing may aggregate talent and ingenuity with lower costs. Crowdsourcing is only enabled through interactive web technology.
	Geiger, Seedorf, Schulze, Nickerson & Schader (2011)	"Crowdsourcing is an umbrella term for various approaches concerning the potential of a large and open crowd of people" (Geiger et al., 2011: 1).	Collective intelligence (Malone et al., 2010). Customer co-creation (Zwass, 2011; Piller et al., 2011). Human computation (Quinn & Bederson, 2011).	Web-based crowdsourcing processes	Case studies	Crowdsourcing processes are characterized by four dimensions that impact the process of sourcing and contributions from the crowd. Altogether 19 process types were identified.

O p e n i n n o v a t i o n	Jeppesen & Frederiksen (2006)	"In online firm-hosted user communities, users freely reveal innovations to a firm's product platform, which can put the firm in a favorable position because these new product features become available to all users through sharing on a user-to-user basis, or because it allows the firm to pick up the innovations and integrate them in future products" (Jeppesen & Frederiksen, 2006: 45).	Innovation (Rothwell et al., 1974; Rosenberg 1976; Von Hippel 1976, 1988). User innovation (Shah 2000; Lerner and Tiróle 2002; Lakhani & Von Hippel 2003; O'Mahony 2003; Von Krogh & Von Hippel 2003; Lüthje 2003; Franke and Shah 2003).	Innovative users in firm-hosted user community	Case study	Innovative users are most often hobbyists who honor the company and are motivated by recognition from it and their peers. "The process of constant development and content creation by users increases the value of the product to all users and may eventually result in a longer product life and greater sales of the original product" (Jeppesen & Frederiksen, 2006: 48).
	Nambisan & Baron (2009)	"First, customer interactions in the VCE are primarily rooted in the context of the firm's product. Second, customer interactions in the VCE occur in a social or community context, a community that consists of peer customers as well as members of the host firm. Third, interactions occur in a computer-mediated environment." (Nambisan & Baron, 2009: 391.)	Motivation (Katz, Blumler & Gurevitch, 1974; Palmgreen, 1984; Parker & Plank, 2000; Stafford, Stafford & Schkade, 2004). Internet and other computer-mediated environments (Kaye & Johnson, 2002; Stafford et al., 2004). Brand communities and virtual groups (Burgoon et al., 2000; Muniz & O'Guinn, 2001; McAlexander et al., 2002).	Virtual customer environments	Case study	Customers play a role in innovation and value creation concerning product design, product testing, and product support activities. Clear benefits received from participation were seen as a strong motivating factor for customers. Benefits may include enhanced product knowledge, communication with other knowledgeable customers, enhanced reputation, and cognitive stimulation and enjoyment.
	Füller, Hutter & Faullant (2011)	"Open innovation stands for opening up the innovation process in order to get access to external ideas and solutions" (Füller et al., 2011: 259).	Innovation (Pralhad & Ramaswamy, 2003; Chesbrough, 2006; Gasmann, 2006; Lichtenthaler, 2009; Bullinger et al., 2010). Motivation (Deci et al., 1985; Amabile, 1996; Ritala & Hurmelinna-Laukkanen, 2009). Creativity (Simonton, 1999; Csikszentmihalyi, 2002).	Design competition community for designers and creative consumers	Case study	The use of online design competitions can help to achieve new ideas from lead users. Companies need to create enjoyable and compelling experiences for their customers in order to get innovative new ideas from them.

Creative	Erden, Von Krogh & Nonaka (2008)	"Group members begin to act in a collective and coordinated manner, solving complex tasks, without explicit rules for action such as written procedures, decision rules, formal models, or even without explicit communication" (Erden et al., 2008: 6).	Organizational knowledge creation (Nonaka et al., 1994; Bierly & Chakrabarti, 1996). Individual tacit knowledge (Polanyi, 1967; Nonaka, 1994; Nonaka et al., 2000; Tsoukas, 2003; Gourlay, 2004).	Face-to-face teams	Conceptual study	QGTK grows as the group reaches higher levels. GTK is an important driver for collective creativity and innovation success in organizations. High quality group tacit knowledge (GTK) brings firms competitive advantage in dynamic market situations.
Creative	Potts, Hartley, Banks, Burgess, Cobcroft, Cunningham & Montgomery (2008)	"This is a dynamic form of situated creativity that differs from static conceptions of creativity, as situated in a place or space, and instead emphasizes the transactional and expectational nature of such creativity" (Potts et al., 2008: 460).	Consumer co-creation (Baldwin & Von Hippel, 2006; Banks & Potts, 2008). Creative industries (Florida, 2002; Hartley, 2005). Innovation (Lundvall 1985; Chesbrough, 2001). Cultural studies (Bordieu, 1993; Bednar, 2007).	Consumer co-creation in digital media	Case studies	"The concept of situated creativity enters into this (consumer co-creation) as the creativity that underlies production and innovation is extended to consumers, and thus said to be situated in these relationships" (Potts et al., 2008: 460).
	Harvey (2014)	"Group creativity occurs when a bounded and recognizable collection of individuals works interdependently toward a shared goal of developing output that is both novel and useful" (Harvey, 2014: 324).	Group creativity (George, 2007; Staw, 2009; Singh & Fleming, 2010; Madjar, Greenberg, & Chen, 2011). Individual creativity (Drazin, Glynn & Kazanjian, 1999; Kurtzberg & Amabile, 2000-2001; Jackson & Poole, 2003; Hargadon & Bechky, 2006).	Creative groups	Conceptual study presenting a model describing creative synthesis	Combining cognitive, social, and environmental resources through creative synthesis may help to produce extraordinary creative success.
Creative	Sanders & Stappers (2008)	"Co-design is a specific instance of co-creation. We use co-design in a broader sense to refer to the creativity of designers and people not trained in design working together in the design development process." (Sanders & Stappers, 2008: 6.)	Innovation (Buxton, 2005; Von Hippel, 2005; Seybold, 2006). Co-creation (Pralhad & Ramaswamy, 2004). Participatory design (Cross, 1972; Bodker, 1996; Stappers, 2007).	Human-centered design in marketing and brand development	Conceptual study	The process of designing products and services is turning into a co-design process where knowledge co-creation and collective creativity play an important role.

Piller, Schubert, Koch & Möslein (2005)	"Customer co-design describes a process that allows customers to express their product requirements and carry out product realization processes by mapping the requirements into the physical domain of the product" (Piller et al., 2005: 5).	Mass customization (Davis, 1987; Duray, 2000, 2002; Wind & Ramaswamy, 2001; Tseng & Jiao, 2001; Piller, 2003). Customer co-design (Von Hippel, 2001).	Co-design customer environments in different domains (for example sports equipment and toy industries)	Case studies	The authors introduce a collaborative customer co-design environment where the customers are able to customize the products by using design toolkits.
Prahalad & Ramaswamy (2004)	"Value is the result of an implicit negotiation between the individual consumer and the firm. Co-creation is about joint creation of value by the company and the customer." (Prahalad et al., 2004: 7.)	Marketing management (Schmitt, 1999; Kotler, 2002). Customer innovation (Wikstrom, 1996; Thomke & Von Hippel, 2002).	The process of value creation between customer and market	Literature review	High-quality interactions that enable an individual customer to co-create unique experiences with the company are the key to unlocking new sources of competitive advantage. Active dialog between customer and company is needed. The market is seen as a forum rather than a target.

3 RESEARCH PROCESS

This study has been motivated by the fact that the concept of co-creation has been used rather confusingly in prior literature. In literature, co-creation has been used in referring to various forms of collaboration and it clearly lacks proper definition. There is a need for more precise definition for future research to prevent overlapping use of concepts. Besides defining co-creation as a phenomenon the study seeks to examine how it occurs in practice. The research methods used in the study and described into more detail in the following chapters were found appropriate as the purpose is to analyze and reveal the inner thoughts of the participants and through this to make conclusions about how the actual process occurs.

This study is a qualitative analysis following narrative-hermeneutic analyzing method. Qualitative research was chosen as the objective is to study deeper meanings and understand co-creation from the point of view of the people studied. Qualitative research is most suited when trying to examine “how” something occurs rather than studying questions of “how many” (Pratt, 2009). The research methods are more profoundly described in the following chapters.

3.1 Research methods and approach

Qualitative research seeks to interpret the lived meanings of the people studied and concentrates on describing, narrating and explaining a phenomenon (Pettigrew, 2013). The essence of qualitative research is to search for new ideas and insights rather than to prove someone right (Shank, 2002). Characteristic for qualitative research is to examine the phenomenon from many different angles whereas characteristic for qualitative data is its complexity and multiplicity (Alasuutari, 1994). As qualitative research often lacks concrete methods of measuring the issue, the observations are always somewhat based on the researchers’ own interpretations of the issue studied – as is the case also in this study.

