CREATIVITY IN BUSINESS INCUBATORS

A Qualitative Study of the Influencers of Startup Employee Creativity in Incubators

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Jonne Mäkikyrö & Luke Insoll
Summary

Creativity is a phenomenon of human behaviour whereby new and useful things are produced. The products of creativity can be tangible, such as a painting or item of clothing, or they can be intangible, such as an idea or theory. Psychologists recognize that creativity does not exist in a vacuum; instead it is the result of the complex interaction of numerous factors. These factors are both intrinsic and extrinsic. Intrinsic factors relate to inherent aspects of the individual, such as cognitive capability, motivation, and emotional state. Extrinsic factors include environmental influences, such as noise, distraction, and social interaction. Certain extrinsic factors also influence intrinsic factors; for example, social interaction, which is extrinsic, can improve mood, which is intrinsic.

Organisational psychologists and business researchers have in recent years explored the ways in which the creativity of an individual in a workplace setting is influenced by their environment. The authors of this study have continued that line of research, by performing a qualitative exploratory study into how the business incubator environment influences the creativity of startup employees. Business incubators, organisations that provide office space and development resources to early-stage firms, typically represent themselves as “creative environments” in which creativity can thrive. The researchers conducted in-depth interviews with employees of four different startup companies in two different incubators in Northern Sweden, in order to gauge their experiences of how the incubator environment affected their self-perceived creativity.

This study yielded interesting results that to a large degree corroborated extant research, while also raising exciting question for future research. The authors, combining the findings of their study with theories identified in a comprehensive literature review of creativity research, present a conceptual model of creativity in incubators. The model categorises the observed environmental influences of creativity into higher-order and lower-order themes, and discusses the ways in which they affect not just creativity but also each other. The higher order themes are pressure and challenge, affect, and knowledge. The lower order themes are distractions, social interaction, and positive interaction as a reward for creative behaviour. Approach to ideas operates as a mediating theme that influences the relationship between social interaction and knowledge.

Business incubators may benefit from the findings and conclusions of this study, as they provide suggestions on how the incubator environment may be modified to better serve the creative needs of their tenants. The relevance of these findings is not limited, however, solely to incubators. Many organisations and institutions recognize the value of creativity, and may be interested to learn of the ways in which the environment interacts with this complex yet crucial phenomenon. Companies, innovators, entrepreneurs, and universities are but a sample of those who might gain from the new perspectives on creativity that this thesis presents.
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1. Introduction

Chapter Overview
This introductory chapter serves to announce the research problem and its theoretical background. It also outlines the purpose of the study, provides a brief overview of the central concepts, and frames the research topic within the context of extant literature. This clarifies the topicality of the study area and the research purpose.

1.1 Problem Background
Creativity is a human behaviour and psychological phenomenon defined as the production of novel and valuable ideas (Amabile, 1997). Outside of academic usage, many associate the term with the arts. Music, painting, and writing are all considered creative endeavours, for example (Edmonds & Candy, 2002, p. 91). Creativity is also a valuable asset for businesses, and especially startup companies, who thrive upon the successful implementation of creativity (Mazzarol et al., 1998, p. 7). Startup companies are early-stage firms that engage in a range of creative behaviours and innovations, and represent important players in the creative economy. Such companies are increasingly housed together in startup incubators, also known as business incubators, forming new creative clusters. Business incubators, which have proliferated in recent years, are organisations that provide office space and management resources to startup companies (Bergek & Norrman, 2008, p. 2). Business incubators are especially interesting to creativity researchers as they represent a non-traditional working environment; several different companies working together in close physical and social proximity, operating in a blurred environment that comprises a startup company, other startup companies, and the incubator itself. This is pertinent for two reasons. First, startups are recognized by researchers as being particularly dependent upon creativity (Alexander et al., 2017, p. 115; Ward, 2004, p. 174). Putting several of them together in one specific environment provides a unique and unusual setting for creativity research. Second, while creativity has been studied in the context of some organisational environments, the business incubator environment remains relatively understudied. At the time of writing, no other study has ever been performed to examine the influence of the incubator environment upon the creativity of individuals. This study looks to fill that particular research gap by performing a qualitative exploration of the ways in which the incubator environment influences creativity. The authors conducted four in-depth, semi-structured interviews with employees of four different startup companies working in business incubators in two cities in Northern Sweden. Coupled with an extensive literature review and a comprehensive analysis, this paper addresses some of the most timely questions concerning creativity, providing new insights into the relationship between creativity and the startup and incubator environment.
1.2 Theoretical Background

The theoretical underpinning of this assignment is built upon a significant body of research into the creativity phenomenon and its application in an organisational context. The theoretical background for creativity is drawn from the field of psychology, with a focus on organisational psychology. Creativity is then connected to the field of business studies through competitive advantage, business incubators and startup firms. Creativity as a psychological phenomenon has many interrelated components, and a number of intrinsic and extrinsic influences that govern its expression. In the context of the business incubator, creativity is considered by the researchers to be a behavioural pattern of individuals. This qualitative study seeks to create a broader, more lateral understanding of the factors affecting the expression of creativity in a specific organisational environment.

The first theoretical aspect of creativity to be considered is its strategic importance to the firm, and more specifically the startup company. This importance provides the primary practical motivation for the study. Research by Ward (2004, p. 174) indicates that creativity represents “the lifeblood of entrepreneurship”. Alexander et al. (2017, p. 115) describe creativity as one of the most important factors at play for startup companies. Harnessed correctly, creativity can be an important contribution to the company’s sustainable competitive advantage (Zahra & George, 2002, p. 185); that which allows them to beat their competitors in the long term. The various positive aspects of creativity in a business and organisational context have been discovered and reaffirmed in a large body of research spanning over half a century (Alexander et al., 2017, p. 115; Mazzarol et al., 1998, p. 7; Zahra & George, 2002, p. 185).

Having established the strategic value of creativity, extant research has developed the creativity concept and specified some of the factors which govern its existence and expression. Creativity researchers have studied its intrinsic and extrinsic influencers; the internal and external factors that inform the degree of creativity exhibited by individuals. On the intrinsic side, researchers have found that inherent human features such as cognitive capabilities (Csikszentmihalyi, 2006, p. 13; Shi et al., 2017) and personality traits (Amabile, 1997, p. 40; Csikszentmihalyi, 2006; Silvia et al., 2008, p. 77) are strong influencers of creativity in the individual. Intrinsic motivation (Amabile, 1983, p. 363; Csikszentmihályi, 2006, p. 13; Ford, 1996, p. 1120), cognitive variation and affect (Amabile et al., 2005, p. 368), and gender and sex (Abraham, 2016, p. 611; Baer & Kaufman, 2008, p. 93; Halpern, 2011; Kimura, 2000; Miller & Halpern, 2013, p. 38) may also play roles of varying importance in creativity. On the extrinsic side, extrinsic motivation (Amabile, 2012, p. 4; Amabile, 1983, p. 370), prior knowledge (Amabile, 1983), resources (Csikszentmihályi, 2006, p. 12), noise and distractions (Hillier et al., 2006; Kasof, 1997; Martindale & Greenough, 1974), and even colour (Mehta & Zhu, 2009) are also recognized in the literature as influencers of creativity.

Creativity in the individual appears to be the result of a combination of these intrinsic and extrinsic factors, though the exact degree to which each is influential is difficult to ascertain. What is known is that some of these factors are environmental, some of which can be changed. Intrinsic factors, typically consisting of human traits and cognitive capabilities that are stable over time, tend to be “locked-in”. However, there are two key intrinsic factors, motivation and affect, that are very easily influenced by outside forces, such as social interaction, or ambient factors such as noise and colour. It is therefore
evident that the expression of creativity can be influenced by the composition of multiple environmental factors.

One important aspect when considering extant research on creativity is that much of it has been conducted in an organisational setting. Since business incubators are organisations, while potentially more complex in terms of creativity, the findings of the previous research provide the most appropriate starting point. Therefore, three theories that explain the influences of different factors on employee creativity in organisations were studied. These theories are the componential theory of creativity (Amabile, 1983), the interactionist theory of creativity (Woodman et al., 1993), and the theory of multiple social domains (Ford, 1996). Each theory represents a contribution to the field of creativity in organisations, outlining the differing researcher views of how the creativity of individuals functions in complex social settings. These theories are explained in-depth in the following chapter, and serve to contextualize the direction of study. They are used as the departing point for this study, as it further explores organisational and environmental influencers on creativity. Collectively, the theories demonstrate that extant literature on the creativity concept has identified certain variables as intrinsic and extrinsic influences of creativity, though the theories differ to some degree on how they conceptualize this influence. Fundamentally, each theory affirms that the expression of creativity is a combination of inherent and external factors.

In addition to the theories, empirical research on individual factors that have been identified to influence creativity, both on a general individual level as well as the organisational setting, were studied. These theories and individual experiments provide a comprehensive starting point for this study. This thesis is especially interested in creating a more detailed understanding of those external factors, and how employees in business incubators perceive those factors as affecting their own personal creativity, as it relates to their work. An important note is that though prior research has identified some of the ways in which creativity might be influenced, none of those studies have been linked with or tested against the business incubator environment. The need for such a study has, however, been presented recently in the work of Alexander et al. (2017). They suggest that startup incubators provide environments that enable more creative business ideas to evolve, and that this phenomenon requires further attention (Alexander et al., 2017). The conceptual link between creativity and incubators is strengthened by the theory of absorptive capacity (ACAP), which is discussed in the following chapter.
1.3 Research Question

How does the environment of a business incubator influence creativity in the employees of startups?

To ensure a full and clear comprehension of the question, it can be broken into component meanings and explained. An environment is typically defined as the surroundings or conditions in which a person operates. For the purposes of this paper, the researchers specify the environment of the business incubator as only those factors that can be directly linked to the incubator. As a result the social and physical environment are considered, while the climate or country-specific environment remain outside the scope of the study. “Influence” means that a factor in the environment has some form of effect on the creativity of a startup employee. This thesis, following a qualitative methodology as befits a complex psychological phenomenon, looks to capture and assess self-reported subjective influences. All environmental influences are discussed in terms of individuals who work in startups in business incubators.

1.4 Research Purpose

The primary aim of this thesis is to shed light on the influence of the business incubator environment on the creativity of startup employees, as the research question dictates. On a purely academic level, this study may well provide interesting data and avenues for new research in a rapidly growing field. The study of environmental influences in incubators is under-researched, and this paper seeks to capture new knowledge to that end. The business incubator and creativity, two connected concepts, have not yet been properly studied together in business research. This is something that should be part of the discussion regarding the role and efficiency of the business incubators. More broadly, the research will also contribute to psychology and creativity research in general, by exploring the ways in which creativity functions in a particular setting. This could improve the understanding of how creativity, especially inside organisations, is influenced.

On a practical level, the purpose of the thesis is to provide knowledge that may lead to improvements in the ways in which incubators compose and control their particular environments. There are several potential beneficiaries of new knowledge in this field. The first is the individual; employees of startups in business incubators. Findings that contribute to a clearer comprehension of environmental influence may lead to practical applications and improvements that might significantly and positively affect the creativity of the employee. Even marginal improvements may have a significant cumulative benefit, especially when considering the delicate balance of intrinsic and extrinsic factors that govern individual creativity. The second actor to potentially benefit from such research is the startup. Creativity has a recognized value as an intangible strategic asset; by knowing which factors to consider should they attempt to influence creativity, startup companies increase their chances of success. The third and perhaps most obvious party to benefit from this research is the incubator itself. Business
incubators can gain vital knowledge about how to improve the creative capabilities of the startups. This can make the business incubators not only more attractive to new startups, but also more successful in creating and supporting more creative businesses. The potential improvements in creativity can perhaps even be extrapolated through the company to the market, consumers, and thus society at large. However, it should be noted that this is a relatively limited study looking into the subjective experiences of chosen individuals, and therefore does not allow widespread reliable extrapolation of the results. The study does, however, open up interesting opportunities for future research to validate and generalise the findings of this study. The practical research purpose, therefore, can be summarized as such: to capture knowledge about environmental influences upon creativity that may prove useful to individuals, startup companies, and business incubators, and allow each of them to improve and adapt their respective approaches to creativity.
2. Theoretical Framework

This chapter reviews the extant concepts, definitions, and theories of creativity and the organisational environment. The most relevant concepts form the theoretical framework by which the main study will be conducted, and the gaps in the current literature inform the particular direction of study. Empirical data on the environment-individual interaction is also provided.

2.1 Creativity

2.1.1 Definition of Creativity
Teresa Amabile (1997, p. 40), a professor at Harvard Business School known for her research on creativity, defines it as the production of novel and appropriate solutions to problems in any domain of human activity. Creative output may be tangible or intangible, and the adjective “creative” has been used by researchers to describe traits, cognitive processes, products, and ideas (Alexander et al., 2017, p. 116). Among these varying definitions of “creative”, one common factor is the term “novel”. A product is viewed as creative if it is novel; a person is creative if they are able to produce novel content; and a cognitive process is creative if it involves novel combinations of existing knowledge (Alexander et al., 2017, p. 116). It should be emphasized that if a solution is simply novel, it is not creative unless it is appropriate for the given problem (Amabile, 1997, p. 40). Therefore, creativity comprises notions of both novelty and usefulness.

Mihály Csíkszentmihályi (2006), psychologist and a professor of psychology and management, defines creativity as any act, idea or product that changes a domain. Csíkszentmihályi (2006) emphasizes the importance of social approval for the creative production. Changes in the domain are not adopted before a certain group of people approves the production to the domain (Csíkszentmihályi, 2006, p. 4). In the field of business, this could mean that managers deem a new business model useful, or that a sufficient number of consumers find a product useful. Therefore, Csíkszentmihályi notes that creativity is not only a psychological phenomenon, but also a cultural and social one (Csíkszentmihályi, 2006, p. 3). As such, creativity can be seen as a driver of cultural evolution (Csíkszentmihályi, 2006, p. 6).

Colin Martindale (1989), a professor of psychology who wrote extensive research on the artistic process, mentions a third attribute of creativity. In addition to originality and usefulness, the creative artefact must be put into action (Martindale, 1989, p. 211). Martindale (1989) posits that even if an idea is both original and useful, it is not creative unless it is actualized or communicated. This requirement for actualization could be seen as an extension of the usefulness criteria. The only definitive way of demonstrating the usefulness of a creative idea is when it is put into action and deemed to be useful in practice. While the creative artefact might seem useful on the level of an unexecuted idea, as long it remains untested its true usefulness is unknown. For example, the individual who comes up with an idea might not realise the complexity of actualizing
the idea, and fail in the execution of the idea. Therefore, while a novel solution, it was not valuable because it could not be executed. In summary, creativity is the creation of new solutions that are deemed useful by the culture and society at large.

2.1.2 Strategic Importance of Creativity

In business and economics, creativity has been recognized as a driving force of growth and innovation across multiple developed and developing economies since about the 1980s (De Miranda et al., 2009, p. 523). The importance of creativity has primarily been studied with regards to the generation of new ideas, or ideation (Alexander et al., 2017, p. 117). However, more recent studies have affirmed that creativity as a productive function has a strategic and competitive value to firms of varying sizes (De Miranda et al., 2009, p. 523). The increasing importance of creativity coincides partly with the shift, present in most advanced economies, away from industrialisation and more towards a global, entrepreneurial state (De Miranda et al., 2009, p. 524). On a macroeconomic level, creativity contributes to innovative economies by increasing quality of life and potentially stimulating the economy (Rickards, et al., 2009, p. 211). On a microeconomic level, the successful implementation of creativity provides firms with a sustainable competitive advantage (Zahra & George, 2002, p. 185), and motivates the creation of new ventures (Mazzarol et al., 1998, p. 7). In startups especially, creativity may be the single most important factor at play (Alexander et al., 2017, p. 115); novel and useful ideas are “the lifeblood of entrepreneurship” (Ward, 2004, p. 174). The strategic contribution of creativity is perhaps most evident in its relationship with innovation. Ford (1996, p. 1113) posits that creative acts are the definitive episodes that distinguish successful innovations from less noteworthy efforts. Innovation is conceptually similar to creativity; and like creativity, there is more consensus regarding its importance than there is its exact definition. Baregheh et al. (2009, p. 1324) find that innovation is regarded as playing a central role in creating value and sustaining a competitive advantage. However, Baregheh et al. (2009, p. 1324) also note that there are numerous, divergent definitions of the concept, varying by field and discipline.

Organisational innovation is a subset of innovation that may prove most relevant to the direction of the study in this paper. Amabile (1988, p. 126), in her study of creativity and organisational innovation defines the latter as “the successful implementation of creative ideas within an organisation”. Woodman et al. (1993, p. 293) stress that organisational creativity, which is simply creativity on an organisational level, is a subset of the broader domain of organisational innovation. Organisational innovation is, therefore, in some cases but not all, the application and practical continuation of creativity in a business setting. They are interlocked processes, and individual creativity is regarded as the most crucial element of organisational innovation (Amabile, 1988, p. 125). In the context of this thesis, organisational innovation represents one manner in which creativity manifests itself. This manifestation allows for creativity to be studied through a theoretical framework grounded in business administration and organisational theory. The study of organisational innovation may also provide an indication for why small companies, and specifically startups, may wish to create environments that are conducive to creativity. Woodman et al. (1993, p. 293) note that individual creativity is a function of antecedent conditions and contextual influences, including the physical environment. In general discourse creativity is often discussed in terms of creative individuals. The research suggests that both the inherited parts of personality and the environment play a role (Amabile, 2012; Amabile et al., 2005; Amabile, 1997; Amabile,
1983; Csíkszentmihályi, 2006; Rhodes, 1961). Influences of creativity can thus be considered to be intrinsic and extrinsic.

2.1.3 Intrinsic Influencers of Creativity

There are several intrinsic qualities that affect creativity. These are partially or wholly influenced by the genetic and biological structure of the individual. Therefore, these factors are unlikely to be shaped by the environment in the short term. Factors such as genetic inheritance may guide the interest of an individual towards a creative domain (Csíkszentmihályi, 2006, p. 13). However, there are intrinsic influencers of creativity that can be directly influenced by the environment, such as the mood of the individual. Other intrinsic influencers of creativity include cognitive capabilities, personality traits and intrinsic motivation.

Cognitive capabilities can be seen as a large category of inherent influencers of creativity. A cognitive function which explains an essential part of creativity is intelligence (Amabile, 1983; Jauk et al., 2013; Shi et al., 2017). Intelligence influences the cognitive capabilities of learning, memorizing, understanding, solving problems and applying logic (Neisser, et al., 1996, p. 77). It is at least partly influenced by the genetically dictated physical structure of the brain (Neisser, et al., 1996, p. 80). Some external factors can influence intelligence such as prenatal (before birth) and perinatal (before and immediately after birth) stressors, the quality of nutrition and the amount of stimulation (Neisser, et al., 1996, p. 80). People on the low-end of intelligence universally rank low on creativity, whereas people on the high-end rank on a very wide spectrum (Amabile, 1983, p. 373). Therefore, people with low intelligence are usually not creative, while people with high intelligence can be creative, but not everyone is (Amabile, 1983, p. 373; Jauk et al., 2013). This can be explained by the fact that creative solutions have to be new and useful. People with higher intelligence are able to process more complex and larger amounts of information. This increases the likelihood that an intelligent individual arrives to a new solution first. People who arrive to the solution later are not creative according to the definition, as the solution is no longer new. The second requirement of creativity, deeming the new solution or idea useful, requires the application of the solution or idea. Successfully putting a novel idea into practice requires the exploration of new approaches and the analysis of possible outcomes. This in turn requires a level of abstraction that is associated with higher intelligence. However, it is worth noting that while creativity requires a level of intelligence, not everyone who ranks high on intelligence is creative. Therefore, a sufficient level of intelligence is a requirement for creativity, but does not provide a complete explanation (Amabile, 1983, p. 373; Jauk et al., 2013).

A crucial cognitive ability that explains creativity, that is closely related to intelligence, is divergent thinking (Shi et al., 2017). The concept was created by the president of American Psychology Association, Joy Paul Guilford (1967), and it explains the approaches to thinking exhibited by creative individuals. Divergent thinking is characterised by quickly considering multiple different solutions which are discovered in a spontaneous and nonlinear manner. Core concepts of divergent thinking are fluency, flexibility and discovery orientation, which are all important for the generation of creative solutions (Csíkszentmihályi, 2006, p. 13). Fluency refers to the ease and speed at which an individual can create ideas (Runco & Acar, 2012, p. 2). Flexibility refers to the ability to create ideas from multiple conceptual categories (Runco & Acar, 2012, p. 2). Discovery orientation is the individual’s tendency to explore new ideas and
solutions. Divergent thinking is seen as a relatively inherent pattern in thinking as it is influenced by intelligence and personality (Batey, et al., 2009, p. 67). However, it should be noted that divergent thinking can to a degree be influenced by the mood of the individual (Abele-Brehm, 1992; Fredrickson, 1998; Hirt et al., 1996; Isen, 1999; Vosburg, 1998). The next section goes further into discussing the influence of personality on thinking and creativity.

**Personality traits**, such as independence and self-discipline, influence the decision to take new approaches and cognitive pathways in thinking styles (Amabile, 1997, p. 40). Other characteristics of creative individuals include an inclination for risk-taking and tolerance for ambiguity (Amabile, 1997, p. 40). Creating something new or behaving in a new way always presents risks and ambiguity. When a solution has not been explored before, anticipating the outcomes is difficult. In other words, the outcomes of the new solution are ambiguous. Perhaps even the process of applying the new solution, or proving it useful, contains ambiguity. The creative solution carries a significantly larger risk than a conventional approach, where the process and outcomes are already known. In addition, creative individuals often have a disregard towards social approval (Amabile, 1997, p. 40). People usually have an innate preference for the familiar (Pohl, 2017, p. 268; Zajonc, 1965, p. 39). Going against the familiar and conventional can spark social disapproval. If this disapproval stops the individual, the potentially creative product will not be actualized. Therefore, choosing to do something creative is choosing to do something risky that involves ambiguity and has a possibility to not be socially approved. The individual has to have the personality traits to tolerate that.

Furthermore, creative individuals are described by constant curiosity (Csíkszentmihályi, 2006, p. 14) and openness to experience (Csíkszentmihályi, 2006, p. 13). Kidd and Hayden (2015), assistant professors of brain and cognitive sciences, define curiosity as an intrinsic drive to gather information. Having information from one or multiple domains increases the likelihood of creative solutions (Amabile, 1983; Cohen & Levinthal, 1990; Martindale, 1989), as will be discussed in detail in the extrinsic influencers of creativity section. Since information is important for creativity, it is logical that a personality trait that drives the individual towards information is also important. Openness to experience refers to the personality trait of seeking new experiences and self-examination (McCrae & Sutin, 2009, p. 257). In the widely acknowledged five factor model, openness to experience is one of the five personality traits that account for personality differences (McCrae & Sutin, 2009, p. 257). Openness is further broken down into six dimensions that include active imagination, sensitivity to art and beauty, focus on inner feelings, desire for variety, and intellectual curiosity (McCrae & Sutin, 2009, p. 258). Curiosity can therefore be seen as a part of a larger personality trait. Openness to experience is strongly related to novel associations and divergent thinking (Silvia et al., 2008, p. 77). Out of the five personality traits, openness to experience is the strongest predictor of divergent thinking, everyday creativity and creative achievements (Silvia et al., 2009, p. 1089). Studies by Batey and Furnham (2006), Feist (2010) and King and his colleagues (1996) have come to the same conclusion; that openness to experience is the personality trait with the strongest correlation with creativity. Jauk et al. (2013) theorize that it is indeed the openness to experience that explains the difference in creative capabilities when an individual has a sufficiently high intelligence level. In other words, people who are both intelligent and open to new experiences seem to be more creative than merely intelligent people. It is worth noting that while personality traits are seen as mostly stable and genetically
inherited (McCrae et al., 2001, p. 530), the environment does play a limited role (Briley & Tucker-Drob, 2014).

**Intrinsic motivation** is crucial for creativity. Even when an individual possesses the required cognitive capabilities and personality traits, the individual might not engage in a creative activity. The missing aspect is intrinsic motivation, which is a key prerequisite for a creative process (Amabile, 1983 p. 363; Csikszentmihályi, 2006, p. 13; Ford, 1996, p. 1120). Intrinsic motivation refers to the individual’s inner desire to perform, in this case, a creative act. Unwillingness to intentionally explore new approaches or solutions is unlikely to lead to creative solutions (Ford, 1996, p. 1120). As discussed earlier, there are many outside forces that prefer conventional solutions over creative, differentiating behaviour. Therefore, creative solutions are not usually the standard approach. Diverging from the traditional way of doing things requires motivation.

**Cognitive variation and affect** seem to play an interesting role in creativity. The creativity of the individual can be impacted by anything that increases cognitive variation (Amabile et al., 2005, p. 368). This is because novelty is a large part of creativity, as noted in the definition, and anything within the range of normal cognition that increases variation increases creativity (Amabile et al., 2005, p. 368). Affect – emotions and sentiments – influences creativity because it has an impact on cognitive variation (Amabile et al., 2005, p. 368). In simpler words, the mood of the individual influences their creativity. The affective state is intrinsic, inside the individual, but it is constantly shaped by outside forces (Duncan & Barrett, 2007, p. 1186). Affect is an individual’s response to outside stimuli, which can basically be anything that evokes a response in emotions or mood (Duncan & Barrett, 2007, p. 1186).

Some evidence suggests that negative affect increases creativity. Ludwig (1992) studied some 1005 prominent individuals from the 1900s and found a small correlation between depression and creative productions. George and Zhou (2002) suggest that when individuals experience positive affect during a moment that clearly requires creativity, they interpret the positive mood as a sign that the creative goal is completed. Concurrently, when an individual experiences negative affect, they interpret the mood as a sign that the creative goal is not met, and more effort is required.

A larger body of research suggests that positive affect is correlated to creative productions. Clore, Schwarz and Conway (1994) suggest that positive affect influences creativity, because positive mood creates the necessary cognitive variation. Fredrickson (1998) noted that positive mood increases attention, which leads to an increase in the number of cognitive elements available for association. Isen (1999) agrees with this sentiment by saying that positive affect increases the amount of cognitive material available for processing, and added that positive mood also increases the cognitive flexibility discussed earlier in this section. Fredrickson (1998, p. 304) explains the connection by saying that positive mood leads individuals to disregard proven-to-work behavioural scripts, and to conduct novel ways of acting and thinking. Abele-Brehm (1992), Hirt et al. (1996) and Vosburg (1998) showed in their studies that individuals experiencing positive mood displayed increased fluency when compared to individuals experiencing negative affect. However, as Amabile et al. (2005) note, while the majority of the research suggests that positive affect increases creativity, the evidence comes from laboratory settings. “...One must conclude that the relationship in organisational
settings is still very much an open question” (Amabile et al., 2005, p. 371). To fill in this lack of research, Amabile and her colleagues (2005) conducted a longitudinal study with 222 employees from seven different companies. They found consistent evidence that positive affect had a positive relationship with creativity, while no evidence at all for a negative relationship (Amabile et al., 2005, p. 391). The findings were summarized in the comment: “Thus, the weight of evidence supports only a linear form of the affect-creativity relationship, in which the more positive a person's affect, the higher his or her creativity in a work setting” (Amabile et al., 2005, p. 391).

These findings mean that whatever influences the affect of the individual also influences their scope of attention (Fredrickson, 1988), cognitive variation (Amabile et al., 2005; Clore et al., 1994), cognitive flexibility (Isen 1999) and cognitive fluency (Fredrickson, 1998), which are all necessary for creativity (Amabile et al., 2005; Csikszentmihályi, 2006; Clore et al., 1994; Fredrickson, 1998; Isen, 1999). To put it simply, when something has an impact on the individual’s mood, it has an impact on the individual’s creativity as well. Moods and emotions can be influenced by various external factors which will be discussed in the next section. The external factors can influence mood, motivation or other mediating factors that then influence creativity.

**Gender and sex** are intrinsic qualities of the individual, and it might be interesting to investigate whether they influence creativity. Men and women have slight differences in their cognitive functions (Abraham, 2016, p. 611; Baer & Kaufman, 2008, p. 93; Halpern 2011; Kimura 2000; Miller & Halpern 2014, p. 38). The differences in cognitive functions between the sexes are mostly explained by biological differences in hormones and brain structure (Abraham, 2016, p. 611; Miller & Halpern, 2014, p. 39). As explored previously in this chapter, cognitive functions play an important role in creativity (Amabile et al., 2005, p. 368; Amabile, 1983; Csikszentmihályi, 2006, p. 13; Jauk et al., 2013; Shi et al., 2017). In addition, socio-cultural explanations have been provided for the slight differences men and women display in different cognitive tasks (Baer & Kaufman, 2008, p. 28). These explanations include the variation in the expectations towards boys and girls and other factors in the socialisation of the different genders.

Anna Abraham, a PhD of neuroscience and a Master of psychology, concluded that there are some gender differences in creativity, but it would be incorrect to state that either gender or sex is more creative (Abraham, 2016, p. 615). The sex and gender differences in creativity might originate from subtle differences in how creative solutions are reached by applying different cognitives strategies (Abraham, 2016, p. 615). In their research of 466 women and 273 men, Matud, Rodriguez and Grande (2007, p. 1144) found that there are a few differences in creative thinking between the genders, but that the differences are very small and disappear with education. He and Wong (2011) used the Test for Creative Thinking-Drawing Production on 499 boys and 486 girls from Hong Kong. From the mean analysis, a statistical analysis that compares the means of different groups, they found no differences in creativity that were explained by gender (He & Wong, 2011, p. 811). The variability analysis, however, supported the notion that males had greater variability in creativity (He & Wong, 2011, p. 811). However, in order to obtain reliable data that sex and gender does play a role in creativity differences, the researchers called for further scientific research (He & Wong, 2011, p. 811). This notion is also supported by John Baer and James C. Kaufman (2008, p. 78) in their literature of creativity and gender differences. In their review they
summarised that “while there are research results pointing in various and often contradictory directions, the evidence does not clearly support gender differences in creativity based on test results” (Baer & Kaufman, 2008, p. 78).

