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TITLE:

Individual-Level Predictors of Store Managers' Innovative Work Behaviour in the Textile Industry

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Abstract

This master thesis contributes to the research field of Innovative Work Behaviour (IWB) by investigating variables that possibly are vital for achieving innovative results. Our research problem was: What is the Relationship between Store Managers' Characteristics and Innovative Work Behaviour? This project examined nine potential predictors of IWB in light of Self-Determination Theory (SDT) and Implicit Person Theory (IPT). Specifically, we have studied three groups of predictors of IWB, including demographic and socioeconomic variables (gender, age, educational level and job tenure), BPNs (autonomy, competence and relatedness) and IPTs (intelligence and innovation). Empirically, we have collected data with questionnaires, and our population consists of approximate 100 store managers working in an anonymous clothing company. The respond rate for this survey was 53%. The obtained data is analysed with correlation coefficients and hierarchical multilevel regressions using IBM SPSS Statistics 25 and Stata 14.2 software.

An Exploratory Factor Analysis (EFA) identified two dimensions of IWB, ideation and implementation. Ideation includes activities that involve opportunity exploration and idea generation, while implementation includes activities that involve idea championing and application. Our results indicate that almost 80% of the store managers show a high or very high level of innovative behaviour. In short, we have found little support for our hypotheses about demographic and socioeconomic variables in this thesis, but it proposes that long job tenure may play a significant role in implementation activities. Regarding BPNs, the results for autonomy were unclear, but they were positive and more promising for competence and relatedness. Finally, our results indicate a positive relationship between IPT of intelligence and IWB, and IPT of innovation appears to be the strongest predictor of IWB in this study. To conclude, this research project suggests that more studies should investigate the connection between IWB and IPT.

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List of Abbreviations

Abbreviations	Explanation
SDT	Self-Determination Theory
BPNT	Basic Psychological Needs Theory
BPN	Basic Psychological Needs
IPT	Implicit Person Theory
IWB	Innovative Work Behaviour
EFA	Exploratory Factor Analysis

1 Introduction

In today's work environment, innovation has become an essential activity in order to gain a competitive advantage. The interest in innovation and the number of publications in this research field have increased very much during the last 20 years (De Jong & Den Hartog, 2008). The innovative work behaviour of employees plays an important role since it is individuals who generate new ideas and are responsible for turning the ideas into reality. Hence, firms can obtain significant benefits by acquiring knowledge about which factors are important for creating innovative results (Hammond M. M., Neff, Farr, Schwall, & Zhao, 2011).

In this thesis, we use the theory of Innovative Work Behaviour (IWB) to highlight individual innovation rather than team innovation. IWB interconnects with the knowledge, skills and speciality of individual workers, and are therefore demonstrating workers' competencies (Jacobs, Heijden, & Stoffers, 2018). Previous research distinguishes between ideation and implementation. Ideation entails exploration of opportunities and generation of new ideas, whereas implementation entails idea championing and implementation of ideas. Although some researchers select to examine IWB as a single measure, we want to split up the concept and explore the different dimensions of innovative behaviour (Scott & Bruce, 1994; Ven, 1986).

The purpose of this research project is to investigate the importance of potential predictors of IWB. This thesis examines IWB in light of three theories, as illustrated in Figure 1. First, it ties innovative efforts to demographic and socioeconomic characteristics, such as gender, age, educational level and job tenure. Second, this study explores IWB with respect to satisfaction of three Basic Psychological Needs (BPN), namely to feel autonomous, competent and related to others. BPNT emphasizes that these three needs are critical for intrinsic motivation and the self-regulation of extrinsic motivation (Latham, 2012). The need for autonomy "*refers to the experience that behaviour is enacted with a sense of choice, volition, and reflective endorsement*" (González, Niemiec, & Williams, 2014, p. 366). Competence is related to an individual's need to feel effective and experience a sense of mastery within their environment. The need for relatedness is about feeling connected to others and being respected by significant others (Adie, Duda, & Ntoumanis, 2008). Lastly, this thesis also applies Implicit Person Theory (IPT) to the field of individual innovation. The theory highlights a continuum that ranges from entity IPT to incremental IPT. Entity theorists believe intelligence is a fixed and innate trait, while incremental theorists believe intelligence is a malleable and increasable trait (Dweck. 2000). According to Dweck (2006), 143 creativity researchers participated in a poll

investigating what is the most important factor in creative achievement, and the answer was precisely the type of resilience and perseverance produced by incremental IPT. However, the existing research that examines the relationship between IPT of intelligence and IWB is limited. In addition, there are no researchers who have previously studied the connection between IPT of innovation and IWB. Therefore, we aim to contribute to the field on innovative work behaviour research by investigating this relationship in our thesis.

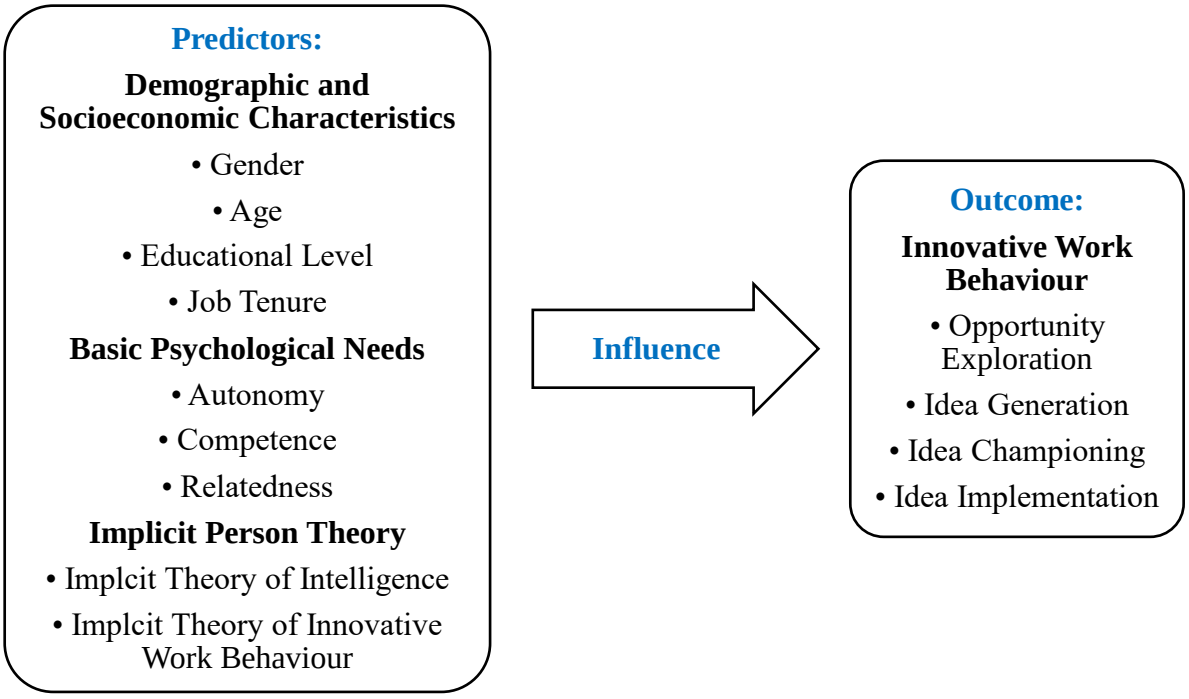


Figure 1: Possible Predictors of Innovative Work Behaviour

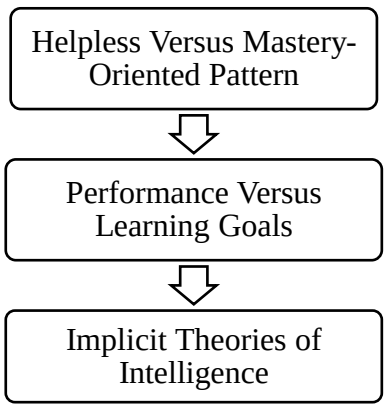
In this master's thesis we try to answer the following research problem:

What is the Relationship between Store Managers' Characteristics and Innovative Work Behaviour?