When analyzing qualitative data, methods that bring the researcher near the target individuals studied are in order (Kiviniemi, 2001). The data studied in this research is in form of written stories that can be defined as narratives. The target individuals have written the stories freely without any specific instructions concerning the structure of the essays. In its most demanding meaning, narratives can be said to be stories with a plot but as its simplest form, any kind of data based on narrating can be called a narrative (Heikkinen, 2001).

Resulting from these conclusions, narrative analysis was chosen as the main analyzing method for this study. Shank (2006: 168) defines narrating as “the art and skill of taking different experiences and events and putting them together into a coherent story”. Boje (2001) argues that narratives tie together stories of experiences that may be fragmented. Narrative analysis suits the research context in question here as this research studies written texts with personal experiences. Narrative approach is distinguished by its interpretive thrust (Riessman, 1993) and the idea is to interpret the interpretations of the people studied into justified findings. Characteristic for narrative studies is that they take interest in stories that tell about the individuals’ own life and experiences and are freely told by the individuals themselves (Saaranen-Kauppinen & Puusniekka, 2006). Besides experiences, the stories may bring out for instance hopes and attitudes or personal goals of the target individuals. Scholars have defined narrative as integral to human experience and understanding this relationship is crucial. Narratives provide insight into people’s thoughts and interpretations – they make meanings out of experiences (Thomas, 2012).

Narrative studies often proceed by forming typical narratives, a kind of core stories, of the data studied (Saaranen-Kauppinen & Puusniekka, 2006). The purpose of forming stories based on the narratives is to bring out the central themes rising from the data (Heikkinen, 2001). By forming a story it can also be seen if the observations are related or coincidental. If the incidents can be brought together in form of a story it can be confirmed that they are related to each other

(Shank, 2006). The aim of analyzing the data also in this study is to find the core elements that come up in written essays and to inspect whether there are common themes that the participants bring out as being significant or contrary. The purpose is to determine and divide the data into some typical narratives and to explore the similarities and differences in those. Also, the study seeks to find out if there are cases that do not fit into the defined typical narratives and in what reason. The purpose of narrative studies is not so much the search of fixed closures as telling new stories from new perspectives (Hyvärinen, 2012).

The analysis in this study can also be described as hermeneutic as it studies deeper meanings in texts and the author's own interpretations play a role in analyzing the experiences and opinions and drawing conclusions from them. In qualitative research this is often the case – the deductions conducted by the study are somewhat influenced by the author's own perceptions and interpretations concerning the data (Hirsjärvi et al., 2003).

The research approach in the viewpoint of science philosophy can be defined as abductive. Abductive approach is somewhat close to inductive reasoning that proceeds logically from details to generalizations, but the abductive approach seeks to avoid the problems regarding the logic of induction. Whereas the inductive reasoning uses logic, the idea of abductive approach is that it is based on a guiding principle that may either be vague or strong idea or hypothesis. Guided by this idea, the observations may be concentrated on the facts that are expected to bring out new findings or build new theory about the issue concerned (Grönfors, 2011). Characteristic for inductive approach is that it is primarily based on the research data and the author's observations concerning it. Inductive approach is generally meant either to build or elaborate theory (Pratt, 2009). The abductive approach is similarly based on the author's own observations but is not necessarily logical as the deductions may instead be driven by former theory, literature or even mere intuition of the author (Grönfors, 2011). Abduction has also been described as an inferential guess (Boje, 2001). Abductive approach has often been used when dealing with anomalous or surprising phenomena (Paavola,

2004). Co-creation can be described as such because of its characteristics as an ambiguous and broad concept.

Gioia et al. (2013) call for “tandem reporting” of both the informant and the researcher. This demonstrates the links between the data and the inductions made by the author which gives the study rigor. Pettigrew (2013) also recognizes the need for transparency of methods and analyzing the data in qualitative research as the main ingredients for a reliable scientific research. Consequently, in order to maintain a rigorous touch of this study, the author seeks to present the voice of the participants by quotes to demonstrate what the conclusions of this study are based on.

3.2 Participants of the study

The study explores narratives written by MBA-students in Lappeenranta University of Technology specializing in knowledge management concerning their experiences of co-creation. The objects of analysis are the individuals’ personal experiences in co-creation of knowledge in knowledge-intensive work. All the participating MBA-students have vast experience from knowledge-intensive team work and thus qualify as interesting and resourceful participants for this study. The author does not know the participants personally which helps in maintaining an objective view in analyzing the results.

The number of sample group examined in this study is 21 which are expected to be a sufficient number to answer the research questions concerned. In qualitative research, there is no definitive number of how many interviews or observations are required to perform an adequate research (Pratt, 2009). One can scrutinize the issue from the point of view of data saturation. When the saturation point is reached in a research, the issues brought up by the participants will start to repeat themselves. In other words, there is a certain amount of data that is needed in order to achieve a result that is theoretically significant (Hirsjärvi et al., 2003).

3.3 Data collection

The material for the empirical part of this study was gathered from course assignments in LUT MBA-programme. The students were assigned to write a short essay, an informal story of about one page long about their personal co-creation experience from a case in which they had cooperated successfully with an expert or a group of experts from another field of business and succeeded in creating new knowledge through effective collaboration. Neither the team size nor the length of the working period was further specified in the assignment. The participants were asked to clarify what in their opinion were the constituents for functional co-creation regarding the team partners, goals, policies and circumstances. The purpose as a whole was to find out what kind of factors were regarded as crucial for successful co-creation and how the individuals benefited from their team partners' expertise by generating new ideas and building new knowledge on top of their existing knowledge.

The given course assignment is included as appendix of this study. The studied data consists of 21 written essays. These essays analyzed contain confidential material and therefore the names of participating data sources and the organizations mentioned will remain undisclosed.

3.4 Reliability and validity of the results

Reliability is usually referred to when addressing the accuracy of the results (Shank, 2006). In qualitative research, one might rather talk about the accuracy or trustworthiness of a research. As a qualitative study usually lacks concrete methods to test or measure the results, the attention has to be focused on making sure that the researcher understands what is being told. In practice this means that a researcher has to go back and forth between the data and the perceived insights and make sure that they correspond with each other (Shank, 2006). Rather than seeking results that may be generalized to larger groups, the purpose of qualitative

studies is to clarify and explain a certain phenomenon and to make it understandable (Alasuutari, 1994).

This study has sought accuracy by studying different kinds of essays and going through the observed insights many times to make sure the observed patterns are equal in all the material that has been studied. The amount of data studied was considered large enough to bring reliable results that may be generalized.

Validity again stands for the truthfulness of the results – the fact that what the researcher observes has actually happened (Shank, 2006). When evaluating the reliability – or accuracy – and validity of a qualitative research, one must bear in mind that qualitative research is always somewhat based on the author's own interpretations. Therefore it is important to make sure that the research process is consistently presented in the research report and the interpretations are clearly explained. (Kiviniemi, 2001.)

Proving the validity of the results has been done in this study by explaining transparently how the conclusions have been drawn from the data studied by using quotations. Validity of this study is also supported by the fact that the data comes from trusted informants who are experts in their own fields of business.

Tracy (2010) suggests a model of “Eight Criteria” in evaluating the quality of a qualitative research. These criteria are named as follows: worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution, ethics and meaningful coherence. To go through these in more detail, a worthy topic can be described as relevant, interesting and significant as regards to current society and research. Rich rigor comes from the study using appropriate theoretical background and suitable processes of data collection and analysis. Sincerity and credibility may be seen in the author's own reflections made visible as well as in transparent analysis and methods showing the voice of the studied target group. Resonance stands for the fact that the study raises interest and has an influence in its audience by offering findings that the readers may benefit from. This results in turn in

providing a significant contribution in form of theory or practice for future studies. Ethics of a research comes from the author taking into consideration for instance the relational and situational ethics considering the target individuals studied and making sure that the results are shared according to ethics. The last criterion – meaningful coherence – refers to the interconnection between the theoretical and the empirical part and the purpose of the study coming forth throughout the study. (Tracy, 2010.)

To scrutinize this study from the point of view of the eight criteria mentioned above, the research topic can be marked as being worthy for it tackles a current problem of the ambiguous use of the concept of co-creation seeking to find a clarification for the use of co-creation and its associate concepts. This study has been given rigor by choosing the suitable participants who are specialists in their own fields and from whom it was expected to collect interesting findings concerning knowledge co-creation. Methods of analyzing the data were also proved suitable for this study and transparently brought out the voice of the participant individuals as well. Transparency again is a constituent for sincerity that this study has pursued by self-reflexivity meaning that it presents the author's own reflections and the ponderings behind them. Credibility of this research is supported by showing the results openly. What comes to resonance, the study is likely to affect its audience by offering interesting findings concerning co-creation and provide ideas for future research. By striving to find clarification to a highly current research topic in today's knowledge intensive society, the contributions of this study may be assessed significant as being directional towards future studies and offering tools for managers leading knowledge-intensive teams. This study has operated ethically by respecting the wishes of the participants in keeping their names and organizations undisclosed. Finally, the meaningful coherence in this study is demonstrated by the literature review and the empirical part discussing and being related to each other. The purpose of the study described in the introduction part is fulfilled in the end by answering the research questions and providing suggestions for a more distinct use of the concept of co-creation and other concepts related to it.