In brief, while some minor differences between the sexes and genders exist on the level of cognitive functions, there is insufficient evidence of the reasons for these differences. In addition, there is not enough evidence for the claim that either men or women would be sufficiently different in creativity. A table summarizing the intrinsic influencers of creativity can be seen below as Table 1.

<table>
<thead>
<tr>
<th>Table 1. Intrinsic influencers of creativity</th>
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<tbody>
<tr>
<td><strong>Intrinsic Influencers of Creativity</strong></td>
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<tr>
<td>Cognitive capabilities</td>
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<td>Intelligence</td>
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<tr>
<td>Divergent thinking, including fluency &amp; flexibility</td>
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<tr>
<td>Personality traits</td>
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<tr>
<td>Independence</td>
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<tr>
<td>Self-discipline</td>
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<tr>
<td>Risk-taking</td>
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<tr>
<td>Tolerance towards ambiguity</td>
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<tr>
<td>Curiosity</td>
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<tr>
<td>Openness to experience</td>
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<tr>
<td>Intrinsic Motivation</td>
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<tr>
<td>Intrinsic motivation</td>
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<tr>
<td>Cognitive variation and affect</td>
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<td>Cognitive variation</td>
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<tr>
<td>Affect</td>
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</table>
2.1.4 Extrinsic Influencers of Creativity
There are several ways in which creativity can be affected by the external environment. First, it is worth noting that while personality traits can be seen as relatively stable and of biological origin, they are to a degree built by the environment (Briley & Tucker-Drob, 2014). Genetic influences of personality have been estimated to explain around two thirds of an individual’s personality, while the rest is dictated by the surroundings (Bouchard Jr., 1994, p. 1700). However, these impacts on personality are built over time through multiple experiences.

Extrinsic motivation is an important influencer of creativity. The environment can encourage or suffocate the expression of previously discussed creative traits and tendencies (Amabile, 1997, p. 41; Csikszentmihályi, 2006, p. 12; Rhodes, 1961, p. 308). On a wider societal level, cultural capital and family traditions play a significant role in motivating a child to develop expertise in a specific domain (Csikszentmihályi, 2006, p. 12). While intrinsic motivation was labeled in the previous section as an intrinsic influencer of creativity, it should be noted that intrinsic motivation can be easily influenced by extrinsic factors. Rewards and the surrounding social setting, including their approach to ideas, has a direct effect on intrinsic motivation to be creative (Amabile, 2012, p. 4; Amabile, 1983, p. 370). This notion somewhat blurs the line between intrinsic and extrinsic motivation. Intrinsic motivation comes from the individual’s desire to undertake a creative act, but this motivation can be influenced with extrinsic rewards. Therefore, the influence of an extrinsic motivator is inseparable from the intrinsic motivation. Amabile (1997, p. 40) summarizes the relationship between motivation and the environment: “although part of intrinsic motivation depends on personality, my students, colleagues, and I have discovered in 20 years of research that a person's social environment can have a significant effect on that person's level of intrinsic motivation at any point in time; the level of intrinsic motivation can, in turn, have a significant effect on that person's creativity”.

Prior knowledge from a domain is an important prerequisite for creative action according to Amabile (1983) and her research. Martin (1989, p. 212) continues this line of reasoning, and suggests that being an expert or having knowledge in multiple domains increases the probability of connecting elements of previously unconnected areas, which leads to creative productions. Cohen and Levinthal (1990) concluded that prior learning of diverse knowledge improves the ability to learn new knowledge and to apply the knowledge in creative fashion. This is intuitive, as creating something that is both new and useful requires a fair amount of knowledge from the domain. First, an individual has to be aware what has already been done. Second, an individual has to have enough expertise to know what is actually useful in the given domain. Since new ideas and products build upon previous work, it is beneficial to have knowledge from several domains. The environment can increase the likelihood of creativity by providing any new information, given that the individual is willing or capable to process it. That is where curiosity and intelligence play a role. They increase the likelihood that the individual seeks new information and is capable of processing it. Therefore, knowledge is a factor that can be influenced by other influencers as well, including resources.

Resources seem to have an impact on the probability of being creative. Even when the necessary knowledge for creative solutions is in place, material conditions on the societal or individual level influence the possibility of being creative (Csikszentmihályi, 2006, p. 12). If material conditions are too precarious, individuals are more likely to
avoid creative endeavours (Csikszentmihalyi, 2006, p. 12), which are usually seen as riskier than proven-to-work, conservative solutions (Csikszentmihalyi, 2006, p. 8). This is logical, as an individual in a setting with few resources has more to lose if the outcome is not favourable. There are not enough resources to waste on experimentation. Therefore, trying something new that carries more risk and ambiguity is less favourable. Societies and organisations with the necessary resources can make information more available, which can create the previously mentioned diverse knowledge, provide better rewards for creative actions and create deeper specialization (Csikszentmihalyi, 2006, p. 8). These are all aspects necessary for the implementation of creativity (Csikszentmihalyi, 2006, p. 8). However, resources are not only related to the availability of knowledge. When there are excess resources available, individuals are more willing to experiment, both because they have less to lose and because they have the available tools.

**Noise and distractions** have been studied regarding their relationship to creativity. Research regarding noise, unwanted sound in the environment, and creativity has produced conflicting results. Multiple studies have found that noise restricts creativity (Hillier et al., 2006; Kasof, 1997; Martindale & Greenough, 1974). However, a study by Toplyn and Maguire (1991) concluded that moderate noise improved the creative performance of individuals who were already highly creative. The reasons why noise influences creativity has been assigned to arousal (Martindale & Greenough, 1973; Toplyn & Maguire, 1991), stress (Hillier et al. 2006) and attention span (Kasof 1997). Arousal refers to a physiological state of alertness, occurring due to a change in intensity or timing of a stimulus (Pribman & McGuinness, 1975, p. 117). Ravi Mehta, an assistant professor of business administration, Rui Zhu, professor of marketing, and Amar Cheema, assistant professor of marketing have conducted extensive research in the field. They concluded that low and medium amounts of noise produce distraction which increases the difficulty of information processing, which increases abstract thinking, which in turn increases creativity (Mehta et al., 2012, p. 786). High levels of noise increased abstract thinking, but also reduced information processing, which damaged creativity (Mehta et al., 2012, p. 796).

Another factor closely related to noise in the organisational setting is the amount of environmental distractions. Stokols, Clitheroe and Zmuidzinas (2002) conducted a study on 97 employees in universities and one company. They found that high levels of environmental distractions decreased the perceived creativity of the employees (Stokols et al., 2002, p. 144). In conclusion, according to Mehta et al. (2012) low to moderate levels of noise increase creativity, while high levels of noise and other environmental distractions obstruct creativity (Stokols et al., 2002, p. 144).

Noise and distractions in organisations is often discussed in terms of the office space openness. Openness of office space refers to the degree to which the office space is separated physically. The two most extreme examples of openness are an open-plan office and a closed office. An open-plan office is defined as a workplace where employees are seated together without formal barriers (Kasuganti & Purang, 2016). There is a lack of floor-to-ceiling walls between employees (Kamarulzaman et al., 2011; Brill et al., 2001), but division can be created with screens and furniture (Kasuganti & Purang, 2016; Danielsson & Bodin, 2008). A closed office, or cell-office is defined as a room office for a single employee (Danielsson & Bodin, 2009, p. 244). In between these office plans there are multiple hybrid offices with different degrees of openness. Shared
Room offices are similar to a closed office, but with 2-3 employees working in the same office (Danielsson & Bodin, 2008, p. 642; Danielsson, 2016, p. 783). A flex office is similar to an open-plan office, but workers do not have assigned workspaces and there is a possibility to temporarily work in a more private space (Danielsson & Bodin, 2008, p. 642; Danielsson, 2016, p. 783). Combi offices offer individual workstations either in an open-plan or a closed office style, with the possibility to conduct temporary projects in separate spaces (Danielsson & Bodin, 2008, p. 642).

Christina Bodin Danielsson, a researcher at the Royal Institute of Technology (KTH) and Stockholm University, together with emeritus professor Lennart Bodin, have conducted a lot of research on the effects of different office spaces on individuals. They found in their study of 469 employees in Sweden that in large open-plan offices up to 47% of employees felt disturbed by background noises, and 50% were disturbed by office equipment noise (Danielsson & Bodin, 2009, p. 247). Only 16% of employees in cell offices, 27% in flex offices, 35% in shared room offices and 40% in combi offices felt disturbed by background noises (Danielsson & Bodin, 2009, p. 247). Mital et al. (1992) conducted a similar study on the disturbance created by noise, and found that over 60% of employees in an open-plan computer room felt distracted by noises created by conversations and computers. Brill et al. (2001) found in their six year study of 40 business units that 65% of employees in open-space offices often felt distracted by other people’s conversations. In comparison, only 29% of workers in closed offices felt the same way (Brill et al. 2001, p. 26).

Considering the findings of Mehta et al. (2012) and Stokols et al. (2002), this would mean that open-plan offices with their high levels of distractions are worse for creativity than offices with more privacy. However, the level of disturbance from noises can be hard to assess. Even if the individual reports the noise distracting, it is possible that it increases abstract thinking and creativity if it falls in the category of low to medium noise distraction. The source of the distracting noise should also be considered. An interaction by nearby colleagues can be experienced as a distraction and reported as disturbing background noise, but for those engaging in the interaction, it can be pleasurable collaboration. According to Amabile (2012), collaboration increases creativity. Social interaction can also be considered as a form of information sharing, which can increase knowledge, which in turn increases creativity (Amabile, 1983; Cohen & Levinthal, 1990; Martindale, 1989). Therefore, it is not evident that increased distractions caused by interaction decreases the creativity of everyone influenced by the interaction.

**Colour** has also been researched in terms of creativity. Mehta and Zhu (2009) studied the impact of the colours red and blue on creativity. In two studies of 208 and 118 subjects, those exposed to the colour blue exhibited a higher mean creativity than those who were exposed to red (Mehta & Zhu, 2009, p. 1227). They concluded that red and blue activated different motivations, and therefore enhance different cognitive tasks (Mehta & Zhu, 2009, p. 1226). The colour blue activated approach motivation while red activated avoidance motivation (Mehta & Zhu, 2009, p. 1228). Approach motivation is most commonly defined as an impulse to go towards positive stimuli (Harmon-Jones et al., 2013). Several theories suggest that approach motivation is connected to positive affect (Lang & Bradley, 2008; Watson et al., 1999). Amabile et al. (2005), Clore et al. (1994), Fredrickson (1998) and Isen (1999) connect positive affect to increased creativity. Therefore, the colour of the environment is a factor that can influence
creativity through affect. Blue has been linked to creativity, perhaps because of its positive associations to qualities such as openness, peace and tranquility (Mehta & Zhu, 2009, p. 1226). Therefore, it can be theorized that positive associations could lead to positive affect. In other words, positive stimuli in the environment can lead to positive emotions and mood. Based on the findings on the colours and their relationship with positive affect, any colour that activates approach motivation and positive affect can increase creativity. Table summarizing all extrinsic influencers of creativity can be found below as Table 2.

**Table 2. Extrinsic influencers of creativity**

<table>
<thead>
<tr>
<th>Extrinsic Influencers of Creativity</th>
<th>Source</th>
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<tbody>
<tr>
<td>Environmental impact on creative personality traits</td>
<td>Briley &amp; Tucker-Drob, 2014</td>
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</table>

**Extrinsic Motivation**

<table>
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<th>Source</th>
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<tbody>
<tr>
<td>Social environment</td>
<td>Csíkszentmihályi, 2006; Amabile, 1997; Rhodes, 1961</td>
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<tr>
<td>Cultural capital and family traditions</td>
<td>Csíkszentmihályi, 2006</td>
</tr>
<tr>
<td>Rewards provided by environment</td>
<td>Amabile, 2012; Amabile, 1983</td>
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<tr>
<td>Approach to ideas</td>
<td>Amabile, 2012</td>
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**Prior knowledge**

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<tr>
<td>Prior knowledge</td>
<td>Cohen &amp; Levinthal, 1990; Martindale, 1989; Amabile, 1983</td>
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**Resources**

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<tr>
<th>Source</th>
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<tr>
<td>Material conditions</td>
<td>Csíkszentmihályi, 2006</td>
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**Noise and Distractions**

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<tr>
<th>Source</th>
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<tbody>
<tr>
<td>Noise</td>
<td>Hillier et al., 2006; Kasof, 1997; Martindale &amp; Greenough, 1974; Toplyn &amp; Maguire 1991; Mehta et al., 2012;</td>
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<tr>
<td>Distractions</td>
<td>Stokols et al., 2002</td>
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**Colour**

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<tr>
<td>Colour in the environment</td>
<td>Mehta &amp; Zhu, 2009</td>
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**2.1.5 Summary of Extrinsic and Intrinsic Influencers of Creativity**

For the purpose of this thesis the influencers of creativity were divided into those that come from within the individual and those that come from outside the individual, or the
environment. This division was done to demonstrate that while creativity does require certain inherent predispositions, such as intelligence and the personality trait of openness, it can be influenced by the surroundings. A business incubator operates as an immediate social and physical surrounding for a startup, and therefore has an inevitable influence on the creativity of the individuals, and thus the whole startup. It should be noted, however, that the distinction between intrinsic and extrinsic influencers of creativity is not clear, and they can be seen as complementary. It could even be argued that they are part of the chain of factors that eventually have an influence on creativity. An outside force does not automatically make a person more creative, unless it registers with the individual in some way, which implies an effect on an internal factor. For example, perhaps an encouraging comment from the outside increases positive affect, which increases cognitive variation, and therefore increases the likelihood of creativity. To further demonstrate the combined nature of intrinsic and extrinsic influencers, consider intelligence and personality. Intelligence and the personality trait of openness to experience, which are intrinsic influencers, can be affected by the environment as the child is growing up (Neisser, et al., 1996 p. 80; Bouchard Jr., 1994, p. 1700). In turn, intelligence and openness influence the extrinsic influencer of prior knowledge by increasing both the capacity to process new information and the desire to seek more information. Furthermore, the environment can influence how easily available new information is, which in turn is influenced by material conditions. Even the relationship between intelligence and openness can be difficult to describe. It is possible that increases in intelligence increases the disposition towards openness to experience, or that openness to experience increases intelligence, or that a third factor influences both. Therefore, the dimensions that influence creativity cannot be described by a clear linear model, but they are an interconnected overlapping collection of influencers.

However, it is beneficial to separate influencers of creativity to multiple detailed groups based on the empirical evidence that has been gathered. The relationship between the factors that influence creativity might not be clear, but there is evidence that all of these different factors do eventually influence creativity. Perhaps some of the external factors influence internal factors, but that still means that the external factors influence creativity. Therefore, they are valid factors to study for this study.

In the next section the influencers of creativity are narrowed down to the organisational environment. This is done in order to study which extrinsic influencers in the organisation influence creativity. This is relevant to discover because both business incubators and the startup firms within them are organisations.

2.2 Organisations and Creativity
Creativity occurs on multiple levels: individual, group, and organisational, among others (Woodman et al, 1993, p. 309). Groups and organisations are made up of individuals, and thus group and organisational creativity are largely functions of individual creativity. However, they are not only manifestations of individual creativity, scaled up. The interactions between individuals and other individuals, and their environments, become more complex with scale. Three theories conceptualizing creativity at the organisational level, as products of individual creativity, are discussed below, and provide a basis for exploring the effect of organisational environments upon creativity.
2.2.1 Componential Theory of Creativity

One of the most prominent theories of creativity in individuals in an organisational setting is the componential theory of creativity. The original introduction of the model by Teresa Amabile in 1983 has been cited in over 8000 publications (Google Scholar, 2018) and the theory has been used as a basis for several other theories and a number of empirical studies (Amabile, 2012, p. 5). Having gone through several adjustments over the years, the current theory states that creativity can be influenced by three components that are within the individual, and by one component outside the individual (Amabile, 2012, p. 1).

Within-individual components firstly include domain-relevant skills. This refers to the knowledge, expertise, technical skills and talent within the domain (Amabile, 1983, p. 362; Amabile, 2012, p. 2). It has been also noted that expertise in multiple domains is beneficial for creativity, as it increases the likelihood of synthesizing previously unconnected ideas, creating new ideas (Martindale, 1989, p. 212). The second within-individual component is creativity-relevant processes. This refers to the cognitive mechanisms and personality characteristics of the individual that support independence, risk-taking, tolerance for ambiguity, new approaches and discipline (Amabile, 1983, p. 362; Amabile, 2012, p. 2). These cognitive processes are essential for creativity. The third within-individual component is task motivation. This refers to the motivation of the individual to partake in a task because they find it interesting, personally challenging or satisfying (Amabile, 1983, p. 362; Amabile, 2012, p. 2). This motivation is intrinsic, as opposed to motivation stemming from extrinsic sources such as compensation, surveillance or competition (Amabile, 2012, p. 2). All of these three within-individual components can be influenced by the work environment to different degrees (Amabile 2012, p. 6). Domain-relevant skills can be influenced by education and available information, although the desire and the capacity to learn are dependent on the individual. Creativity-relevant processes can be difficult to influence at an adult age, although individuals can practice important characteristics for creativity such as independence, risk-tolerance and discipline. The working environment can play a part in promoting these values. Task motivation is the within-individual component that can be the most influenced by the environment (Amabile, 2012, p. 6). Environmental factors can directly alter the individual’s intrinsic motivation (Amabile, 1983, p. 366).

The outside component of creativity, which influences the within-individual components, can be seen as the external work environment (Amabile, 2012, p. 2). Criticizing new ideas, emphasis on status quo, low-risk attitudes from managers and excessive time pressure have all been linked to decreased creativity (Amabile, 2012, p. 2; Amabile et al., 2002). On the other hand, creativity can be enhanced by creating a sense of positive challenge, collaborative and diversely-skilled work teams, encouragement, recognition of creativity, managerial support of innovation and a culture of cultivating and sharing ideas (Amabile, 2012, p. 2). It is clear that the outside social environment can improve or hamper creativity. However, it should be noted that influencing the organisational motivators can be difficult from a managerial perspective. While rewards and compensation can decrease creativity if presented in a controlling fashion, they can increase creativity if the individual feels it is a reward and recognition of competence. Another article summarizes the external work environment as “organisational climate, work group climate, managerial behaviours, and task constraints…” (Amabile et al., 2012, p. 3).
Table 3. Influencers of creativity according to componential theory of creativity
Source: Amabile, 2012; Amabile, 2002; Amabile, 1983

<table>
<thead>
<tr>
<th>Influence of organisational Environment on Creativity (Amabile, 2012; Amabile 2002; Amabile, 1983)</th>
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<tbody>
<tr>
<td>Availability of knowledge</td>
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<tr>
<td>Organisational approach to new ideas</td>
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<td>Organisational approach to sharing ideas</td>
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<tr>
<td>Organisational approach to risk</td>
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<tr>
<td>Time pressure</td>
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<tr>
<td>Sense of challenge</td>
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<tr>
<td>Collaborative diversely-skilled work groups</td>
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<tr>
<td>Encouragement for creativity</td>
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<tr>
<td>Recognition of creativity</td>
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<td>Mode of reward for creative work</td>
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</table>

The external work environment component of the componential theory discusses the influence of social factors on an individual’s creativity, but it neglects to mention the physical environment. Amabile (2012) recognizes that this is one of the shortcomings of the theory. She acknowledges that the physical environment has a measurable effect on creativity (Amabile, 2012, p. 6). Another criticism of the theory is that it does not address forces outside the organisation (Amabile, 2012, p. 6). These forces could include consumer preferences and the economic situation (Amabile, 2012, p. 6).

Amabile has furthered the componential theory of creativity to also address innovation. In the expanded theory, the three within-individual components have been modified to address requirements for creating innovation in an organisation (Amabile, 2012, p. 4). These requirements are resources in the task domain, comparable to domain-relevant skills; skills in innovation management, comparable to creativity-relevant processes; and motivation to innovate, comparable to task motivation (Amabile, 2012, p. 4).

2.2.2 Interactionist Theory of Creativity

Another theory of creativity in organisations that builds upon facets of individual creativity is the interactionist theory, which adopts many of Amabile’s ideas as discussed above. Woodman et al. (1993, p. 296) describe the creativity phenomenon with an interactionist model that takes the premise that creative behavior is a complex interaction of person and situation, repeated at each level of social organisation. The authors frame the definition of organisational creativity as a subset of the broader domain of innovation (Woodman et al., 1993). The interactionist model acts as an integrating framework that combines central elements of the personality, cognitive, and social psychology-based explanations of creativity. The model establishes that individual creativity is influenced by antecedent conditions, cognitive styles and
abilities, personality, motivational factors, and knowledge (Woodman et al, 1993, p. 301), and that individual creativity, in turn, contributes to creativity in groups. This is in keeping with the findings of Amabile (1999). The defining characteristic of the interactionist model of creativity is that it places great emphasis on a multiplicity of influencing factors and their interactions. The model conceptualizes these interactions diagrammatically. The model chunks organisational creativity into individual, group and organisational, representing each as progressive links in a chain, at the end of which lies the creative outcome. Notably, the model is designed to account for creativity in “complex social settings” (Woodman et al., 1993, p. 293), which is an accurate descriptor for the business incubator setting.

In the individual stage of the model, the creativity phenomenon is influenced by a number of interrelated factors as can be seen in Figure 1. These are antecedent conditions, cognitive style and ability, personality factors, relevant knowledge, motivation, and contextual influences. These are further explained below, and linked conceptually to other theories discussed. Many of them are derived from prior research by Amabile.

![Figure 1. An Interactionist Model of Organisational Creativity](source: Woodman, et al. 1993, p. 295)
Antecedent conditions refer, in this model, to the past experiences of the individual. These are described as biographical or historical variables, which Woodman et al. (1993, p. 294) suggest influence both the personality and cognitive characteristics of the individual, as well as contributing to the current situation in which the individual finds themselves. In relation to the topic of this thesis, antecedent conditions may include the career experience which has led the interview participants to work in a business incubator.

Cognitive style and ability are factors such as divergent thinking and ideational fluency, the expression of which may manifest differing levels of creativity. Woodman et al. (1993, p. 298) cite eight influencing aspects: associative fluency, fluency of expression, figural fluency, ideational fluency, speech fluency, word fluency, practical ideational fluency, and originality. Each of these components are considered to contribute to divergent thinking, also known as ideation. The relevance of this is that it suggests that even within identical social or external environments, individuals may differ in their creativity as a consequence of varying levels of individual cognitive attributes such as those described here.

Personality factors are often expressed as traits, which include personal dispositions towards or away from particular areas and emotions. Trait theory suggests that persistence, curiosity, energy, and intellectual honesty may all contribute positively to creativity (Amabile, 1988). That said, the exact relationship between personality and creativity is not fully understood. The interactionist model therefore does not attempt to provide a full explanation of how personality factors influence creativity, as much as suggesting that they be appreciated and taken into account by researchers as and when appropriate.

Relevant knowledge and expertise represent, in essence, functional factors contributing to the individual’s expression of creativity. These ideas are further developed in this chapter with the theory of absorptive capacity (ACAP), which identifies the challenge faced by many startups: a lack of relevant knowledge, often as a result of the venture’s immaturity and small team size. ACAP further relates this aspect to the ways in which business incubators may contribute positively to the creativity of startups, by providing environments in which interaction with other startups helps to fill the gap of extant knowledge, thus enabling creativity.

Motivation, in this model, is described as an intrinsic function that influences individual creativity, while also reviewing certain types of extrinsic motivational interventions. These include reward systems and evaluations. Woodman et al. (1993, p. 299) summarize extant findings on motivation, one of the most studied influencers of creativity. In the interactionist model, intrinsic motivation influences the individual, but the effects are also felt on the level of group and organisational creativity, as evidenced by the structure of the model.
Table 4. Influencers of creativity according to the interactionist theory of creativity
Source: Woodman, et al., 1993

<table>
<thead>
<tr>
<th>Influences of Individual Creativity according to the Interactionist Theory (Woodman et al., 1993)</th>
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<tbody>
<tr>
<td>Antecedent conditions (biographical variables)</td>
</tr>
<tr>
<td>Cognitive style and ability (factors contributing to divergent thinking)</td>
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<tr>
<td>Personality factors (personal traits)</td>
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<tr>
<td>Relevant knowledge (extant knowledge)</td>
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<tr>
<td>Intrinsic motivation (inner function)</td>
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</tbody>
</table>

Woodman et al. (1993), in looking to construct a comprehensive theory of creativity in the organisational setting, argue for a holistic, multi-factor approach. They posit that interactional psychology provides a valid theoretical base by which to model complex behavioral phenomena such as creativity (Woodman et al., 1993, p. 294). Interactional psychology is a discipline that emphasizes continuous, multi-directional interaction between individual and contextual characteristics. This perspective proposes that organisational behavior researchers should focus more on person factors that might be expected to mediate the effects of situation factors, and vice versa (Terborg, 1981, p. 570). In simpler terms, this means that to model organisational creativity accurately, according to Woodman et al. (1993), requires the researcher to factor in both intrinsic influences and extrinsic influences, and crucially, the interaction between the two. An interesting aspect of the interactionist model of organisational creativity is that it recognizes that the environment, and specifically the physical environment, may influence creativity in the individual and organisation (Woodman et al, 1993, p. 296), but does not expand on how or why. The absence of a more nuanced understanding of the way that the environment interacts with creativity presents a research gap of some interest.

The key contribution of the interactionist model is that it provides an integrationary framework, or a conceptual overlay, which seeks to express the ways in which the individual factors come together to influence creativity. Woodman et al. (1993, p. 316) express concern that the study of creativity is hindered by the fragmented approach taken by many researchers, stating that the dominant approach has been to study creativity from a single perspective, without regard for many of the subtle nuances likely to be associated with a complex process. The interactionist model takes steps in the right direction by aggregating a number of the different factors of influence.

2.2.3 Theory of Multiple Social Domains
Cameron Ford, a Doctor of Philosophy in business administration and associate professor of management, built upon the componential theory of creativity by Amabile (1983), and the interactionist theory of organisational creativity by Woodman and colleagues (1993) with his theory of multiple social domains. Ford (1996) identified multiple social domains that influence the individual who operates within an organisation and the individual’s decision of partaking in a creative activity. These domains include subunits and groups, organisations, institutional environments and
markets (Ford, 1996, p. 1126). How these domains influence creativity can be seen in Figure 2 below.

![Figure 2 - A Theory of Individual Creative Action in Multiple Social Domains](image)

Source: Ford, 1996, p. 1126

**Subunits and groups** affect creativity of the individual in the most immediate level. Group conformity influences the individuals’ schemas, or patterns of thought, regarding information seeking, meaning ascription and action. Ford (1996) describes this set of behaviours as sensemaking. Group effectiveness is often attributed to voicing of diverse opinions, but studies have also shown that differing opinions are harmful for creativity (Bettenhausen, 1991). It seems that a consensus on norms and a lack of conflict are important for creativity, as creativity is easily decreased by any negative influence (Ford, 1996, p. 1128).

**Organisation** is the next social domain. Ford (1996) recognised absorptive capacity and disposition towards risk to be the two largest influencers on organisation’s desire to support creativity. Absorptive capacity, as described by Cohen and Levinthal (1990) is the individual’s or organisation’s capability to recognize, assimilate and utilize new information in a productive way. Absorptive capacity improves the ability of an organisation to assess the viability of creative actions (Ford, 1996, p. 1128). Disposition towards risk consists of the organisation’s decision criteria and definition of success (Ford, 1996, p. 1129). As established, creative actions carry more risk than conventional actions (Csikszentmihalyi, 2006, p. 8). Depending on the organisation’s approach to risk, it can encourage or discourage creativity (Ford, 1996, p. 1129). This is in line with Amabile’s (1983) componential theory, which states that the organisational approach to risk, new ideas and sharing of ideas influences creativity. Ford (1996) continues by
noting that the absorptive capacity and disposition towards risk can be reflected in various dimensions of the organisation, including strategy, culture and compensation system.

**Institutional environment** is the third social domain. Ford (1996) saw institutional environments as especially harsh towards creativity, favoring habitual actions relying on classifications and routines instead. DiMaggio and Powell (1983) noted that three forces on the institutional level created preferences for organisations, and ultimately individuals, to conform. These processes are mimetic, which refers to imitating standard responses towards uncertainty instead of creativity; coercive, which refers to pressure to conform due to political and legitimation reasons; and normative, which refers to pressure to conform due to professionalization (Ford, 1996, p. 1130). Professionalization is the process of establishing qualifications, best practices and common methods to a domain (Hall, 1968, p. 93). Everything that favors the use of conservative, proven-to-work approaches over novel approaches decreases the likelihood of creativity by definition. However, it should be noted that institutions prefer actions that are deemed legitimate within the domain (Ford, 1996, p. 1130). Therefore, it is possible that some domains deem creative actions as legitimate. Ford summarizes this notion by stating: “...institutional selection processes can influence interpretations that facilitate and hinder both creative and habitual action” (Ford, 1996, p. 1130). When institutional boundaries are not well defined, entrepreneurs from multiple domains can provide creative solutions by combining different legitimized practices (Ford, 1996, p. 1130).

**Markets** is the fourth social domain in the theory. Eventually it is market preferences that determine the viability of products and services (Ford, 1996, p. 1131). Markets are somewhat cautious towards radical innovations due to the consumers’ fear of the unknown (Ford, 1996, p. 1131). Products that are highly creative and therefore also novel, create new industries (Ford, 1996, p. 1131). As a result, according to Aldrich and Fiol (1994), they face large obstacles because they lack the required legitimacy in consumer markets. Therefore, according to Ford’s (1996) view of the markets, it is not surprising that companies prefer not to differentiate.