2 Theoretical Framework

As shown in Table 1, the first section of this chapter begins by explaining the concept of innovation and why innovation is important. We highlight different types of innovation, such as incremental and radical innovation, as well as product and process innovation. Additionally, this section highlights the four dimensions of Innovative Work Behaviour (IWB), including opportunity exploration, idea generation, idea championing and idea implementation. Next, we describe two motivational theories which may be used to predict IWB. The second section of this chapter explains the term motivation and emphasizes Self-Determination Theory (SDT), a meta-theory developed by Edward L. Deci and Richard M. Ryan. Notably, the mini-theory of Basic Psychological Needs (BPNT) and its emphasis on the needs of autonomy, competence and relatedness are examined in detail. Yet, BPNT must be seen in relation to the other five mini-theories of SDT, as they supplement each other (Ryan & Deci, 2000). Afterwards, the third section provides an introduction of Implicit Person Theory (IPT) and the work of Carol Dweck. In short, Dweck and Leggett (1988) first discovered that children fall into different patterns when confronted with challenges, namely the helpless versus mastery-oriented pattern. Further research revealed that the two behaviour patterns depend on goal orientation, specifically performance or learning goals. Lastly, the researchers discovered that implicit theories of intelligence, the cornerstone of IPT, were the last piece of the puzzle. Entity and incremental theory of intelligence proved to be decisive for children's goal orientation and behaviour pattern (Dweck & Leggett, 1988).

Table 1: Theoretical Framework Overview Part 1

2. 1 Innovation Theory	**2.2 Self-Determination Theory (meta-theory)**	**2.3 Implicit Person Theory**
What is Innovation and Why is it Important	1. Cognitive Evaluation Theory	
Radical and Incremental Innovation	2. Organismic Integration Theory	
	3. Causality Orientations Theory	
Product and Process Innovation	4. Basic Psychological Needs Theory • Autonomy • Competence • Relatedness	
Innovative Work Behaviour • Idea Generation • Opportunity Exploration • Idea Championing • Idea Implementation	5. Goal Contents Theory	
	6. Relationships Motivation Theory	

After the presentation of the basic theory, the fourth section tries to connect the different themes. As can be seen from Table 2, we propose that demographic and socioeconomic characteristics, BPNs and IPTs are predictors of IWB.

Table 2: Theoretical Framework Overview Part 2

2.4 Predictors of Innovative Work Behaviour
Demographic and Socioeconomic Characteristics • Age, Gender, Educational Level and Job Tenure
Basic Psychological Needs • Autonomy, Competence and Relatedness
Implicit Person Theory • Implicit Theory of Intelligence • Implicit Theory of Innovation

Finally, the theoretical framework is rounded off with a presentation of the project's research questions.

2.1 Innovation Theory

2.1.1 What is Innovation and Why is it Important?

The definition of innovation has been an area of interest among researchers and the concept has been defined in different ways. The word comes from the Latin language as “innovare” means to make something new (Bessant, Tidd, & Pavitt, 2005). Innovation is a process of introducing a new product or service or improvement of something that already exists (Popa, Preda, & Boldea, 2010). We can distinguish between different types of innovation. Fagerberg (2004) has identified five different types of innovation, which are new product innovation, a new technic of production, new sources of supply, market innovation and organizational innovation. However, in pursuit of economic benefits, organizations mostly focus on the first two (Fagerberg, 2004). The purpose of innovation is not to make changes, it is all about creating value. The value can be expressed in terms of creating a product or service which people will find useful and which will create value for them (Tidd & Bessant, 2014). Therefore, the main purpose of companies is to innovate and deliver products and services that will create value for customers and that will yield economic benefits in return.

Due to the opening of borders and the encouragement of foreign investments, competitive markets have emerged all over the world. Globalization creates many opportunities and it puts pressure on firms to develop and ensure a strong competitive position (Gorodnichenko, Svejnar, & Terrell, 2010). In addition, it also leads to greater flexibility in product prices, which means that profit margins per product decrease in some cases. Therefore, it can be argued that innovation is necessary for survival and growth (Cefis & Marsili, 2006). Companies that refuse

to innovative and follow market developments, will perhaps be threatened by competitors and experience financial problems in the future (Tidd & Bessant, 2014). Thus, innovation is a necessity for the companies, as it is the only way to survive, gain sustainable growth and improve their performances in the competitive market (Semuel, Siagian, & Octavia, 2017).

2.1.2 Types of Innovation

Innovations are divided into different types. Companies implement diverse kinds of methods for innovation processes and derive inspiration from different sources. Schumpeter (1934) is one of the leading persons in the innovation research field and his works have been referred to in many publications. Schumpeter (1934) highlights five different areas of innovation, and these are; (1) introduction of a new product or improve an existing product (product innovation), (2) introduction of a new production technique (process innovation), (3) open a new market (market innovation), (4) the discovery of a new source of supply of raw material or intermediate input (input innovation), and (5) to start up a new organization of industry (organisational innovation) (Drejer, 2004). In contrast, OECD and Eurostat categorize innovation into four groups, which are the product, process, market and organizational innovation (OECD & Eurostat, 2005).

In this thesis, we have narrowed the types of innovation down to product and process innovation, in addition to incremental and radical innovation. Incremental and radical innovation are two main types of innovations and can be implemented in both process, product and organizational innovations.

Incremental and Radical Innovation

The difference between these two concepts is the degree of novelty. Incremental innovation can be explained as minor changes in existing products, services or organizational structures. Therefore, this innovation type does not necessarily entail something that is completely new (Dewar & Dutton, 1986). Clearly, modifying a car's outlook is not at the same level of innovation as coming up with a new electric engine. Furthermore, the classification of innovations changes over time. To begin with, the steam locomotive was quite unique, however, over time there have been a lot of changes in technology. Today, the locomotives are preserved as historical memories. Thus, it can be said that there is a continuum of innovations that ranges from incremental to radical (Bessant, Tidd, & Pavitt, 2005). In addition, Dewar and Dutton (1986) describe incremental innovation as working on the same task as before but doing it better. In other words, a typical strategy for innovation activities is to primarily focus on utilizing the resources that the firm already possesses. Some studies on incremental process

development claim that the total gains in efficiency are often greater in incremental innovation compared to radical innovation, since the development process focuses mostly on implementing incremental changes, whereas radical changes are only implemented occasionally (Bessant, Tidd, & Pavitt, 2005).

Radical innovation is a concept that involves making something completely new and that has not been done before. This can be an introduction of a new product, service or a completely new production process. Compared to incremental innovation, radical innovation is more exploratory since the purpose is to discover entirely novel things. Radical innovation requires a large ratio of new knowledge, different occupational specialities and a high degree of organizational knowledge resources (Dewar & Dutton, 1986). Therefore, the complexity and uncertainty are higher in radical innovation relative to incremental innovation, as it requires more knowledge and support during the development process.