4 ANALYSIS AND RESULTS

This chapter presents the empirical part and brings together the findings of this study considering the literature review as well as the empirical part. Firstly, the study provides the analysis of the research data in form of narratives created according to the data. Results and findings are subsequently presented about how new knowledge is created between knowledge specialists in practical life and what the ideal circumstances for successful knowledge co-creation are.

Secondly, co-creation as a phenomenon is summarized as seen by the author after studying the former literature covered in this study. The intertwining meanings of co-creation and its associate concepts discussed are demonstrated in form of a figure and the author's views of their similarities and differences are brought out.

Thirdly, a discussion is presented about the corresponding issues between the literature review and the research findings. The answer to the main research question about the definition of the concept of co-creation is presented here. The answer to the second research question about how co-creation occurs in practice and to the third research question about the favorable conditions of co-creation are provided as well.

4.1 Co-creation in practice – personal experiences of the target group in form of narratives

To find out the underlying thoughts residing in the minds of the participants, the data for the study was analyzed using narrative analysis. The research data – altogether 21 essays – were turned into three typical narratives describing the events in causal sequence. Each of the narratives has a beginning, a turning point and an end. The focus of the narratives here is on the social context assuming that one of the main influencers is the social interaction between the people studied.

The essays studied here as research data were read several times in order to form an accurate overview and profoundly understand the message of the texts. Concentration was on evaluating the nature of the process and situations described and finding similarities as well as differences from the descriptions. The purpose was to point out the main issues reflecting the personal experiences and thoughts of the people studied to be able to make some generalizations about co-creation.

The data was first categorized according to the types of co-creation situations described in the essays. The texts depicted three different case or story types as follows: First category was named co-creation between two experts. Second category was named co-creation between a team of several experts within one organization. Third category was named co-creation between a larger team from two or more organizations. This division into three categories was thought appropriate because the nature of co-creation was expected to somewhat differ according to the size of the team and according to how well the team members knew each other or learned to know each other during the process. The presumption was that the smaller the team, the deeper the co-creation process would be. Also the familiarity of the team members as regards to each other was expected to be beneficial for the co-creation process.

Main themes scrutinized in each story were following: starting point and demand for collaboration, characteristics of co-creation process, positive experiences and advantages received from co-creation. These themes were chosen as they were considered as most significant determinants of the process and would offer an encompassing overview of the studied co-creation experiences.

4.1.1 Co-creation between a team of two experts

From the data covered in this study, six of the essays depicted co-creation experiences between two experts, in other words dyadic co-creation. Starting point giving rise to co-creation was in each case some kind of mutual need to solve a problem or to achieve a goal. To describe the central themes mentioned, a

story telling a typical example based on these six essays depicting dyadic co-creation was created by the author. This story created goes as follows:

I was assigned to write about a personal co-creation experience that I have found successful and inspiring in my work or studies. I decided to describe co-creation between myself and my collaboration partner – a process that I found to be very versatile and rewarding. The presupposition for our co-creation was that we had the shared challenge and need to complete the given task that would give us mutual benefits. We knew each other beforehand so it was easy to get to work.

We worked in close face-to-face contact and spent plenty of time working together. We were motivated by the win-win situation and our shared will to benefit from each other's skills. Because we had a common goal and there was no personal competition between us, we were both willing to freely share our knowledge to each other with trust. We supported each other and shared ideas freely. The fact that we have different backgrounds, skills and strengths was very helpful for our collaboration and we were able to complete each others' knowledge in a fantastic way. Although we noticed that we had many different views and opinions as well, we tried to respect each others' views by not clinging too much into our own personal principles. We found the resulting experiences of mutual "flow", understanding and learning new things from each other very rewarding.

I think that even if I would have not known my collaboration partner beforehand, through this co-creation experience we still would have become quite close acquaintances. The process was so intensive. In the end, we were both very satisfied with the results. We managed to combine our knowledge to create a successful solution that pleased both of us. All in all, the process was very interesting and I can recommend this kind of collaboration to other experts as well.

Starting point for co-creation in the cases studied was a situation where two experts realize that they have the necessary knowledge and skills to help the other person and vice versa. In many cases where the experts know each other beforehand, this is what launches the process and what the process is founded on. The fact that team partners know each other beforehand also makes the process more informal than in cases where people are not familiar to each other. In all these six essays describing co-creation between two experts, the two persons knew each other beforehand quite well. This was found to have a positive effect on building trust and making the co-creation experience most creative and successful from the point of view of knowledge sharing.

To depict the studied themes mentioned earlier to a greater detail, a voice of the people who wrote the original essays should be heard. Thus some quotations from the essays are in order here.

Starting point for co-creation and searching for a suitable partner was described by one of the essays as follows:

“The thought of finding an expert from a different field, with whom I could manage through conversation and creative collaboration in creating new knowledge, felt challenging at first. After thinking for a while I realized that I have just these kinds of discussions every day with my husband who works in the same company. Hence it was easy to choose him as my partner in co-creation.”

For another one the process was easy to begin with a familiar colleague. This essay depicted the starting point in the following way:

“I have known the other person since we were kids and we have completing skills from different fields. Right now we are working on a project on knowledge sharing in organizational change.”

As main characteristics for co-creation process between two experts, the essays mentioned that collaboration was deep, intensive and on-going. The team of two works in close interaction with one another by exchanging opinions, ideas, visions and thoughts. Although the close collaboration made partners to sometimes get irritated by one another's different views and habits, the atmosphere was mostly experienced very supportive as the partners understood that the other person's different views would ultimately broaden one's own visions and knowledge. More characteristics for co-creation mentioned were the lack of competition resulting in equality and shared will to complete the task and achieve improvements.

The co-creation process was described by essays as follows:

“Co-creation requires genuine win-win-situation between the collaborating partners as well as their shared will to achieve better results together than by themselves.”

“What made our co-creation successful was the fact that there was no competition between us, only the genuine wish to help as well as be helped by the other person. Our work contained the feeling of equality and trust.”

Positive experiences received from co-creation were regarded as numerous. In this kind of close collaboration, the feelings of success were experienced closely with the team partner:

“Essential part of our co-creation was the joint learning experience with a good colleague. The feelings of “flow” when solving a difficult step were far sweeter when experienced together.”

One of the essays stressed the importance between different generations of experts sharing their knowledge:

“Our goal was to combine years’ experience with new techniques. We managed to perform this outstandingly well and our collaboration has gone further as collaborative interaction for over six years.”

The main advantage received from co-creation was seen as combining the knowledge of experts with different core skills. This was put to words by one of the experts as follows:

“It was eye-opening to see how differently you can see a thing with your team mate and still you are able to form a functioning combination of it. The more there are viewpoints, the better chances there are to form many new and effective solutions.”

This was confirmed by another one as follows:

“All situations where experts from different fields exchange thoughts are favorable. It enriches the organizational culture to mirror others’ opinions and methods to your own.”

It was thought an advantage to stay open-minded and not restrict oneself to only certain kind of projects. Discussing issues without prejudice and reasoning one’s thoughts to the team partner forced to broaden one’s own visions as well. Discussion and reasoning – apart from helping to learn from the team partner’s views – were sometimes found to strengthen one’s own original views and to bring certainty for one’s own ideas.

4.1.2 Co-creation between a team of several experts within one organization

From the data studied, four of the essays told about a co-creation experience where experts from within one organization worked in close collaboration. Again, to analyze and characterize this kind of co-creation process, the author of this study created a story summarizing the essays.

Following story was created based on these four essays:

I was assigned to write about a personal co-creation experience that I have found successful and inspiring in my work or studies. I decided to write about a co-creation situation that happened in my work place where I was assigned to create a new solution with my colleagues for my organization.

First, we gathered the necessary people together as companions for the project. At first there were some doubts if we had managed to choose the right people for the project but as we went on, everyone found their place in the co-creation process. The main point was that people had the completing skills as regards to each other and everyone was motivated to attend the team.

We discussed openly about the starting point including the possible challenges as well as our goals for the process. Management from our organization expressed their support to our team as well. We also made a precise plan how to proceed with the process and set some dates for our face-to-face meetings where everyone was to come prepared.

In our meetings, everyone was supportive towards one another and we were able to express our visions and thoughts freely. We discussed openly and gave instant and honest feedback to each other. Even the wildest of ideas were welcomed although they might not be executed. The fact that everyone gave their best for our team resulted in common respect and trust within our team.

At the end, it was great see how the end result was clearly a combination of everyone's work – a solution where each of us had contributed equally. I was so happy that I had the chance to work with these colleagues for I never could have come up with such a good solution by myself.

The starting point in these encounters was characterized by slight insecurity of how the process would turn out and if the people chosen for collaboration were the right ones. After the process went on the prejudices were conquered, as described by one the essays:

“My attitude towards the project was a little skeptical at first because I thought the subject was a bit difficult. After a couple of meeting sessions though, I found them very inspiring.”