As can be seen, the theory of multiple social domains by Ford (1996) proposes that there are multiple influencers in all four social domains that influence the individual’s decision to perform a creative action. All of these social domains push the individual towards conformity and standard solutions through different methods, while providing varying amounts of room for creativity (Ford, 1996). Ford (1996) conceptualized the path to a creative action to include three different steps. The three different steps are sensemaking, motivation and knowledge and ability (Ford, 1996, p. 1118).
Creative individual action, as shown in Figure 3, starts with the previously discussed sensemaking, which included information seeking, meaning ascription and actions (Ford, 1996, p. 1119). The way an individual interprets problems and solutions influences their decision to be creative or not. If the problem has a clear solution, creativity is not necessary, and the individual will resort to currently available actions (Csikszentmihalyi, 1990). If the problem is novel, the individual must engage in a deliberate thinking process, which can lead to a creative solution (Ford, 1996, p. 1119). The probability that the individual is capable and willing to follow a creative solution is influenced by the intrinsic and extrinsic influencers of creativity.

The second step, motivation, contains four subcategories and is a fairly similar conceptualization to Amabile’s intrinsic motivation. The first subcategory is goals and interests, which explains an individual’s motivation to do anything, including creative or routine actions (Ford, 1996, p. 1120). As indicated in Figure 3, goals lead to expectations and emotional responses, depending on the progress towards the goal, which in turn can increase or decrease an individual’s motivation (Ford, 1996, p. 1119). Interests towards creativity, variety, independence, achievement and superiority have been linked to a better creative performance in workplaces (Ford, 1996, p. 1120). According to research, organisations that contain the following characteristics increase the probability of creative actions: “…outcome-oriented leadership, discretion, change-oriented management, and directions to "be creative”…” (Ford, 1996, p. 1120).
Goals and interests are followed by the next three subcategories of motivation: receptivity beliefs, capability beliefs and emotions (Ford, 1996, p. 1118). Receptivity beliefs refer to the perception of the individual about how the domain will receive their creative or routine actions (Ford, 1996, p. 1121). Positive reactions lead to positive receptivity beliefs, which encourage the individual to act similarly in the future (Ford, 1996, p. 1121). Capability beliefs refer to the individual’s beliefs about their capabilities to be creative in the situation (Ford, 1996, p. 1121). According to Ford (1996), emotions guide the individual by providing information about their actions and progress towards goals. Emotions can be partially seen as reactions to the individual’s perceptions about a future event (Ford, 1996, p. 1122). These perceptions in turn are shaped by receptivity beliefs and capability beliefs (Ford, 1996, p. 1122). Research shows that creative individuals are open to emotional experience (Ford, 1996, p. 1122), a characteristic that can be related to the personality trait of openness to experience. Furthermore, the emotional climate within the organisation has an impact on creativity (Ford, 1996, p. 1123). Climates that reduce negative emotions and provide the necessary support for individuals to deviate from their routine actions promote creativity (Ford, 1996, p. 1120).

The third step in the theory of individual creative action is knowledge and ability, which is further divided into three subcategories of domain-related knowledge, behavioural abilities and creative-thinking abilities (Ford, 1996, p. 1118). The domain-related knowledge is reminiscent of the domain-relevant skills component in the componential theory of creativity (Amabile, 1983, p. 362; Amabile, 2012, p. 2). Prior learning, ability to acquire new knowledge (Cohen & Levinthal, 1990) and expertise from a domain (Martindale, 1989, p. 212) increase the capability to produce creative solutions. Behavioural abilities that are important for creativity in the social domains include social networking and communication (Ford, 1996, p. 1124). These abilities allow the formulation and sharing of creative ideas (Ford, 1996, p. 1124). In addition, communication can help in achieving the required social approval from a domain, an aspect which Csíkszentmihályi (2006, p. 4) emphasized. Creative-thinking abilities refer to the cognitive skills required to produce creative solutions (Ford, 1996, p. 1124). These cognitive skills include divergent thinking (Amabile, 1997; Csíkszentmihályi, 2006; Guilford, 1967; Jauk et al., 2013; Shi et al., 2017) and associational skills (Barron & Harrington, 1981), which are influenced by openness to experience (Batey & Furnham, 2006; Feist, 2010; King et al., 1996), which also contains curiosity (Csíkszentmihályi 2006).
Table 5. Influencers of creativity according to theory of multiple social domains

Source: Ford, 1986

<table>
<thead>
<tr>
<th>Influence of Multiple Social Domains on Creativity (Ford, 1986)</th>
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<tbody>
<tr>
<td>Group conformity (Subunit and groups)</td>
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<tr>
<td>Disposition towards risk (organisation)</td>
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<tr>
<td>Amount of routines and classification (Institutional environments)</td>
</tr>
<tr>
<td>Social approval (Markets)</td>
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<tr>
<td>Interpretation of problems and solutions (Sensemaking)</td>
</tr>
<tr>
<td>Goals and interests (Motivation)</td>
</tr>
<tr>
<td>Receptivity beliefs (Motivation)</td>
</tr>
<tr>
<td>Capability beliefs (Motivation)</td>
</tr>
<tr>
<td>Emotions (Motivation)</td>
</tr>
<tr>
<td>Domain-related knowledge (Knowledge and Ability)</td>
</tr>
<tr>
<td>Social networking (Knowledge and Ability)</td>
</tr>
<tr>
<td>Communication skills (Knowledge and Ability)</td>
</tr>
<tr>
<td>Divergent thinking (Knowledge and Ability)</td>
</tr>
<tr>
<td>Association skills (Knowledge and Ability)</td>
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</table>

The combination of sensemaking, motivation and knowledge and ability lead the individual to make the decision whether they commit to a creative action or a habitual action (Ford, 1996, p. 1118). This decision is then further influenced by the four social domains of subunits and groups, organisations, institutional environments and markets (Ford, 1996, p. 1126). The model of individual creative action is largely building upon the componential theory of creativity by Amabile (1983). The main disagreement Ford (1996) has with Amabile (1983), is the influence of intrinsic motivation. Ford (1996) argues that intrinsic motivation is not as central as Amabile (1983) suggests. Ford (1996) saw intrinsic motivation and goals, expectations and the commencing emotions as inseparable. The theory of multiple social domains has a similar starting point as the interactionist theory by Woodman, Sawyer and Griffin (1993). The notion of creative behavior by Woodman et al. (1993) is comparable to behavioural abilities by Ford (1996); cognitive abilities to sensemaking and creative-thinking abilities; knowledge to domain-related knowledge; and intrinsic motivation to goals, emotions and capability beliefs (compare Figure 1 and 3).

The largest contribution by Ford (1996) is that he expands the social environment beyond the organisation, which is where the two previous theories ended their analysis. However, the scope of this thesis is limited to the organisational level, and therefore the influences of institutions and markets are not purposefully inspected. However, it should be noted that their impact to the organisation, groups and individuals is
inevitable, although, it can be vague and implicit. Ford (1996) concluded with a pessimistic view of the social domains’ impact on creativity. He saw that most social domains prefer conformity and habitual responses over creative solutions (Ford, 1996). While this can very well be the case for most organisations, startups often operate in social domains that favour creativity and innovation. The institutions around startups want them to be innovative, and bring new products and ideas to the marketplace. On an organisational level startups are usually oriented towards creativity and encouraging novel ideas and approaches (Alexander et al., 2017, p. 11; Mazzarol et al., 1998, p. 5). Even the physical office environment is often organised in an attempt to make the individuals feel more creative (Caldararo, 2016, p. 1). However, it should be noted that even creative domains operate under certain routines classifications and schemas. Ironically, there are standard models for creative ideation and implementation. Some of these standards and routines are suggested or imposed by the business incubators, making them more complex and interesting setting for research.

The focus of Ford (1996) was on the social domains, but once again the physical environment was completely neglected. As expressed in the extrinsic influencers section, variables such as noise and colour in the environment do indeed play a role in creativity that this and the theories by Amabile (1983) and Woodman et al. (1993) ignored. The next section discusses creativity and its role in the specific environment of a startup company.

2.3 Startups and Business Incubators

2.3.1 Startup Companies and Creativity
Creativity, using Amabile’s definition - *creating something both novel and valuable* - is central to the success of startups (Alexander et al., 2017, p. 115). In fact, creative ideas are regarded by some researchers as the lifeblood of the entrepreneurial process (Alexander et al., 2017, p. 115 & Ward, 2004, p. 174). Prior research regarding entrepreneurial creativity has largely focused on the ideation process (Alexander et al., 2017, p. 117). Ideation, the formation of concepts and ideas, typically takes place early on in a company’s life cycle. However, Alexander et al. (2017) note that the application of creativity in startups is not limited solely to the creation of new ideas, but is also centrally important to their implementation and commercialization. Creativity, then, should be considered an ongoing process and a key business function beyond simply the idea-generation stage. One theory that provides a useful framework for such a view of creativity in startups is the theory of absorptive capacity.

Alexander et al. (2017) propose that the theory of absorptive capacity may demonstrate how creativity aids startups in their implementation of novel and valuable ideas, especially with the assistance of business incubators. Absorptive capacity, or ACAP, is a theory in business administration that describes a firm’s ability to integrate novel and valuable information with extant knowledge (Cohen & Levinthal, 1990, p. 128), and is typically studied with regards to a firm’s management of innovation. ACAP, as a dynamic capability, is in part a manifestation of creativity, as it relates to the assimilation of extant and original knowledge. Cohen and Levinthal (1990) suggest that the development of a firm’s ACAP can aid their innovation. Zahra and George (2002, p. 185) also find that ACAP can enhance a firm’s ability to gain and sustain a competitive
advantage. Flatten et al. (2011, p. 148) support this notion, identifying a positive relationship between firm ACAP and firm performance. Startup companies can benefit particularly from external knowledge, as it encourages the growth of their own knowledge base and renders them more innovative in the process (Flatten et al., 2011, p. 148). ACAP is thus recognized as central to the ability of firms to create and implement novel and valuable ideas (Alexander et al., 2017, p. 118). Cohen and Levinthal (1990, p. 131) posit that the ACAP of organisations is directly derived from the ACAP of its members. Gray (2006, p. 347) builds upon this claim to argue that in startups, this is reflected in the experience and motivation of the owner and key employees. Startups, however, are often faced with the disadvantage that they are less likely to possess the extant knowledge necessary to absorb and apply new knowledge (Gray, 2006, p. 347). This is because startups are, by definition, young firms, lacking in maturity and experience. Furthermore, their teams tend to be small, and are less likely to have large internal sources of information (Alexander et al., 2017, p. 121). One way in which startups can acquire the knowledge base required in order to develop their ACAP, and thus performance and successful implementation of creativity, is through business incubator tenancy.

2.3.2 Business Incubator Environment and Creativity

A business incubator is a company that provides office space and other management resources to early stage or startup companies (Hackett & Dilts, 2004, p. 59). Under the broader concept of the business incubator, there are subtypes, largely divisible along the following distinctions: publicly vs privately owned, profit vs nonprofit, and physical vs virtual (Clarysse et al., 2005, p. 3). For this thesis it is sufficient to conceptualize the business incubator as a company that provides management resources and a physical office in which startups operate. This particular type of business incubator is used as the unit of analysis because the existence of a physical environment provides an interesting yet understudied area for research. Business incubators provide startups with an environment that can positively stimulate their ACAP, both on an organisational and individual level (Alexander et al., 2017, p. 118). They do so in part by connecting incubator tenants, namely startups, to each other (Bergek & Norrman, 2002). Alexander et al. (2017, p. 118) propose that incubators provide environments that enable more creative business ideas to evolve. More specifically, they find that the environment of the incubator provides startup companies, which often have small teams, with the ability to discuss, transform, and exploit knowledge that in turn has a positive net effect on entrepreneurial creativity (Alexander et al., 2017, p. 119). ACAP, in other words, is a mechanism by which creativity is implemented, and demonstrates a strong conceptual and practical relationship between entrepreneurial creativity and the business incubator. Alexander et al. (2017) attribute the positive impact of incubators on creativity largely to the environment which they provide, and how it allows for interaction between startups that they would otherwise struggle to attain.

Given that this thesis looks to study the impact of the business incubator environment upon creativity, it is worth noting that the environment of the business incubator is actually a combination of three organisational environments: that of the startup, the other startups and the incubator. The business incubator sets certain environmental parameters, such as the physical layout, while the startups themselves are responsible for others, such as their own organisational hierarchies. The startups, with their immediate presence and interaction, can also influence each other by spilling over attitudes and knowledge while providing distractions and social interaction. This is
complicated by the fact that the founders and employees of startups within incubators often interact with business coaches employed directly by the business incubator. Such business coaches represent an anomaly in standard organisational hierarchies; they are neither paid consultants, nor do they typically have stock in the startup companies. Technically speaking, their function may be solely advisory, but their experience, knowledge and access to networks may create the impression of authority in their dealings with startups. For example, when discussing the impact of such factors as organisational approach to risk, new ideas, sharing of ideas or time pressure, the exact role and responsibility of the incubator is not clear. The business coaches can implicitly express a level of risk propensity or encourage a startup to complete an action within a timeframe. However, given that they are not formally part of the startup, but rather belong to the next organisational layer, it is difficult to assess how the creativity of the individuals in the startups is influenced by their signals. The incubator environment with its multiple layers of organisations and influencers is perhaps more socially complex than that of a single company.

Some parameters of the environment, such as social interaction and organisational culture, are closely intertwined between incubator and startup. The difficulty in clearly differentiating between the two environments means that it may be more accurate to consider them as a unique, hybrid environment - and one that has been understudied in its relationship to the individual. This is in keeping with the findings of Woodman et al. (1993), whose interactionist model of creativity recommends a holistic approach to understanding the relationship between the environment, or situation, and the individual.

2.4 Chapter Summary
This chapter has provided a theoretical framework for the research assignment into creativity in business incubators, and how it is influenced by environmental factors. Extant literature has been discussed in-depth, and the most relevant concepts and theories extracted in order to provide a sound theoretical basis for further study. Creativity has been defined and conceptualized in a business setting, making use of a variety of organisational and innovation-based theories. These are as follows: the componential model, the interactionist model, the theory of multiple social domains, and also the theory of absorptive capacity. The influences of creativity, both intrinsic and extrinsic, have been collated and analysed. Creativity has also been discussed in terms of its strategic importance and contribution to new ventures, or startups, and how this relates to the business incubator. In the second part of the chapter, the relationship between the environment and the individual, regarding creativity, was backed up with broad empirical data from a variety of studies and authors. Taken as a whole, this serves several purposes: to establish a solid theoretical and empirical grounding for the study, to identify gaps in the extant literature, to provide helpful conceptualizations and models for the key terms, and to inform the methodology for the interview process that follows.
3. Methodology

Chapter Overview

This chapter presents and motivates the methodological approach of the thesis. The research paradigm, including its ontological, epistemological, and axiological positions, is presented in-depth. Aspects discussed also include choices made regarding data collection, data analysis, alternative methods, scientific approach, literature search, theoretical underpinning, limitations, and ethical issues.

3.1 Theoretical Methodology

The practical methodology of a study is informed by its theoretical methodology and corresponding assumptions and presuppositions (Creswell, 2007, p. 16; Kothari, 2004, p. 5). A theoretical methodology represents a comprehensive description of the theories and judgements that provide the foundations for a study (Creswell, 2007, p. 16). Before embarking upon a study it is vitally important that the researchers recognize and codify their framework. Specifically, this means considering what the researchers view as reality, acceptable knowledge, and their own role in the findings. These considerations are addressed in the ontological, epistemological, and axiological assumptions respectively.

This thesis is concerned with the complex cognitive phenomenon of creativity, and the way that it may be influenced by the specific environment of a business incubator. This includes the perceived social environment with its levels of collaboration, encouragement, and comfortability with risk. This is an inherently abstract topic; the elements of social interaction and human behaviour make it difficult to observe, measure, and analyse in concrete terms (Kothari, 2004, p. 4). As such, it is fitting that the research approach reflect the field of study; namely, that of social science, rather than natural science. The implication of this distinction is that social sciences are typically studied according to a different research paradigm than natural sciences (Howell, 2013, p. 19; Kothari, 2004, p. 6). Positivism, the assumption of an objective, measurable reality, is the paradigm commonly applied in the study of natural sciences (Bryman, 2016, p. 24; Howell, 2013, p. 41; Kothari, 2004, p. 6). Interpretivism, by contrast, is a framework that rejects absolutism, and posits that social reality is a subjective concept (Bryman, 2016, p. 26; Kothari, 2004, p. 5). A positivist research approach tends to dictate a deductive study, while interpretivism may favour induction (Kothari, 2004, p. 20). In this thesis, the authors find positivism too rigid an assumption by which to study creativity in an organisational setting, and thus the interpretivist model is more appropriate. Interpretivism, as a research philosophy, tends to make use of qualitative research.

3.1.1 Qualitative Study

This thesis is a qualitative study, meaning that the data collected by the researchers is of a non-numerical nature, in contrast to quantitative data (Bryman, 2016, p. 32). Qualitative data is typically acquired by one of three means: in-depth interviews, direct observation, and written documents (Kothari, 2004, p. 3). This research paper makes
use of the first technique, conducting in-depth, semi-structured interviews. In addition, it utilizes observational descriptions for contextual data. The data collection is done as a means to create a broader and deeper understanding of the relationship between employee creativity and the incubator environment. This method of inquiry serves to build upon the conceptual knowledge outlined in the previous chapter, developing observational data into new theories. The qualitative approach is methodologically the most appropriate for the generation of new theories (Bryman, 2016, p. 32).

Most of the prominent studies regarding creativity in organisations were conducted on employees in traditional firms (Amabile et al., 2005; Amabile et al., 2002; Amabile & Conti, 1999; Ceylan et al., 2011; Paramitha & Indarti, 2014; Stokols et al., 2002) or on students in universities (Mehta et al., 2012; Stokols et al., 2002). None of them were conducted in a business incubator. Business incubators are complex social structures because they house several unrelated startup organisations under the umbrella of the larger organisation. This creates layers of contextual complexity arguably more complicated than in a more traditional business environment. Thus it may be inaccurate to assume that the findings of previous studies will hold up in the incubator environment. Since the influencers of creativity in the business incubator setting lacks precedent and established framework, it is appropriate to conduct a qualitative study that attempts to discover the influences. Before the influencers of creativity in the business incubator setting have been identified, they cannot be reliably quantified and measured. Therefore, this study could be used in the future as a basis of a quantitative study.

3.1.2 Inductive Approach
The inductive method is an approach to reasoning that observes, generalizes, then theorizes (Kothari, 2004, p. 158). Deductive reasoning, by contrast, takes the opposite approach; beginning with a theory, breaking it into smaller hypotheses, and then collecting observations by which to test those hypotheses (Kothari, 2004, p. 20). This thesis makes use of the inductive approach; developing theory from observations of empirical reality, moving from the specific to the general. The reason for adopting this approach is that although a multitude of theories of creativity were identified in the theoretical framework, none had been specifically linked to the business incubator context. As such, it does not seem logical to try to strictly apply those theories specifically produced within one organisational context and test their worth in a context quite patently different. Using a theory of creativity made for one organisational setting in a completely different setting, that of a business incubator, runs the risk of neglecting the unique impacts of the business incubator on creativity. Instead, the researchers have opted to observe the creativity-environment relationship in this unique context, and try to induce tentative trends and patterns that may in turn contribute to future hypotheses and theories.

3.1.3 Ontology
The ontological assumption of a study refers to its fundamental assumptions about the nature of reality (Collis & Hussey, 2013, p. 47). In brief, it means: what is reality? Is it objective and scientifically measurable, or subjective and socially observable? Ontology is comprised of several conceptual dichotomies, including universals and particulars, substance and accident, and abstract and concrete objects (Collis & Hussey, 2013, p. 47). In the context of this assignment, the researchers have adopted an ontological position that is concordant with the area being studied; namely, one that is interpretivist.
in nature. An interpretivist ontological assumption holds that reality, or at least social reality, is subjective and abstract, rather than objective and concrete. The rationale for this choice is that the concept of creativity is not one easily or accurately measured solely in numerical terms. A qualitative approach is required, and the qualitative methodology is a conceptual extension of interpretivism. The implications of this approach should be considered. Firstly, the interpretivist ontology informs the method of data collection; namely, semi-structured interviews. The interview is a method that collects subjective observations. Secondly, it prescribes a method of data analysis that incorporates that abstraction. For this study, the researchers have opted to use interpretative phenomenological analysis, described in detail below.

3.1.4 Epistemology
Epistemology refers to the theory of knowledge (Collis & Hussey, 2013, p. 47). More specifically, it provides assumptions as to what constitutes valid knowledge (Collis & Hussey, 2013, p. 47). The epistemological approach of a research is important to consider in order to comprehend what information is regarded as acceptable knowledge. Following the aforementioned interpretivist approach, the researchers adopt an epistemological stance that regards subjective experiences as valid knowledge. Meaning, it holds, can be found in the nuances of human interaction, and in multiple realities (Collis & Hussey, 2013). This is suitably appropriate when considering the data collection approach of this thesis, which utilises in-depth interviews about subjective perceptions of creativity. An interpretivist epistemology, such as the one utilised in this thesis, looks to uncover the complex meanings in human behaviour, rather than to predict specific cause and effect relationships. As a result, the line between facts and value judgements is blurred, as the researchers themselves become part of the phenomenon of study. This is explained in the axiological assumption of the thesis.

3.1.5 Axiology
The axiological assumption is concerned with the roles of values (Collis & Hussey, 2013, p. 48). Interpretivist researchers consider that the values of researchers, whether implicit or explicit, influence the data collection process and the interpretation of the findings. According to this paradigm, the researcher is a part of the study, rather than an outside observer. The chosen axiological paradigm of this assignment, in keeping with the subjective ontology and epistemology, assumes that it is impossible to fully remove values and biases from research, following the interpretivist line of reasoning. Given that the researchers themselves conduct the interviews face-to-face, and are also responsible for interpreting the findings, their own values and suppositions are an integral part of both the process and the output. Since the results of this study are predicated on the researchers analysing their communication with the participants, it is impossible to remove the researchers completely from the outcome of the research. Such an approach is a double-edged sword. It may allow for more biases and researcher influence than the more objective, scientific approach of positivism; but equally, it allows the researcher to capture the kind of nuanced social information that is unattainable for the detached positivist observer. The interpretivist axiology recognizes this tradeoff.

3.1.6 Interpretative Phenomenological Analysis
In scrutinizing and reviewing the findings, this thesis makes use of interpretative phenomenological analysis (IPA). IPA is a particular approach to psychological qualitative research that looks to understand social phenomena from a contextual,
individual perspective (Smith et al., 2009, p. 2; Larkin & Thompson, 2011, p. 101). The IPA approach is suitable for this study, because creativity is an inherently psychological concept and this paper takes a qualitative approach. It is a methodology that is fundamentally tied into the phenomenological approach (Braun & Clarke, 2006, p. 8). IPA is distinct from other approaches due to its combination of interpretative, idiographic, and psychological components (Larkin & Thompson, 2012, p. 101). IPA attempts to study how individuals make sense of their experiences, which requires detailed and reflective personal accounts from the participants (Larkin & Thompson, 2012, p. 101). For this reason, IPA studies are typically conducted with open-ended interviews (Larkin & Thompson, 2012, p. 103). IPA studies are increasingly popular in business and organisational psychology studies (Larkin & Thompson, 2012, p. 103). This makes IPA even more relevant, as this study researches organisations and business settings.

One important aspect of the IPA methodology is that it justifies small, specifically chosen sample groups, such as the one in this assignment (Larkin & Thompson, 2012, p. 104). In this thesis, the interviewees were selected via purposive sampling, as opposed to random sampling. The participants were chosen on the basis that they were uniquely positioned to provide meaningful insight into the topic at hand, and that they had a degree of common experience; a kind of homogeneous sampling, in effect. The participants were chosen because they worked in startups that operated inside business incubators. Thus, the relatively small-scale nature of an IPA study shows how a given phenomenon is understood in a given context, from a shared perspective. As mentioned earlier, context is important for an IPA study due to its subjective nature. To ensure an appropriate amount of contextual information, the researchers documented the environments in which the participants operated in. This provides a better understanding of the experiences of the interviewees. In addition, it provides transparency to any conclusions drawn from the comments of the participants. In keeping with the epistemological and axiological presuppositions of the thesis, the researchers reflect upon their influence when analysing the study findings.

An IPA study captures and reflects the experiences of the participants in addition to interpreting the data based on the personal accounts (Larkin & Thompson, 2012, p. 101). For this research it means interviewing the purposively chosen participants (Larkin & Thompson, 2012, p. 103). It is noteworthy that IPA studies can utilize concepts that go beyond the participants’ experiences and as such often draw from psychological concepts (Larkin & Thompson, 2012, p. 101). This means that the researchers can reflect the participants’ experiences against the psychological concept of creativity and the relevant creativity theories.

When interpreting the data, the researchers aim to develop organised, detailed, plausible and transparent account (Larkin & Thompson, 2012, p. 104). In IPA the interpretation concerns the meaning of the data (Larkin & Thompson, 2012, p. 104). First, the interview data is codified. Codification means finding meanings for objects of concern from the interview data (Larkin & Thompson, 2012, p. 106). Since this study is especially focused on the experience of creativity, the main object of concern is creativity. The meanings in this case are all the associations that the participants attach to creativity. However, these objects can also be anything that seem to matter to the participant (Larkin & Thompson, 2012, p. 106). They can be factors that the participant identifies as influencing their creativity. The participants perceive that those objects
matter for their creativity. The fact that something is mentioned in the interview process signifies a degree of importance. Then, the discussion can go a layer deeper, and the meanings attached to the objects that matter to the participants’ creativity can be explored. Next, patterns or themes are derived from the codification (Larkin & Thompson, 2012, p. 104). This process starts by organising and summarizing the identified codes from each individual participant with a flexible approach (Larkin & Thompson, 2012, p. 107). Flexibility is important, as the next step is to compare the themes across the different interviews to find commonalities (Larkin & Thompson, 2012, p. 107). Finally these themes that are identified across all of the interviews are structured into an understandable presentation, such as a table or a model (Larkin & Thompson, 2012, p. 104).

The key elements that ensure that the IPA approach produces high quality results are as follows; collecting data from appropriately selected participants; attention to the particular; a focus on how things are understood and not on what happened; appropriate use of extracts and commentary for transparency; appropriate level of contextual detail; and appropriate engagement with theory (Larkin & Thompson, 2012, p. 111). An appropriate level of contextual detail refers to the participants, the researchers and the study (Larkin & Thompson, 2012, p. 111).

In summary, IPA is a qualitative analysis method that attempts to capture and reflect experiences of the participants and then find meaning from the data (Larkin & Thompson, 2012, p. 104). Objects of concern for the participant are identified and codified (Larkin & Thompson, 2012, p. 106). The codified data is turned into themes across the interview (Larkin & Thompson, 2012, p. 104). Ultimately, themes across separate interviews are compared and combined (Larkin & Thompson, 2012, p. 107). Finally, the common themes are formulated into simple representations (Larkin & Thompson, 2012, p. 104). All of the requirements for IPA were kept closely in mind, as can be seen in the interviews and analysis. Table 6 below shows full summary of the theoretical research approach this thesis.

<table>
<thead>
<tr>
<th>Study Approach</th>
<th>Qualitative Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Paradigm</td>
<td>Interpretivist Approach</td>
</tr>
<tr>
<td>Analytical Approach</td>
<td>Interpretative Phenomenological Analysis</td>
</tr>
<tr>
<td>Theory Building</td>
<td>Inductive Approach</td>
</tr>
<tr>
<td>Ontological Assumption</td>
<td>Subjective Social Reality</td>
</tr>
<tr>
<td>Epistemological Assumption</td>
<td>Phenomenological Knowledge</td>
</tr>
<tr>
<td>Axiological Assumption</td>
<td>Researcher Influences Research</td>
</tr>
</tbody>
</table>

Table 6. The study’s approach to research paradigms
3.2 Researchers and Preconceptions
The researchers inevitably affect the outcome of the research by their implicit and explicit values as discussed in the theoretical methodology. In addition, the IPA puts emphasis on providing context for the researchers and the study. Therefore, the background and preconceptions of the researchers are presented in order to be fully transparent and to provide an appropriate level of context.

Jonne Mäkikyrö and Luke Insoll are Masters students in the International Business Programme at Umeå University in Sweden. Both have previous experience working in startups that operate in business incubators. None of these startups or business incubators were used for this study. Both of the researchers are also interested in the field psychology, a subject in which Mäkikyrö has taken several university level courses in. These have included studies in personality and creativity. It is also fair to say that both of the researchers identify as creative individuals. This preference for creativity can already be seen in the choice of study, as it regards the influencers of creativity, rather than influencers on conformity or non-creative solutions. This would be the inverse finding.

The researchers expect that the primary way in which their values may affect the findings and their interpretation is the prior knowledge and experience which the researchers possess. The questions posed were a direct result of the knowledge of the researchers as acquired in the literature review, and throughout the course of their studies and working experience. It is conceivable, likely even, that the researchers may have overlooked certain variables in their research, and as a result these variables are unlikely to arise in the findings unless specifically raised by the interviewees. To allow for this possibility, the interviews were kept semi-structured and free-flowing. This, it is hoped, allows for a greater degree of new knowledge to be attained, rather than simply confirming or denying the existing theories as recognized by the researchers.

While accepting the inevitable influence of their own values, knowledge and lack thereof, the researchers sought to approach the study with an open mind, receptive to new and possibly surprising information, even when it may not support the extant paradigms, concepts, and findings. The attempt was to stay as objective and professional as possible, within the parameters of the qualitative study methodology.

3.3 Practical Methodology

3.3.1 Interview Question Formulation
This thesis aims to collect qualitative data illustrative of the relationship between the environment of the business incubator and the creativity of the startup employees who work within it. The research approach is, accordingly, predicated upon a qualitative framework, making use of semi-structured interviews. The structure of the interviews was derived by using the categories of creativity influencers identified in theoretical framework as a starting point. This is a logical structure, which is supported by the Business Research Methods book by Zikmund et al. (2013). The book states that the questions should be categorized into themes according to the themes found in the research (Zikmund et al., 2013, p. 150). Following this logic, the different influencers of
creativity according to the theories found in the theoretical background were categorised and combined.