Table 3 illustrates examples of incremental and radical innovations. As can be seen from the table, incremental innovation involves modifying an existing product, such as a new version of a motor car, aeroplane or TV. On the other hand, radical is defined as being "new to the world" and has not existed before, such as steam power and biotechnology (Bessant, Tidd, & Pavitt, 2005, p. 6).

Table 3: Types of Innovation (Tidd & Bessant, 2014, p. 6)

SYSTEM LEVEL ⇑	New versions of motor, car, aeroplane, TV	New generations e.g. MP3 and download vs. CD and cassette music	Steam power, ICT "revolution", bio-technology
COMPONENT LEVEL	Improvements to components	New components for existing systems	Advanced materials to improve component performance
	INCREMENTAL ⇒ **("Doing what we do better")**	**("New to the enterprise")**	**RADICAL** **("New to the world")**

Product and Process Innovation

Product and process innovation have been of the interests of many researchers. These forms of innovation have two different targets. Firstly, product and market innovation are often associated with market demand, as the main goal of these two innovations is bringing new

products to the market, increasing market shares or creating new markets (OECD & Eurostat, 2005). On the other hand, process and organizational innovations are more associated with market supply. The main goal of these innovation types is reducing costs or improving the production facilities (Ettlie & Reza, 1992). Each type of innovation can individually improve the company's profitability, for example by increasing revenues or reducing costs. Additionally, different types of innovation may affect each other. For instances, if a company becomes successful with process innovations, it increases the companies' potential to also succeed with the development of new products (OECD & Eurostat, 2005). We have limited our research study to focus on process and product innovations since these are more relevant for our project.

Product innovation entails a new technology or a modified form of an existing technology, which is introduced commercially to meet a customer or market need (Utterback & Abernathy, 1975). Often, product innovations are the result of a process driven technological development, the discovery of a new market, the changes in customer's needs or the rising competition in the market. Product innovation may consist of minor or major changes in the technical specifications of the product or in other features of the product or service (Utterback & Abernathy, 1975).

A production system consists of equipment, a workforce, task features, material inputs and workflow in order to generate a service or product. A process innovation consists of the implementation of changes in methods, equipment and software aimed at developing production methods. The purpose of process innovation is to reduce costs, as well as improving the quality and provision of a product or service (Marcan, Medeiros, & Ribeiro, 2017). Process innovation does not only mean the development of a process, but also the development of techniques for delivering products and services.

2.1.3 Innovative Work Behaviour (IWB)

Nowadays, it is vitally important to have the ability to continuously innovate and develop products and services for organizations. Janssen (2000) claims that in order to have a continuous flow of innovation, it is also important that individual employees are eager and able to innovate (Janssen, 2000), and we can distinguish between team innovation and individual innovation. A lot of studies have been done on individual innovation in terms of personality characteristics, outputs and behaviours. For example, West (1987) has measured individual innovativeness by

studying what changes in output appeared when an old employee was replaced with a new one. (West, 1987).

Innovative work behaviour (IWB) is generally concerned with the exploration of opportunities and production of new ideas (creativity related behaviour), as well as covering behaviours linked to the implementation of changes, applying new knowledge or developing processes to improve personal or business performance (implementation-oriented behaviour). It has been indicated in many different studies that innovation is broader than only creativity and implementation of ideas. However for IWB, behaviour plays an important role, as well as idea generation in order to implement ideas and achieve improvements (De Jong & Den Hartog, 2008). Farr and Ford (1990) describe IWB as individuals attempt to accomplish the initiation and intended introduction of new and beneficial ideas, products, practises or methods. Thus, it can be said that innovative work behaviour covers both the initiation and implementation of creative ideas.

Employee creativity is an important part of innovative work behaviour. Creativity is described as the generation of new and beneficial ideas regarding products, service, processes and procedures (Oldham & Cummings, 1996). However, there are some structural differences between them. Unlike creativity, the main purpose of IWB is to provide a significant benefit (De Jong & Den Hartog, 2008). The applied composition is clearer, and the result is expected to lead to the innovative output. Yet, creativity is seen as an important component of innovative work behaviour, especially in the beginning of the innovation process when problems or performance gaps are detected, and ideas are produced in order to cover the identified need for innovation (West, 2002).

IWB consists of several dimensions that are related to different stages of the innovation process. Scott and Bruce (1994) consider IWB to be a multistage process with different activities and which requires different individual behaviours at each stage. Kanter (1988) points out three stages associated with IWB, including idea generation, coalition building and implementation (Kanter, 1988). Mostly individual innovations start with problem recognition and the generation of ideas to find a solution. In the next stage, an innovative individual seeks sponsorship (coalition building) to move the idea into reality. Lastly, the innovative individual takes action for the implementation of the idea in practice, for instance, by generating a prototype, product or a model of the innovation (De Jong & Den Hartog, 2008). Among these three forms of innovative behaviour, the idea generation is the broadest as it includes both producing ideas

and the detection of problems (Scott & Bruce, 1994). Sometimes these tasks appear in sequence, but they may also overlap. Admittedly, a deep understanding of task requirements may help to achieve successful innovation. In the entrepreneurship literature, the discovery of opportunities is acknowledged to be a behaviour that comes before the idea generation stage, and it has been demonstrated to be a determinant factor in the innovation process (De Jong & Den Hartog, 2008). To conclude, this literature review shows that researchers distinguish between different dimensions of IWB. In this thesis, we have decided to base our study on four dimensions, including opportunity exploration, idea generation, idea championing, and idea implementation, as illustrated in Figure 2.

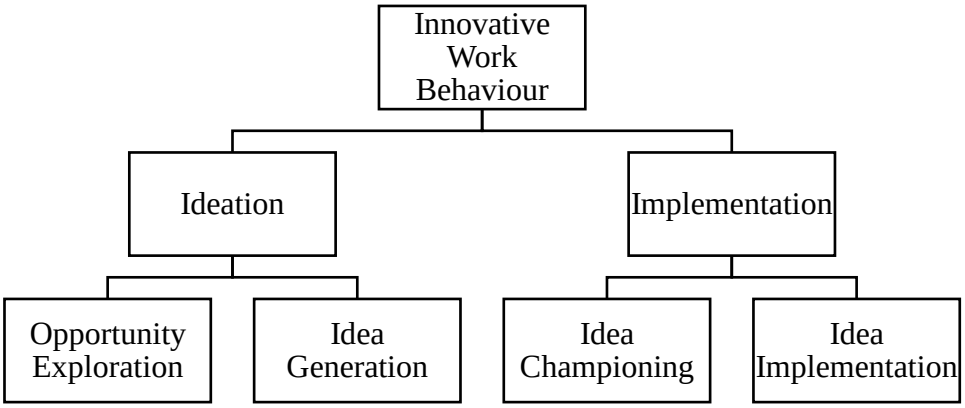


Figure 2: The Four Dimensions of IWB (De Jong & Den Hartog, 2010)

Opportunity Exploration. Innovation starts with someone taking the initiative to explore opportunities. It is commonly believed that the start of an innovation process happens by chance; the discovery of an opportunity or detection of a problem (De Jong & Den Hartog, 2008). Thus, arising problems may lead to innovation, however, the problems also require an immediate response. Drucker (1985) outlines seven sources of opportunity exploration, including (1) unexpected success, unexpected failure or unexpected outside event; (2) incongruity, incongruities between ‘’what is’’ and ‘’what should be’’; (3) innovation based on process need; (4) changes in industry or market structure; (5) change in demographics like population change in a region or labour force structure; (6) changes in perception; (7) and new knowledge that can be both scientific or non-scientific (Drucker, 1985). There is considerable overlap between seven sources. Yet, each one has its own distinct characteristic, and none is more important than another. Opportunities are sometimes thought of as coincidental, and to purposely discover ideas may seem to be impossible (De Jong & Den Hartog, 2008). However, there are some people who succeed in such activities. Opportunity exploration covers searching

for different ways to improve current products, services and work processes (Leonard & Swap, 2005).