The co-creation process in the essays studied lasted from only one workshop to collaboration period of some months and the number of members in teams varied from three to approximately twelve people. The main characteristics for co-creation were seen to be common goals and strong, shared motivation to achieve these goals. Trust and equality were considered necessary as well as supportive atmosphere within the team. Respect for the other team members was shown for example by coming prepared to the meetings so that no one’s time would be wasted and everyone would get the best out of the meetings.

The following extractions from the essays describe the positive experiences:

“Our team members could trust 100% that the tasks that we had agreed to do were done before our next meeting. If someone could not do this by themselves, they asked for team member’s help.”

The supportive and innovative atmosphere was mentioned in following examples:

“No one interrupted when someone was speaking – every person was carefully listened to.”

“Everyone felt equal and encouraged others to share knowledge freely. We were also eager to give feedback to each other and question each others’ views if disagreed.”

The process of co-creation between a small team was regarded intensive and the fact that the team members were from the same organization helped in creating trust within the team as the members were somewhat familiar to each other from the start. The thriving factors for successful co-creation were considered the shared understanding of how each member would benefit from one another's knowledge and be able to achieve better results by joining forces.

Managements' support was mentioned as a positive motivator bringing the sense of importance to the task at hand. The teams operated independently without continuous guidance from the management but still they knew they could rely on management for support if needed.

The end result of co-creation was considered successful and the benefits received were noticed:

“The end result was a success and got great feedback. I heard later that our work was used as an example in designing new similar solutions in our organization.”

What was observed from the essays in previous chapter describing dyadic co-creation, the most significant issue brought up by these essays also was the importance of combining experts with different and complementary skills:

“Every team member had some skills/knowledge/competence that other team members did not have and the skills completed each other.”

The process of creating new knowledge becomes visible in the following experience:

“When someone had a vague idea that was not yet thoroughly planned, the other person might continue breeding this idea. Practical experiences – good or poor – were shared with courage.”

Re-enforcement of one’s own ideas was brought out in these essays as well; learning from others was not the only positive aspect in co-creation as it was found positive to get support and confirmation for one’s own thoughts as well. Judging from these essays studied, it can be seen as the greatest advantage of co-creation of how rewarding the teams found the fact that the results in the end were a combination of their expertise and much better solutions that they could have created by themselves.

4.1.3 Co-creation between a larger team from two or more organizations

The majority of the essays studied, eleven of them, described a co-creation process within a larger team with members from several cooperating organizations. Third story was created by the author as follows to depict the central themes observed from these eleven essays:

I was assigned to write about a personal co-creation experience that I have found successful and inspiring in my work or studies. I decided to write about a joint project that I was a part of as one team member. The starting point for the process was a business opportunity that we needed to tackle into with the help of suitable stakeholders. What we found most challenging at first was to understand the goals of the collaborating organizations in practice since we did not know the others beforehand.

The team consisted of members from various branches that were chosen to complete this mission together. Motives for our collaboration were besides in idea sharing in sharing of resources and costs as well. Co-creation was carried out in face-to-face workshops and meetings with open atmosphere and plenty of discussion. Supportive atmosphere in our meetings enhanced trust between us and

encouraged everyone to share ideas freely. At times we found surprising how we had previously studied the same methods as our partners but never before had found any solution by ourselves. Large team came up with so many new ideas that we learned to see new things that could improve our business – things we never before did not even realize existing. Co-creation between the team was rewarding and our shared will to complete the task allowed us to be creative even though working with a large team of individuals from different organizations and backgrounds.

I found this experience of co-creation rewarding and our team was happy with the results. Collaboration facilitated and speeded up my work as I did not have to search and come up with all the solutions by myself. Combining the expertise of this network helped all the participants in obtaining new knowledge and the results we accomplished were comprehensive. This pleased the whole team as we knew we had benefited so much from our collaboration.

The starting point was in every case was a larger project at hand demanding the expertise of various different branches. In most of the projects described in the essays, the gathering of suitable work group as well as the methods used were officially constructed to begin with. Also the roles and tasks of each member were clearly identified. The projects had a fixed goal from the start and they proceeded more or less according to plans.

The challenge at first was to understand and assimilate the practical goals of participating organizations in order to form common ones. This was described as follows:

“At first it was especially challenging to grasp the profound goals of the other attending organizations and to trust that everyone in the project wanted to create a successful solution that was equally beneficial in everyone’s point of view.”

The work was mostly done in face-to-face workshops and the project often had several different phases with different experts participating as the process proceeded. The workshops included brainstorming and other idea sharing around the project. The length of the co-creation project mainly varied from one single workshop to some months of collaboration within the project.

Characteristic to co-creation in larger teams was also the sense of common goals. As in smaller teams, flexibility and trust were experienced in large teams according to these essays as well. Perhaps the trust here is somewhat different from the trust in the examples describing co-creation between two people or a small team. There the trust between individuals is strong whereas in these experiences from a large group, trust is more directed towards the team as a whole. Collaboration brought with itself a sense of equality, as described in one case:

“The experience of this interactive collaboration was invigorating. The hierarchical boundaries were removed as everyone envisioned freely and experienced feelings of success.”

Hierarchy of organizations was not considered an obstacle as long as there was common will and agreed schemes of how the co-creation process would function. With these facilitators, even hierarchical organizations were found capable of creative co-creation. Innovativeness was also considered high in co-creation between larger groups due to a larger crowd present and the readily available resources offered by organizations. Joint resources were an essential part of co-creation within larger inter-organizational teams, as described by one example:

“We found out that our collaboration partner had done research concerning the same method as we had in my organization. We had suspended the project because of the lack of resources. After realizing this, we joined resources, knowledge and costs and continued together with the R&D project concerning this method.”

Co-creation experiences from a large team brought up the same observation as the experiences from smaller teams – one of the absolutely most significant factors was the diversity of skills in a team. In a large team in particular this was clearly noticed; the number of people increased the amount of knowledge present. This was put to words by the essays as follows:

“The combination of young creativity, fresh knowledge and the practical knowledge of an older colleague is totally invincible. If I don’t have the means or skills to carry out my idea, someone else knows how to do it.”

“By networking you can power up your own expertise into higher levels. But this requires interaction.”

The parties in co-creation were in a win-win situation thus the advantages received from co-creation were remarkable. Motivation was strong as the partners saw the advantages from sharing their knowledge and learning from others. New findings opened new opportunities – one of the cases described how through co-creation they had adopted new functions they had not before even heard of. Through this they had been able to improve their competence in a way that would not have been possible without the new knowledge adopted from their co-creation partners.

4.1.4 Summarizing the findings – similarities and differences between the story types

When examining the similarities and differences brought out by three example stories, it may be seen that though the experiences brought out by the stories are to great extent similar, there are differences in the nuances when describing dyadic co-creation or co-creation between larger groups. All the essays studied mentioned positive process characteristics such as respect, supportiveness,

informal atmosphere, lack of competition, shared goals and trust. These are in each case addressed to from slightly different angles and points of views.

Pointed out by all of the essays as crucial was the diversity of skills within teams. Regardless of whether the co-creation occurred within two experts, a small intra-organizational team or a large inter-organizational team, it was considered a valuable asset that the experts had different backgrounds, interests and skills. Interaction is the key word; most of the essays studied discussed co-creation as a vivid form of sharing ideas and knowledge between experts from different fields of business. The participants saw co-creation as a form of advanced collaboration. In many cases, the presence of creativity was also mentioned.

A common characteristic essential for successful co-creation was open atmosphere no matter what the size of the team was. Listening to others, being supportive and sharing experiences freely were the significant ingredients mentioned in all the categories creating the sense of common ambition. Open atmosphere and working closely with other knowledge specialists contributed in bringing out the tacit knowledge residing in people's experiences as well. Joint co-creation process where all participants had the chance to change ideas in practice created opportunities of tacit knowledge to come visible.

Supporting other team members, respecting everyone's opinions and willingness to share ideas were arisen from the win-win-situation that all the parties were in and the common understanding of the advantages each member would achieve from the process either in form of shared costs and resources or new knowledge acquired. The lack of competition between members was also unanimously found a characteristic encouraging to share ideas freely without the fear of someone trying to exploit them for own uses. Respecting the team partners was shown by allowing everyone to express their thoughts freely without interrupting or judging. In larger teams, respect was also manifested by following the promised schedules in order to save everyone's time.

Though all the essays considered the co-creation situations quite informal, the process was found especially informal and spontaneous in teams of two experts. The meetings in dyadic team work were not as planned beforehand but rather proceeded their own course. The co-creation examples within a larger team and several organizations were more complicated and contained various different forms and phases of collaboration.