Throughout the process, practicality was kept in mind. For example, while cognitive variation influences creativity, the participants can not reliably say what influences their cognitive variation. However, as established in the previous chapter, affect influences cognitive variation and many things influence the affective state of an individual. Therefore, it is more reasonable to ask the interviewees about factors that might influence affect or mood, rather than asking if the participant feels a change in their subtle cognitive functions. In addition, dimensions that strictly concern the individual’s stable features, such as their communication skills, as mentioned by Ford (1996), were left out. The emphasis for this study was naturally on the influencers of creativity that the business incubator environment can directly alter, which are mostly extrinsic. Some intrinsic influencers that are easily influenced by the environment, such as affect were included. This was done because while affect can be influenced by the extrinsic factors, it is plausible that not all extrinsic factors that could influence affect were listed or found in the previous research. Therefore, it is easier to ask if something alters the affective state, rather than to ask about all the extrinsic influencers that could alter it according to the literature. Intrinsic influencers that cannot be directly impacted by the immediate environment, such as intelligence and personality, were left out. This study focuses on the influence of the business incubator environment on creativity and therefore factors that the business incubator environment cannot influence directly were left out.

The following themes were recognized as the main influencers of creativity in an organisational setting: availability of resources, availability of knowledge, organisational approach to risk, to new ideas and to sharing of ideas, time pressure, sense of challenge, collaboration, encouragement, recognition, mode of reward, amount of noise, amount of distraction and sources of positive or negative affect in the environment. The table below, Table 7, shows how these themes were synthesized from the theories and empirical studies that were presented in the theoretical framework chapter. In the interview itself, the identified factors were grouped into indirect organisational factors, direct organisational factors, reward-related factors and ambient factors.
Table 7. Grouping of themes that affect creativity for the interview guide

<table>
<thead>
<tr>
<th>Themes Influencing Creativity</th>
<th>Sources for the Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of resources</td>
<td>Availability of resources (Csikszentmihalyi, 2006)</td>
</tr>
<tr>
<td>Organisational approach to risk</td>
<td>Organisational approach to risk (Amabile, 2012) Disposition towards risk (Ford, 1986)</td>
</tr>
<tr>
<td>Organisational approach to new ideas</td>
<td>Organisational approach to new ideas (Amabile, 2012) Receptivity beliefs (Ford, 1986)</td>
</tr>
<tr>
<td>Organisational approach to sharing ideas</td>
<td>Organisational approach to sharing ideas (Amabile, 2012) Receptivity beliefs (Ford, 1986)</td>
</tr>
<tr>
<td>Time pressure</td>
<td>Time pressure (Amabile, 2012)</td>
</tr>
<tr>
<td>Sense of challenge</td>
<td>Sense of challenge (Amabile, 2012)</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Collaborative, diversely-skilled work groups (Amabile, 2012)</td>
</tr>
<tr>
<td>Encouragement</td>
<td>Encouragement for creativity (Amabile, 2012) Receptivity beliefs (Ford, 1986)</td>
</tr>
<tr>
<td>Recognition</td>
<td>Recognition of creativity (Amabile, 2012) Receptivity beliefs (Ford, 1986)</td>
</tr>
<tr>
<td>Mode of reward</td>
<td>Mode of reward for creativity (Amabile, 2012) Receptivity beliefs (Ford, 1986)</td>
</tr>
<tr>
<td>Amount of noise</td>
<td>Noise restricts creativity (Hillier et al., 2006; Kasof, 1997; Martindale &amp; Greenough, 1974) Moderate noise improves creativity (Mehta et al., 2012)</td>
</tr>
<tr>
<td>Amount of distractions</td>
<td>Distractions decrease perceived creativity (Stokols et al., 2002) Moderate distractions could operate like moderate noise and increase creativity.</td>
</tr>
<tr>
<td>Affect</td>
<td>Positive affect increases creativity (Amabile et al., 2012; Clore et al, 1994; Fredrickson, 1998; Isen, 1999)</td>
</tr>
</tbody>
</table>

These influencers, having been recognized in extant research and in this thesis’ literature review as the most likely to impact creativity in an organisational setting, provide a basis for the line of questioning in the interviews. As discussed, the influences cited have not been directly linked to the business incubator study in any previous research. However, they were a reasonable starting point for further discussion. In deciding the content of the questions, the researchers looked to previous studies conducted in the field of creativity that also utilized qualitative methods. One such study was performed by Amabile and Gryskiewicz (1987), which explored how creativity manifested itself in a research and development context. Amabile and Gryskiewicz (1987, p. 6) elected to pose open-ended questions, asking participants to describe in detail the ways in which their creativity was influenced in their workplace.
These questions involved discussing specific moments of both high and low creativity (Amabile & Gryskiewicz, 1987, p. 6). Similarly, Amabile in her 1988 study looked into factors that influenced creativity in organisations (Amabile, 1988, p. 123). The interviewees were asked open ended questions about moments of low and high creativity at the workplace (Amabile, 1988, p. 127). Both of these studies researching creativity in organisations utilized open-ended, simple and straightforward questions about creativity.

Rather than asking the participants to confirm or deny existing theories, or to speculate on creativity as a concept, the authors of this thesis allowed the interviewees to tell stories of their own experience. This method is concordant with the ontological and epistemological assumptions of this assignment, on the basis that subjective social knowledge is acquired through discourse, rather than yes-or-no answers. While recognizing the value of more structured questionnaires and interviews in building a larger data set, the researchers agree in principle with the sentiment expressed by Amabile and Gryskiewicz (1987, p. 6). They state that the loosely-structured interview allows for the maximum flexibility and range in responses, and that the oral aspect of interviews creates the best opportunity for elaboration and clarification of answers (Amabile & Gryskiewicz, 1987, p. 6). On this basis, the researchers sought to ask the participants about practical experiences concerning moments of high and low creativity, and then to identify the factors in the environment that influenced them. This was done to allow the interviewees to talk about influencers of creativity before the researchers would restrict their thinking by imposing the previously found themes. After the free association, the researchers referred to the factors that were identified in the previous literature. This technique allowed the researchers to possibly identify themes that were neglected in the previous literature.

### 3.3.2 Interview Guide Formulation

When formatting the actual interview guide from the questions discussed in the question formulation section, the researchers turned to literature on practical interview methods. First, the questions should naturally contain language that allows the respondents to understand and answer the questions without further explanations or misunderstandings (Saunders et al., 2009, p. 332). This meant that the questions had to be simplified, and terms such as the affective state had to be turned into more understandable words, such as mood.

At the very start of the interview guide, the researchers wanted to present themselves to the interviewee in order to create a comfortable and conversational tone, as suggested by Magnusson and Marececek (2015, p. 56). After this, the purpose of the research was reiterated, to ensure that there were no misunderstandings. As common sense dictates, the interview guide started with easy warm-up questions and ended with more difficult questions. The last question was aimed to wrap up the interview situation, leaving a feeling of empowerment and being listened to for the interviewees (Saunders et al., 2009, p. 333). The critical incident technique was incorporated into the interviews. This technique asks the interviewees to describe a critical incident in which the participant was clear about the effects of an event, to ground the questions in real situations (Saunders et al., 2009, p. 332). For this study, it meant asking about specific incidents when the interviewee felt particularly creative or uncreative. These kinds of practical questions were also used in other creativity studies (Amabile & Gryskiewicz, 1987, p. 6; Amabile, 1988, p. 123) and it is in line with the IPA approach, which emphasises
experiences and personal meaning. Avoiding abstract concepts and keeping the discussion in day-to-day experiences was emphasized throughout the interview guide and in the use of the follow-up questions. Having the questions well formulated and grounded in everyday situations encourages the interviewees to reflect on their experiences and to address the main topics of the research (Magnusson & Marecek, 2015, p. 57). At the very end, the interviewees were given an opportunity to complement and reflect on their answers, in case they had forgotten to mention anything. After this, they were allowed to ask further questions about the research in order to provide transparency. Finally, the interviewees were reminded how the research will carry on after their contribution.

The interview guide can be found in the appendix as Appendix 1 - Interview Guide. This guide was used as a rough outline for the interview situation, which attempted to answer all of the previously discussed themes. Due to the nature of the semi-structured interviews, it is evident that the interview guide was not followed precisely. Some questions prompted follow-up questions while others were discussed only briefly.

3.3.3 Test Interview
To ensure the quality of the interview guide, it was tested before the final interviews took place. Test interviews are useful to prepare the researchers for answers that the participants can provide (Knox & Burkard, 2009, p. 13). It also allows the researchers to adjust the interview guide if it requires improvement. The interview guide of this study was tested on an employee of a startup which operated in a business incubator. The business incubator, which was a different incubator to the ones in which the actual interviews were conducted, had a business coach and the participant was highly skilled in English. These characteristics of both the test interview participant and their work environment matched perfectly with the required characteristics of the participants for the final interviews. This meant that the feedback from the interview situation was highly relevant. The feedback from the test interview was used to improve the interview guide. When the shortcomings were addressed and the interview guide matched the recommendations from the relevant literature, it was considered to be ready.

3.3.4 Choice of Location
Sweden was chosen as the country of study for multiple reasons. First and foremost, the researchers are currently students in Sweden and therefore the choice was partly a matter of convenience. Second, Sweden is a growing economy in the startup sector. The capital, Stockholm, is currently leading Europe in the number of “unicorn” startups (Stockholm Business Region), which are startup companies that reach a 1 billion-dollar valuation (Wharton, 2015). Stockholm has the second highest number of billion-dollar tech companies per capita; in addition, Sweden as a whole has 20 startups per 1000 employees (Wharton, 2015). By population, this is 4 times as many startups as in the United States (Calvino et al., 2016). With these figures in mind, it is evident that Sweden is very prominent when it comes to startup culture. Thus, it is interesting to study the impact of the business incubator environment on creativity, which is an important factor in the success of startups, in a country in which startups are flourishing at an astonishing rate. The prevalence of startups and business incubators in the country means that the findings of this study are especially relevant for Sweden. Studying business incubators and their influence is an important subject since new ventures are essential for economic growth and employment.
3.3.5 Sample Group

Because this research studies the impact of the environment on creativity in business incubators, theoretically any business incubator would qualify as an acceptable target of the study. Every business incubator has a business incubator environment. Since the research puts heavy emphasis on the social environment and the fact that multiple layers of authority and influence exist in a business incubator, it was deemed important that the chosen business incubators employ business coaches. The business coaches can be seen as factors that influence the availability of knowledge, encouragement, recognition and ultimately they can be a source of positive or negative affect for the startup employees. In addition, business coaches represent the business incubators, and therefore promote the business incubators’ views on risk, new ideas and sharing of ideas. In addition, the business coaches inevitably bring in their personal views on risk, new ideas and sharing of ideas on an implicit or explicit level. Many business incubators employ business coaches as a part of their service (Alexandersson, 2015, p. 11).

Another factor narrowing down the choices of participants was the level of English. Since the interviews were conducted in Sweden but in the language of English, it was paramount that the participants fully understood the questions, and could communicate their answers properly. To this end, potential participants were evaluated on the basis of their English skills. Only those whose English was on a high level were chosen for the study. This was done to avoid any misunderstandings or difficulties in communication during the interviews. Furthermore, the researchers wanted to conduct the interviews face-to-face. Face-to-face interviews give the most complete view of the interview situation. The interviewees can track the tone of the voice, eye movements, body language and the general social atmosphere in the interview situation (Knox & Burkard, 2009, p. 6). In addition, face-to-face interviews reduce social desirability bias, which refers to a situation when interviewee tries to give answers they think are desirable (Knox & Burkard, 2009, p. 4). While modern technology allows sophisticated video communication through the Internet, the researchers did not want to miss any potential cues by not being present in the actual space. This meant that the participating startups should be located in business incubators that the researchers could arrange meetings to. This method makes the choice of participants partially a matter of convenience. However, this is not an issue because any business incubator is appropriate for the parameters of this study, and because this is a qualitative study that does not attempt to generalize the findings to apply to the whole population of business incubators through statistical methods. The sex or gender of the participants was not evaluated to be a necessary factor when choosing the participants. The research had shown that there were very few if any clear differences in the creativity between the sexes and genders (Baer & Kaufman, 2008, p. 78; He & Wong, 2011, p. 811; Matud et al., 2007, p. 1144).

In more practical terms, the study was conducted along the following lines. First, the researchers sought contextual information on business incubators in Sweden. This was achieved by communicating with a representative of the association of Swedish Incubators & Science Parks (SISP). The researchers were informed that in Sweden, as of 2018, there were approximately 50 business incubators that were recognized SISP members (L. Lopez, personal communication, February 15, 2018). Though this number may not represent all incubators in Sweden, since there may be those that do not have SISP membership, it was noted that this is majority of Swedish business incubators. Since the specific choice of a business incubator did not matter as long as it had
business coaches, as discussed before, business incubators from two Northern Swedish cities were chosen based on their desire to cooperate with the researchers. From those two business incubators, employees from two different startups were interviewed. The startups were chosen based on their willingness to participate and their ability to communicate in English. In summary, one employee was interviewed from startup 1 and one employee from startup 2 which both operated in the business incubator 1. Then one employee from startup 3 and one employee from startup 4 were interviewed, which operated in the business incubator 2. In total, therefore, four employees, from four startups, from two business incubators were interviewed.

Four interviewees were chosen because proponents of interpretative phenomenological analysis suggest that four is close to an ideal sample size, while anywhere between three and fifteen is acceptable (Pringle et al., 2011, p. 22). IPA adopts an idiographic focus that challenges the traditional linear relationship between the sample size (in number of participants) and the perceived value of research (Pringle et al., 2011, p. 22). Two participants from each business incubator were interviewed to get an understanding of possible differences the individuals experienced, despite operating in the same business incubator. Two incubators were chosen to ensure that the influencers on creativity were not completely idiosyncratic and only attributable to the very specific business incubator. However, in case new themes and answers would emerge after the fourth interview, the researchers were willing to conduct more interviews until all themes were discovered. This was not the case.

The interviewees selected were employees of startups in the business incubators. In planning the research, the authors considered the possible inclusion of business coaches as participants. Business coaches are direct employees of the business incubators, and could potentially give insights into the ways in which the incubator environment influences the creativity of startup employees. However, including business coaches, or any other incubator employees, would exponentially increase the level of complexity in the study. Firstly, should there be a marked difference in the findings between startup employees and business incubators, the researchers would be expected to comment upon this discrepancy, which would pull the focus of the study away from its primary direction. Secondly, a different set of questions would be required, and the analysis of the findings would also have to reflect this. With these drawbacks in mind, the researchers elected to focus entirely upon those individuals directly affected, namely the employees of startups within incubators. Since the paper wants to discover the influence of the business incubator environment on startups, it is most intuitive to interview the startup employees.

3.3.6 Conducting the Interviews
Before the interviews, the participants were provided with a definition of creativity and they were asked to pay attention to their workplace surroundings. They were instructed to note what in the environment influences their creativity. This was done to promote validity and reliability of the information in the interview situation (Saunders et al., 2009, p. 328). The provided instructions enabled the interviewees to pay attention to influencers of creativity leading up to the interview, and it is regarded as a factor that improves the data gathered from interviews (Saunders et al., 2009, p. 328). The instructions were purposefully kept brief. If the interviewees had been provided with a list of possible factors that can influence creativity, they might have paid attention to
only certain factors. This could have narrowed their thinking, possibly leading them to neglect factors that were not mentioned in the list.

The interviews were conducted between 5th of April 2018 and 19th of April 2018. In the research literature it is emphasized that the location of the interview should be comfortable and convenient for the interviewee and that the space should provide privacy (Saunders et al., 2009, p. 329). Therefore, the interviews were conducted in private offices in the business incubators in which the interviewees’ startups operated in. This maximized comfort, but also allowed the interviewees to be in the space in which they conducted their work. This could make it easier for them to remember significant events that happened during their work, as it was done in the same space. The rooms the business incubators provided were closed and private.

After permission was given by the participants, the interviews were recorded using a recording device. The device was situated in between the interviewer and interviewee so that all audio was recorded. During the interviews the interviewees would avoid any verbal or nonverbal gestures that would indicate biases, as is preferred in interview situations (Saunders et al., 2009, p. 333). The interviewers were neutral or slightly enthusiastic in their behaviour, to keep the interviewees engaged and to promote an atmosphere of friendliness. This is also a suggested practice (Saunders et al., 2009, p. 333). One researcher asked the questions, while the other researcher wrote down main points and the most important observations about both the situation and the comments. This reduced the possibility that the nature of the provided explanations or any other points of value would be lost (Saunders et al., 2009, p. 334). Later the recordings of the interviews were transcribed. The transcriptions together with the audio files were used as the basis of the analysis. The summaries of the interviews were approved by the interviewees to avoid misrepresentation.

3.3.7 Contextual Data
In line with the IPA, providing contextual data is necessary for the interpretation of the findings and analysis (Larkin & Thompson, 2012, p. 111). To provide the reader with a clear understanding of the business incubator environment, the physical office space of each of the business incubators were described in detail. This provides context to the comments the participants provided about the environmental influences. Due to ethical considerations and anonymity, which will be discussed later in this section, providing photographs of the office spaces was not an option as that would make the business incubator easily recognizable. However, the researchers used photographs as a basis for providing detailed descriptions of the business incubators and the spaces in which the participants worked in. Additionally, the background of each interviewee is briefly described, while keeping anonymity in mind. The background information is acquired from both the interviewees themselves and from the impressions provided by the researchers. The interviewees describe their startup company and their role in it, and the researchers assess their behaviour and personality throughout the interview. When combined with the environmental context, the background information and the quotes used in this thesis, the reader should gain a full picture.

3.4 Advantages and Disadvantages
The chosen approach comprises multiple components; a qualitative study, using an interpretivist research paradigm, and an interpretative phenomenological analytical
strategy. The advantages to this particular approach can be assigned to their relevant component part. A clear advantage of the qualitative approach is that it provides insight into nuanced social interaction and human behaviour in a way that the more objective quantitative approach cannot. As discussed, a purely scientific approach requires a high degree of judicial objectivity, which has the side effect of detaching the researcher from the object of study. This detachment, and the tendency to address only that which can be quantitatively measured, leads to a relatively superficial understanding of any topic with some level of conceptual complexity. Creativity in business incubators is one such area; until the phenomenon is fully understood, approaching it quantitatively will not alone produce truly enlightening findings. To find meaning in the nuances of human phenomena such as the topic of this paper, it might be more appropriately studied from the exploratory perspective of the qualitative study. Interpretivism is the research paradigm that supports this view, consciously expanding beyond the quantitative that which can be considered valid and reliable data. Another advantage is that interpretivism is arguably more honest about the limitations of research than positivism, as it admits upfront that the researcher can never be fully separated from the research. By accepting this researcher-research interaction, perhaps an interpretivist approach such as the one adopted in this thesis allows the authors to tap into other sources of meaning, using a more lateral approach to interpretation. In short, the primary advantage of interpretivism, at least in this study, is that it is more appropriate for deriving meaning.

Every study approach has disadvantages. For example, the chosen approach in this paper does not allow objective analysis of the influencers of creativity in the setting of business incubators. The research is based on personal accounts of chosen individuals, and therefore it only reliably represents the influence of creativity as perceived by these individuals. Objectively measuring the multifaceted and complicated cognitive function that is creativity in a real business incubator setting with so many changing variables would require methods that were out of the scope of this thesis. Therefore, the findings cannot say that the studied factors influence creativity, but that the individuals perceive that they do. It is worth noting that the previous empirical work on creativity relies on similar methods. Amabile (1998, p. 124), in her various studies, utilizes personal accounts from workers in organisations. Therefore, a lot of the existing theories are based on perceptions of creativity, rather than objectively measured creativity. This gives legitimacy to the approach of this study, as the leading creativity theories are built with the same methodology.

Another disadvantage is that the qualitative study with limited interviewees cannot be reliably generalized to represent all business incubator environments. This is not the aim of this study, but it is a simple misunderstanding to fall into. The study is based on a small number of subjective personal accounts. While this is enough to identify themes and influencers, as is the purpose of the study, they should be very carefully applied to other business incubators or to other employees in other startups. In addition, while four interviews are enough for analysing the data when using IPA, it is possible that having more interviews could introduce new influencers that the four interviewees did not mention. Perhaps these four interviewees have very distinct views about creativity when compared to the rest of the startup employees in Swedish business incubators. However, the researchers concluded that the answers provided by the participants were sufficiently similar already after two interviews to not arrange more interviews. No new themes were emerging and the focus was to dive deep into personal experiences.
Identifying the influencers of creativity in business incubator environments is the first step for further studies that can then attempt to generalize these influencers for all business incubators through a different form of study.

3.5 Alternative Methods

Though in-depth, semi-structured interviews were selected as the most appropriate method of study, there were alternative options available to the researchers, even within the chosen research paradigm. The most typical research methodologies associated with the interpretivist approach are hermeneutics, ethnography, participative inquiry, action research, case studies, and grounded theory (Collis & Hussey, 2013, p. 64). This section will briefly introduce each method, and motivate why they were not adopted for this thesis.

**Hermeneutics** is a methodology that focuses primarily on the interpretation and understanding of textual content, and on placing it in the context of underlying historical and social forces (Collis & Hussey, 2013, p. 64). Initially adopted for use in the interpretation of ancient scriptures, hermeneutics is closely linked to historical studies. For this reason, it is not an appropriate methodology for this particular thesis, which is more focused on individual-environment interaction, and less on historical meanings.

**Ethnography**, derived from anthropology, is a methodology that makes use of socially acquired knowledge to create understanding of human activity (Collis & Hussey, 2013, p. 65). As such, ethnography is typically used to provide descriptive information about a particular social group. The aim is to interpret the social reality in the same manner as its social inhabitants do. For ethnographic studies, researchers typically apply participant observation, becoming a full member of the group for an extended period of time. As such, this methodology is perhaps most suitable for immersive anthropological studies. The time constraints of this thesis, as well as the practical ones, make it unlikely that the researchers would be able to adopt such an approach.

**Participative inquiry** is another interpretivist methodology that stresses participation. This strategy is characterized as “research with people rather than research on people” (Reason, 1994, p. 1). Typically, a participative inquiry is conducted, or even initiated, within a specific organisation (Collis & Hussey, 2013, p. 66). The participants take a leading role, in order to remedy a perceived imbalance of authority in more traditional researcher models. Such studies are imbued with a particular philosophical mindset; one with the stated goal of democratizing research and enacting social change. Given the exploratory nature of this thesis, the researchers take the position that not enough is known about creativity and its interaction with the environment, and that research should be focused on building knowledge on this topic rather than trying to effect change in complex social and organisational structures.

**Action research**, similarly, is a methodology driven by the desire to create conscious change in a particular environment (Collis & Hussey, 2013, p. 67). As such, it goes beyond the remit of a simple research assignment, informed by the work of Lewin (1946), who viewed the process of inquiry as forming a cycle of planning, acting, observing and reflecting. Action research also shares similarities with the case study methodology, in the sense that it is typically localized to a single organisation. This
strategy has received criticism, with some researchers opining that it has more in common with journalism or consultancy (Gummesson, 2000). The change-inducing goals of action research may be admirable, but the researchers found them to be a poor fit for this kind of exploratory research.

**Case studies** are research projects used to explore a single phenomenon in a natural setting (Collis & Hussey, 2013, p. 68). In a case study, context is the all-important factor. Such studies are typically conducted over a longer period of time, with a high degree of focus and sensitivity to the dynamics at play in a particular case. Case studies can be used by both interpretivists and positivists. Though they can produce interesting insights, access to a case study may be difficult and considerably time-consuming.

**Grounded theory** is an interpretivist research approach that applies the systematic gathering of data to the goal of building new theories (Collis & Hussey, 2013). It is an inductive methodology most commonly utilized in health and psychology research (Collis & Hussey, 2013). The point of grounded theory is to build new theories from systematic observations, representing a methodological intersection between positivist and interpretivist approaches. Thus, it is often called a general method, rather than a qualitative one. Grounded theory is not too dissimilar from the approach taken in this assignment, namely interpretative phenomenological analysis, but it was a weaker fit with the stated research goals as the attempt of this study is not to build theories.

### 3.6 Literature review

The literature review of this thesis was constructed with multiple goals in mind: to create a better understanding of the core concepts, to contextualise the research question, to identify gaps in the extant research, and to extract theories of pertinent value (Bryman, 2016, p. 6). The review was performed according to four steps. First, the topic of the study was defined as clearly as possible: creativity and its relationship to the business incubator environment. Secondly, the authors conducted a search of the extant literature, primarily using scholarly research databases such as Google Scholar and Scopus to find peer-reviewed academic articles. Keywords used for finding relevant articles included creativity, creativity in organisations, influencers of creativity, personality and creativity, environment and creativity, startups and creativity, business incubators and creativity, competitive advantage and creativity, among others. This judicious approach ensured that only high-quality research was used. The relevant articles opened up avenues for further searching, and the scope gradually broadened laterally. Thirdly, the literature was evaluated, and discarded if not evidently relevant to the topic at hand. Fourth and finally, the material was analysed and interpreted, providing an in-depth discussion of the findings, and synthesizing the concepts and theories uncovered in the process. This step constituted the majority of the written content in Chapter 2.

One potential pitfall the researchers were aware of was the tendency in popular media and everyday discourse to misuse psychological concepts and findings. This is especially relevant with regards to creativity, a concept where the definition used in psychology literature is perhaps removed from the definition used in common parlance. As discussed, the most widely-agreed upon characterisation of creativity in psychology is “the production of novel and valuable ideas and solutions”. The Oxford Dictionary, by comparison, calls creativity “the use of imagination or original ideas to create
something” (Oxford Dictionary, 2018). Notably, this definition omits the value aspect included in Amabile’s description. This is indicative, perhaps, of a “softer” understanding of creativity outside of academic usage. Partly for this reason, the researchers were careful in the literature review to avoid sources using creativity definitions that did not include the value component. Such sources were largely limited to non-academic papers, and thus easily disregarded.

From the literature review, certain academic sources were identified as especially relevant. Foremost of these was the research work of Teresa Amabile, Professor of Business Administration in the Entrepreneurial Management Unit at Harvard Business School. Amabile is a prolific researcher, primarily known for her work on creativity, dating from the late 1970s to the present day. Amabile’s work provides one of the best conceptual bridges between the disciplines of social psychology and business administration, functioning as an excellent theoretical basis for this thesis. Additionally, the originally Hungarian, currently American psychologist and academic researcher Mihály Csikszentmihályi has contributed a lot to the modern knowledge of creativity. A lot of this knowledge was used in the formulation of the psychological part of this paper. A specific book, the Role Of Creativity In The Management Of Innovation, by Alexander et al. (2017) was found useful. The book highlights the increasingly important connection between creativity and enterprise, not just in the ideas process, but in the long-term implementation and execution of those creative ideas. Alexander et al. (2017) also relate this connection specifically to startups and business incubators, and introduced the researchers to the theory of absorptive capacity (ACAP), which provided an intriguing insight into the creativity function in a business context.

The theoretical basis of this thesis is discussed at length in Chapter 2, Theoretical Framework. Nonetheless, it may be beneficial to summarize its main points here, and to relate them to the thesis methodology. The theoretical underpinnings can, in summation, be grouped according to the following conceptual areas: the creativity concept; the impact of the environment; creativity in business; and theories of influence upon creativity. These thematic categories provide the basis for the interviews conducted with the sample population; namely, employees in startups which operate in business incubators. Prior to the interview, participants were provided with a fact sheet explaining the study, which included the definition of creativity that was arrived at in the Theoretical Framework. This made sure that the participants had a shared concept of what creativity was, both with the other participants and the researchers themselves. The definition of creativity conveyed to the participants was as follows: “the production of novel and appropriate solutions to problems” (Amabile, 1997).

3.7 Ethical Issues and Considerations
Ethics, also known as moral philosophy, is about the conceptualization of what is acceptable and unacceptable (Resnik, 2013, p. 1). In the context of a thesis it means following the rules of academic writing, conformity to rules and laws, and the acceptable treatment of all parties involved in the study. The researchers have been as transparent as possible in the writing process, appropriately referencing the ideas of others and avoiding plagiarism in all forms. The researchers have followed the values of honesty, integrity, objectivity, confidentiality and carefulness to the best of their ability in all steps of this study. The treatment of all stakeholders was done with confidentiality and safety in mind.
First, it was ensured that all the participants gave informed consent when deciding to participate in the study. This meant that the interviewed employees were aware of the full context and scope of the study. To ensure this, the subjects were explicitly told the necessary background of the researchers, the purpose of the study and how their data would be treated. After each interview was transcribed, the subjects were contacted for approval of the transcript. This was done to ensure that the interviewees felt that they were represented accurately. In addition, the business incubators in which the participants operated in were protected from possible harm to reputation and financial performance by keeping them anonymous. If the results of the study would reflect negatively on the environment of the business incubators, it could cause damage to the reputation of the business incubator. This in turn could reduce the interest of startup companies to join this specific business incubator, possibly reducing their financial performance. Descriptions of the business incubator office spaces were provided to better illustrate the physical space in which the participants operated in. This was deemed necessary to better convey the results of the study, as the physical environment was one possible influencer of creativity. Photography would have made the spaces too easily recognizable, and therefore written descriptions were used. This was deemed a reasonable compromise between privacy and the research goals.