Idea Generation. Idea generation is the next stage of IWB. A new idea can be generated from several sources. However, it can be said that an individual is the main source of any new idea (Mumford, 2000). To be able to innovate something, besides being aware of needs and/or opportunities, the ability to build new ways to address the needs and/or opportunities is also very important (Kanter, 1988). Idea generation can be explained as the generation of new ideas in the hope of improving something. It may be related to a new product, service or a process, development of working order or entry of a new market, in general terms, finding solutions to identified problems (Kanter, 1988). Typically, good ideas are generated by people who dare to approach problems and see things from a different perspective (De Jong & Den Hartog, 2008). Mumford (2000) found that the ability of to combine and reorganizing concepts is one of the most important factors in generating ideas.

Idea Championing. Championing is the next stage of IWB. In an innovation perspective, selling ideas is just as important as generating ideas. Although ideas may seem useful and appear to complement a performance gap, for many ideas there is uncertainty regarding whether the benefits will exceed the costs of implementing them (Kanter, 1988). Coalition building is an important aspect of innovation and is often applied by innovators. The idea is sold to potential allies in order to acquire enough power to able to start the implementation process. In many cases, the prospective users of a suggested innovation (colleagues, leaders, customers) may be unsure about its value, and therefore several innovative ideas often need to be sold to other people in order to receive support. Kanter (1988) and De Jong and Den Hartog (2008, p. 7) argue that *"the innovative individual who takes prime responsibility for the introduction of innovations is often not formally appointed, but rather someone who feels a strong personal commitment to a particular idea and is able to 'sell' it to others".* Thus, a champion can be defined as a person who takes responsibility for creative ideas which "are generated by the champion's itself or by someone else" and brings them to life (Howell & Higgins, 1990). Championing includes different behaviours involved in the innovation processes, such as mobilizing resources, finding support and building coalitions, persuading and influencing management or other people, as well as pushing and negotiating, overcoming challenges and taking risks (Kleysen & Street, 2001; Howell & Higgins, 1990; Kanter, 1988).

Idea Implementation. Implementation of an idea is the last stage of innovative work behaviour. It is the phase where a supported idea is implemented and put into practice (De Jong & Den Hartog, 2008). Implementation can imply developing an existing product or procedure, in addition to developing new ones. In order to actualize the idea, result-oriented attitude and significant effort are expected from employees. Application behaviour is all about the effort that individuals must show to develop the selected idea and succeed with the implementation of it. Such application activities often entail making innovations as a central part of work processes and include behaviours such as improving new products or work processes, and testing and modifying them afterwards if needed (Kanter, 1988).

2.2 Self-Determination Theory (SDT)

Initially, the term motivation comes from the Latin verb "movere" which means "to move" (Hetland & Hetland, 2009). Motivation is often defined as "*psychological processes that initiate, control and maintain behaviour*" (Brochs-Haukedal, 2011, p. 69). Self-Determination Theory (SDT) is a well-documented motivational theory developed by Edward L. Deci and Richard M. (2002) that distinguishes between motivation and amotivation (i.e. lack of motivation). Amotivation is a state where the intention to act is missing and this may be due to different reasons, including not feeling competent enough to do the activity, not valuing the activity highly enough, or not believing that the activity will yield the desired result (Gagné & Deci, 2005). Table 4 illustrates the self-determination continuum of various forms of motivation and their associated type of regulation and quality of behaviour.

Table 4: The Self-Determination Continuum, with Types of Motivation and Types of Regulation (Deci & Ryan, 2002, p. 16)

Type of Motivation	**Amotivation**	**Extrinsic Motivation**				**Intrinsic Motivation**
Type of Regulation	Non-regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Quality of Behaviour	Nonself-determined					Self-determined

The table shows three main types of motivation: amotivation, extrinsic motivation and intrinsic motivation. According to Ryan and Deci (2000), intrinsic motivation refers to doing something for the inherent satisfaction or enjoyment of the task itself. In contrast, extrinsic motivation is driven by the desire to achieve some separable outcome. In other words, the satisfaction related to extrinsic motivates does not come from the task itself, but instead from the extrinsic

consequences that the task leads to. However, Hetland and Hetland (2009) note that there is no predetermined relationship between intrinsic and extrinsic motivation, and both can be low, medium or high when doing an activity. The level of intrinsic and extrinsic motivation is separate and can vary as a result of time and context.

Within motivation, SDT proposes that another main distinction is between autonomous motivation and controlled motivation. Autonomous motivation contains well-internalized extrinsic motivation (i.e. identified and integrated forms of regulation) and intrinsic motivation (Gagné & Deci, 2005). Ryan and Deci (2000, p. 71), explain that "*internalization refers to people's "taking in" a value or regulation*". Controlled motivation contains external regulation and introjected extrinsic motivation (Gagné & Deci, 2005). Externally regulated behaviour is exercised in order to reward contingency or satisfy an external demand, whereas introjected regulation behaviour is exercised to attain pride or other ego boosts, as well as to avoid anxiety or guilt (Ryan & Deci, 2000).

Officially, Self-Determination Theory consists of six mini-theories. The mini-theories are based on laboratory and field research and were developed to explain motivation in its various forms. The first mini-theory, Cognitive Evaluation Theory (CET), addresses the topic of intrinsic motivation. It emphasizes the role that social context has for motivation, as well as the needs of autonomy and competence. Organismic Integration Theory (OIT), the second mini-theory, concerns extrinsic motivation. The theory demonstrates that subtypes of extrinsic motivation are based on different levels of internalization. For example, a high degree of internalization of extrinsic motivation leads to more autonomous behaviour. The mini-theory about Causality Orientations (COT) examines three orientations that are related to motivation: autonomy, control and impersonal. Another mini-theory, Basic Psychological Needs Theory (BPNT), argues that autonomy, competence and relatedness are essential for psychological well-being and optimal functioning. The fifth mini-theory, Goal Contents Theory (GCT), studies how intrinsic and extrinsic goals affect motivation and wellness. The newest mini-theory, Relationship Motivation Theory (RMT) highlights the importance of developing and maintaining close personal relationships (Adams, Little, & Ryan, 2017). Mainly, this project is based on the theory of basic psychological needs, but it is important to note that the six mini-theories complement each other.

2.2.1 Basic Psychological Needs Theory (BPNT)

Self-Determination Theory is built on the organismic paradigm and it emphasizes three organismic psychological needs, namely to feel autonomous, competent, and related to others.