What comes to the length of the working period judging from the essays studied, the process of dyadic co-creation was typically ongoing during a longer period of time whereas larger teams usually operated for a limited time only. The period of large teams' collaboration described in the essays varied from one single meeting session to a collaboration period of one year. Experiences that described co-creation in an intra-organizational team had usually lasted some months but in some cases the co-creation had taken place during only one meeting session. All of the co-creation experiences between two experts had occurred during a longer period of time in the essays studied here; the shortest co-creation period was six months whereas longest experiences described co-creation that had lasted many years and were still going on. Therefore the familiarity and trust were considered highest in teams of two experts.

Trust was however considered an important element in co-creation regardless of the team size. The nature of trust seemed to differ between small and large teams. Whereas the trust in teams of two was considered high between the individuals, the trust in large teams was directed towards the team as a whole.

In essays describing co-creation between a large team, co-creation was in many cases restricted to more superficial collaboration than in the examples describing co-creation between a smaller team. However, the cases where co-creation experience involved a larger team were considered successful because of the amount of new ideas it brought. Both larger teams within one organization and inter-organizational teams mentioned innovativeness as a positive characteristic of co-creation. The possibility to share costs and resources more effectively was also

considered as benefits of large teams. Hence it may be considered that large groups benefited from their size in what comes to the number of new ideas and resources discovered as well as cost savings whereas small teams benefited from closer relations and increased trust between the team members.

In a large team, leadership of the team has a strong role as a large team needs more coordinating. Large teams require more planning, structuring and scheduling as they involve so many people's contributions. The work in smaller teams may be more easily lead by the team itself independently and the process may not be as strictly planned beforehand. However, the dyadic teams also rely on management in obtaining the necessary support and appreciation for outstanding results.

The importance of management's recognition and support was especially brought out in the essays describing co-creation in a team within one organization. This is an interesting observation which may reflect the fact that dyadic teams are such tight and independent teams that they perhaps not rely as much on management's support rather than the support for each other. Large inter-organizational teams again may take the presence of management for granted as their projects require more guidance. Hence it is possible that it is left unmentioned in the essays describing co-creation in large teams. Intra-organizational teams are in need of management's support just as much as inter-organizational teams but may often be left without proper guidance and managements support, this is perhaps why these essays stress it so much. When the team operates within the boundaries of one organization, the search for management's recognition and appraise for excellent results may be specifically high due to it bringing acknowledged stature among one's own organization.

Regarding the actual type of process, two of the essays mentioned co-creation from the viewpoint of crowdsourcing between an organization and its customers or other stakeholders. These two essays told about an organization asking its customers for their hopes and expectations concerning a solution that was being produced. Only one of the essays examined co-creation in designing a product

together with customers and designers from the viewpoint of co-design. In this example of co-design, creativity was mentioned as an essential part of designing a product. It may thus be concluded that majority of the essays depicted co-creation as a process where dyads or larger teams were able to share and combine their existing knowledge to create new knowledge in form of new solutions.

4.2 Co-creation in literature – visualizing the concept of co-creation

After studying a comprehensive set of literature concerning co-creation, the purpose here is to draw a final conclusion about the author's view of co-creation and its' observed meanings in literature. The concept of co-creation according to the author may be defined by using the following figure. The figure proposed here describes the relations of co-creation and other inter-related concepts examined in this study.

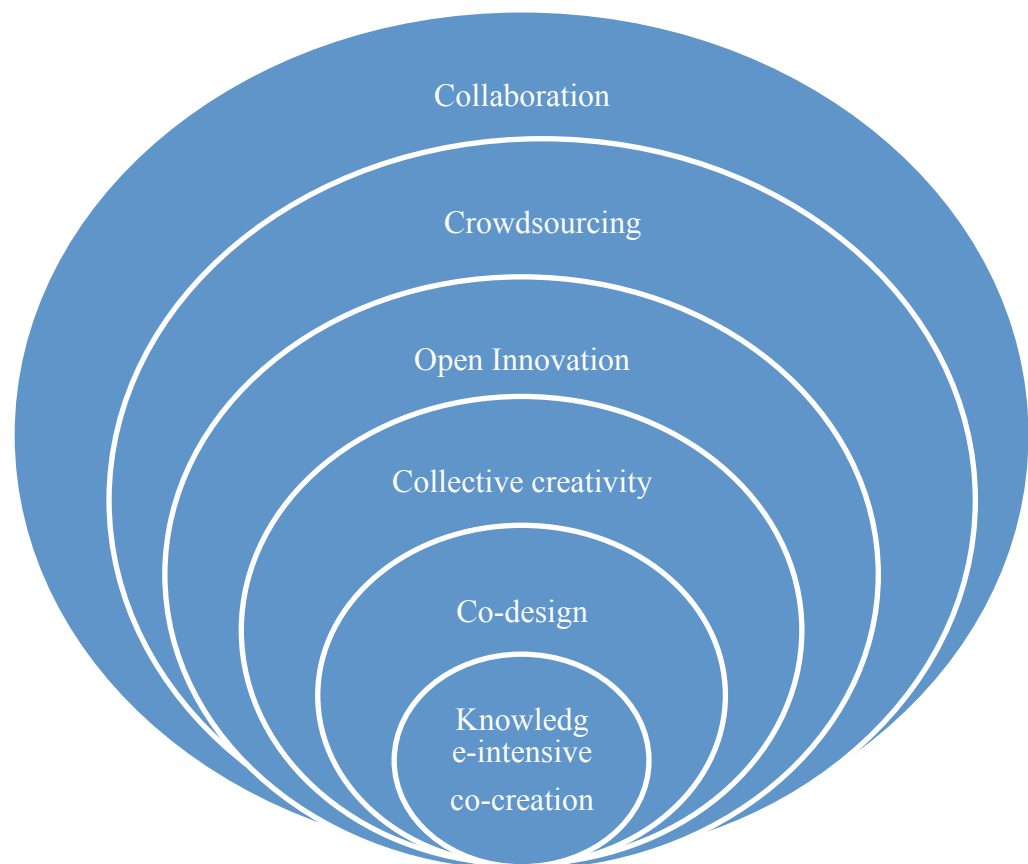


Figure 2. The inter-relations of the concepts of collaboration, crowdsourcing, open innovation, collective creativity, co-design and co-creation.

Collaboration is seen here as the broadest term by its meaning. All the concepts discussed may be regarded as collaboration for it is a general term for all cooperative measures performed by groups or individuals (Lee et al., 2012). Though collaboration may be knowledge-intensive and sometimes even creative, it can also occur without knowledge-intensive aspect which is the case in the outer circle of the figure.

Crowdsourcing in literature is mainly referred to in conjunction with IT-systems and internet-based collaborative activity. Crowdsourcing usually stands for using undefined large groups of heterogeneous people for co-creating new solutions, products or services (Estelles-Arolas & González-Ladrón-de-Guevara, 2012). However, crowdsourcing may also occur within an organization. At its best, crowdsourcing may contain creativity and knowledge-intensive aspects but it is most often restricted to more superficial exchange of ideas.

Though very close to crowdsourcing as a concept, open innovation has been described in literature as a process using lead users of a product or other experts as help in designing new solutions (Jeppesen & Frederiksen, 2006; Füller et al., 2011). Open innovation has also been defined as an application of crowdsourcing (Geiger et al., 2011). Overall it can be categorized as being a more specialized branch of crowdsourcing and a form of co-creation that is more likely to include a creative aspect as well.

When approaching the inner circles of the figure, the collective creativity stands out. As a more creative concept compared to crowdsourcing and open innovation the author names co-design which in literature is mostly used in conjunction with marketing (Prahalad & Ramaswamy, 2004; Sanders & Stappers, 2008). Co-design as defined by the author of this study stands for designing solutions with suitable stakeholders in close collaboration that includes high creativity and is most likely to create new knowledge as well.

The smallest area in the inner circle of the figure may be defined as the area of knowledge-intensive co-creation. The figure demonstrates that only a relatively small part of processes that are addressed to in literature as co-creation actually contain new knowledge creation. The author argues that co-creation should always involve creativity and knowledge-intensivity; without that it should be defined collaboration without knowledge-intensive aspect.

In chapter 2.7 summarizing co-creation as a phenomenon based on literature, the author's own definition of the concept of co-creation is presented. Co-creation according to the author constitutes from three elements: collaboration, creativity and knowledge-creation. The relating concepts discussed in this study; collaboration, crowdsourcing, open innovation, collective creativity and co-design most often contain some of these elements but only rarely all of them. The author suggests that when referring to a process that does not include all of these elements the term co-creation should not be used. To avoid ambiguity, the author suggests that the term co-creation should be used only when referring to a process where new knowledge is created.

4.3 Comparing and contrasting the findings of the literature review and the empirical part

The purpose of this chapter is to provide the answers to three research questions presented in chapter 1.2. The answers based on findings from the literature review and the empirical part are presented and discussed question by question in the chapters below.

4.3.1 How is co-creation defined and understood in current literature?

The main research question of this study sought to examine how co-creation is defined and understood in current literature. It was clearly observed that co-creation was associated in literature with various kinds of collaborative activities of which nearly not all contained new knowledge creation. A univocal definition

for co-creation according to literature was found impossible to find as the concept was defined in multiple ways depending on the research context. The unifying characteristics in defining co-creation could however be detected as creating joint value (Vargo et al., 2008) and having a shared purpose (Lee et al., 2012) to achieve mutual benefits of some kind.