Second, the well-being of the participants was cared for. This meant that the interviewing situations did not incur any direct physical or mental harm to the subjects. The participants were allowed to stop the interview process at any point if they felt uncomfortable or no longer wanted to take part in the study. The information provided by the participants was treated anonymously. The recordings from all interviews were not shared with anyone else but the researchers of the study. After the thesis was completed, the recordings were deleted. This was done to ensure that no long-term social or financial harm was done. As the participants were employees of startups operating in business incubators, it is conceivable that the participants would not want to gain a negative reputation. If the participants would voice opinions about a negative creative environment, individuals working directly for the business incubator could feel that the startup employees are ungrateful or that they have insulted an organisation they feel closely linked to. Therefore, the business coaches and other business incubator personnel could consciously or subconsciously treat the participants in a more negative manner than before. The anonymity ensures that the participants feel safe to voice all their opinions, without the risk of being recognized. Brief written descriptions of the participants and the business incubators were provided in order to provide necessary contextual data. These descriptions were kept appropriately vague to avoid recognition while providing enough context and transparency for comments and interpretations.

In summary, the participants were given full disclosure about the content of the research and they were able to stop their participation whenever they wanted to. Everyone in the study, the participants, their startups and their business incubators, were treated with appropriate levels of anonymity to avoid any potential harm.

3.8 Chapter summary
This chapter has served to present and motivate the methods used by the researchers for data collection and analysis, from both a theoretical and practical point of view. The chosen research paradigm and its accompanying assumptions have been explained with regards to their appropriateness for the task at hand. The various aspects of an
interpretivist qualitative study were highlighted, and also critically evaluated regarding their advantages and disadvantages. The applied research framework is presented in a logical manner of increasing detail, from the general to the particular. This structure is reiterated and clarified in Table 6, providing the reader with a simple overview of the methodological approach. The practical methodology is explained in detail. This involves the structuring of the interview questions based on themes recognized in the previous chapter and the logic that was applied in shaping these themes into questions in the interview guide. The way the interviews were conducted and the choices of participants, including the country, were discussed transparently. Similarly, other potential modes of study were discussed, in order to further clarify the logic behind the methodological choices made by the authors. Ethical considerations are also presented and addressed.
4. Findings

Chapter Overview

This chapter presents the findings of the interview process, in accordance with the central concepts outlined in the theoretical framework and the study design as presented in the methodology. The findings shown here provide the basis for structured analysis in the following chapter. The discussed themes are derived from codifying the interviews in accordance with the interpretative phenomenological analysis approach. Quotations are used to illustrate specific points, and some tables are presented as a means of summarizing and identifying salient information. In the findings, interviewees are represented with a corresponding number in parentheses. E.g. Interviewee 1 is referred to as (1).

4.1 Contextual information

**Incubator 1** is located in a large city in Northern Sweden and houses between five and ten startup companies at a time. The tenancy period for each incubator company is limited to a maximum of two years. The incubator, located in a business park slightly outside the city center, is an older wooden building previously used as an army barracks. The locale is large, spacious, and airy, and the interior is painted white with little decoration. The corridors and rooms have a sense of simplicity, efficiency, and old age. Each startup company has their own office space, in closed rooms with doors, and there are meeting rooms, a shared kitchen, and an “Ideas Room”, which was functionally indistinguishable from the meeting rooms. This incubator, in terms of physical layout, could be described as a shared room office as multiple employees work in the same closed office (Danielsson & Bodin, 2008, p. 642; Danielsson, 2016, p. 783). However, the fact that they provide separate meeting rooms is reminiscent of a combi-office, with the distinction that the workstations are not exactly individuals, but shared within the startup (Danielsson & Bodin, 2008, p. 642).

**Incubator 2** is located in another similarly-sized city in Northern Sweden. The building is much more modern and has quite an eclectic style. This incubator does not have limits on the tenancy period, but instead has a revenue threshold. The incubator does not operate in a separate building, but instead is a part of a larger building complex. At the reception of the incubator there are novelty items that are stylish and eccentric. The meeting rooms that the business incubator provides for temporary use contain expensive glassware and clear, shiny surfaces. Other novelties include bright orange beanbags and motivational posters. Overall, the tone seems less serious than that of Incubator 1. Unlike Incubator 1, this incubator does not provide separate office space for its tenants, except for meeting rooms which are available for booking. Rather, they work in a shared open-plan workspace. The open-plan workspace is made up of white desks, black desk chairs, and a few metal shelving units. There are roughly ten seats. This incubator is a good example of a combi-office, as there are individual workspaces and also meeting rooms (Danielsson & Bodin, 2008, p. 642).
**Interviewee 1** is a young woman who works for a consultancy startup with several employees, and has recently joined the company. Her manner is friendly and open, if shy at times.

**Interviewee 2** is a young woman, approximately of the same age as interviewee 1. She is the co-founder of a small service firm. She appears open, confident and talkative, and speaks quickly.

**Interviewee 3** is the founder of a company with a team of ten developers working for her. She is slightly older than the other interviewees, and has more career experience. Her manner is confident and straight-forward.

**Interviewee 4** is the founder and sole employee of a startup company in the fitness industry. He is friendly and calm, and takes the time to think carefully about his answers.

<table>
<thead>
<tr>
<th>Incubator</th>
<th>Interviewee</th>
<th>Sign</th>
<th>Gender</th>
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<tbody>
<tr>
<td>Incubator 1</td>
<td>Interviewee 1</td>
<td>(1)</td>
<td>Female</td>
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<tr>
<td></td>
<td>Interviewee 2</td>
<td>(2)</td>
<td>Female</td>
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<tr>
<td>Incubator 2</td>
<td>Interviewee 3</td>
<td>(3)</td>
<td>Female</td>
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<td></td>
<td>Interviewee 4</td>
<td>(4)</td>
<td>Male</td>
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**4.2 Interview findings**

Here the researchers present the findings from the four interviews that were conducted in the two Swedish business incubators, with employees of two startups from each business incubator. The findings are based on the interview approach and interview guide presented in the methodology chapter. First, the interviewees were allowed to freely explain what factors they perceived to influence their creativity in the business incubator environment. Later, specific questions related to the theories discussed in the theoretical framework chapter were asked. The interviewees were reminded to consider the influence of the three organisations, meaning their own startup, the other startups and the business incubator. The researchers focused on factors that could be directly affected in composition by the environment of the business incubator.

Each interview began with an informal discussion around the concept of creativity and how it was perceived by the participant. The subjective experience of each individual, and their personal conceptualization of creativity, set the tone for the ensuing interview. Each interviewee was asked whether or not they would self-identify as “creative” and how they used creativity in their day-to-day work. This produced a range of answers, with participants placing varying amounts of emphasis on their own creativity. At the low end, (1) did not describe herself as a creative individual, saying “I don’t think that highly about myself that I want to say that I am creative”, perhaps reflecting lower self-confidence. At the other end of the spectrum, (3) asserted that “I am a very creative
person”. Interviewees (2) and (4) also self-identified as creative individuals, but to a lesser degree than (3). Beyond their personal experiences, however, there was more broad consensus that creativity represents an important and positive quality. (2) argued that “if you're not interested in being creative… maybe you are not suitable to work in a startup”.

As the interviews progressed, it became apparent that there was general agreement on some factors influencing creativity, but a more diverse spread of opinion on others. Given that the interviews were conducted in four different companies in two different incubators (which in turn were in two different cities), it is unsurprising that opinions concerning the influence of the incubator environment were somewhat varied. In a general sense, the degree to which the business incubator environment was perceived to affect creativity was relatively high. Participants tended to stress the influence of social interaction as one of the most important aspects of the incubator environment, though its effects ranged from strongly positive to mildly negative, depending on context. Factors outside of the business incubator environment, such as the sleep quality of participants, were also noted, though they fall outside the general remit of this study.

4.2.1 Social Interaction
When quizzed upon a range of factors in the incubator environment, participants frequently highlighted social aspects as particularly influential upon their self-assessed creativity. There was some consensus that social interaction in the incubator helped the subjects to feel more creative in their work. (1) opined that “I want people around me... because that’s better for my work and creativity”. Additionally, “the more people that come together, the better ideas come up”. (1), it should be noted, worked in a relatively large team, with approximately ten employees sharing an open-plan office within the business incubator. She further identified the CEO and Vice President of her company as “very creative” individuals “in different ways”, and implied that their creativity was socially contagious. The participant characterized the atmosphere in her office as “explosively creative” when those two individuals were present. Asked to elaborate upon the ways in which her colleagues induced creativity in other people, (1) noted two factors: their knowledge, and their habit of pushing people “in the right direction”. (1) defined the latter as the provision of new challenges; “to test your limits and go beyond” which can be seen as the factor named ‘challenge’, discussed later in this chapter.

Positive social influences of creativity were also reported by (2), a female employee of a different startup in the same incubator as (1). (2) stated that “I think that I feel the most creative when I’m around others” and later emphasized this point again by saying “For me, it’s people where the creativity comes from, and that’s why I like when we have a lot of people around us”. More specifically, (2) indicated that her preferred form of social interaction in the business incubator was problem-solving behaviour involving employees of other companies. She expanded that “I think it’s harder to be creative in my own company because I know everything too well”, adding that she felt especially creative when helping other incubator members to solve challenges, elaborating that “I never lose creativity for others”. The participant felt that she was easily inspired by the presence of others, noting that: “I get influenced by someone here or someone here or in the newspaper or something, and then I discuss it with.. mainly of course with my colleagues but also I discuss with (the names of the business coaches) who are responsible for (business incubator name), and also other startups”.

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(2) also expressed strong support for her business incubator for fostering an environment in which such interaction was possible, but argued that a lot more could be done to encourage interaction between incubator companies. She felt that informal social activities such as sporting competitions, or a “creativity day” involving all incubator members would help in this regard. Expanding upon this point, (2) drew a distinction between the first months she had spent at the incubator, and the situation at present. Her startup had been in the incubator for 1 year and 4 months, and would soon reach the end of their 2 year tenancy, after which they would be required to find a new office. “At the start we had a lot of open minded helpful startups and we would run up to them and they would run up to us, and we could openly discuss how are things… but now I feel like a lot of them have moved out and maybe the place hasn’t been filled in yet, or people aren’t here much”. Unequivocally, (2) stated “I thought it was better at the beginning”. She was quite clear on this point: in her experience, the positive social environment had made her feel more creative, and she found the gradual decline in social interaction disheartening.

In the second incubator, where participants (3) and (4) were interviewed, there was markedly less enthusiasm for social interaction as a creativity stimulant. This may be due in part to the different layouts of the two incubators. In the first incubator, both participants worked in closed rooms within the business incubator. In the second, both participants worked in a shared open workspace. This means that the participants in the first incubator were able to isolate themselves from unwanted social interaction to a larger degree. The participants in the second incubator, by contrast, had less control over their surroundings, and were apparently more affected by distractions in their environment. That is not to say that participants (3) and (4) were opposed to all forms of social interaction. (4) opined, for example, that social interaction, though occasionally distracting, also provided an alternative to the isolation of working alone. Asked about the role of social interaction in the business incubator, he said “I think it’s really important, to not become isolated and for me it feels like to be creative, maybe you have to be alone, but if you get isolated too long it’s not so fun”. (3) shared this opinion: “it’s good to be among other people…”. She went on to specify that other people provide support and can spark ideas.

Though the researchers did not specifically question the issue of feedback, it was raised by some interviewees as a factor influencing their creativity. Feedback was discussed as a form of social interaction instead of paper-based feedback or feedback from the market, and so on. (2) noted, for instance, that “if I were at home alone I couldn’t get feedback on what I’m doing, but I can get that here. That’s what helps my creativity”. For the participants, feedback was obtained from their coworkers, other startups, and their business coaches. Feedback from other startups appeared to be especially valued, perhaps due to the combination of an outsider perspective while still being on the same journey. On being able to ask other incubator tenants for feedback and advice, (4) called it “an advantage in that way to be here because a lot of people have made the same road as I’m going”. (3) also said that “when I’m talking with the other people, they will be doing the same journey as I’m doing… in different areas, of course, but you can still feel that we can discuss it and that might give you new ideas”. (2) concurred: “I like to have someone else I can go to and discuss something and see if its good or not”. Perhaps one of the reasons that each interviewee valued social interaction was the opportunity it offered for genuine feedback and critique, beyond simply the mood-enhancing effects of conversation. Feedback is a subset of social interaction that also
potentially includes encouragement when the feedback is positive. The participants discussed positive comments about their work as rewarding. Therefore, feedback can also be connected to recognition, reward and encouragement.

4.2.2 Recognition, Reward, and Encouragement

Participants were asked to reflect upon the ways in which recognition, reward, and encouragement influenced their ability to be creative. In the interview guide, these were separate factors, though the lines between them quickly blurred in practice. It was apparent in each interview that concrete rewards for creativity, whether granted by the startup company, the other companies, or the incubator itself, were virtually non-existent. Some of the participants did support the idea of creativity rewards, however. According to (2): “It would be cool to reward creativity. I’ve worked in companies where they do that, it’s super nice. Nominating other people, that would be a good thing”. Giving examples of how creativity might be rewarded, she proposed an awards evening where diplomas could be granted to especially creative startups in the incubator. (2) noted that she had made this suggestion to the incubator business coaches, but that the idea had not been picked up. Though actual rewards for creativity were not reported, several interviewees identified positive feedback on their creativity (recognition of creative effort) as a kind of reward in itself. (1) described her startup as having “a culture with a lot of high-fives. Just to have that positive energy makes it more fun to be at work, and that’s also an important factor to be creative, is to have fun with your colleagues”.

Interviewees tended to note that while the presence of recognition was not significantly influential, it’s absence was particularly painful. In the words of (2): “If I lived my whole life giving ideas and never getting recognition, I would probably stop. Because sometimes you just need a thank you for being helpful, bringing creativity”. She also went on to note that “It’s when other people or the response that I get is cold, when I lose it (creativity)”, implying that lack of encouragement or negative feedback reduced creativity. However, later in the interview she mentioned that “Of course I love it when I have an idea and it works out for the other person and they say thank you. I mean that means a lot to me. But that’s not why I do it”. This implies that she does not engage in the creative activity because of the recognition. That same interviewee was especially positive about the atmosphere of the incubator environment (Incubator 1) in this regard. At the beginning of her company’s incubator tenancy, there was a bell in the kitchen of the business incubator. “When we had our first deal, we just ran out and “ring” and then other people came out to celebrate with us!”. The purpose of the bell was to recognize, reward, and encourage creativity, installed by the incubator. A similar bell was observed by the researchers in business incubator 2. The interviewee noted sadly, however, that “now I haven't heard that bell in very long, even though I know people got deals and we have too… the bell is there but I think it’s just a lack of motivation”. This appeared to indicate that the initial enthusiasm of the startup companies was fading over time, or at least that there were less frequent displays of recognition and encouragement for creativity as time went on. In fact, this was a recurring theme in the discussion with (2); she praised the high-energy atmosphere of the incubator at the start of her tenancy, characterizing it as full of positive social activity, but emphasized that over time that sense had faded. (2)’s attitude contrasted with that of (3), who placed less importance on recognition from others: “It’s always nice when somebody says good job, but I’m as creative as if I don’t get any”. This was consistent with her other answers which often indicated a self-sufficient approach.
Aside from external reward and recognition, some interviewees appeared to derive these internally. (4) posited that “the reward is in my head. I see a problem, a solution, how it develops...”. In other words, satisfaction for solving a problem creatively was seen as a proxy for external rewards. Similarly, (2) expressed that she derived satisfaction from successfully implementing her creativity, especially when assisting other startups in her incubator: “I never lose creativity for others because it's always near me”. She gave the example of how she had helped connect another incubator tenant with clients and a journalist, and it was evident that the pride she felt in making it happen was a kind of self-given reward for her creative endeavours.

4.2.3 Organisational Approach to New Ideas and Sharing of Ideas

When asked about the organisational approach to new ideas and the sharing of ideas, there was a mixed response among participants. All participants agreed with the fact that sharing ideas should be open within their own startups and that hearing ideas from others could spark new ideas. (1) said “Yes, absolutely” when asked if she can share ideas with her startup. She went on to say that she enjoyed the atmosphere when there was a feeling any idea could be shared. (3) regularly arranged workshops with her startup where ideas were systematically collected from the other workers “We have workshops working through next phases, and then we bring in new ideas as well”. Differences arose when discussing sharing ideas with other startups.

Most agreed that having new ideas and sharing them with the other incubator companies could be a good thing, though there was a noticeable difference between the participants from Incubator 1 and Incubator 2 on this topic. Interviewees from the former were generally positive about sharing ideas, (2) especially so: “then I feel kind of creative.. to help other people”, referring to people working in different startups. (2) went on to say that new ideas prompted “excitement”, but that excitement had dwindled as the startup had learned what it practically required to put new ideas to practice. (2) deemed other startups had great people to bounce new ideas off. In the latter incubator, the interviewees were less keen on sharing ideas with other incubator tenants, citing the technical nature of their work. (3) stated that she would not share ideas with other startups on the basis that her intellectual property might be infringed upon. Asked whether the other startups had a similar attitude to sharing ideas, (3) responded: “I hope they do. For their sake”. (4) was also cagey about sharing too many ideas, less out of fear of his ideas being stolen, but more because he believed the complexity of his product made it difficult to discuss with others who were not involved. At this point it is perhaps interesting to note that interviewees (1) and (2) both worked for startup companies that provide services, neither of which are particularly radical. By contrast, (3) and (4) are running startups that could be described as more innovative, with intellectual property at stake.

When it came to the business incubator or the business coaches, the participants occasionally shared and received ideas from them. (2) said that the business coaches are available if she thinks of something and wants to discuss it. She described the impact of the business coaches by saying “it’s very good that the business coaches at this incubator listen when I have an idea. I ask for their honest opinion. And they listen and help. They are very good, for me, to play around with ideas.”. Later she connected the sharing of ideas with creativity “some kind of spark... spark rises... because we can share ideas”. (3) said that the business coaches certainly provide ideas, but that she had not adopted any of them. Mostly because the business coaches lacked expertise in the
specific area of the startup. Most of the idea sharing happened within the startups and between the other startups. This can be explained by the fact that they are all working in creative projects. To summarize this idea, (3) said that “when I’m talking with the other people, they will be doing the same journey as I’m doing but in different areas of course, but you can still feel that we can discuss it and that might give you new ideas”. What business incubators mostly provided was knowledge.

4.2.4 Knowledge
The interviewees agreed that their business coaches, provided by the incubators, had relevant knowledge that could help them develop their companies. Knowledge was also described as obtainable from within their own companies, and from the other companies around them. How the availability of such knowledge affected their creativity varied by respondent. (1), for example, cited the knowledge of her bosses as crucial in shaping a creative atmosphere within the company. On the inverse she mentioned that lack of knowledge made it nearly impossible to be creative. She referred to the time when she had recently started working at the company: “It was hard to be creative when you don’t have so much knowledge of what you’re supposed to do”. (3) indicated that the knowledge of her business coaches was helpful, though she avoided linking it explicitly to her creativity. This followed the pattern established by her other answers; (3) strongly considered her creativity to be internally-driven rather than externally-influenced. Asked whether she believed creativity was taught, she answered “No, I think it’s biological actually… in my DNA”. (3) also suggested that the exchange of knowledge in the incubator was a two-way street: “I will contribute with knowledge as well, I mean my knowledge to the advisors will gain… they will receive more information and gain more knowledge to others”. (2) was more vocal in her support for the availability of knowledge, saying “I think that the available knowledge is very good for the creativity because then you can think of what would be possible”. Later she specified her comment “knowledge affects the creativity in terms of to like control if it’s possible and how to go to the next step.” (2) also noted that creativity became difficult when she had a lot of knowledge. This was discussed regarding her own company “I think it’s harder to be creative in my own company because I know everything too well so I know the limits… you know your company so well so it's harder to be creative and test something new”.

(4) discussed knowledge more in terms of information from the business coaches about funding opportunities. In the context of his company, this is not altogether surprising: at his early development stage, he appeared perhaps the most preoccupied with questions of finance out of all the interviewees. (4) discussed the knowledge provided by the business coaches by saying that “we have meetings (with business coaches) once every second week, and just discuss on what level I’m at and if I need any help … and then they will come with knowledge they have on pricing and other incubators on how they have proceeded or if maybe how they proceeded in Stockholm, the incubators there, or anybody I could talk to.” He summarized his hesitant attitude about the the impact of this knowledge for his creativity by saying “It helps in a way”.

The quality and function of knowledge differed based on its origin. Knowledge obtained from the business incubator; that is to say, business coaches, revolved primarily around business strategies such as pitching and planning, and less on activities considered more creative in nature. This was alluded to by (4), who said that his coach helped generate “new ideas in thinking in maybe in progressing, like if I start, to sell it myself, or to
make a partner, different ideas in that kind of way”. (4) had previously drawn a distinction between that kind of creativity, related to business functions, and the “inventor-type” or development creativity. He added that his development creativity was more effectively stimulated by trading knowledge with the other startups in the incubator, more so than with his coach “I have more contact with the other incubator companies, and in that way they, they are like in the same situation and they know, that development thinking, more than the coaches do”.

4.2.5 Time Pressure
Some respondents felt that limits on their time restricted their ability to think creatively, such as (4), who was limited to working two days a week on his startup: “I’m pretty sure it’s bad for my creativity”. Others appreciated the limits imposed by such time constraints: “I think you need to have some kind of deadline to get stuff done” noted (1), but added that in extreme cases “I don’t think that kind of strict deadline is good for creativity”. (2) was more keen on time constraints: “When I have a deadline like that, I have to be creative”. (3) claimed not to be affected by time pressure at all, stating confidently that “If I have one milestone or hundred milestones I will still be creative because all of it when you’re in development, you need to be creative otherwise you will not be able to create something new”. She later backtracked on this statement a little, conceding that she had an upper limit of stress (albeit one she perceived to be higher than average) beyond which her creativity would be negatively affected. (3) indicated this by saying “(When you are) consumed by something that is super heavy, then your creative side will just decrease”. She also linked this upper stress limit to working on too many things at once, and thus having less time for each component.

There was general consensus that some degree of time pressure, in the form of task and project deadlines, was an essential part of working in a startup, and that a little pressure could enhance efficiency. (4), for example, noted that “I’m working best under a little bit of stress, so now I have to do more things in two days, so I can’t think of something other when I’m on that”. However, efficiency was not seen as equivalent or even necessarily positively correlated with creativity. There was a general sense that creativity was able to flourish when the participants had more time to think; summer holidays and weekends at home were cited by several participants as especially creative moments. (3) stated that “During the summer you are on your best level on creativity”; (4) echoed a similar sentiment: “in the vacation in the summer cottage, if you’re out in the mountains... I think it’s more creative, I am getting to more different kinds of ideas”. (2) gave the example of a walk in the sun as a time when she felt particularly creative.

4.2.6 Level of Challenge
The participants mentioned the level of challenge as a factor that restricted their perceived creativity when there was too much of it. Closely linked to the amount of stress and the resulting negative mood, challenge seemed to clutter the participants’ thought processes and made them unable to think creatively. The focus was then on simply completing the task at hand. However, at times in the discussion, the impact of challenge and stress caused by time pressure were indistinguishable. Another consensus was that a mild level of challenge, whatever that meant for each individual, was helpful for creativity. (1) noted that it was good for creativity when the managers pushed her to “test your limits and go beyond”. Further elaborating, (1) mentioned that having challenges set by her superiors made her not only more creative but also more
confident: “it makes me believe in myself on another level and it gives me confidence that I know that I can do other stuff outside my little box”. Later she connected this to creativity “Yes (providing challenges), and giving you tasks that makes you work outside the box a little bit… I think that’s very good (for creativity).” (2) emphasized the importance of challenges regularly by saying that “I love to have challenges” and noting later again that “For me it would be good to have challenges, like maybe if in six months you reach this then this happens….”. While (2) often mentioned the importance of challenges, she did mention that sometimes creativity flourishes in an informal, unstressed setting “… Sometimes it just helps to when you don’t have an agenda to be creative, you just sit around and talk… It’s different types of creativity, it depends on the situation.”. A mild, or more specifically, not too draining, level of challenge seemed to engage the participants into deeper thinking and pushed them to come up with more creative solutions to their challenging problems. (4) summarized the requirement for challenge by saying that “I feel like when there’s a challenge, I need this challenge to start thinking about something… I need something to start to being creative”. He further noted that he needs a problem to solve. (2) went out of her way to assist other startups with their problems to get more challenges, while also deriving positive affect by helping and interacting with others. The current situation at her startup did not offer sufficient creative challenges, which made her seek them elsewhere, suggesting that a level of challenge or a problem is required for her creativity. Furthermore, she needed to solve problems as being creative and helping others was important to her personally.

When questioned about her preferred level of challenge, (3) replied that “For me it’s like a normal level, like if you only work 8-5 and you’re working on a normal stress level, then it’s… at least my creativity works very very well”. It is worth noting that she also discussed stress in terms of time pressure. Therefore, level of challenge influences stress together with time pressure. While emphasizing the fact that some level of challenge is required, she mentioned that too much work and challenge drains her energy. She mentioned that she can manage a large workload and highly challenging tasks, but her creativity definitely works better with less stress: “But I can handle it… but it becomes too much. If I go down to maybe, that might be too much for somebody else, but if I handle 10 projects ongoing, then I can be more creative in each process.”. However, in contrast to the other participants, (3) felt the most creative when there was an absence of challenge. Participant (3) said she received a lot of creative ideas during her sleep and during the summer, when there were no obligations. Her idea was that when she did not have anything specific to do or think about, that allowed her brain to be more creative just to have some activity “You don’t exercise your brain, and then … the brain starts to think more creatively by itself.”

The actual source of challenges varied by participant. For (1), a sense of challenge was derived primarily from her work; both the challenges posed by the market and by her bosses in the company. For (2), challenges were either set by the demands of their clients, or taken on voluntarily when trying to assist other companies in the incubator. For (2), it was this second source of challenge that she found especially influential on her creativity, allowing her to think creatively about problems that she was not directly invested in. For (3), a sense of challenge appeared to be self-imposed. As the founder and CEO of her startup company, (3) indicated that she set the level of challenge, not just for herself but her employees. (4) regarded challenges as a fundamental part of the creative process. Making a distinction between challenge and pressure, (4) suggested that challenges were linked to creative problems, whereas pressure was more closely
linked to harsh realities; in his case, the limited availability of money: “I feel more that the pressure is money. Money is pressure, because when you don’t have any products or something to sell, it can’t go minus every month. You need to have some money”.

4.2.7 Mood
Affective state or general mood was noted to have an influence on creativity. The distinctions between factors like stress, pressure, and negative mood were hard to draw at times, but most participants agreed that negative mood decreased creativity. Most of the participants emphasized that a positive mood did indeed make them feel more creative, and that there were multiple factors influencing the mood. The source of positive mood varied considerably. (1) gave the example of having healthy snacks, which she summarized by saying: “fruit in the office, keeping your energy on a good level”. In contrast, having the temperature of the business incubator set too low was an occasional source of negative mood for her. Overall, social interaction improved her mood, and she often sought to talk with other people in her company. This notion was also emphasized by participant (2), who found herself in a negative mood from the lack of social interaction: “It affects my mood if I come here and everyone has a closed door. Then it’s like I could be at home”. Being given the opportunity to discuss and share ideas with others made her feel more positive, which in turn improved her creativity. (2) also had hopes directed towards the business incubator and the physical environment they provided. She hoped for different colours for the predominantly white-painted business incubator, specifically mentioning the colour ocean blue. She also expressed her desire for green plants, and games and activities that could bring people together, linking back to the positive impact of social interaction. “A foosball table… I’ve asked for ping pong. That affects creativity. I know a friend of mine had an open workspace at his office, they had bicycles you could sit on and work from, they have shuffleboard. You know, different settings you can meet in. Something that connects people in different ways” she summarized. (2) also derived a positive mood from ambient factors, such as light and music. The arrival of spring and summer made her feel happy and creative: “of course I would say I’m more creative in the summer when there’s sun outside, because then I feel more positive and happy.” (2) noted that positive mood increased her creativity “Being positive and energetic, that’s when I feel most creative”. (4) also emphasized the importance of light, saying that he enters a positive mood from operating in spacious environments with natural light. He further noted that the physical environment is indeed important for feelings of creativity “I think the surroundings have a big effect. If I’m like in a concrete building with small windows and it’s not looking nice at all, and being there… it can affect creativity”.

Contrasting to the other interviewees, (3) did not emphasize the importance of her mood on her creativity, but acknowledged that it had some degree of impact. Her creativity decreased if she was in a negative mood, but she did not discuss the positive influences of having a positive mood. Her mood was decreased by the distractions and noises coming from outside of the incubator environment: “at least it will change my mood, because I think that if you have an unstressed environment you’re more creative and if you have too much noise around you, too much activity...”.

4.2.8 Distractions and Noise
The participants agreed that excess noise was a factor that decreased creativity. Noise was also the most important, if not only, source of distraction at work. Noise was especially distracting when the creative work required more intense attention. (1)
summarized this by saying “If you need concentration for a long time, the noise is distracting”. As mentioned earlier, (3) found that noise could negatively affect her mood, which she acknowledged to decrease creativity. In addition, she noted that “when somebody is constantly talking in your meeting, and you’re talking about something else, and you also hear them … and then they start talking again, of course it’s annoying” referring to the noises coming from outside the business incubator. (4) joined this sentiment and said that occasionally too much noise was indeed disturbing.

Besides agreeing that too much noise was bad for creativity, the participants seemed to have an affinity for some noise and distractions. Despite being annoyed by occasional background noise, (4) mentioned that he wants to be interrupted a little bit. “That’s a little bit why I’m here, movement and interruption…”. He noted that the social interruptions that were often the cause of noise made him feel more creative. (1) agreed that noise from social interaction was often welcomed: “I think it’s nice to have some breaks, just to hear people talk. And you can choose whether you want to join the conversation, it’s nice that you can choose.” (2) even noted that the current situation at the business incubator did not offer enough noise by commenting “Yes, so for my creativity I like maybe some noise around me so I can just… you know go around and chat, and help them and then they help us”. (3), while often disturbed by outside noise, said she wants to have some noise in the background and enjoys listening to music. Music was also an important factor for (2), who derived a positive mood from listening to music, which in turn resulted in improved creativity according to her.