The organismic paradigm implies that humans are assumed to be "*active organisms, motivated to assimilate and integrate knowledge and capacities in both their physical and social environments*" (Adams, Little, & Ryan, 2017, p. 47). Further, STD defines needs as "*universal necessities, as the nutriments essential for human development*" (Latham, 2012, p. 156). The theory claims that it can be determined whether something is a need based on its relation to psychological health. It is crucial that satisfaction of the need amplifies psychological health, while the absence of satisfaction has an undermining effect. Basic Psychological Needs Theory (BPNT) emphasizes that three organismic psychological needs are critical for intrinsic motivation and the self-regulation of extrinsic motivation, including autonomy, competence and relatedness (Latham, 2012). The job is an important arena to satisfy the basic psychological needs, and research shows that satisfaction of these needs is related to engagement at work, better health and increased learning (Hetland & Hetland, 2011). Conversely, inadequate satisfaction of the basic psychological needs is linked to alienation, greater passivity and ill-being (Adams, Little, & Ryan, 2017).

Autonomy. According to Deci and Ryan (2002, p. 8), autonomy refers to "*being the perceived origin or source of one's own behaviour*". In other words, Reeve (2009, p. 146) explains that autonomy is "*the psychological need to experience self-direction and personal endorsement in the initiation and regulation of one's behaviour*". Behaviour is self-determined (or autonomous) when the individual's decision-making process takes into account its preferences, interests and wants. In comparison, the behaviour is not self-determined when others pressure the individual to feel, behave and think in a certain way. As illustrated in Figure 3, the experience of autonomy is based on three subjective qualities: internal perceived locus of control, volition (or feeling free), and perceived choice over one's actions (Reeve, 2009). Perceived locus of control (PLOC) refers to "*an individual's understanding of the causal source of his or her motivated actions*" (Reeve, 2009, p. 146). PLOC can be explained on the basis of a continuum which extends from internal to external. Internal PLOC implies that the person perceives its behaviour to be initiated by a personal source, whereas external PLOC implies that the person perceives its behaviour to be initiated by an environmental source. Volition refers to an unpressured willingness to do a task, and it explores whether people feel free versus coerced when they are engaging in a pleasurable activity or avoid something they do not want to do. Volition is high when a person experiences that his own actions are endorsed entirely by himself, and volition is low when he experiences that his actions are forced by others. Finally, perceived choice implies that individuals feel a sense of choice in situations characterized by

many opportunities and flexible decision-making. The opposite is true if a person feels a sense of obligation in rigid environments that pushes him down a fixed path (Reeve, 2009).

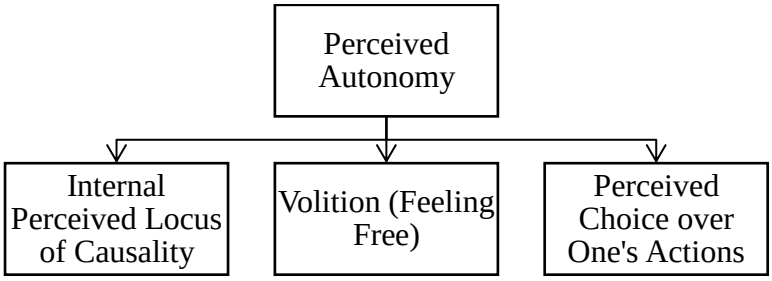


Figure 3: Three Subjective Qualities within the Experience of Autonomy (Reeve, 2009, p. 146)

The concept of the employer's management prerogative ("styringsretten") stresses the natural rights that allow employers to manage, distribute and organize the work of employees. However, employers can facilitate needs satisfaction through social support, inspiration and empowerment. For example, employees can experience free will when they are allowed to design their own job, and they can experience a sense of choice when they themselves decide what time a task should be performed (Hetland & Hetland, 2011). To satisfy the need for autonomy, employers can also take into account individuals' preferences and interests. The opportunity for participation and involvement is fundamental for employees' health and well-being (Hetland & Hetland, 2009). Too much micro-management can lead to stress, anger and discomfort among the employees (Hetland & Hetland, 2011).

Competence. Competence refers to "*feeling effective in one's ongoing interactions with the social environment and experiencing opportunities to exercise and express one's capacities*" (Deci & Ryan, 2002, p. 7). The satisfaction of the competence need involves an experience of learning and development, as well as freedom to cope with challenges (Hetland & Hetland, 2011). Albert Bandura, a Canadian-American psychologist, has introduced the term self-efficacy (i.e. individual's confidence in their ability to achieve goals), and he emphasizes the importance of authentic mastery experiences in order to succeed in future learning situations (Hetland & Hetland, 2011).

People's need for competence can be seen in the context of three important characteristics of the working environment, including optimal challenge (i.e. challenge matches skill), support and information about the paths that lead to the desired result, and that others have a high tolerance for errors (Reeve, 2009). Reeve (2009) also highlights two environmental characteristics that contribute to satisfy the need for competence, and these are positive feedback and the experience of progress. Employees in a work environment that helps them to

cope with challenges that are significant to them will experience enthusiasm and energy. On the other hand, if employees feel that they are not using their strengths in the job then this puts their well-being and health at risk (Hetland & Hetland, 2011).

Relatedness. Relatedness refers to "*feeling connected to others, to caring for and being cared for by those others, to having a sense of belongingness both with other individuals and with one's community*" (Deci & Ryan, 2002, p. 7). The need for social belonging is developed through evolution, and people depend on each other to survive (Hetland & Hetland, 2011). To satisfy the need for relatedness, the relationships must be based on care, liking, acceptance, and appreciation of each other's "authentic self". Typically, both lonely people and people who do not feel lonely, have frequent social contact. However, lonely people often lack intimate and close relationships. It can, therefore, be argued that quality is more important than quantity when it comes to the need for relatedness (Reeve, 2009).

Hetland and Hetland (2009) note that satisfaction of the basic need for relatedness leads to many positive consequences. Among other things, employees who feel that their co-workers care about them and are trustworthy are more likely to be creative. Furthermore, Reeve (2009) emphasizes that other positive consequences are that fewer people report psychological difficulties, have higher resilience to stress, increased well-being, and people function better. In contrast, many negative consequences can arise if the need for relatedness is not satisfied. This need can be threatened when the work environment is neither inclusive nor built on team spirit. Other risks include frequent replacement of staff, a lot of independent and isolated work, poor management and bullying. Some potential negative consequences are health hazards, unhappiness and low productivity (Hetland & Hetland, 2009).

2.3 Implicit Person Theory (IPT)

Implicit Person Theory (IPT) represents an approach to motivation since it calls special attention to goals and goal-oriented behaviour. Simultaneously, IPT emphasizes that individual differences in values and beliefs lead to different kinds of behaviour, and therefore the theory also represents an approach to personality (Dweck & Leggett, 1988). Table 5 illustrates an overview of implicit person theory. It highlights the relationship between the entity and incremental theory, goal orientation, perceived present ability and behaviour pattern.

Table 5: Theories, Goals and Behaviour Patterns in Achievement Situations (Dweck & Leggett, 1988, p. 259)

Theory of intelligence	**Goal orientation**	**Perceived present ability**	**Behaviour pattern**
Entity (intelligence is fixed)	Performance (Goal is to gain positive judgements/avoid negative judgements of competence)	High	Mastery oriented (Seek challenge; high persistence)
		Low	Helpless (Avoid challenge; low persistence)
Incremental (intelligence is malleable)	Learning (Goal is to increase competence)	High or low	Mastery oriented (Seek challenge that fosters learning; high persistence)

2.3.1 Helpless Versus Mastery-Oriented Pattern

We distinguish between two distinct reactions to failure, the helpless and mastery-oriented patterns. The helpless responses were first identified in animals in studies by Martin Seligman and Steven Maier. The researchers discovered that some animals failed to leave painful conditions because these animals thought the situation was out of their control. Similarly, Dweck (2000) uses the term "helpless" to describe some persons' maladaptive response to failure. From this viewpoint, failure signals that the circumstances are beyond their control and nothing can be done. Moreover, the helpless response is characterized by negative emotions, avoidance of challenge, lower persistence and denigration of one's own intelligence, as well as a deterioration of performance in the face of obstacle (Dweck, 2000).