In literature concerning co-creation, co-creation was mainly used in conjunction with the concepts of collaboration, crowdsourcing, open innovation, collective creativity and co-design. These five concepts looked into more detail in chapters 2.7 and 4.2 were found to include plenty of activities ranging from superficial cooperation to deeper processes containing new knowledge creation. Collaboration was seen as an umbrella term – a hypernym – of various kinds of cooperative actions – characterized with a shared purpose whether for deeper objectives or just for the fun of it (Lee et al., 2012). Crowdsourcing and open innovation in turn were mainly used when referring to participative online activities (Estelles-Arolas & González-Ladrón-de-Guevara, 2012) performed together with consumers or other stakeholders in order to gather novel ideas from masses of more or less specialized or defined people. Crowdsourcing was seen as being directed to larger and undefined groups of people (Howe, 2008) whereas open innovation mostly employed lead users of a product or service (Jeppesen & Frederiksen, 2006; Fuller et al., 2011). Crowdsourcing and open innovation activities lean on people's collective intelligence (Brabham, 2008) and customers' participation in value creation (Nambisan & Baron, 2009).

In literature, the concept of co-design also stood out as a form of co-creation usually containing more creative aspects as well. Co-design was regarded as collective creativity through the entire design process (Sanders & Stappers, 2008) and it was typically associated with product design (Piller et al., 2005) or other joint value creation together with consumers and designers. Creativity and new knowledge creation typically go hand in hand (Andriopoulos & Dawson, 2009; Capece & Costa, 2009) meaning that the processes including high collective creativity were usually found containing new knowledge co-creation as well.

Hence, the author of this study connects co-creation with new knowledge creation and suggests a following definition for co-creation based on former literature: Co-creation is a complicated process which contains deep, knowledge-intensive collaboration and creativity. When comparing this definition to definitions arising from the essays studied in the empirical part, it can be seen that co-creation was seen the same way by the knowledge workers studied. Although they were not specifically assigned to define the concept rather than to describe the process and situation of co-creation, they described co-creation as an intensive and interactive process where team members in a creative climate built together new knowledge with advanced collaborative methods. This brings one to take a more precise look into the process of new knowledge creation which was the purpose of the second and third research questions.

4.3.2 How is new knowledge created in co-creation?

When the collaborative process turns into a creative and socially interactive process, new knowledge creation will begin. Knowledge-creation is a human process (Von Krogh et al., 2000) and value co-creation occurs when new resources are adapted with existing ones thus creating new knowledge (Vargo et al., 2008). This is what the essays analyzed in this study showed as well. This refers to knowledge-integration capability (Gardner et al., 2012) which is needed to integrate the members' individual resources together into greater combinations. The participating team members told that they were able to combine their knowledge to create novel solutions. Sometimes it meant combining vast experience with new techniques, sometimes merging different ideas and viewpoints into coherent solutions. Sometimes new and yet preliminary ideas that someone presented allowed team mates with suitable expertise to continue breeding the idea further. New ideas raised in team resulted in team members learning new things previously even unheard of. Exchanging thoughts and ideas freely created an innovative atmosphere. This is supported in literature review by Harvey (2014) who identifies collective attention and enacting ideas as important

contributors to creativity and knowledge creation. It is this open and supportive atmosphere described in the essays that leads members to a shared knowledge context referred to in literature as “ba” (Nonaka et al., 2000) allowing shared knowledge creation.

As methods of co-creation, focus groups, story boarding and workshops in particular were mentioned in literature as successful techniques (Durugbo & Pawar, 2014). Findings from this study supported this as majority of the co-creation experiences studied were performed in workshops as intra-organizational teams or inter-organizational teams were concerned. Dyadic teams did not identify the form of their meetings in specific, probably because their meetings were considered so informal in nature.

Social interaction (Wang et al., 2006; Rosendaal, 2009) – as was mentioned in literature review as one of the most important factors of co-creation – was proved a crucial element also in the empirical findings. Encouraging in idea and thought sharing without interrupting or judging increased the amount of experiences and ideas shared leading to common learning and creating new knowledge. Effective dialogue (Aarikka-Stenroos & Jaakkola, 2012) was identified both in literature and practice to enhance knowledge creation. The results brought out that team members were encouraged in active participation throughout the process. Even expressing “poor” ideas was considered desirable because there could always be someone who might have the skills to refine these ideas.

Diversity of skills (Baets, 1998; Andriopoulos & Dawson, 2009) also referred to as complementarity (John-Steiner, 2000) was found in literature as an essential antecedent of co-creation and was strongly stressed in the essays analyzed as well. Diverse stimuli from colleagues from different backgrounds were said in literature to provide fresh insights and creative thinking styles (Andriopoulos & Dawson, 2009). This was proved absolutely correct by the results of this study. All the essays described the combination of experts from different fields as crucial for creating new knowledge. What has been observed in literature though is the

importance of collective work experience (Haas, 2006; Gardner et al., 2012) meaning that the team members must be experts in their own fields in order to be able to effectively interpret and assimilate new knowledge. This is what the essays described as challenging at first to be able to gather the most suitable people to tackle the given task. As the process proceeded further, interdependence (John-Steiner, 2000; Prins, 2006) in all the studied teams was very high with each participant considering it as obvious that everyone's skills and knowledge were valuable in creating a common solution and that the best possible achievements were dependent on shared contributions rather than individual efforts.

Over-specialization and over-familiarization were mentioned in literature as possible threats related to diversity in teams (Bilton, 2007). However, analysis of the essays brought out no such notions of over-familiarization leading to like-mindedness in teams or over-specialization hindering team members to see the problems from larger point of view. It must be noted though that the assignment here was to describe a positive co-creation experience, thus the negative experiences are somewhat absent in the essays.

Participative safety (Choi et al., 2014) was found in literature as necessary antecedent of creativity leading to knowledge creation. The analysis of the essays demonstrated this as well. The answers clearly indicated the feeling of safety within teams resulted in willingness to share ideas freely. Feeling of safety was contributed by the observed lack of competition and the supportive, non-judgmental team climate. Shared goals (John-Steiner, 2000; Lee et al., 2012; Harvey, 2014) and mutual understanding (Bilton, 2007) mentioned in literature as significant elements were supported by the results as well – these were mentioned as necessary ingredients in all the essays. Understanding the shared goals was found easier in dyadic teams or teams within one organization whereas larger inter-organizational teams typically found it challenging at first to see the practical goals of all the participants in order to build common ones. Striving to build a common vision with shared goals brought along the feeling of mutual understanding, this again contributing to the building of trust.

Regarding the answer to the second research question, it can be concluded that new knowledge is created by combining the creativity and knowledge of experts with different and complementary skills in meetings and workshops. New knowledge creation occurs when the atmosphere is right, when the combination of expertise is right and when the collaborating partners have the joint will to create new knowledge for a shared purpose. Enhancing creativity as well as enabling and creating suitable circumstances for this kind of process is mostly in the hands of leadership, especially when talking about larger groups. Dyadic teams may be more spontaneous and lead themselves but when teams consist of several experts from within one organization or within several organizations, the teams need to be coordinated and lead skillfully, yet retaining the feeling of independence that the teams appreciated. It is worth notice that the majority of essays studied depicted co-creation in a larger inter-organizational team. This supports the notion that the growing tendency of today is that teams are formed between organizations. Hence, the role of leadership in facilitating knowledge sharing is growing as well.

It was observed from the results of this study that when the experts feel their work is appreciated, it has positive consequences in regards of idea and knowledge sharing and improving the whole team performance. Benefits received are also important as seen in literature (Nambisan & Baron, 2009). The benefits brought out by the essays analyzed contained acquiring new knowledge, feelings of success and appreciation by the colleagues and management. These were found absolutely the strongest motivators for co-creation whereas individual financial rewards were not mentioned in the essays studied.

How the process of knowledge creation succeeds depends to a great extent on the circumstances and team climate in which the teams operate in. Hence, the circumstances are examined further in the next chapter.

4.3.3 What kinds of circumstances create the best prerequisites for new knowledge creation?

As knowledge creation may be characterized as a complicated and delicate process, the knowledge management of today needs to concentrate not in the traditional models of hierarchical structures but in turn focus on the human side and knowledge enabling (Von Krogh et al., 2000). Of the knowledge enablers mentioned in literature, many were discussed in the essays analyzed as well. Encouraging conversations and creating the right context for knowledge creation were seen as important issues accomplished by both management and the team members themselves. As found important in literature, the decision making autonomy (Haas, 2006) was appreciated according to results as well. The teams studied clearly valued their independence in making their own decisions and being lead by themselves. Therefore it would be ideal that the management stays back and lets the teams make decisions concerning their project but still the management should be available and ready to offer their support to the teams when needed.