The largest differences between the participants was in their approach to lack of noise and distractions. (1) and (2) clearly preferred to have more noise, especially from social interaction. (1) noted only one exception when she would prefer silence: “Only when I’m reading things, that’s when I need quiet”. When asked about whether the noise in the environment affected her creativity, (2) quickly responded: “Yes. It’s too quiet! We have music on sometimes, but other startups complain. For me it’s too quiet. When you come here, it should be - my idea of an incubator is an open workspace with people helping each other. It should be noisy, but it isn’t. It’s too quiet”. The participants (3) and (4) who operated in an open office space were not as fond of constant noise. (3) said that she likes the environment when it’s calm. (4) had the most desire for calmness during the product development stage: “I think I would like a pretty calm environment, like being at home. I’m mostly creative in like… if I were to develop or optimize my product, I would do that best when I’m alone, or out maybe in the woods, walking or something like that”. However, he welcomed interruptions when he was working on the business side.

The source of noise and distractions was primarily social interaction. (1), operating in a larger startup, would be distracted by her own company. (2) received most of the noise from her own company, but clearly desired more noise and interaction with the others. (3) and (4) received most of their noise from the events that took place outside the incubator. The other startups were not considered distracting by any of the participants.

4.2.9 Resources
When discussing the resources necessary to conduct their work, the participants mostly referred to the business incubator. Interviewees generally agreed that the business incubator provided the basic resources that enabled the possibility of being creative. (1) mentioned that the resources affected her creativity only when they were lacking: “I
think if everything is set up and there’s not a problem with anything, like video conference and meeting rooms”. She said that the business incubator provides resources that makes operating easier, and then she does not have to worry about them. This enabled to put energy elsewhere, such as being creative. When questioned about resources, (2) said that “I like to have a lot of colours and pencils and do mind maps and so on, and we don’t have pencils here so I bring my own you know. So I would say that yea if, there’s no end to the possibilities if they (business incubator) have some more like resources or some help that would be awesome and I think that would help with my creativity”. Participant (2) also discussed working spaces in terms of resources “I would like to have like a creativity space”. She also asked for more meeting spaces, which would increase social interaction. The desire for social interaction was a common theme in her answers. In her mind it resulted in increased mood, sharing of ideas and sharing of knowledge, which she deemed to be important for creativity. Participants (3) and (4) discussed the mentoring services the business incubator provided in the form of business coaches. They saw the mentoring, which mostly referred to sharing of knowledge and sharing of ideas, as a resource that enabled creativity. (3) said that the business coaches help her with tasks and activities, and (4) mentioned that he gets mentoring and access to a lab that allows 3D printing for prototyping. When asked whether these services had an impact on his creativity, (4) replied “Yeah, absolutely”. Interestingly none of the participants mentioned resources offered by their startups or by the other companies operating in the business incubator.

4.3 Chapter Summary
This chapter discussed the findings of the interviews by combining different themes found during the interview process. Similarities and differences in the interviewees’ answers were addressed. Throughout the findings the central question of the thesis was kept in mind; what in the business incubator environment affects startup employee creativity. The following themes were identified to have a positive or negative influence.

Social interaction was deemed to be a positive influencer for creativity, while excessive social interaction by others could be distracting at times. Social interaction came from all three layers of the business incubator environment, namely the startup, the other startups and the business incubator itself in form of the business coaches. Recognition, reward and encouragement were closely linked, even inseparable in the answers of the interviewees. Recognising the participants’ creativity was deemed as a social reward of sorts on its own. Positive feedback as a reward was appreciated and it at least improved the mood of the participants, if not their creativity directly. Encouragement came mostly from the startup itself, but parts of it came from the other startups. Interviewees were mostly open about sharing ideas, especially within their own startups. Generally, the sharing of new ideas and having an atmosphere of open discussion was judged to be good for creativity, although at times the link was not made clear. The attitudes towards ideas came mostly from within the startups themselves. The approach other startups or the business incubator had towards new ideas did not bear much impact. The participants generally agreed that they could acquire knowledge mainly from the business incubator in form of mentoring and lectures. To a lesser degree, they derived knowledge from the other companies. One participant emphasized the role her bosses had in the acquisition of new knowledge. The participants (1) and (2) said that acquiring new knowledge was important for their creativity, while the rest were more ambivalent.
The participants agreed that time pressure made them more effective in their work, but could decrease their creativity if it became too stressful. At work the participants wanted a little bit of time pressure for creativity, but outside of work they preferred the lack of time pressure to feel most creative. The time pressure came only from within the startup itself, with the business incubator and other startups playing no role at all. The approach to challenge was similar to that of time pressure. Excessive challenge significantly reduced the ability to be creative. All of the participants enjoyed some level of challenge, and the importance of having a problem to solve was discussed repeatedly. Participants (3) and (4) were most creative when there was a clear lack of challenging work and obligations. Participants (1) and (2) preferred challenge and regularly sought challenges. The level of challenge was set mostly by the startup itself, which in some cases was influenced by the market forces.

The participants agreed that mood influenced their creativity. Everyone agreed that negative mood decreased their creativity at least slightly, and most interviewees agreed that positive mood improved their creativity. Sources of positive mood were social interaction, snacks and an appealing environment, especially the amount of light and space. Negative mood was derived from noise. Therefore, sources of different moods came from the startup itself, from other startups, the business incubator and from outside factors that could not be controlled, such as the weather. Indeed, it was universally agreed that high levels of noise and distractions reduced creative capabilities. Most participants enjoyed or were not bothered by medium levels of noise, with participant (2) even asking for more distractions. Participants (3) and (4) had a clear preference for calmness, but (3) would still look for background music and (4) wanted occasional distractions. Sources of noise for (1) and (2) were the startup in which they operated themselves. For (3) and (4) the noises came from events held outside the business incubator. The participants saw resources as something that the business incubator was responsible for providing, such as meeting rooms and office equipment.
5. Analysis

Chapter Overview

This chapter of the thesis analyzes the findings of the empirical study and discusses them in the context of the research question and framework. The most salient findings are presented in such a way as to clearly demonstrate if and how they answer the research question, identifying patterns and linkages in the results. Additionally, the systematic analysis compares and contrasts the findings of the research with extant data from previous studies. This is done in accordance with the research approach proposed and motivated in Chapter 3, Methodology.

The findings of this thesis suggest that individuals working in business incubators experience a broad range of factors which influence and regulate their perceived creativity. It is important to keep in mind that notions about creativity are based on the subjective lived experiences of the participants. When creativity is discussed in this section in the context of analyzing comments from the participants, it is always regarding the perceived impact on the creativity. This chapter functions as a systematic analysis by which those factors can be more clearly understood in the context of the incubator environment, and in relation to extant theories of creativity as outlined in the theoretical framework. This analysis will also allow for a new conceptualization of how participants in the business incubator environment are influenced in their creativity.

5.1 Identification and Analysis of Themes

Following the interpretative phenomenological analytical method, the researchers have stayed close to the interview material and applied transparency in their interpretation of the findings. Guided by IPA, the researchers have used transcript excerpts to codify the data and to generate possible interpretations (Larkin & Thompson, 2012, p. 107). Larkin and Thompson (2012, p. 107) instruct that the researchers should be “trying to stay close to the data, but will also be beginning to generate possible interpretations”. Patterns, or themes, were identified in the subjects’ experiences as they emerged from the codification and were compared in a cross-sectional manner across the interviewees (Larkin & Thompson, 2012, p. 107). Further on, these themes are treated in a more speculative manner, as summarized by Larkin and Thompson (2012, p. 109) “at this point, your analysis may start to develop a more speculative, questioning dimension”. Each theme is linked to a table that can be found in the appendix. These tables, from Table 9 to Table 16, show both the original transcript excerpt and the codified interpretation drawn from the quote, as suggested by IPA. These tables can be seen in Appendix 2 – Tables. This shows the research approach and provides transparency in the codification process. Finally, a model illustrating the relationships between the identified themes is formulated (Larkin & Thompson, 2012, p. 111).

5.1.1 Social Interaction

As the previous chapter has outlined, participants in the study rated social interaction as one of the most important aspects of the business incubator environment in relation to individual creativity. Not only was social interaction emphasized by the explicit words
of the participants, but it was also evident by the number of times social interaction was mentioned in a positive context. The interaction was perceived to have several positive effects on the creativity of the interviewees. However, social interaction did not directly affect creativity, but provided several avenues of indirect influence. It improved the mood or affective state of the individual, which in turn improved the creative capabilities of most of the participants. In addition, social interaction provided the opportunity to receive feedback, to generate ideas and to share knowledge that is crucial for the production of a creative solution. Interview excerpts indicating social interaction as an influencer can be found in Table 9 in the appendix.

The interaction seemed to be happening across multiple layers of the social environment. The ways in which social interaction occurred, and the effects thereof, were somewhat dependent on the particular context of the interaction. The researchers deconstructed the business incubator environment into three overlapping social environments: that of the startup, the other startups in the incubator, and the incubator itself. This segmentation can also be viewed through the lens of the theory of multiple social domains. Devised by Ford (1996), the theory states that the individual in an organisation operates across multiple social domains, and reflects the differing influence of each level. In Ford’s model, there are four social domains: group, organisation, institution, and market (Ford, 1996, p. 1126). Since this thesis focuses only on the immediate environment of the startup employee who operates within the business incubator, institution and market were assumed to play a negligible role. The group can be compared to the startup the individual works in, and the organisation can be compared to the business incubator. However, Ford’s definition lacks the distinction that the other startup tenants are effectively other groups dictated by other institutions and markets, yet sharing the same working space and providing regular social interaction. In addition, the business incubator organisation is not a homogenous organisation as in the Ford’s theory, but a loose umbrella organisation that houses other groups or organisations, the startups. Having noted these distinctions from Ford’s original model, it remains evident that the core concept of a multi-layered social environment is appropriate.

Most of the participants received the majority of their social interaction from within their own startups. This is to be expected, as their own startup shares the most immediate space and organisational goals with the participants. Therefore, social interaction with them is both convenient and necessary. One participant found social interaction with her startup to be especially inspirational for creativity, due to the influence her creative and knowledgeable superiors had. It seemed that creativity was particularly contagious in her case. However, due to the size of her startup, social interaction was limited with other startups because they required a separate space in the business incubator.

One finding of particular interest was that some participants found their creativity to be more stimulated by social interactions of the second type, with other startups, than by those with their own colleagues or the incubator staff. One participant, who was especially keen on interacting with other incubator tenants, actively sought out opportunities to assist other startups. She found her creativity positively influenced in the process, with more creative enthusiasm and ability than she was necessarily able to evoke for her own company. She suggested that knowing too much about a problem made it more difficult for her to be creative. Something about feeling “detached” from
the project made her feel more creative and less worried about the applicability of the idea. She was not expected to be an expert in the area, and therefore there was no fear of providing outlandish ideas. Not getting judged allowed her creativity to flow more freely; hence the desire to solve the problems of others.

5.1.2 Recognizing and Rewarding Creativity

One way to positively influence creativity, according to many participants, is to recognize it. The interviewees agreed that their creative efforts being noticed was important; one participant indicated that in the absence of any recognition for her ideas, she would probably stop being creative. For all participants, recognition was found in informal comments, such as “good job” and “well done”. One interviewee noted the prevalence of high fives in her startup company as recognition for creative achievement. Although recognition was regarded as important, there were disagreements about its role as a prerequisite for creativity. While participant (2) would have “probably stopped being creative” if she didn’t get any recognition, another one boldly stated that positive comments were nice, “but I’m as creative as if I don’t get any”. Even though (2) seemed very set on her opinion about the importance of reward, she did later mention that “of course I love it when I have an idea and it works out for the other person and they say thank you. I mean that means a lot to me. But that’s not why I do it”. This implies that a thank you is not why she engages in creativity, and that the reward for creativity is something else, perhaps intrinsic. Therefore, recognition, which is also the reward, seems to be a nice bonus which does not drive the creativity but can provide motivation. In addition, all the recognition resulted in a positive mood, which in turn was somewhat connected to increased creativity. Interview excerpts indicating recognition and rewarding of creativity as an influencer can be found in Table 10.

Recognition was seen as a reward as none of the participants reported any kind of formal reward for creativity. In the componential theory of creativity the encouragement for creativity, recognition of creativity and rewarding of creativity were three separate influencers (Amabile, 2012, p. 2), but during the interview process it became apparent that the line was very blurred in practice. The interviewees made no difference in their comments about someone recognizing that they performed something creative and them receiving a separate reward. Recognizing one’s creativity, just by noticing or even more so by providing a positive comment or a high five, was the reward itself. This recognition, as it was always in a positive context, was also seen as encouragement. There were no signs of Amabile’s notion that rewards could decrease creativity in the participants (Amabile, 2012, p. 4; Amabile, 1983, p. 370). This is most likely because the rewarding was not done in a controlling fashion and it was always related to competence. Reward was perhaps most in line with the theory put forward by Ford (1996). He discussed receptivity beliefs as a motivator for creativity, stating that creative solutions are more likely when an individual assumes that the response to creativity is positive (Ford, 1996, p. 1121). Social rewards could be seen as a positive response. It should be noted that Ford discussed receptivity beliefs in terms of the creative domain.

Creativity as a reward of its own, without the requirement for outside rewards was a notion mentioned by the participants. This was somewhat reflected in the latter quote by (2), but also by a comment participant (4) made; “the reward is in my head. I see a problem, a solution, how it develops...”. (3) also often mentioned that she was inherently creative and would be equally creative regardless of reward. This is in line
with the idea that creative people find the act of creativity rewarding and pleasing. This
could have more to do with the temperament of the individual than the business
incubator environment itself. Participants (3) and (4) repeatedly communicated with
their answers a sense of individualistic self-reliance, indicating that social recognition
was not particularly required by them for their creativity. (4) summed up this sentiment,
expressing “the reward is in my head…”, emphasizing that solving a creative problem
was worthwhile for its own sake. This view of creativity could accurately be described
117) states that “an autotelic person needs few material possessions and little
entertainment, comfort, power, or fame because so much of what he or she does is
already rewarding”. This seems an apt description of (4), who, in addition to citing the
intrinsic reward of creativity, noted that “if I would live alone, I could take some risks
and live on bread and cereals for a month”. Throughout the interview, (4) appeared
more interested in creatively solving a problem than he was in some form of financial
success. Together, these observations appear to mark him as an autotelic creative; i.e.,
primarily motivated by intrinsic rather than extrinsic rewards. This distinction is
noteworthy for the startup or the business incubator when considering rewards. If an
organisation wants to impose reward systems, they should consider how to reward
different types of people. This is also in line with the previously presented idea that
rewards can be harmful for creativity if done incorrectly (Amabile, 2012, p. 4; Amabile,

5.1.3 Approach to Ideas
The organisational approach towards new ideas and towards the sharing of ideas were
discussed with the interviewees. The participants universally agreed that their own
startups were open to new ideas, and that it should be the case in startups. The approach
to new ideas and the sharing of ideas quickly blurred into one discussion. It was deemed
difficult to assess the approach an organisation has towards ideas as a separate issue
from the approach to sharing of ideas. How the organisation approaches ideas requires
the sharing of the ideas as a fundamental step. Therefore, the participants felt more
comfortable discussing the sharing of ideas, and the approach towards ideas was a more
implicit dimension in the interviews. Interview excerpts indicating the approach to ideas
as an influencer can be found in Table 11.

The ways in which ideas were shared varied between the participants. Participant (1)
operated in a startup where discussions between the startup employees happened
regularly and informally. These discussions would include the sharing of different
compny-related ideas. Often ideas would also come from the management, who were
perceived to be especially creative. (2) would also have unstructured discussions within
her own startup, but clearly hoped for more discussions between the startups. Previously
during her time in the business incubator the atmosphere had been much more open and
idea-rich, which could be attributed to the startups having more interaction and sharing
of ideas. This era was linked to higher creativity. This sharing of ideas had improved the
mood in the incubator, which in the case of the participant clearly improved her
creativity as well. Participant (3) approached the sharing of ideas much more
systematically, arranging workshops with her team members to list and collect ideas.

The participants saw the business incubator as a source of ideas. The participants
would often turn to the business coaches to share their ideas with, and to receive
feedback on those ideas. The line between knowledge and ideas was somewhat blurred
at times when it came to interaction with the business coaches, but the results were deemed to be positive for creativity. Participant (2) noted “it’s very good that the business coaches at this incubator listen when I have an idea. I ask for their honest opinion. And they listen and help. They are very good, for me”. Often it was hoped that the business coaches would have a more active role. Meetings for sharing ideas, knowledge and advice with the business coaches were assessed to be too rare. Participant (4) in particular had hopes for more than weekly meetings, indicating that the amount of time spent with the business coach was perhaps too short for a meaningful exchange of ideas to take place.

The sharing of ideas with the other startups was very limited. In business incubator 1 this was attributed by participants to the arrangement of the rooms and the differences between the startups and their projects. This is why it was mostly knowledge that was shared between the companies. Participant (2) had hoped for more possibilities for shared informal time, during which they could engage in social interaction, in which sharing of ideas would be embedded. Participant (3) on the other hand did not engage in the sharing of ideas with the other startups by her own will. She was worried that important parts of her innovation could be copied. This posed some limitations to her behaviour, for example, applying a lot of care when cleaning up after meetings, such as wiping down the whiteboards. In this regard, operating in a shared space was not entirely a positive factor. To summarize, ideas were rarely shared with the other startups, either by choice or by lack of interaction.

The sharing of ideas seemed to be a positive influence on creativity, often implicit in the interviews. This positive influence does not come as a surprise, given that creativity requires the combination of existing ideas and knowledge. The creativity improving effects of an organisational culture that cultivates and shares ideas was mentioned in the componential theory of creativity (Amabile, 2012, p. 2). The notion of absorptive capacity could be also discussed in relation to sharing of ideas. As defined in the theoretical framework section of this thesis, absorptive capacity is the capability to recognize, assimilate and utilize new information in a productive way (Cohen & Levinthal, 1990). Sharing and appreciating ideas can be seen to be both a part of absorptive capacity or as a factor enhancing absorptive capacity. Also Ford (1996) recognized absorptive capacity as an important part of creativity.

It is worth noting that drawing a clear distinction between the sharing of ideas and knowledge is difficult. Ideas were seen as creative knowledge, a thought that could be put into practice, but had not yet been tested. One detail frequently mentioned by study participants was that the business incubator environment provided opportunities to converse informally with other startup companies, and to acquire relevant knowledge and ideas in the process. This finding suggests that the theory of absorptive capacity (ACAP) as presented by Alexander et al. (2017) is indeed relevant within the business incubator environment. ACAP, we recall, describes the ability to integrate novel and valuable information with extant knowledge (Cohen & Levinthal, 1990, p. 128). A key aspect of ACAP is that the individual or firm must be able to draw upon extant knowledge in order to be creative. Startup companies often lack such knowledge due to their small size and short history. Alexander et al. (2017, p. 118) posit that business incubators provide startups with an environment that can positively stimulate their ACAP, both on an organisational and individual level, by connecting incubator tenants to each other in both physical and social proximity. Participants in this study confirmed
that the opportunity to engage with other incubator tenants positively stimulated their creativity, particularly by providing access to new knowledge. Perhaps the business incubator even provides a superior creative environment in comparison to traditional office spaces, where the opportunity for random and informal interaction with other startups is more limited. The theory of ACAP and the findings of this study certainly suggest that this could be the case. This idea is further supported by the observed influence of knowledge, described below.

### 5.1.4 Knowledge

Extant research into creativity suggests that knowledge is a key ingredient for thinking and working creatively. The componential theory of creativity by Amabile (1983) emphasizes the availability of knowledge as a factor for creativity. Woodman et al. (1993) discuss the term relevant knowledge in the interactionist theory of creativity. Relevant knowledge was also discussed in terms of absorptive capacity (Alexander et al., 2017), described in greater detail below, which theorizes that creativity is in part a function of combining extant knowledge with new knowledge. Also the theory of multiple social domains by Ford (1996) recognized domain-related knowledge and prior learning as key factors for creative action. Interview excerpts indicating knowledge as an influencer can be found in Table 12.

A certain **degree of knowledge as a prerequisite for creative action** was agreed by all of the participants. This requirement for a sufficient level of knowledge was noted by two claims: that a lack of knowledge had a negative effect on possibilities to be creative, and that a certain level of knowledge had a positive effect on creativity. These notions are perfectly aligned with the previous research. These sentiments were not always explicitly stated, but it was implied throughout the interviews with commentary about a level of knowledge required to complete creative tasks. One interviewee said that when she started at her job, she found it challenging to be creative because she did not know what she was supposed to do. Not having knowledge about what is even possible within a certain field constrains the possibilities for creativity. Not being able to assess creative ideas, even somewhat reasonably, makes the “useful” part of the definition of creativity impossible. This is where the business coaches often stepped in. The business incubators provided meetings with both business coaches and outside mentors who supplied the knowledge necessary for the participants to go forward with their creative ideas. The other startups also provided knowledge, but often of the practical variety, rather than explicitly creative. They gave information about who to contact and how to price their services. The impact of this knowledge for creativity was not often straightforward. These simple everyday pieces of advice were not clearly associated with creative activities by the interviewees. However, it could be theorized that this basic knowledge might be the grounding for more complex knowledge, which in turn is important for a creative solution. Therefore, the sharing of these simple parts of knowledge, while small, may in aggregate terms be important for creativity.

Some findings also indicated that **excess knowledge** may not support the creative process. This was evidenced in part by one participant, who said that it is difficult to be creative when she knows everything too well. Knowledge, then, serves in part to delineate the possible from the impossible. Perhaps the issue with too much knowledge is the fact that creative action, by definition, comes with a degree of risk. Taking the road less traveled; the novel, rather than the established, carries a higher risk of failure. Being fully aware of all the possibilities of failure or all the fixes the proposed solution
would require along the way can be demoralizing. Therefore, it is conceivable that a degree of blindness and courage, and perhaps even misplaced optimism, is required to engage in the creative journey.

This sentiment was most clearly expressed by interviewee (2). She liked to creatively assist other startups, but often did not feel equally creative for her own company. It was often implied this was because of the amount of knowledge and the realism she had towards her startup and the industry. The participant said that “it’s a lot of regulation with the social services, we cannot advertise in a typical way because we cannot influence the customers with that, its law breaking so.. I mean… yea. So, that's why I think it's so fun to help others, because others can do anything”. This comment about the advertising regulations was aimed to reflect the restrictions her startup faces. The comment about the other startups being able to do anything, while obviously a purposeful exaggeration, is most likely less true than the participant thinks. The other startups in the incubator had constraints for their creativity as well, which simply were not as obvious to the interviewee as the restraints in her own startup. Therefore, the lack of knowledge about the industry limitations regarding the other startups allowed her to be more creative for others. While not as important in the participants’ estimation as the requirement for a degree of knowledge, excess knowledge seems to play a minor part in creativity as well. The interviewees actively sought more information, mainly from the business coaches, but also from the other startups and their own teams, implying that they were not noticeably concerned about obtaining excess knowledge.

Interestingly, the theories investigated in the theoretical framework did not present the possibility that too much knowledge could hamper creativity. The leading researchers discuss knowledge only in positive light in relation creativity, implying that an increase in knowledge leads to an increase in creativity (Amabile, 1983; Martindale, 1989; Cohen and Levinthal, 1990). Similarly, in relation to ACAP, the focus has been only on the lack of knowledge, especially in small companies (Gray, 2006, p. 347; Alexander et al., 2017, p. 121). The researchers do not discuss excess knowledge as a disadvantage. This is conceivable as lack of knowledge is usually a larger problem. It is also possible that while the participant said she felt and acted more creatively towards the other companies when she was not aware of their limitations, that she actually was not that creative. Creative artefact has to be new and useful. If she is not fully aware of the industry and limitations, perhaps her ideas are not useful. If she is not aware of what the other startups realistically can or cannot do, the chances that she is doing something actually creative is limited. Perhaps the participant feels more creative because she thinks the solutions are creative, as she does not know if they are truly new or useful. As Csíkszentmihályi (2009) notes, a person cannot give a creative contribution before learning the rules of the creative domain. In addition, perhaps the creativity towards other companies has nothing to do with knowledge, but everything to do with restrictions. Too many rules and restrictions reduces the possibilities of combining ideas, which reduces creativity. Before definitively concluding that knowledge can actually damage the action of creating something new and useful, it should be considered that it could be a mischaracterization from the researchers’ part. What can be considered as too much knowledge is perhaps actually lack of knowledge about the other industry, or simply the influence of excess restrictions that are imposed to the startup.
5.1.5 Pressure and Challenge
Time pressure and the level of challenge as identified by Amabile (2012) in her componential theory of creativity, quickly became one topic of discussion with the participants. Time pressure was discussed in terms of deadlines, and deadlines in turn affected the participants’ level of stress. Participant (3) denied that the amount or proximity of deadlines influenced her creativity, but later went on to describe how having too much on her mind or feeling stressed greatly impacted her creativity. Therefore, either deadlines did not make her feel stressed at all, or she did not connect impending deadlines to stress. She was in charge of making deadlines in her company, so it is possible they were made in a manner that was particularly suited to her preferred level of stress. The level of challenge was also discussed in terms of stress. When questioned about the level of challenge the participants would often use the word “stress” and discussed how challenging the work was in terms of mental strain and effort. However, the actual challenge, the level of difficulty of the given task, was also discussed within the same discussion about stress. Therefore, time pressure and level of challenge blurred into one theme which will be called pressure and challenge from now on. Pressure includes both time pressure and stress, while challenge strictly concerns the subjective difficulty of the task, which can cause pressure and stress. Interview excerpts indicating pressure and challenge as influencers can be found in Table 13.

Excess pressure was unanimously deemed a negative influence on creativity. The participants made comments such as “I don’t think that kind of strict deadline is good for creativity” and “(When you are) consumed by something that is super heavy, then your creative side will just decrease”. Too much pressure, be it from deadlines or too challenging of a task, took up the mental energy of the participants. This made them tired and unable to think creatively. The focus shifted to simply completing the challenging task, as that was difficult enough without attempting to find any creative solutions. Amabile et al. (2002, p. 14) had made the same finding in their research regarding time pressure, even using similar wording as some of the participants in their conclusion “This study strongly suggests that time pressure undermines the thought processes that contribute to creative output in organizations”. Time pressure was included in the later modified versions of the componential theory of creativity with the notion that excess pressure reduces creativity (Amabile 2012, p. 2). This is also in line with the view of creativity as proposed by Ford (1996); that solutions that are not creative are the default solutions, and when a task is demanding people resort to the established way of doing things; the tried-and-tested over the radical and innovative. Creativity would require the application of more mental energy in such circumstances. Not only would the participant have to reach the same outcome, that is already very demanding, they would have to reach it with a new solution. This would require the discovery and assessment of something new in addition to reaching a difficult goal.

When shifting from too much pressure to the optimal level of pressure, the answers varied a lot. Often even within the answers of one participant, there were contradictions as to how much pressure was the best for creativity. This was summarized best by participant (2) who noted that she loved challenges and wanted a level of pressure, but also mentioned that creativity was improved by a relaxed, informal environment with no specific aim to be creative. This sentiment was shared by participant (4) who said that “I’m working best under a little bit of stress” when discussing creativity. Later the same interviewee said that creativity comes mostly during vacation, and he felt especially creative when hiking in the nature with his wife. Participant (3) said that she is “more
creative” with a normal level of stress and later she confirmed again that her creativity works “very well” on a normal stress level. However, at the end of the interview she emphasized that when there’s no stress and obligations, especially during the summer, she is the most creative.

These contrasting approaches to increasing creativity seem to be centering about two different kinds of creativity. First, the creativity that is improved by moderate pressure, is a task orientated creativity. It is creativity that is aimed towards solving some specific task in the startup. When there is a clear, stated goal that the participant is working towards, mild stress and an engaging level of challenge sparks creativity. Participant (1) put it perhaps the best when she noted that when her superiors push her to work outside the box, on the limits of her abilities, she feels creative. The componential theory of creativity noted that a sense of positive challenge was a factor increasing creativity (Amabile, 2012, p. 2). The managers pushing her in a positive manner towards a challenging task could be seen as a positive challenge. The fact that it was seen to increase creativity aligns it with the previously presented notion made by Amabile.

Challenge and pressure improving creativity could also be compared to the zone of proximal development, a concept introduced by the famous Soviet psychologist Lev Vygotsky (Chaiklin, 2003, p. 40). It introduces the idea that learning happens in the zone of proximal development, an area between what the person can already do without help and what the person cannot do (Chaiklin, 2003, p. 40). When the participants are given enough challenge, that is, to do something that is within their abilities but something they have to be pushed to do, they seem to be more creative. The zone of proximal development was originally aimed to explain how things are learned (Chaiklin, 2003, p. 40), so perhaps another theory explains the connection to creativity better. Csikszentmihályi’s concept of flow, an enjoyable mental state in which the person is fully immersed in the activity, feels focused and loses sense of self and time (Csikszentmihályi, 2009) could provide an explanation. During flow people perform their best in various ways, including creatively (Csikszentmihályi, 2009). The state occurs during tasks that are partially comparable to the zone of proximal development. Flow is reached when a task is not too easy but also not so difficult it causes frustration and anxiety (Csikszentmihályi, 2009), just like the zone of proximal development. The balance between challenge and skill is one of the important prerequisites for the state of flow (Csikszentmihályi, 2009, p. 119). Other required elements include clear goals and immediate feedback (Csikszentmihályi, 2009, p. 120), both of which seem to be prevalent in the startup working environment. Additionally, during the state of flow the task becomes autotelic or self-rewarding. Therefore, the state of flow is connected to happiness and well-being, or in other words, to positive affective state (Csikszentmihályi, 2009, p. 132). The feeling during the flow is somewhat enjoyable, but the most happiness is felt after the challenging task is complete. Positive affect, as discussed in the theoretical framework of this paper, is linked to increased creativity as well. Perhaps the moderate pressure and challenge induced the participants into a state of flow, depending on the other variables such as feedback and distractions. When they worked on the limitedly challenging task, which they described as a positive and autotelic experience, they seemed to be more creative. This is linked to the idea of flow. While the participants did not specifically describe or mention the state of flow, their comments often implied that the influence of limited pressure and challenge brought them into a comparable state.
The other kind of creativity, that is sparked by absence of pressure and challenge, which happened often without a specified task or goal, was the kind of creativity that was the highest during leisure. This kind of creativity was enhanced while discussing with friends in a relaxed environment, perhaps with an alcoholic drink, when hiking in nature or when feeling inactive during summer holidays. There was no task to perform and no pressure to be creative. The results of this creativity were not always directly work-related, but were assessed to be helpful regardless. It is conceivable that in these situations the participants were processing previous knowledge and ideas in their head and through conversation.