In contrast, the term "mastery-oriented", refers to a more robust and hardy response to failure. The mastery-oriented pattern involves pursuing of challenging tasks and the preservation of effective striving despite difficulties. In addition, research shows that mastery-oriented individuals experience positive affect and use constructive self-instruction and self-monitoring. Research by Diener and Dweck indicates that mastery-oriented individuals focus on strategy and effort to achieve mastery. Conversely, helpless individuals focus on their ability and its inadequacy. Whereas mastery-oriented individuals view challenges as opportunities for learning, helpless ones view them as a threat to their self-esteem. To begin with, these patterns were first identified in studies with children. Notably, helpless and mastery-oriented responses have also been well documented in studies with adults. Furthermore, the distinct patterns have been confirmed to both operate in the laboratory and natural settings (Dweck & Leggett, 1988).

Based on a lot of studies with students, Dweck (2000) implies that the distribution of helpless and mastery-oriented individuals is very similar. Yet, some of the students were also in the

middle of the two patterns and did not fit into either group, and it is indicated that this was the case for approximately fifteen percent. It may be natural to assume that people's skill level and their previous experiences of failure are good predictors of which group they belong to. Surprisingly, Dweck and Leggett (1988, p. 256) claim that "*our research with children has demonstrated that those who avoid challenge and show impairment in the face of difficulty are initially equal in ability to those who seek challenge and show persistence*". These findings raise an interesting question: "*Why do students of equal ability have such dramatically different reactions to failure?"* (Dweck, 2000, p. 14). This question is addressed in the next paragraph.

2.3.2 Performance Versus Learning Goals

Helpless and mastery-oriented individuals perceive identical situations in distinct ways, and researchers suggest that the reason for this is due to the pursuit of different goals. In other words, different purposes might lead to unlike perceptions and reactions. It was hypothesized that helpless individuals might pursue performance goals, in which they are concerned with judging their ability and receiving a favourable assessment of their competence. Within a performance goal, individuals with a low perception of their present ability are likely to display the helpless pattern in the face of failure. In contrast, it was hypothesized that mastery-oriented individuals might pursue learning goals, in which they are concerned with acquiring new skills and increasing their competence. Furthermore, the researchers assumed that this positive relationship would also apply to individuals who perceived their present ability to be low. Several studies have confirmed the predicted hypothesis (Dweck & Leggett, 1988). Yet, Tabernero and Wood (1999) note that IPT is not a perfect determinant of individuals goal orientation, as goal orientation is also heavily influenced by situational factors.

Cognition. Dweck and Leggett (1988) explain that the two goals create an inclination for different patterns of cognition, affect, and behaviour. The goals make a foundation for different concerns, what information one seeks, and which questions are asked. Performance-oriented individuals are busy answering the question: "*Is my ability adequate or inadequate*?" (Dweck & Leggett, 1988, p. 260). From this point of view, the outcome is of great importance and failure can evoke a helpless belief that the ability is inadequate. Conversely, mastery-oriented individuals are interested in the question: "*What is the best way to increase my ability or achieve mastery?*" (Dweck & Leggett, 1988, p. 260). The outcome simply shows whether the person is on the right track or not. From this perspective, failure may indicate that the person should reconsider their current strategy or put in more effort. According to Murphy and Dweck (2016), the level of effort is, however, interpreted differently depending on goal concerns. On one hand,

the effort can be interpreted as an indication of high or low ability. Typically, performance-oriented individuals think high effort implies low ability, and they confirm statements such as "*If you have to work hard at some problems, you are probably not very good at them*" (Dweck & Leggett, 1988, p. 261). Moreover, success in combination with low effort is considered as an indication of high ability. On the other hand, effort can be interpreted as a means of achieving mastery or learning, and there is a positive relationship between input and outcome. Individuals with learning goals can to a greater extent relate to statements such as "*Things are almost always hard before they are easy*" (Keating & Heslin, 2015, p. 331).

Affect. The two-goal concerns can also lead to different responses to challenges and setbacks. For performance-oriented individuals, great effort or failure are closely linked to a low-ability assessment. As a result, challenges impose a risk to self-esteem, and the likelihood of experiencing feeling such as shame, depressed affect, anxiety and boredom increases. In contrast, learning-oriented individuals acknowledge that failure simply implies that the assignment requires another strategy or more effort. This belief creates greater opportunities for positive emotions, heightened engagement and perseverance. Within a learning goal, the extra effort can also lead to pleasure, pride or intrinsic rewards (Dweck & Leggett, 1988).

Behaviour. Dweck and Leggett (1988) argue that different goal concerns will influence behaviour, especially the choice of assignments. In an optimal assignment from a performance-oriented perspective, the potential for positive assessment is maximized, whereas the potential for anxiety, shame and negative assessment is minimized. Within a performance goal, individuals with low confidence in their ability will avoid challenging tasks associated with high anxiety and anticipated negative assessment. Instead, they will select easy assignments with the limited probability of negative outcomes and that may exclude the possibility of positive judgement. Researchers have found that individuals with high confidence are more challenge seeking, yet these individuals also avoid challenges when the risk of failure exists. The risk of difficulty and errors cause performance-oriented individuals with high confidence in throwaway opportunities for learning. Conversely, in an optimal assignment from a learning-oriented view, the potential for growth and pleasure of mastery is maximized. The findings of Bandura and Dweck confirmed that children with learning goals were the most challenge seeking despite low confidence and risk of negative ability assessment (Dweck & Leggett, 1988).

2.3.3 Implicit Theories of Intelligence

Dweck and Leggett (1988) examined what made people under the same circumstances to chase performance versus learning goals. The researchers found that people's implicit theory of intelligence was a good predictor of their goal orientation. Implicit theories are defined as "*core assumptions about the malleability of personal qualities*" (Yeager & Dweck, 2012, p. 303). Yeager and Dweck (2012, p. 303) explain that "*they are called "implicit" because they are rarely made explicit, and they are called "theories" because, like a scientific theory, they create a framework for making predictions and judging the meaning of events in one's world*". The implicit theories are also called mindsets, as they constitute a "*mental framework that guides how people think, feels, and acts in achievement contexts*" (Keating & Heslin, 2015, p. 331). As shown in Figure 4, we distinguish between two main types of implicit theories of intelligence, entity theory and incremental theory. Naturally, people's mindset can be a mixture of the two types of implicit theories, yet most people lean toward one of them. Furthermore, people can have different beliefs about various abilities, such as sports ability, social competence, business skill or artistic talent (Dweck, 2006). Studies have indicated that entity theorists can develop a more incremental IPT, at least in a relatively short-term perspective (Heslin, Latham, & VandeWalle, 2005). According to Dweck (2006, p. 217), "*You do not get a growth mindset by proclamation. You move toward it by taking a journey*".