Face-to-face circumstances were regarded as creating the best prerequisites for new knowledge creation. Especially tacit knowledge resides mostly in practical situations (Potts et al., 2008; Erden et al., 2008) due to which face-to-face interaction and working together through practice enables parties to discover the sources of tacit knowledge as well (Lindqvist, 2005). Through the intensive collaborative process that the participants of this study described it was possible to understand even the most profound thoughts of the team partners. This was observed especially in dyadic co-creation where the co-creation process was typically ongoing and the familiarity of members resulted in deep collaboration allowing the transfer of tacit knowledge as well. Larger groups on the other hand benefited from their size in regards to the amount of ideas brought up in team. Whereas the smaller teams were found invincible in sharing tacit knowledge, large teams flourished in their innovativeness.

As stated by Baets (1998) in the literature review, it was clearly brought out by this study as well that the sense of equality was an important requirement for creating ideal circumstances for knowledge co-creation. The sense of equality was seen as supporting the also experienced lack of competition which encouraged to share ideas without fear of someone taking advantage of them for own purposes. Competition within a team was recognized as a threat that may set barriers hindering knowledge sharing and co-creation though not experienced in these examples of co-creation. Because there was no internal competition between the team members, the results showed no anxiety concerning the issue raised by Von Krogh (2012) about knowledge protection and issues of ownership concerning knowledge. These issues have been seen in literature as possible sources of problems in large inter-organizational teams in specific. It can be deduced from the results of this study that because the teams – even the inter-organizational ones – saw the co-creation process as a win-win-situation and as searching for a solution for common purpose, there was no fear of knowledge exploitation. Furthermore, the partners in large inter-organizational teams had somewhat different backgrounds and thus perhaps the fractions of knowledge of other members as such would have been useless. What was seen as significant was the combination of knowledge.

The essays studied stressed the informal atmosphere as essential for creating the right climate for knowledge creation. The feeling of informality rises partly from familiarity. The team becomes a collective body and mind (Erden et al., 2008) operating in familiar situations and knowing what the function of each member is. This is clearly more noticeable in dyadic or small ongoing teams but by fostering informal atmosphere also in larger teams it was seen possible to create the feeling of familiarity between members and therefore create applicable conditions for knowledge creation.

Strong social ties (Lindqvist, 2005; Wang et al., 2006; Rosendaal 2009) were also considered an absolute prerequisite for successful co-creation in literature as well as in practice. Social ties were present in all the team examples studied. It can be

affirmed that as stated in literature that in communities-of-practice referring to teams working closely together, the relationships between team members is stronger than in collectivities-of-practice referring to short-term teams (Lindqvist, 2005). However, though experienced stronger in ongoing dyadic teams or small intra-organizational teams, also large inter-organizational groups identified the forming of social ties which grew stronger with the help of shared purpose, supportive atmosphere and respect for other team members. It can be seen from the analysis that large teams were well organized which supports the statement from former literature that larger collectivities require management to create an effective pattern of interaction (Lindqvist, 2005). What comes to the observed feeling of respect towards other team members, it again brought along the sense of belongingness and pride of one's own membership in the team, this in turn leading to the forming of trust.

Trust was pointed out in literature as well as the empirical findings as an essential ingredient for successful knowledge co-creation. Trust is built by shared objective and open communication channels (Wang et al., 2006) and it makes people more willing to share knowledge (Levin & Cross, 2004). This was depicted in the essays studied as well. The feeling of appreciation between colleagues together with the sense of equality and lack of competition was proved an effective combination in creating trustful atmosphere that encouraged idea sharing. Levin & Cross (2004) divide trust into benevolence-based trust basing on affection and competence-based trust basing on cognition. According to results, competence-based trust can be regarded high in all the team types from dyadic to large inter-organizational teams as all the teams expressed their respect to other members' expertise. Benevolence-based trust in turn can be found higher in dyadic teams or small intra-organizational teams where familiarity and thus affection between members is higher.

It can be concluded that appropriate circumstances have a significant role in new knowledge creation. The answer to the third research question may be summarized by stating that the best prerequisites for new knowledge creation are

created by circumstances where the team climate is open, informal and supportive. Lack of competition needs to be experienced within a team meaning that members need to see themselves as a team competing together against the outside world, not against each other. Strong social ties along with the feelings of equality, respect and trust between the members are needed for successful co-creation. Finally, it is the demanding task of management to create these kinds of circumstances in which new knowledge co-creation may prosper.

5 CONCLUSIONS

The purpose of this study was to examine co-creation as a phenomenon in literature as well as in practice. The aim was first to study the actual concept in the light of literature in order to provide an overview of the concept and its use in management literature. Based on the literature review, the aim was to provide the author's own definition of co-creation together with a suggestion for a more precise use of the concept. Furthermore, the aim was to scrutinize how new knowledge is created in co-creation and what the optimal circumstances for new knowledge creation are. To figure out how and in what kind of circumstances new knowledge is created in practice, an empirical study was performed. The study analyzed 21 essays written by MBA-students in Lappeenranta University of Technology concerning their personal experiences of successful co-creation in teams of different sizes and types. The essays were analyzed using narrative analysis in order to bring forth even the most profound thoughts and interpretations of the studied individuals.

As said, the primary goal of this study was to clarify and define the concept of co-creation based on former literature. The presumption was that the concept of co-creation was used in literature in various and often overlapping contexts making its' profound meaning somewhat obscure and difficult to grasp. After studying the literature concerning co-creation, this proved to be very much true. It was found extremely challenging to define the concept based on former literature as the contexts in which the term co-creation was used and its' definitions were so diverse. The use of the concept of co-creation was definitely observed to be in need of a more precise definition for future research. This study has tackled this challenge by identifying the related concepts most often associated with co-creation, summarizing the similarities and differences of these concepts and finally suggesting a more precise definition for co-creation.

Though the presumption of the author of this study was that the process of co-creation includes knowledge creation, the concept was found to be used in

literature in contexts without knowledge-intensive aspects as well (Prins, 2006). It was observed that the concept of co-creation is vastly used in literature in conjunction with innovation, marketing and R&D concerning the design and production of new products and services together with consumers, suppliers or other stakeholders. Co-creation was generally characterized as a process of creating joint value (Vargo et al., 2008).

To be more precise, co-creation was mainly associated in literature with the concepts of collaboration, crowdsourcing, open innovation, collective creativity and co-design. Collaboration was seen as an umbrella term for diverse range of cooperative actions characterized with a shared purpose (Lee et al., 2012). Collaboration ranged from simple cooperational activities to deeper forms of collaboration including new knowledge creation (Brännback, 2003).

Crowdsourcing and open innovation were mainly used when referring to participative online activities (Estelles-Arolas & González-Ladrón-de-Guevara, 2012) performed in virtual platforms in order to gather novel ideas from masses. The difference between crowdsourcing and open innovation according to the author of this study was seen in their target groups; crowdsourcing was most often directed towards larger crowds and undefined groups of people (Howe, 2008) whereas open innovation mostly employed lead users of a product or service (Jeppesen & Frederiksen, 2006; Füller et al., 2011). Crowdsourcing and open innovation were characterized as activities that seek to harness people's collective intelligence (Brabham, 2008) and lean on customers' participation in value creation (Nambisan & Baron, 2009).

Collective creativity was seen as an antecedent for new knowledge creation. Creativity and new knowledge creation typically go hand in hand (Andriopoulos & Dawson, 2009; Capece & Costa, 2009) meaning that the processes including high collective creativity were usually found leading to new knowledge co-creation as well. Co-design was typically associated with product design (Piller et al., 2005) employing consumers and designers or other expert stakeholders and

regarded as containing collective creativity through the entire design process (Sanders & Stappers, 2008).

The author of this study views co-creation as associated with new knowledge creation. The author argues that co-creation process should contain elements of collaboration, creativity and knowledge creation. According to the author, co-creation may be defined as a complicated process which contains deep, knowledge-intensive collaboration and creativity. Hence to avoid ambiguity, co-creation should be addressed to only in describing processes where new knowledge is created. As this definition was compared to definitions from the essays studied in the empirical part, it was noticed that co-creation was regarded the same way by the knowledge workers studied. Although they were not specifically assigned to define the concept rather than to describe the process and conditions of co-creation, their stories contained some definitions as well. Described by the participants, co-creation was seen as an intensive and interactive process where team members in a creative climate built together new knowledge by combining the expertise of two or more specialists with advanced collaborative methods.

The empirical part of this study aimed to find out how knowledge creation occurs in practice and what the ideal circumstances for new knowledge creation are. In theory, the process of knowledge creation depends on the team's knowledge-integration capability (Gardner et al., 2012) which is needed to integrate the members' individual resources together into greater combinations. New resources are adapted with existing ones thus creating new knowledge (Vargo et al., 2008). The participants of this study expressed that in teams concerned, through vivid interaction and effective dialogue (Aarikka-Stenroos & Jaakkola, 2012) they were able to combine their knowledge with other members to create novel solutions. Sometimes this meant combining years' experience with new techniques, sometimes merging different, even preliminary ideas into coherent solutions. Innovative ideas raised in teams resulted in team members learning new things they previously had not even heard of.