This is often called the incubation phase of creativity, during which a problem is treated subconsciously (Csíkszentmihályi, 2009, p. 109). This is exemplified by an expert in a field thinking about a problem and much later having a sudden insight without spending time deliberately creatively processing it (Csíkszentmihályi, 2009, p. 107). These experiences, which are common among inventors and creatives (Csíkszentmihályi, 2009, p. 107), were characterised by participant (3), who noted that she often wakes up in the middle of the night with an invention in mind. The psychoanalytic school of psychology explains the incubation process by proposing that the creative idea is a disguised attempt to understand confusing and repressed childhood experiences (Csíkszentmihályi, 2009, p. 107). The idea has to venture back to the repressed subconscious, to connect with its source in an attempt to resolve the conflict (Csíkszentmihályi, 2009, p. 107). After this, the idea emerges back to consciousness carrying new information (Csíkszentmihályi, 2009, p. 109). This idea has faced extensive criticism, but might contain a plausible basic suggestion (Csíkszentmihályi, 2009, p. 110). The cognitive school of psychology suggests that during this incubation period the problem is processed subconsciously, but without a link to a childhood trauma (Csíkszentmihályi, 2009, p. 110). During this period the idea goes through somewhat random associations and connections that the rational mind cannot stop (Csíkszentmihályi, 2009, p. 110). The human mind, comparable to a complicated computer, handles several problems at the same time, often chopping up larger problems into smaller pieces. When a problem is solved consciously, thinking often takes on proven-to-work patterns, but in the subconscious there is no intentional line or patterns of thinking (Csíkszentmihályi, 2009, p. 110). The relaxed and informal settings which the participants found to improve creativity might just be settings in which the brain has been allowed to process previously identified problems. The lack of stress and pressure has allowed the subconscious to treat creative ideas with more energy. This in turn makes those situations seem more creative. Combined with the positive affect the participants derive from these relaxed situations, the brain is open for creativity.

In summary, the creativity of the participants was negatively influenced by high levels of pressure that could be caused by strict deadlines or stressful work. High levels of challenge related to the given task contributed to the feelings of stress. The participants often desired a level of pressure and challenge in their work, as it increased their creativity. The moderate level of stress and challenge as a factor improving creativity was discussed in relation to specific tasks within the startup. The conditions described by the participants during the moderately pressured creative moments can be linked to flow-like state of consciousness, which increases creative capabilities. The participants also felt creative in the absence of any challenge or pressure, during vacations and free-time. This kind of creativity was in relation to less practical or less work-oriented ideas. This can be linked to the incubation process, during which creative ideas are treated in
the subconscious without intentional effort. Both different sources of creativity can work in parallel.

It is worth noting that pressure and challenge were always discussed in the context of the startup. The other startups or the business incubator did not influence the level of pressure or challenge felt by the participants. (3) and (4) mentioned that their stress levels were slightly increased when there was undesired noise coming from outside the business incubator. This stress could also be described as frustration, which relates it to a negative affective state or mood.

5.1.6 Affective State
Most participants agreed that a positive affective state improved their creativity. Comments such as “being positive and energetic, that’s when I feel most creative” and “positive energy makes it more fun to be at work, and that’s also an important factor to be creative” made the connection clear. Participant (3) was the only exception. She did not directly connect positive mood to creativity, replying to the question of mood’s impact on creativity by saying “No. I am a very creative person, and I don’t experience anything of that”. However, she did later on connect negative mood to decreased creativity with her comment as a response to the negative effect of distractions: “At least it will change my mood, because I think that if you have an unstressed environment you’re more creative and if you have too much noise around you, too much activity (you are less creative)”. When asked later again about the connection of mood and creativity, she replied “Yeah. As I said before, like if I’m not too stressed out I’m more creative”. Whether this is a comment about the pressure or negative affective state, it can be hard to tell. It could be speculated that stress in fact decreases creativity not only because it decreases mental energy, but also because stress is a state of negative mood.

Therefore, the participants either agree that a positive affective state influences creativity positively, or that a negative affective state influences creativity negatively. A positive affective state improving creativity is line with the findings of Amabile et al. (2005), Clore et al. (1994), Fredrickson (1998) and Isen (1999). These researchers connected positive affect to another cognitive function, which in turn was important for creativity. Amabile et al. (2005) and Clore et al. (1994) connected positive affect to cognitive variation. Fredrickson (1998) connected it to scope of attention and cognitive fluency, and Isen to cognitive flexibility (1999). From the comments by the interviewees, it is not clear which factor positive affect influenced. It was not explicitly or implicitly stated, most likely because the participants did not possess the knowledge about the connection. None of the participants found that a negative affective state improved their creativity. Even when not connecting positive mood to creativity, the participants felt energized by situations that caused positive mood, such as encouraging comments or experiencing pleasant weather. Unsurprisingly, a positive affective state was subjectively connected to only positive results. Interview excerpts indicating affective state as an influencer can be found in Table 14.

The sources of positive and negative affective states varied considerably. All of the participants entered a positive mood as a result of social interaction. For some, simply engaging in social interaction was pleasing in itself, while everyone agreed that positive, encouraging comments definitely improved their mood. Recognition and reward were positively linked to a positive affective state. These interactions happened
within their own startups, but also occasionally between the other startups. The business coaches contributed to a positive mood only marginally, as they had the least amount of social interaction with the participants. Another common source of positive mood was light. Participant (2) said that she felt more positive during the summer when there is more light. She linked this positivity directly to creativity, stating that “of course I would say I’m more creative in the summer when there’s sun outside”. This notion is probably especially strong in the Northern Sweden, where winters are especially long and dark. Participant (4) also emphasized large spaces with a lot of natural light as a source of positive mood. While light and weather are external environmental factors, the business incubator can provide windows and other design choices that allow for more natural light.

After social interaction, reward, and light, the sources of positive mood diverged. The affective state of one participant was improved by having healthy snacks available. This improvement in the mood due to food can be linked to an increase in blood sugar. Perhaps their mood was improved due to added energy, or because the negative affective state caused by hunger is remedied, and the mood is therefore comparably better. One participant especially enjoyed music, while other participants also mentioned music but mostly as a way of ignoring distractions. Interestingly, participant (2) specifically mentioned the colour “ocean blue” when discussing what in the environment could increase her mood. Mehta and Zhu (2009) discovered in their research that the colour blue was associated with increased creativity. The hypothesis was that perhaps colour blue has positive associations, such as peacefulness, freedom and tranquility and therefore the colour blue causes a positive affective state (Mehta & Zhu, 2009, p. 1226). The statement by participant (2) seems to confirm this hypothesis, at least for her subjective experience of creativity. She expressed a clear preference for ocean blue as a factor improving her affective state in a discussion related to creativity, even when colour was not specifically mentioned. She seemed to be unaware of the scientific connections between the colour, the positive affective state and creativity.

In conclusion, anything that improves the affective state of the participant within reason seems to improve their capability to be creative. If their creativity is not strictly improved by the positive mood, their creativity certainly works better with the lack of negative mood. Any level of the business incubator environment can influence the mood of the participant, as everyone has the capability to behave in a pleasing manner. In addition, choices about the physical environment the business incubator has decided upon, such as the amount of lighting and the possibilities for interaction, play a crucial role.

5.1.7 Distractions
When discussing distractions, noise was referred to as the most common distraction. Distraction and noise were discussed by the participants in an interchangeable manner. When they discussed distractions other than noise, they did not specify them precisely, simply referring to them as distractions. For this reason, noise and distractions are discussed together. Noise and distractions were two of the few factors cited by participants as having a noticeably negative impact on their creativity, though some degree of distraction was accepted as part and parcel of the incubator environment. Emphasizing the negative potential of distractions, participant (4) described his ideal creative environment as one with no distractions, adding that “the environment can be disturbing my creativity, my creative thinking”. (3) supported this notion, saying “if you
have an unstressed environment you’re more creative than if you have too much noise around you, too much activity”. (1) also cited distractions as negative: “If you need concentration for a long time, the noise is distracting”. The general sentiment appeared to be that noise and other distractions, typically caused by other incubator tenants, broke the concentration of the interviewees, and as a result had a detrimental effect on their creativity. These findings support the extant literature which suggests that noise restricts creativity (Hillier et al., 2006; Kasof, 1997; Martindale & Greenough, 1974). Interview excerpts indicating distractions as an influencer can be found in Table 15.

However, participants also recognized the benefits of a mild level of noise and distraction. (2) stated “It’s too quiet! We have music on sometimes, but other startups complain. For me it’s too quiet. When you come here, it should be - my idea of an incubator is an open workspace with people helping each other. It should be noisy, but it isn’t. It’s too quiet”. (4), when asked if the business incubator environment was overly distracting, answered “No, I wouldn’t say so. That’s a little bit why I’m here, movement and interruption”. These comments seemed to connect distraction, regarded as a negative influence, with social interaction, which had a distinctly positive influence. While a high level of distraction was a negative influence on creativity because it made focus difficult to maintain, an ambient level of infrequent noise and distraction seemed to indicate a motivated, energetic environment that induced a more creative state of mind. Participants indicated that had they been looking for perfectly calm environments, they would simply have worked at home. The implication, then, was that a moderate degree of noise and distraction was actually a positive influence upon creativity. The difficulty lies, however, in assessing what exactly a “moderate” level of distraction is. Researchers in noise pollution, for instance, are interested in finding the correct levels of ambient sound. For this study, participants characterized “moderate” as the level at which their work was not negatively affected, but that environment provided a mild sense of stimulation.

5.1.8 Resources
The researchers asked participants about resources because Csikszentmihályi (2006) notes that material conditions influence the possibility of being creative. He posits that if resources are very limited, individuals may avoid being creative because they will not want to risk losing valued resources to a project that might not work (Csikszentmihályi, 2006, p. 12). The participants seemed to agree with this sentiment. Resources were mostly seen as things that enabled creativity, rather than directly influencing it. Resources were only discussed in terms of what the business incubator provided. It was seen as the role of the business incubator to provide the necessary resources required for not only work, but also for creative work. The startup and the other startups were not mentioned at all. Perhaps the startup itself provided the necessary resources for the participants to conduct their work, and therefore the discussion focused on what was lacking. Alternatively, the startups, being very early stage companies, expected the business incubator to provide the resources they did not have. It should be noted that while participants (3) and (4) considered business coaching and mentoring as a resource, the way they discussed them indicated that their value was in the sharing of knowledge and receiving ideas. The resources discussed here focus on more material conditions.

During the interviews the participants mentioned things like regular office equipment and meeting rooms as resources. Having all the basic equipment in place enabled
creativity, as it allowed cognitive capacity to be placed on creative tasks instead of worrying about the basics. After the basics were covered, it seemed like the more luxurious resources would not only enable creativity, but influence creativity directly. However, these scenarios were hypothetical, and perhaps indicated exaggerated benefits these resources would bring. This could be more of an indication of the participant’s desire to have them, than a realistic assessment of their effects. Whether having more common areas or pencils would in fact increase creativity directly is difficult to assess. The current meeting rooms and printers certainly did not directly increase creativity, but operated as an enabling factor. It is likely that this is the role of the resources. They set the stage of possibilities for creative action, but do not directly influence it. Interview excerpts indicating resources as an influencer can be found in Table 16.

Interestingly, the negative effects of having excess resources was mentioned. One participant noted that having all the required resources at hand would decrease her creativity. This is perhaps less surprising than it seems. Coming up with new and useful solutions would be less necessary in a hypothetical environment with limitless resources. This notion goes against the idea proposed by Csikszentmihályi (2006) that excess resources allow more creativity. Perhaps the difference can be found in the details. Working with scarce resources makes experimentation more dangerous as there is more at stake. However, a scarcity of resources may also induce creativity because individuals and societies have to make better use of what little they have. In addition, not every creative solution requires a risky test with the available resources. The solution can be built mentally and the likely outcome can be logically deduced. In this case, practicing the creative solution does not necessarily mean wasting those limited resources that are available. Therefore, while additional resources enable creativity because there are enough resources to spend on experimentation, a lack of resources can create the necessary pressure and challenge to do something creative. There is no need for creativity without a problem, as was also mentioned by multiple participants, something that more resource-rich environments might paradoxically provide less of. In addition, Csikszentmihályi (2006) may be discussing resources in terms of wealth, whereas the participant means resources in terms of tools. One participant’s issue with excess resources was partially due to the difficulty of choice. She mentioned that having too many resources would make it harder to choose what to use. Being able to do everything could stop her from doing anything. Practically speaking, having all the possible colour combinations of the crayons she desired would stop her from trying to create creative colour combinations with limited colours. The participant also mentioned the phrase “served on a silver platter” when discussing negative effects of excess resources. This implies that excess resources would remove the necessary challenge and she would not need to apply creative solutions.

5.2 Relationships Between the Themes
The theoretical framework outlined why certain questions were posed by the researchers. In an attempt to understand which factors in the business incubator environment affected creativity, the listed theories were found to be useful. As the interviews were analysed, it was evident that some of the themes were higher order while others were lower order. Some themes, categorized as higher order, affected creativity directly. Others, which played into those higher order themes, were named lower order themes by the researchers. It could be said that the lower order themes affect creativity indirectly. The higher order themes can be identified by combining the
comments of the participants with previous theories. If a theme cannot be divided into influencing any other theme, it is treated as a higher order theme. Themes that do not directly influence creativity but influence other themes instead are treated as lower order themes. Since the theoretical framework was formulated with the primary research question in mind, it is not surprising that not all questioned themes were found to affect creativity directly. In addition, the collected personal accounts of the interviewees reflect their experiences of what affects creativity, but not how direct the influence was. However, to better understand how the business incubator environment influences creativity, it is useful to distinguish between the different ways in which different factors influence creativity. As a complex cognitive function it is difficult to assess what in fact increases or decreases creativity, and which theme is of a higher order than another, in a strict psychological and neuroscientific sense. However, in line with the interpretative phenomenological analysis and the general nature of an interpretivist study, the aim of this thesis is not to build an objective account. The relationships and models presented are based on the analysis of subjective personal experiences of the participants, using the theoretical framework as a guide.

**Social interaction** was mentioned by all of the participants as a factor that increased their creativity. However, when analyzing the ways in which social interaction improved creativity, it becomes evident that it is not the act of interacting that directly influences creativity. Social interaction was seen as putting participants in a good mood, thereby influencing the affective state. Social interaction represented an opportunity to discuss ideas and to brainstorm with the startup, other startups, and the business coaches. Therefore, social interaction plays into the approach towards the generating and sharing of ideas. In addition, it was through social interaction and casual discussions that the employees obtained knowledge about who to contact. In this manner, social interaction helped with the acquisition and sharing of knowledge.

**The approach to ideas** was linked to an increase in creativity by the participants for multiple reasons. By discussing their own ideas, they gained knowledge about the applicability of their idea, which allowed them to more critically assess its usefulness and potential. By hearing other people discuss their ideas, the participants were inspired or felt a spark for their own idea. As Martindale (1989) suggests in the theoretical framework, being an expert or having knowledge in multiple domains increases the probability of creative productions. Therefore, it seems that the organisational approach towards new ideas and the sharing of ideas, or simply the organisational approach towards ideas, influences knowledge. The approach towards ideas mediates how much knowledge is available. If the free sharing and discussion of ideas is allowed, more knowledge is available to be combined for creative ideas and solutions. Perhaps it is even confusing to discuss ideas and knowledge as separate terms; they could more appropriately be discussed as information. The approach towards information, how freely it can be shared and discussed and how much of that is encouraged, influences the availability of knowledge to be used for creative tasks.

**Rewards** can be discussed in terms of social interaction. In further analysing the ways in which social interaction contributes to creativity, the researchers found that recognition and reward (which were inseparable) were also obtained through social interaction. For the participants, recognition and reward took the form of positive comments from other employees of the startup. The positive comments or lack thereof then influenced affect. Thus, reward can be considered to be a form of social
interaction, rather than a theme in of itself. This obviously does not hold true in cases
where reward occurs in other forms than through positive comments. If the organisation
offers monetary rewards, and these rewards had an influence on creativity, it should be
considered as a separate theme. Because none of the participants received any rewards
other than positive feedback, it cannot be conclusively said if reward as a separate
theme would influence creativity. Therefore, reward is considered to be included under
the theme of social interaction. When some participants mentioned that being creative is
a reward of its own, it can be linked to the concept of flow. This type of reward is not
included in the rewards as defined under social interaction.

**Distractions** is a difficult theme when considering whether it can be divided into higher
order themes. Noise was discussed in the theoretical framework as a factor that could
affect creativity negatively (Hillier et al., 2006; Kasof, 1997; Martindale & Greenough,
1974), and this was confirmed by the participants. However, extensive research showed
that mild noise can increase creativity in highly creative individuals (Toplyn & Maguire
1991). In addition, it was found that some distractions, including noise, increases
abstract thinking which in turn increases creativity (Mehta et al., 2012, p. 786).
Therefore, it could be logical to think that noise could increase creativity despite the
annoyance of the individual. In a previous study, distractions also made the information
processing more difficult which decreased creativity (Mehta et al., 2012, p. 796).
Therefore, the previous literature does not provide conclusive answers as to whether
noise increases or decreases creativity. Based on this knowledge it is apparent that
distractions do indeed influence creativity directly, although the evidence for this notion
was not explicit in the comments of the participants. The participants of this study
seemed to connect distractions to stress and negative affective states, which in turn
influenced creativity. The connection between noise and stress was also made in
previous research (Hillier et al., 2006). In conclusion, based on the findings of this study
it is apparent that distractions decrease creativity because it is connected to negative
affect and stress, something that the literature review also suggests. However, keeping
the previous studies in mind, it is conceivable that distractions affect creativity also by
influencing some cognitive functions separate from affect and stress. Also, distractions
were mostly caused by social interaction, such as other people discussing too loudly or
by others attempting to establish an interaction with the participant. While not the only
source of distraction, social interaction did play an undeniable role in distracting the
participants.

**Pressure and challenge** were often discussed in terms of stress, but also in terms of
engagement and mental energy. Pressure and challenge could not be broken into higher
order themes. The participants directly linked its influence to feelings of increased or
decreased creativity. It should be noted that pressure seems to be able to partially
influence the affective state, for example through the previously mentioned levels of
stress. Pressure and the level of challenge also provided two interesting factors of flow
and incubation. Flow, the meaningful and enjoyable state of focus and engagement
caused by optimal conditions in the level of challenge and feedback, was connected to a
positive affective state. However, flow can also directly influence creativity, as it is
connected to an increase in creative capabilities. The incubation of creative solutions,
theorized to happen during leisure, is another way the level of pressure and challenge
can influence creativity. Therefore, pressure and challenge is a high order theme which
influences creativity directly and through affective state. Flow and incubation are not
higher order themes, but describe situations with different amounts of pressure and challenge, therefore operating within the theme.

**Affective state** often plays a mediating role between the other themes and creativity. Affect is easily influenced by the environment; social interaction, lighting conditions, colours and stress all have a noted impact. Theoretically, any outside force could present a change in the affective state, as long as the individual notices it. The participants did not connect affective state to any other theme as an influencer, but it was influenced by many other themes. In the theoretical framework, affect was linked to creativity through cognitive variation or a change in mental processes (Amabile et al., 2005, p. 368).

**Resources** are a difficult theme due to the broad nature of the term. For this thesis, resources were limited in their definition to describe physical resources and not resources like mentoring and knowledge as previously discussed. The resources mentioned by the participants, such as meeting rooms, printers and coloured pencils, do not seem to directly influence creativity. According to participants, these basic physical resources have no noticeable impact upon their creativity. It is more likely that these resources influence certain other themes. For example, having meeting rooms and common spaces can facilitate more social interaction, which influences multiple themes influencing creativity. Not having the required office equipment to perform tasks can create a negative affective state, or severely restrict the ability to perform creative action. Having computers, books, and tools to build prototypes can contribute to knowledge. Having a loud foosball table can add into distractions while providing social interaction and positive affect. Most obviously, resources can influence challenge and therefore pressure. Not having the available tools to perform a given task can make it more challenging, while having the appropriate tools will typically make it less challenging. However, it is difficult to determine what the role of resources is in the equation. It is difficult to assess whether social interaction would also happen even without the meeting rooms. Even when the participants listed some resources that would be nice to have, it does not mean that their influence would be as desired. Therefore, whether resources is a theme comparable to the other themes is debatable. Perhaps resources instead describe the setting in which all of the other themes operate in. Theoretically, resources can influence anything, depending on the type and location of the resource. In the answers of the participants resources simply had an enabling role; having access to the basic necessary resources made creativity possible. Evidence for specific influence of the resources was lacking, and scenarios with more resources were very hypothetical. Therefore, based on the study, the availability of resources is not a high or low order theme, but rather a theme that can indirectly influence any of the other themes.

### 5.3 Model of Creativity in Business Incubators

Based on the presented relationships between different themes, a conceptual model was drawn up by the researchers. This model, Figure 4, is intended to provide a visual representation of what has been described in the previous sections. It is based on the findings from the four interviews, combined with the previous research. The aim of the model is to represent the creativity of the participants, and the ways in which it interacts with influencing factors in the incubator environment in a generalised manner. The
arrows express the direction of influence. The size of the boxes is not indicative of the importance of the theme.

**Figure 4. Model of startup employee creativity in business incubators.**

Social interaction influences both knowledge and affect, which in turn influence the perceived creativity. The relationship between social interaction and knowledge is influenced by the approach to ideas, because the atmosphere and attitudes towards ideas controls the sharing of ideas, and sharing of ideas can be seen as sharing of knowledge. Within social interaction there is the positive interaction as a reward, because all forms of reward observed in this study were enacted through social interaction. Social interaction also influences distractions, due to the added noise and activities. Distractions influence pressure and challenge by adding stress, which also influences the affective state of the employees. Pressure and challenge influences the perceived creativity, but also the affect. High pressure and challenge had a negative influence on affect, while a moderate amount of engaging challenge had a positive influence. Pressure and challenge, as well as affect and knowledge, directly influence perceived creativity and are therefore high order themes. Distractions, social interaction and rewards influence creativity indirectly, through the previously mentioned themes, making them lower order themes. Approach to ideas mediates the influence of social interaction to knowledge, making it a mediating theme. Resources are not mentioned in the model due to a lack of evidence indicating any specific influence.
6. Conclusions

Chapter Overview
This final chapter serves to answer the research question of the study, building on the analytical work of the previous chapter and encompassing some of the broader concepts addressed throughout the paper. The theoretical contributions, practical applications, limitations and directions for future research are also presented.

6.1 General Conclusions
To conclude this study, let us consider again the central research question and the research objectives. The researchers have sought to form a better understanding of the influence of multiple factors upon creativity within a specific social environment. This question embodies several smaller but no less important questions. What are the factors that affect startup employee creativity in business incubators? How do these factors exert influence? How do they interact with each other? How does the environment of the business incubator encompass or reflect these factors? By engaging in an exploratory qualitative study, the authors have begun to answer some of these queries, and to lay the foundations for future investigation and analysis.

The subjective experiences of individuals operating in the incubator environment, collated and analyzed, have provided new insights into the creativity concept in an understudied and timely context. The findings of some previous studies have been confirmed by the participants, such as the crucial underlying role of social interaction in spurring creative work and thought, while others present interesting new questions to be addressed. For example, the nature of reward was difficult to grasp, since none of the participants had experienced it beyond positive comments. As such, certain influences should be afforded more careful scrutiny in the future; perhaps the reward factor identified by prior research is less common in the business incubator. Regardless, the primary conclusion that can be drawn from this study is that creativity is by no means a simple behaviour or trait that can be easily controlled or managed. Rather, it is nebulous, abstract, and tricky to pin down. Despite its inherent complexity, however, the combination of extant research and the in-depth findings of this study demonstrate that there are some recurring themes that may shed light on the complicated relationship between creativity and the incubator environment. Moreover, the researchers have been able to roughly identify which themes are more directly influential to creativity than others, according to participants, categorizing them into higher and lower order themes. With this approach, a conceptual model of the influences of creativity within the business incubator environment was constructed. The model demonstrates the relationships between a number of variables identified in both the study and prior research as having an influence upon creativity, delimited to those present in the incubator environment. This model will, it is hoped, function as a useful starting point for new research into creativity in incubators, as well as providing a simple summary of what has been an extensive research project.

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The factors that were to perceived to influence the creativity of participants, whether positively or negatively and directly or indirectly, are as follows: social interaction, the presence or absence of rewarding creativity with positive comments, the sharing or non-sharing of ideas, knowledge, the level of experienced pressure and the level of challenge related to the task, affective state, level of distraction in the environment, and the availability of resources or lack thereof. Social interaction was found to positively influence affect, and positive affect was linked to an increase in creativity. Rewards, which took the form of social interaction for the participants of this study, also induced positive affect, thereby increasing creativity. Social interaction also occasionally provided distractions. Too little distraction created a desire for social interaction, unless the task at hand required a lot of focus. Too much distraction influenced affective state negatively, which resulted in decreased creativity. Distractions also increased stress, which could be seen as part of the pressure and challenge factors, while they also negatively influenced affective state. A moderate amount of distraction was welcomed by interviewees, as it typically indicated the possibility of social interaction. Pressure and challenge had a similar relationship with creativity as that of distractions. Too much of either would decrease creativity and force the employees to choose a default approach which was uncreative. A moderate level of pressure and challenge would increase creativity, as the task would seem engaging and appropriately challenging. When combined with immediate feedback and clear goals, this could induce a state of flow which was associated with increased creativity. While a moderate pressure and challenge level increased creativity, a lack of both was also found to be stimulating. Relaxed, informal discussions over drinks, hikes in the forest or a relaxing summer vacation increased creativity in the employees. This was linked to the incubation process of creativity, whereby the subconscious deals with a previously identified problem which suddenly emerges in the individual’s consciousness. This could happen during leisure time because more time and energy could be put on free associations instead of on specific tasks.

Openness towards ideas seemed to work as a moderating influence, allowing or limiting the amount of available knowledge in the environment. Knowledge, in turn, was clearly linked to creativity. More knowledge seemed to increase creativity, whereas a lack of knowledge presented serious problems. Excess knowledge was possibly linked to a decrease in creativity, which, in the opinion of the researchers, was likely a misrepresentation. Not having enough knowledge from a field might make it seem as if certain ideas are creative, when in reality the employee is merely oblivious to the fact that those ideas are neither new nor valuable. Once more knowledge is acquired, the employee understands the limitations of creative actions in the field, and while it might limit their ideas, they can be more realistic in terms of usefulness. Usefulness, it should be remembered, is part of the definition of creativity. An idea must be useful in some manner to be creative. The availability of resources was a prerequisite for creativity, allowing the employees to focus on their creative tasks instead of worrying over the functionality of basic equipment. A lack of resources was therefore seen as a potential source of challenges and a negative affective state. Occasionally, a lack of resources in the right areas was seen as possibly increasing creativity, if having all available resources at hand would reduce pressure and challenges. With no problems to solve, there would be no need for creativity. Following this logic, having all possible resources easily accessible would solve most problems.
The source of these factors varied, but as a whole, all three levels of the business incubator environment contributed to the startup employee creativity somehow. The startup in which participants operated in provided social interaction, rewards, set the tone for sharing of ideas, and was a source of knowledge, pressure, challenge, changes in mood and distractions. In summary, the immediate startup environment presents a multitude of factors that influence the employee creativity. Resources were not discussed in terms of the startup, perhaps because it is implicit that a startup should provide resources necessary for its own creative work. As discussed in the analysis, resources set the stage for any creative action with their presence or absence. Therefore, it is safe to assume they also influence creativity in the startup level.

Other startups, i.e. those not employing the participant, had a less pronounced effect on creativity. They were seen mostly as a source of social interaction. This social interaction included sharing and evaluating ideas and providing knowledge for each other. In brief, nearby startups were regarded as sources and evaluators of information. Social interaction was also linked to mostly positive changes in the affective state of participants, which in turn influenced creativity as discussed previously. The business incubator itself was mostly seen as a provider of resources. Since the business incubator was responsible for the physical office spaces, it could indirectly influence creativity. The amount of natural light, the functionality of the rooms, the colours on the walls and the atmosphere of the space were seen as influences of affective states; thereby influencing creativity indirectly. Arranging activities and common areas for the startups potentially influenced the amount of social interaction, which in turn influenced creativity. Beyond the physical setting, the business incubators had hired business coaches. These business coaches provided mostly knowledge, but also ideas and social interaction. The provided themes, the quality of their influence to creativity and their source in the business incubator environment answer the research question of “how does the environment of a business incubator influence creativity in the employees of the startups”. It should be noted that while the research was done in the context of business incubators, it can be tentatively applied to other organisations where creativity is essential. It is more applicable if the organisation has a multilayered organisational environment where more than one organisation exerts influence over the individual. Such organisations can include co-working spaces, shared open-plan offices and perhaps some political institutions that house different parties or governing bodies.