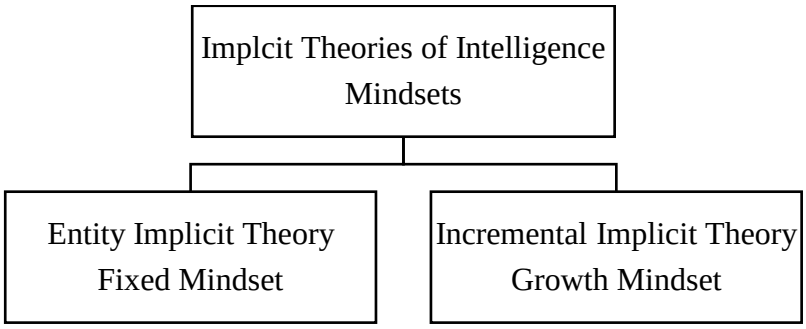


Figure 4: Two Types of Mindsets/Implicit Theories of Intelligence

Some people think that their intelligence is a fixed and innate trait, and this belief is called an "entity theory" or a "fixed mindset". Studies consistently indicate that entity theorists are more likely to pursue performance goals. They are trying to achieve positive judgements of their intelligence and avoid negative ones. Other people lean more toward a "growth mindset" or an "incremental theory" of intelligence. Incremental theorists believe that intelligence is a malleable and controllable quality. Research shows that people who believe intelligence is increasable are more likely to pursue learning goals (Dweck & Leggett, 1988).

According to Dweck (2000), performance and learning goals are both natural, necessary and desirable. Notably, students must learn new material and acquire different skills, but they must also prove and validate their ability a lot of time, for example in conjunction with tests. Admittedly, incremental theorists are possibly better suited to flexibly pursue and coordinate both types of goals. For them, performance-goals are used to measure a certain skill at a specific point in them. Simultaneously, incremental theorists acknowledge that it is possible to improve the skill in the long run. However, for entity theorists, performance-goals are used to measure a fixed skill that is immutable. As a result, the entity theory can create a strong fear of failure, which may cause a negative cognition-affect-behaviour pattern as described above.

Burnette, O'Boyle, VanEpps, Pollack and Finkel (2013) summarize that IPT claims that entity theorists favour performance goals, use helpless-oriented strategies when confronted with obstacles, and experience more anxiety and vulnerability in the assessment of their own performance. On the other hand, IPT claims that incremental theorists favour learning goals, use mastery-oriented strategies in the goal pursuit, and have higher levels of confidence and expectations when assessing their possibilities for goal success. Several studies have confirmed these proposed assumptions (Kray & Haselhuhn, 2007; Nussbaum & Dweck, 2008; Thompson & Musket, 2005), whereas other studies have shown zero effect (Biddle et al., 2003; Doron et al., 2009; Ommundsen et al., 2005). Despite the fact that the findings differ substantially, a meta-analysis concludes that IPT significantly predicts goal orientation (learnings vs performance goal), behaviour pattern (mastery-oriented vs helpless-oriented strategies), expectations and negative emotions (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013).

Beyond behaviour pattern and goal orientation, research shows that IPT plays a central role for managers' work-related performance in other areas as well. Heslin, Latham and VandeWalle (2005) reported that incremental IPT helps to explain why some managers are better than others to recognize both improvement and aggravation of subordinates' work-performance. In addition, the researchers found that managers holding an entity IPT are less willing to adjust their initial judgements of others. Another research project revealed that IPT influence managers' willingness to coach subordinates. Employee coaching refers to giving "*one-on-one feedback and insights aimed at guiding and inspiring improvements in an employee's work performance*" (Heslin, Latham, & VandeWalle, 2006, p. 872). Relative to fixed-mindset managers, growth-mindset managers are more inclined to help subordinates improve and develop. Moreover, growth-mindset managers have a stronger tendency to seek and accept constructive feedback from employees (Dweck, 2006). To explain these findings, Dweck

(2006, p. 140) asks a rhetorical question, "*Why bother to coach employees if they cannot change and why get feedback from them if you cannot change?"* Some other interesting findings that possibly indicate a relationship between IPT and IWB are highlighted in the next section.

2.4 Predictors of Innovative Work Behaviour

This section identifies some possible predictors of IWB and suggests some hypothetical relationships. We focus on different determinants that may affect individual innovative behaviour, including demographic and socioeconomic characteristics (age, gender, educational level and job tenure), BPNT (autonomy, competence and relatedness) and IPTs (intelligence and innovation).

2.4.1 The Role of Demographic Characteristic in Innovative Work Behaviour

Gender. When it comes to potential predictors of IWB, gender has become an important element in recent years. This relevance can be linked to the growing presence of female entrepreneurs in the global business environment. For instance, in 2012, around 187 million out of 400 million entrepreneurs were women (Na & Shin, 2019). According to Schumpeter, innovation and entrepreneurship are interrelated, as entrepreneurs often initiate innovation activates (Hagedoorn, 1996). For many years, innovation was expected to work under principles of merit and value, where there are no personal factors included. However, it has been found that males dominate in science, technology and innovation (Etzkowitz & Kemelgor, 2001). It has been observed some discriminatory practices, approaches and trust issues between men and women (Vehviläinen, Vuolanto, & Ylijoki, 2010).

As males dominate in entrepreneurship, job market segmentation could explain such gender segregation in innovation and technology, due to less interest among women in the education and training aspects linked to natural science, engineering, technology and mathematics (Carrasco, 2014). This educational and training difference cause barriers for women to participate in entrepreneurial activities (Delmar, 2003), which means indirectly as such barriers may also emerge in innovation activities. Different entrepreneurial specializations can help to understand the gender segregation in innovation, as women are less likely to be involved in highly innovative companies (DeTienne & Chandler, 2007). Women prefer to be specialized in sectors where innovation is not as common such as retail trade, professional services and personal services (Carrasco, 2014).

Numerous studies have been conducted to explain whether biological differences and processes lead to creativity differences among genders. However, it is very difficult to uncover to what

degree to biology contributes to differences between men and women (Runco, Cramond, & Pagnani, 2010). On one hand, there are not a sufficient number of studies that explain the relationship between gender and IWB. However, as a central part of the term IWB, studies on creativity and gender can help to understand the difference women and men when it comes to innovation activities. Several studies have found differences between genders associated with the openness to experience trait and its different components. For instance, one study indicates that women scored higher than men did on two components, openness to aesthetics, feelings, and actions, while men scored higher than women did on the openness to ideas component (Costa Jr., Terracciano, & McCrae, 2001). There are other factors affecting IWB, such as cultures, values, religions and traditions, and these factors affect the status of women (Carrasco, 2014). For example, the approaches of women in an egalitarian society may differ from their approaches in a patriarchal society. Thus, the role that a woman has in society can play a decisive role in innovative business behaviour**.**

We suggest in our thesis that male store managers are more innovative than female store managers. Although there is a decline of gender segregation in engineering and other technical department, male dominance in these sectors cannot be denied. This situation can be explained as men are more interested in technology, mathematics and innovation and these interests may result in a higher level of idea generation. Competition is another determinant affecting innovation activities (Athreye, 2016), as a competitive work environment may boost innovation activities. There are many studies conducted to understand whether men or women are more competitive, and most of the studies indicate that women are both less competitive and interested in dominance striving than men (Cashdan, 1998). This may indicate that male store managers are more competitive than women store managers, which can result in the higher innovative effort. When all these factors are considered, these past studies lead us to predict:

Hypothesis 1: Male store managers show more IWB than female store managers.