Diversity of skills (Baets, 1998; Andriopoulos & Dawson, 2009) along with complementarity (John-Steiner, 2000) were stressed both in literature and in the results as significant prerequisites for successful knowledge creation. New knowledge was best created by combining the creativity and knowledge of experts with different and complementary skills. New knowledge creation was found to require open atmosphere, suitable combination of expertise and the joint will of the collaborating partners to create new knowledge for a shared purpose. Shared goals (John-Steiner, 2000; Lee et al., 2012; Harvey, 2014) along with mutual understanding (Bilton, 2007) were identified in literature as well as in the results as necessary antecedents for co-creation. Interdependence (John-Steiner, 2000) was also high in the teams studied which was manifested by the common recognition that no individual was capable of achieving as good results as the team together was capable of.

Technical solutions have made possible the virtual exchange of information and knowledge in uncountable new ways. However, knowledge is socially constructed and lies in experiences and specific situations (Wang et al., 2006). Knowledge-creation is thus a human process (Von Krogh et al., 2000). This is why the results also showed that face-to-face circumstances were seen as most suitable for new knowledge co-creation allowing the sharing of tacit knowledge as well. Dyadic and small intra-organizational teams proved to be unbeaten in sharing tacit knowledge due to familiarity of team members and their ongoing work in practical everyday surroundings. Familiarity between team members also contributed in building informal atmosphere which was considered an asset in knowledge creation. Whereas dyads or small intra-organizational teams excelled in transferring tacit knowledge, large teams benefited from their size in regards to the number of ideas they produced and the innovativeness of their team climate.

All in all, it was seen both in the light of literature and from the results of this study as well that the essence of creative knowledge co-creation lies in social connections and deep understanding of the other parties' thoughts. Strong social

ties (Lindqvist, 2005; Wang et al., 2006; Rosendaal 2009) were considered an absolute prerequisite for successful co-creation in literature as well as in practice. Social ties were present in all the team examples studied. In teams working closely together, the relationships between team members were stronger than in short-term teams. However, even large inter-organizational groups identified the forming of social ties. According to results, the ties were strengthened by the feeling of shared purpose, supportive atmosphere and respect for other team members. The participants experienced feelings of respect towards other team members which brought along the sense of belongingness and shared trust. Trust again makes people more willing to share knowledge (Levin & Cross, 2004).

Appropriate circumstances were found to have a significant role in new knowledge creation. The best prerequisites for new knowledge creation according to results of this study were created by circumstances where the team climate was open, informal and supportive. Lack of competition needs to be experienced within a team in order to encourage idea sharing without the fear of someone exploiting the ideas for own uses. Equality of members within teams, as was stated in literature review by Baets (1998), was regarded by the results as well as an important requirement for creating circumstances in favor of knowledge creation.

Finally, the role of leadership is critical in creating engagement between management and other co-creators of value who may be partners, customers or other stakeholders (Ramaswamy, 2009.) The managers need to create an atmosphere that fosters creativity and sharing ideas. Enhancing creativity as well as creating appropriate circumstances for this kind of process is especially important when larger inter-organizational teams are concerned. Although all expert teams according to results and former literature appreciate decision-making autonomy (Haas, 2006) and moreover, dyads and small intra-organizational teams are quite independent in leading themselves, they still rely on management's support and recognition in order to generate the feeling of appreciation along with motivation for their efforts. The times are changing and the traditional forms of

team work in communities-of-practice (Lindqvist, 2005) give way for new methods of collaboration between organizations and in larger short term teams and collectivities. This calls for advanced managerial skills to create suitable conditions for all kinds of teams to be able to share and create new knowledge as successfully as possible. According to the results of this study, new knowledge co-creation is possible in long term as well as in short term teams – the nature of knowledge creation being somewhat different in these two cases. Ongoing dyads and small intra-organizational teams benefit from stronger social ties and succeed in transferring tacit knowledge better. Large inter-organizational short term teams again benefit from their size and number of new ideas that come up in a larger team. Interaction in long term groups is more likely to reach deeper levels of collaboration whereas the amount of knowledge is greater in a large team – assuming it can be captured.

This study has presented an overview of co-creation literature and provided a suggestion for a more precise definition of the concept. In addition, it has studied the experiences of knowledge specialists in order to find out how and in what kind of circumstances new knowledge creation occurs in practice. More accurate definition of the concept of co-creation and its' neighboring concepts may assist future scholars in differentiating these from each other. Practical findings may again help managers to create the best suited working conditions for knowledge-intensive teams. Contributions to future research and practice as well as suggestions for further research are presented in coming chapters into more detail.

5.1 Contributions to future research and practice

This study has delved into the problem of ambiguous use of the concept of co-creation in former literature. By discussing the meaning of co-creation and the neighboring concepts, this study may help future scholars in separating the various and often overlapping concepts regarding co-creation and finding a correct concept to define their future research topics at hand.

This study has provided an overview of knowledge co-creation as a phenomenon. The process of co-creation in face-to-face teams of different sizes and types was also discussed in practice with the help of knowledge workers' own experiences. By using narrative analysis, it was possible to bring out the target individuals' profound thoughts and opinions concerning their experiences of co-creation. The results found by this study can be directional for future research studying new knowledge co-creation. Future research may benefit from the findings brought up by this study concerning the nature of face-to-face knowledge co-creation in different kinds of teams.

What comes for contribution to practice, the results of this study may help team leaders and managers who are responsible for team coordination to grasp the essential elements needed for successful knowledge co-creation. The participants of this study have described how the process of co-creation occurs and what kinds of factors in their opinion constitute a functional co-creation experience. This study has summoned these thoughts and experiences into generalizable findings that may be beneficial in assembling teams as well as in designing methods for improving team performance.

5.2 Further research

The end of one research may be the start for another one. Answers that a study brings to certain questions may evoke and raise ideas of potential new research topics (Alasuutari, 1994). Whereas this study was concentrated in examining face-to-face co-creation, also virtual co-creation would be a current topic worth studying. As the tendency of business today is moving from locality to globality, world-wide virtual teams of experts from different organizations and countries are composed. Thus it would be necessary to comprehend how knowledge co-creation occurs in virtual teams and what are the correct circumstances and methods to enhance new knowledge co-creation in virtual collaboration. This – may be assumed – would be one on the most interesting topics for further research.

For studies concerning management, another interesting topic for further research arises. Successful leadership has been found by former literature as well as by the results of this study to be one of the most significant factors to encourage knowledge sharing. Thus the topic for future research might be to examine how to achieve this successful leadership; what kinds of circumstances, skills and methods are needed from management to succeed in leading the teams to obtain the best results possible. In order to form a bigger picture of the phenomenon, it would be worthwhile to also take into account the negative experiences of co-creation while the data of this study merely covered the positive co-creation experiences.

Finally, there is a lot left to study concerning the actual concept of co-creation. As this study concentrated in exploring co-creation as a phenomenon and summarizing the literature concerning the issue, the concept is still in need of more thorough analyzing. Hence a more pedantic analysis and giving a more precise definition to the concept of co-creation would be an interesting topic for further research.

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APPENDIX 1 COURSE ASSIGNMENT

KURSSIN ENNAKKOTEHTÄVÄ II. OMAKOHTAINEN KOKEMUS CO-CREATION-YHTEISTYÖSTÄ (KNOWLEDGE CO-CREATION)

Mieti omakohtaista kokemusta uutta tietoa synnyttävästä luovasta yhteistyöstä eri alan asiantuntijan kanssa. Kirjoita noin 1 sivun kuvaus tilanteesta, missä yhteistyö toimi mainiosti.

Onnistuneella, uutta tietoa synnyttävällä luovalla yhteistyöllä tarkoitan kohtaamista, missä pystyitte yhdistämään kummankin osaamista, ideoitte ja kyselite vapaasti ja pystyitte rakentamaan toisten ideoiden päälle. Kyseessä voi olla kahden henkilön tai tiimin yhteistyö.

Mikä teki yhteistyön niin toimivaksi? Kirjoita ketkä osallistuivat, miten toimittiin, mikä oli tehtävä ja tavoite ja millaisessa tilanteessa yhteistyö tapahtui...

Mitä opit, ja minkä neuvon antaisit nuoremmalle kollegalle, jonka työn onnistumiselle co-creation on erityisen tärkeää?

(Jos virtaa riittää, voit kirjoittaa myös tilanteesta, missä yhteistyö EI toiminut...).

Käymme ennakkotehtävän läpi luennoilla.

Palautus Moodleen SU 25.10 mennessä.

Tehtävän tavoite:

Tehtävä valmistele osanottajat kurssin aikana tapahtuvaan vuorovaikutteista harjoitukseen, minkä tarkoituksena on jakaa hiljaista ja kokemusperäistä tietoa sekä peilata sitä vetäjän avulla teoriaan.