### 6.2 Theoretical Contributions

This study has begun the work of investigating creativity in incubators, while also contributing to a broad and extensive knowledge base regarding creativity more generally. The clearest theoretical contributions come in the form of the conceptual model that was developed from the findings of the study, which demonstrates that the multiple influences of creativity interact not only with creativity but with each other. In the extant literature research it became apparent, that the focus of creativity studies is on what influences creativity. However, it is not apparent how those factors indeed influence creativity. The findings of this thesis, while do not provide a definitive conclusion regarding the relationship of different factors, provides a starting point for discussion and future research in the field. Especially in terms of organisational creativity, it can be seen as useful to realise which themes, the ones mentioned in this study and the ones this study might have missed, influence creativity. Identifying these larger themes provides better insight to organisational creativity, rather than the separate
identification of small factors that influence creativity through some way. For example, while it is useful to understand that a specific book can increase creativity, it is better to understand that it is the increased knowledge rather than the book itself that increases creativity. Then later on, lower order influencers can be inferred and studied later.

Another element of the study’s contribution comes in its deep-diving analysis of the incubator environment. Readers of the paper may find that their comprehension of the incubator, a relatively unique and complex organisational unit, is improved. This also serves to better contextualize the findings, as the researchers remain consistently aware that the results of the study concern one particular type of environment.

The extensive literature review also presents a valuable contribution to the fields of business and psychology. Any student, researcher or other interested party can now look to this paper for a business-focused overview of creativity. The literature review provides an extensive summary of the previous research regarding internal and external factors that influence creativity. It is useful for a rudimentary understanding of why some people are creative and how the environment can influence creativity. More specifically, the literature review provides an understanding of how creativity operates in various organisational settings. These settings include traditional firms, but also the setting of the understudied business incubator. The conclusion that all companies, no matter the size or stage, require and benefit from creativity is important. There is a common misunderstanding in the field of business that creativity is only crucial for starting new businesses. As the literature review and this thesis as a whole proves, creativity is important for all organisations.

More specifically, this thesis connects creativity theory to the business incubator environment. The findings of this study, when reflected against the literature review regarding creativity, contributes to organisational creativity research in interesting ways. First, the findings from the sample of this study seems to confirm the thoughts of Amabile (1983), Woodman et al. (1993) and Ford (1996) regarding knowledge in their theories of creativity. Amabile lists knowledge and expertise as part of domain-relevant skills, which contributes to creativity (Amabile, 1983, p. 362; Amabile, 2012, p. 2). Woodman and his peers listed relevant knowledge as factor in the interactionist theory of creativity (Woodman et al. 1993, p. 295). Ford includes knowledge and ability as a part of the individual creative action (Ford, 1996, p. 1118). The role of knowledge as an influencer of creativity was also noted by Martindale (1989) and Cohen and Levinthal (1990) in their research. The findings regarding the resources do not directly match componential theory, interactionist theory or theory of multiple social domains. These theories mainly focus on social aspects, and resources as physical spaces and equipments are not discussed. The findings do confirm the notion by Csikszentmihályi (2006) that resources influence the possibility to be creative. However, the idea that more resources is always better for creativity is slightly disputed. Regarding distractions, this study confirms the extent findings that noise restricts creativity (Hillier et al., 2006; Kasof, 1997; Martindale & Greenough, 1974; Stokols et al., 2002). The findings suggested that moderate distractions were welcomed and possibly beneficial for perceived creativity. Previous studies by Toplyn and Maguire (1991) and Mehta and his colleagues (2012) suggest that some noise can increase creativity, which this thesis seems to confirm. Interestingly, one participant confirmed the empirical research conducted by Mehta and Zhu (2009) that color blue is beneficial for creativity.
Amabile (2012, 1983) and Woodman et al. (1993) presented rewards as influencing creativity. Amabile (2012) emphasized that rewarding only increases creativity when it is done to reward competence. Woodman et al. (1993) discuss reward systems and feedback in terms of motivation to engage in creative solutions. Ford (1996) mentioned that individuals are more likely to engage in creative action if they believe the response is positive. The positive response could be seen as a reward. This study confirms the idea, as the participants mostly felt more positive when they received recognition and rewards, which then improved creativity. As a reminder, there were no other rewards or compensation for creativity than social rewards. The componential theory of creativity presented organisational approach to new ideas and to the sharing of ideas as two separate factors influencing creativity (Amabile, 2012). This study found that those factors merged into one, that of approach to ideas, and that it did indeed influence creativity. However, the influence was not direct, as the approach to ideas in the environment dictated how easily information was shared, therefore influencing the amount of knowledge. Furthermore, the theme of challenge and pressure proposed interesting findings when reflected against the previous research. First, the findings are in agreement with the concept of time pressure as presented by Amabile (2002). She found excessive time pressure to inhibit creativity (Amabile, 2002), just as excessive challenge did in the findings of this study. The finding that some challenge improved creativity confirms a similar idea suggested in the componential theory called sense of positive challenge (Amabile, 2012, p. 2). The affective state was not directly discussed by any of the three organisational theories. For example, Ford (1996) mentioned that the emotional climate in the workplace has an influence on creativity, without going into the subject more deeply. However, a wider range of previous empirical research has studied affect and creativity. The findings of this study are in line with the findings of Amabile (2005), Clore, Schwarz and Conway (1994), Fredrickson (1998), Isen (1999), Abele-Brehm (1992), Hirt et al. (1996) and Vosburg (1998). The conclusion is that positive affect improves creativity. The previously mentioned studies have their own theories of which cognitive functions positive affect influences to eventually improve creativity. This thesis does not comment on the exact manner in which positive affect improves creativity. The finding that positive affect improved creativity and negative affect decreased creativity is in opposition to the conclusions of the study by George and Zhou (2002).

6.3 Practical Applications
The most obvious practical application of this study is for individuals, startups, and business incubators to realise both the value and the complexity of creativity, and if this study helps in this regard, it will have been a success. The next step is to implement changes that may improve the composition of the incubator environment, across a number of dimensions, in order to avoid any negative influencers and maximise the positive influencers of creativity. The researchers do not make specific suggestions to this end, since the exactitude of the ideal creative environment remains vaguely defined. However, there are certain key findings that, if taken into account, may assist incubators and their associated actors in their relationship with creativity. The first of these is to recognize that social interaction is an absolutely essential ingredient for individual creativity. A good analogy might be for business incubators to consider themselves more like hostels than hotels. In a hostel, all the guests share facilities and spaces, and there is a high degree of social interaction. In a hotel, guests have more privacy and discretion, and social interaction is lower. Participants, confirming the findings of prior
creativity research, indicated a strong preference for the hostel-type arrangement, where a flow of ideas and therefore knowledge and feedback can more easily be achieved. Business incubators could confirm this for themselves by performing their own research; perhaps by polling incubator tenants anonymously to get a better idea of their ideal environment when it comes to encouraging creativity. Furthermore, they could perform tests to see if the changes they make regarding creativity influencers improve the creative benefits by polling the tenants before and after the changes. Another important aspect concerns the findings regarding affective state. Most organisations will be aware that happy employees work more productively than miserable ones, but it is worth reaffirming the strong connection between a positive mood and more creativity. Again, this is up to the individual incubators to take responsibility and to ask their tenants what would make them happy. The answers may vary, but the findings of this study indicate that an aesthetically pleasing environment with plenty of space and natural light, coupled with the aforementioned possibilities for social interaction, would be an excellent starting point. Furthermore, since the influence of knowledge, including ideas and feedback is so emphasized for creativity, business incubators should take note of this. Many of the participants hoped for more coaching and mentoring, which would help them assess the usefulness of their creative ideas, as well as obtaining crucial knowledge. The fact that these mentoring sessions and guest lectures have a tangible impact on the startup employees should be noted.

It is also worth mentioning that while these practical applications have been discussed in terms of business incubators, the findings regarding creativity can be utilised in other contexts as well. Any organisation hoping to influence the creativity of its individuals can find potential solutions in this study. While many organisations might not have the complexity of the business incubator, it is fair to assume that themes such as knowledge and affect influence individuals in other settings as well. Therefore, the findings of this study can be used as a basis for anyone who wishes to improve the creative conditions of their environment. The conclusions should be applied with care, due to the small sample size and potential uniqueness of the business incubator environment.

### 6.4 Limitations

The primary limitation of this thesis is the scope of the study. The aim of the research was to discover the subjective experiences of the startup employees regarding the concept of creativity. Given the personal nature of the topic, this approach limits the generalizability of the findings. These findings are from four individuals interviewed at one point in time, and while reflected against a large amount of previous research, their experiences with perceived creativity may not be broadly applicable to those of others. Until a broader study with more participants is carried out to verify the findings, the wider applicability of this research remains unclear. In addition, it should be noted that the thesis concerns perceived creativity. Because creativity is very difficult to measure reliably, perceived creativity is often used as a substitute. However, there is a potential difference between perceived creativity and actual creativity. It is plausible that an employee might come up with more creative solutions, while not necessarily perceiving them to be creative. With these limitations in mind, it should be noted that perceived creativity has been generally used by other researchers as well. Since this was an exploratory qualitative study into the unique organisational setting of business incubators, it was necessary to use the provided methodological approach to better understand creativity in this environment.
6.5 Quality Criteria
To assess the degree to which a research project contributes to the relevant fields of knowledge, authors may consider the concept of quality criteria. Also known as truth criteria, quality criteria are a means of measuring the value of research (Agostinho, 2005). In qualitative studies, researchers identify four main quality criteria as appropriateness of the research design, trustworthiness, authenticity, and usefulness of the research (Agostinho, 2005; Lincoln & Guba, 1985).

6.5.1 Appropriateness of Research Design
As expressed by Lincoln and Guba (1985), the appropriateness of research design expresses how well the investigated problem, the chosen methodology, and research context match with each other. In this study, the research problem and the methodology are matched, because the problem of identifying influencers of creativity is a subjective matter which requires deep inquiry that can be gained through discussion. Furthermore, since the influencers of startup employee creativity in business incubators have not been studied before, the researchers could not approach with a predetermined questionnaire, as they must identify the existing themes first. Long discussions about personal experiences regarding creativity in the business incubator context are required. The research context of interviewing startup employees who work in startups that operate within business incubators is perfectly appropriate for the given problem. Therefore, the research design can be deemed to be appropriate.

6.5.2 Trustworthiness
Lincoln and Guba (1985) cite credibility, transferability, and confirmability as criteria of trustworthiness. In this study, the authors consider the credibility criterion to be fulfilled by the fact that the research used an extensive pool of previous research to base the study on. Three leading theories regarding organizational creativity were utilized, alongside empirical research on creativity in different contexts. The findings of the study were analyzed using the wide theoretical background. In addition, the researchers gathered data from multiple interviewees, which adds to the strength of the findings. Contextual data was also provided to enhance the conclusions. This process of using multiple theories and multiple sources of information expresses the use of triangulation in the study (Agostinho, 2005, p. 9). The researchers also used member-checking, which increases credibility by allowing the participants to confirm the transcripts that were made from their comments. (Agostinho, 2005, p. 9). In conclusion, the researchers find this study to be credible.

Transferability, or generalizability of this study, as the researchers have stated throughout the paper, is somewhat limited due to the subjective nature of this qualitative research exploring personal experiences. However, as Lincoln and Guba (1985) suggest, it is not necessarily required to assess the transferability of the study, but rather to provide robust contextual data that allows other researchers to assess if they could transfer the findings. This method of providing transferability is called thick description method (Agostinho, 2005, p. 9; Lincoln & Guba, 1985). The procedure, context and interviews of this study have been presented in great detail, which would suggest that the transferability criterion is met.

Confirmability concerns the role of the researchers and their biases in the findings (Lincoln and Guba, 1985). A strong method of increasing confirmability is leaving an
audit trail (Agostinho, 2005, p. 9; Lincoln & Guba, 1985). This means detailing the process of collecting, analyzing, and interpreting the data (Agostinho, 2005, p. 9; Lincoln & Guba, 1985). Since the researchers have been transparent and clear about the methods of data collection and provide raw data, transparent analysis and even examples of the codification process, the confirmability can be assessed to be strong. In addition, the background information of the researchers is provided which should aid in noticing any possible biases the researchers might have introduced. The researchers qualify this study as confirmable, and all of the data necessary to draw the opposite conclusion is openly available throughout the paper.

6.5.3 Authenticity
The authenticity of the research can be conceptualized as transparency, honesty and clarity in the process (Agostinho, 2005, p. 10). As described in the ethical considerations of this thesis, the researchers have been upfront regarding their intentions with the participants, the aim of the study, and the collection and use of data. Therefore, the researchers assess that the authenticity of this study is high.

6.5.4 Usefulness of Research
The ability of researchers to produce understandable findings (Agostinho, 2005, p. 11) is known as the usefulness of research criterion. In this assignment, the authors contextualize the psychological premise of creativity within a practical and topical setting. This allows readers to understand how abstract concepts translate into human behaviours and cause-and-effect relationships between a variety of documented variables. The usefulness of this thesis is thus underlined by its practical and theoretical contributions regarding the ways in which an environment can influence a value-generating process, namely creativity in a business context. Shulman (1997, p. 6) posits that “the work of the researcher must always lead to a process in which we teach what we have learned to our peers in the education community”. By drawing upon extensive extant literature and generating new findings, this assignment actively contributes to teaching and learning within the relevant academic fields of creativity, business incubators, and startups. The final paper is to be distributed not only academically, but also to a number of business incubators across the world to ensure that a greater comprehension of creativity in incubators is attained by a larger number of interested parties, thus solidifying the useful nature of this task.

6.6 Directions for Future Research
This research offers exciting avenues for future research. The study could be repeated with a new, larger set of participants from different business incubators to see if the results are reproducible. Furthermore, different types of business incubators could be compared by their office layout, industry focus or presence of business coaches. The study could also be repeated in different countries and cultures, taking into account a variety of cultural differences. It could also be investigated whether environmental factors affect people differently based on varying levels of intrinsic creativity. Quantitatively-minded researchers may wish to repeat the study across a larger population of interviewees, attempting to discover if the presented themes and their relationships hold up with more people. With a population large enough, it could be attempted to generalize the findings to all startup employees within business incubators. This would have both practical and academic implications, and would serve to validate
a new, widely applicable model to creativity research. The generalized study could also be used as a basis for widespread, reliable recommendations for incubators to improve creativity for the startup employees. Furthermore, the relationships between the different themes could be studied in greater depth. It would also be interesting to discover how exactly the high order themes influence creativity. Perhaps the relationships between the influencing factors are nuanced and complex in ways that this thesis was unable to capture fully; deeper research and a stronger categorisation of factors may go some way to amending this.
Reference List


**Personal Communication**

Appendix 1 - Interview Guide

1. Introduction:

Introduction to the researchers and the thesis

Warm-up questions:
What is your work background and what do you do?
How long have you been working in this startup?
Would you describe yourself as a creative person?
What does creativity mean to you?

Next we will be asking questions regarding creativity. Prior to this interview we asked you to pay attention to the factors that possibly have an effect on your creativity on your day to day work. With the following questions we want you to consider the different organisations that operate within the business incubator. The startup you work in, the other startups that are in the business incubator and the business incubator itself. Keep these three environments in mind if applicable. Where possible provide practical and specific examples.

2. Open questions about creativity

Could you tell us how you use creativity in your day-to-day work?

What do you think affects how creative you are?

Think of a moment you felt especially creative, what caused that?

Think of a moment you felt especially uncreative, what caused that?

When you think of your startup, the other startups and the business incubator, how do you feel like they influence your creativity?

3. Themed questions about creativity

3.1 Indirect organisational factors
Availability of resources
Do you feel like the amount of resources influences your creativity, and how?
How does your startup, the other startups and the business incubator influence the available resources?

Availability of knowledge
Do you feel like the amount of available knowledge influences your creativity, and how?
How does your startup, the other startups and the business incubator influence the available resources?
Time pressure
Do you feel like the time constraints regarding your work influence your creativity, and how?
How does your startup, the other startups and the business incubator influence the available resources?

Sense of challenge
Do you feel like the level of challenge in your work influences your creativity, and how?
How does your startup, the other startups and the business incubator influence the available resources?

3.2 Direct organisational factors
Organisational approach to risk
How do you feel your startup, the other startups and the business incubator approaches risk?
Do you feel like these approaches influence your creativity, and how?

Organisational approach to new ideas
How do you feel your startup, the other startups and the business incubator approaches new ideas?
Do you feel like these approaches influence your creativity, and how?

Organisational approach to sharing ideas
How do you feel your startup, the other startups and the business incubator approaches the sharing of ideas?
Do you feel like these approaches influence your creativity, and how?

Collaboration
How do you feel your startup, the other startups and the business incubator approaches collaboration?
Do you feel like the amount of collaboration influences your creativity, and how?

3.3 Reward-related factors
Encouragement
How do you feel about the encouragement for creativity from your startup, from the other startups and from the business incubator?
Do you feel like the encouragement for creativity influences your creativity, and how?

Recognition
How do you feel about the recognition for creativity from your startup, from the other startups and from the business incubator?
Do you feel like the recognition for creativity influences your creativity, and how?

Mode of reward
How do you feel your startup, the other startups and the business incubator rewards your creativity?
Do you feel like the rewards for creativity influences your creativity, and how?
3.4 Ambient factors

Amount of noise
Is there noise in your workplace and what contributes to the noise? Do you feel like the noise influences your creativity, and how?

Amount of distractions
Are there distractions in your workplace and what contributes to the distractions? Do you feel like the distractions influence your creativity, and how?

Affect
What in your work environment affects your mood positively or negatively? Do you feel like these changes in your mood influence your creativity, and how?

4. Closing

Complementary information
Thank you for your answers and for your time. Now that the interview is coming to an end, we would like to ask you if you feel like there is something you want to add? Feel free to talk about any factor that you feel like could be further discussed.

Recap
Summarise the main points the interviewee made as you understood them. Check that they are correct.

Reminder of the research
We will use this information to build a deeper understanding about what influences creativity in the business incubator setting. All this information is treated with anonymity. When we have transcribed this interview, we will send you the transcription for your approval. When the thesis is complete, we will send you a copy. The thesis will be published in June.

Questions
Do you have any questions at this point? You can also contact us during the meantime for any concerns to our email addresses.

Closing of the interview
Thank you for your participation. You have been very helpful.
Appendix 2 – Tables

Table 9. Social interaction as an influencer of creativity

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) “I want people around me... because that’s better for my work and creativity”</td>
<td>Social interaction has a positive influence on creativity</td>
</tr>
<tr>
<td>(1) “I think we are creative together...”</td>
<td></td>
</tr>
<tr>
<td>(2) “I think that I feel the most creative when I’m around others”</td>
<td></td>
</tr>
<tr>
<td>(2) “I think it’s harder to be creative in my own company”</td>
<td></td>
</tr>
<tr>
<td>(2) “For me, it’s people where the creativity comes from, and that’s why I like when we have a lot of people around us”</td>
<td></td>
</tr>
<tr>
<td>(3) “it’s good to be among other people...”</td>
<td></td>
</tr>
<tr>
<td>(4) “I think it’s really important, to not become isolated and for me it feels like to be creative, maybe you have to be alone, but if you get isolated too long it’s not so fun”</td>
<td>Social interaction is a source of new ideas</td>
</tr>
<tr>
<td>(1) “the more people that come together, the better ideas come up”</td>
<td></td>
</tr>
<tr>
<td>(2) “I get influenced by someone here or someone here ... and then I discuss it with.. mainly of course with my colleagues but also I discuss with (the business coaches) who are responsible for (the business incubator), and also other startups”</td>
<td></td>
</tr>
<tr>
<td>(3) “When I’m talking with the other people, they will be doing the same journey as I’m doing, but in different areas of course, but you can still feel that we can discuss it and that might give you new ideas”</td>
<td></td>
</tr>
</tbody>
</table>
(2) “I never lose creativity for others”
Creativity comes from helping others

**Table 10. Recognition and rewarding of creativity as an influencer of creativity**

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) “It would be cool to reward creativity. I’ve worked in companies where they do that, it’s super nice.”</td>
<td>Recognising and rewarding creativity increases motivation to be creative</td>
</tr>
<tr>
<td>(1) “A culture with a lot of high-fives (as a recognition of creativity). Just to have that positive energy makes it more fun to be at work, and that’s also an important factor to be creative, is to have fun with your colleagues”</td>
<td>Lack of rewards and recognition decreases motivation to be creative</td>
</tr>
<tr>
<td>(2) “If I lived my whole life giving ideas and never getting recognition, I would probably stop. Because sometimes you just need a thank you for being helpful, bringing creativity”</td>
<td>Recognition is a positive influencer, but not a requirement for creativity</td>
</tr>
<tr>
<td>(2) “It’s when other people or the response that I get is cold, when I lose it (creativity)”</td>
<td></td>
</tr>
<tr>
<td>(3) “It’s always nice when somebody says good job, but I’m as creative as if I don’t get any”</td>
<td></td>
</tr>
<tr>
<td>(2) “Of course I love it when I have an idea and it works out for the other person and they say thank you. I mean that means a lot to me. But that’s not why I do it.”</td>
<td></td>
</tr>
<tr>
<td>(4) “the reward is in my head. I see a problem, a solution, how it develops...”</td>
<td></td>
</tr>
<tr>
<td>(2) “I never lose creativity for others because it's always near me”</td>
<td>Creativity as a reward of its own; autotelic approach</td>
</tr>
</tbody>
</table>
Table 11. Approach to ideas as an influencer of creativity

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) “then I feel kind of creative.. to help other people”</td>
<td>Sharing of ideas is a positive influence on creativity</td>
</tr>
<tr>
<td>(1) “I think we are creative together because we have a very open landscape so when someone is talking about something we can hear it”</td>
<td></td>
</tr>
<tr>
<td>(2) “I never lose creativity for others because it's always near me or personal… I have a friend who (started a business), and I was okay, you need advertisement for this, you need an Instagram and you have to take these photos…”</td>
<td></td>
</tr>
<tr>
<td>(2) “some kind of spark… spark rises… because we can share ideas”</td>
<td></td>
</tr>
<tr>
<td>(3) “when I’m talking with the other people, they will be doing the same journey as I’m doing but in different areas of course but you can still feel that we can discuss it and that might give you new ideas”</td>
<td></td>
</tr>
<tr>
<td>(3) “we have workshops working through next phases, and then we bring in new ideas as well”</td>
<td></td>
</tr>
<tr>
<td>(2) “it’s very good that the business coaches at this incubator listen when I have an idea. I ask for their honest opinion. And they listen and help. They are very good, for me, to play around with ideas.”</td>
<td></td>
</tr>
<tr>
<td>(3) “Yea, yea, yea, absolutely (business coaches offer ideas)”</td>
<td></td>
</tr>
<tr>
<td>(4) “I meet with my advisor (provided by the business incubator) 1 hour per week. They also have different kinds of feedback on different things … Sure it does (help my creativity).”</td>
<td></td>
</tr>
</tbody>
</table>
### Table 12. Knowledge as an influencer on creativity

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) “It was hard to be creative when you don’t have so much knowledge of what you’re supposed to do”</td>
<td>Lack of knowledge is a negative influence on creativity</td>
</tr>
<tr>
<td></td>
<td>Having sufficient amount of knowledge is a positive influence on creativity</td>
</tr>
<tr>
<td>(2) “I think that the available knowledge is very good for the creativity because then you can think of what would be possible.”</td>
<td></td>
</tr>
<tr>
<td>(2) “knowledge affects the creativity in terms of to like control if it’s possible and how to go to the next step.”</td>
<td></td>
</tr>
<tr>
<td>(3) “we have meeting once every second week, and just discuss on what level I’m at and if I need any help … and then they will come with knowledge they have on pricing and other incubators on how they have proceeded or if maybe how they proceeded in Stockholm, the incubators there, or anybody I could talk to.”</td>
<td></td>
</tr>
<tr>
<td>(2) “I think it’s harder to be creative in my own company because I know everything too well so I know the limits… you know your company so well so it's harder to be creative and test something new”</td>
<td>Too much knowledge can hinder creative thought</td>
</tr>
</tbody>
</table>
**Table 13. Pressure as an influencer of creativity**

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) “I don’t think that kind of strict deadline is good for creativity”</td>
<td>Strict deadlines have a negative influence on creativity</td>
</tr>
<tr>
<td>(2) “when I have a deadline like that, I have to be creative”</td>
<td>Some deadlines have a positive influence on creativity</td>
</tr>
<tr>
<td>(2) “if people say “we have this task, come up with a solution, be creative”. That is different, because then I want to have a deadline to know when should I present this”</td>
<td>Deadlines have no influence on creativity</td>
</tr>
<tr>
<td>(3) “No it’s (deadlines) not a problem for me. If I have one milestone or hundred milestones I will still be creative because all of it when you’re in development, you need to be creative otherwise you will not be able to create something new.”</td>
<td>A lot of stress and challenge is a negative influence on creativity</td>
</tr>
<tr>
<td>(4) “I’m pretty sure it (a lot of stress) is bad for my creativity.”</td>
<td>Moderate stress and challenge is a positive influence on creativity</td>
</tr>
<tr>
<td>(3) “(When you are) consumed by something that is super heavy, then your creative side will just decrease”</td>
<td></td>
</tr>
<tr>
<td>(4) “I’m working best under a little bit of stress, so now I have to do more things in two days, so I can’t think of something other when I’m on that”</td>
<td></td>
</tr>
<tr>
<td>(4) “I feel like when there’s a challenge, I need this challenge to start thinking about something… I need something to start to being creative”</td>
<td></td>
</tr>
<tr>
<td>(3) “if I’m not too stressed out I’m more creative.”</td>
<td></td>
</tr>
<tr>
<td>(3) “if you only work 8-5 and you’re working on a normal stress level, then it’s… at least my creativity works very”</td>
<td></td>
</tr>
</tbody>
</table>
very well”

(3) “...normal stress level and then of course you are more creative”

(1) “Yes (providing challenges), and giving you tasks that makes you work outside the box a little bit… I think that’s very good (for creativity).”

(2) “I love to have challenges”

(2) “it would be good to have challenges like maybe if in six months you reach this then this happens ... I think I would love to be more challenged within from the incubator just to make sure that we also deserve our place here”

(4) “(Creativity comes) mostly in vacation.”

(3) “If there’s no (challenge)... yes... it is actually... During the summer you are on your best level on creativity.”

(2) “But sometimes it just helps to when you don’t have an agenda to be creative, you just sit around and talk ... It’s different types of creativity, it depends on the situation.”

(2) “Feeling relaxed, and in a more informal setting (is good for creativity)”

(2) “sometimes it just helps to when you don’t have an agenda to be creative, you just sit around and talk”

(2) “we don’t have an agenda, we don’t have anything that should be presented. It’s different types of creativity, it depends on the situation”

<table>
<thead>
<tr>
<th>Lack of stress and challenge is a positive influence on creativity</th>
</tr>
</thead>
</table>
Table 14. Affective state as an influencer of creativity

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) “Being positive and energetic, that’s when I feel most creative”</td>
<td>Positive affective state is a positive influence on creativity</td>
</tr>
<tr>
<td>(2) “And often a beer can help, to just loosen up and go crazy.”</td>
<td></td>
</tr>
<tr>
<td>(2) “of course I would say I’m more creative in the summer when there’s sun outside, because then I feel more positive and happy.”</td>
<td></td>
</tr>
<tr>
<td>(1) “positive energy makes it more fun to be at work, and that’s also an important factor to be creative”</td>
<td></td>
</tr>
<tr>
<td>(3) “(When asked about mood) Yea. As I said before, like if I’m not too stressed out I’m more creative.”</td>
<td>Negative affective state is a negative influence on creativity</td>
</tr>
<tr>
<td>(2) “When I’m low, or when I’m bored, in a bad way”</td>
<td></td>
</tr>
</tbody>
</table>
**Table 15. Distractions as an influencer of creativity**

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4) “No distractions, exactly” (asked about ideal conditions for creativity)</td>
<td>Distractions negatively affect creativity</td>
</tr>
<tr>
<td>(4) “For me the environment can be disturbing my creativity, my creative thinking”</td>
<td></td>
</tr>
<tr>
<td>(3) “if you have an unstressed environment you’re more creative than if you have too much noise around you, too much activity”</td>
<td></td>
</tr>
<tr>
<td>(1) “If you need concentration for a long time, the noise is distracting”</td>
<td></td>
</tr>
<tr>
<td>(2) “It’s too quiet! We have music on sometimes, but other startups complain. For me it’s too quiet. When you come here, it should be - my idea of an incubator is an open workspace with people helping each other. It should be noisy, but it isn’t. It’s too quiet”</td>
<td>Some level of noise and distraction is acceptable, even desired</td>
</tr>
<tr>
<td>(4) “No, I wouldn’t say so. That’s a little bit why I’m here, movement and interruption” (asked if the environment was too distracting)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 16. Resources as an influencer of creativity

<table>
<thead>
<tr>
<th>Transcript excerpt</th>
<th>Codification and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) “I think if everything is set up and there’s not a problem with anything, like video conference and meeting rooms” (when asked if resources influenced creativity)</td>
<td>Having necessary resources available enables the possibility to be creative</td>
</tr>
<tr>
<td>(1) “Yes exactly” (when asked if having previously mentioned resources provided for her removed her need to worry and allowed to focus on creativity)</td>
<td></td>
</tr>
<tr>
<td>(4) “Yeah, absolutely” (when asked whether the previously mentioned 3D printing lab and mentoring had an influence on creativity)</td>
<td>Having more resources could positively influence creativity</td>
</tr>
<tr>
<td>(2) “I like to have a lot of colors and pencils and do mind maps and so on, and we don’t have pencils here so I bring my own you know. So I would say that yea if, there’s no end to the possibilities if they (business incubator) have some more like resources or some help that would be awesome and I think that would help with my creativity”</td>
<td>Too many resources have a negative influence on creativity</td>
</tr>
<tr>
<td>(2) “Yea, yea that goes both ways. Because if I… for me personally if I would have all the resources I think I would have hard time choosing between them, and its maybe… maybe if its served on a silver platter…” (when asked whether having all the possible resources would influence creativity)</td>
<td></td>
</tr>
</tbody>
</table>