Age. Recent predictions illustrate that, by the year 2020, people who are 55 years of age or older will comprise about 30% of the whole population and 25% of the workforce in the United States (Toossi, 2012), and a similar trend is observed in the United Kingdom and in other European countries as well (Dominique, Ericson, & Jolivet, 2012). The average age of the workforce has been increasing all around the world. Hence, the interests in the relationship between age and job performance have been increasing too. There is a common negative age stereotype that implies that older workers are less creative and innovative than younger colleagues (Rietzschel & Zacher, 2015), as well as less flexible, less motivated and more resistant to change (Ng &

Feldman, 2012). The general overview that exists is not a good sign for older employees. Indeed, it cannot be denied that ageing causes changes in cognitive, affective and physical functioning and motivation (Salthouse, 2012), and some of the changes might lead to a lower level of creativity (Rietzschel & Zacher, 2015). For instance, a study indicated that fluid cognitive abilities such as novel problem-solving show a significant linear age-related decline (Salthouse, 2012). The ability to solve problems can be related to creativity, as problem-solving requires a high level of imagination, and the study, therefore, may indicate weaker creativity capability and innovative efforts among older workers (Rietzschel & Zacher, 2015). Creativity is not a synonym for IWB, yet it plays a critical role in individual innovation.

A recent meta-analytical review found that older workers did not significantly show worse job performance compared to younger employees. In contrast, the researchers found that older workers showed stronger extra-role performance and less counterproductive work behaviour relative to younger workers (Ng & Feldman, 2008). Admittedly, another study by Ng and Feldman (2012) is more relevant for this research project. Contrary to negative age stereotypes, the researchers found that age and tenure are not negatively related to innovative performance. Despite these findings, we hypothesise that younger store managers show more IWB than older store managers. We imagine that younger store managers possibly are more motivated to build-up their career than older employees. In general, we believe that the young generation has more knowledge about technology and are better at exploiting this competence in an innovative setting. When all these factors are considered, we predict:

Hypothesis 2: Younger store managers show more IWB than older store managers.

Educational Level. Education is another element which is studied by numerous researchers. The researchers have studied whether educational level effects innovation in the work environment, as well as whether highly educated people innovate more than less educated people. Guilford (1950, p. 446) stated that "*a creative act is an instance of learning and a comprehensive learning theory must consider both insight and creative activity*''. Indeed, it has been indicated that education acts as a key role in problem-solving (Fasko, 2010). In order to generate solutions to issues, it is absolutely essential that the managers have knowledge about the topic. As individuals gain knowledge, they build a larger and more integrated repository of possible instruments, which includes ideas, facts, and cognitive scripts (Amabile, 1983).

We suggest in this thesis that educational level plays a significant role in innovative work behaviour. Since knowledge plays a key role in the innovation process, education and

innovation should correlate positively. Upcoming new technologies and novelties require IWB and it starts with idea exploration. From this viewpoint, education is crucial for creativity and innovative thinking (Andiliou & Murphy, 2010), and we, therefore, think store managers with higher education are more innovative than store managers without such education. Studies also suggest that there is a positive relation between employees' knowledge and their innovative capabilities (Østergaard, Timmermansa, & Kristinsson, 2009). We believe workers with higher education can are more likely to generate ideas and detect problems (Solheim & Fitjar, 2018). Thus we, hypothesize:

> *Hypothesis 3*: Highly educated store managers show more IWB than store managers without such education.

Job Tenure. Finally, we explore whether job tenure (i.e. the number of years in the same job) affects IWB. Many researchers have investigated if work experience has a positive or negative impact on IWB, and the results from these studies differ. For instance, Hammond et. al. (2011) points out that job tenure may lead to task domain knowledge through experience on the job that will give them the ability to overcome obstacles by creative ideas. However, in another research study, it is indicated that longer-tenured workers may be more productive and show better performance than shorter-tenured workers in disseminating and implementing innovation (Feldman & Ng, 2013). In contrast, Pieterse et. al. (2010) found in their study that job tenure effects IWB negatively. In addition, some studies note that long working experience and routines are harmful to creativity, since they are attached with habitual behaviours, and workers with long tenure usually try to solve problems in familiar and conventional ways (Binnewies, Ohly, & Niessen, 2008).

We propose in our thesis that store managers with short tenure will show more IWB than store managers with long tenure. Workers with less tenure can be more ambitious in the workplace and generate new ideas with a desire of proving themselves. In addition, some researchers who study top management teams have found that long-serving makes people risk-averse and in this way, they ignore attempts for strategic change (Feldman & Ng, 2013). Thus, it can be said that workers with less-tenure are likely to take more risks, as they want to prove themselves in order to build-up their careers. In addition, junior employees are not familiar with methods in problem-solving, they may generate new ideas for proving new solutions instead of applying conventional methods. Thus, all these factors lead us to hypothesize:

Hypothesis 4: Store managers with short job tenure show more IWB than store managers with long job tenure.

2.4.2 The Role of Autonomy, Competence and Relatedness in Innovative Work Behaviour

Autonomy. Job Autonomy is an important aspect of innovative work behaviour. It provides employees with the necessary freedom and empowerment to be creative and innovative (Alpkan, Bulut, Gunday, Ulusoy, & Kilic, 2010). Obtained job autonomy gives a feeling of motivation to employees, so, creating the intrinsic motivational state required for creative tasks and innovative work behaviour (Hennensey & Amabile, 2010). Job autonomy provides employees with a freedom to discover and explore new opportunities, thus by given freedom employees would feel freer to generate new ideas for innovation (Bysted, 2013).

Many studies have examined the relationship between autonomy and innovative work behaviours, and the results were positive. Autonomy has shown to relate positively to the generation and testing of ideas (Krause, 2004), as well as innovation implementation (Axtell, Holman, Unsworth, Wall, Waterson, & Harrington 2000). In addition, a meta-analysis concluded that autonomy had a relatively strong positive relationship with innovative performance (Hammond et. al., 2011). It is also indicated that a job with no autonomy will restrict employee's creativity and innovativeness, as they will not possess sufficient authority to generate new ideas (Bysted, 2013). A higher degree of freedom will give employees the freedom to show their abilities. In this way, the employees can try new things and make decisions that will lead to more idea generation and implementation. Therefore, we hypothesize:

Hypothesis 5: Job Autonomy is positively related to store managers' IWB.

Competence. The degree of competence influence people's behaviour in the workplace. Job self-efficacy is documented to affect creative and innovative performance positively (Hammond, et. al., 2011). Employees with high relatively to low self-efficacy are more motivated to generate innovative ideas and solutions (Gumusluoglu & Ilsev, 2009). The individuals become more creative and innovative when they perceive that their competence and self-determination is high (Sarkar & Singh, 2012). Further, it is found that employees' who feel competent in their jobs are confident in their abilities to handle the work-related issue and to display more innovative work behaviour (Bandura, 1977).

Several studies have examined the relationship between competence and innovative work behaviour and found that competence has high correlations with IWB (Sarkar & Singh, 2012).

Competence satisfaction helps individuals to adapt to complex and changing environments. In contrast, lack of competence likely results in less motivation and lower self-efficacy (Broeck, Vansteenkiste, Witte, Soenens, & Lens, 2010). Therefore, we believe that store managers who are competent will show more innovative work behaviour. Highly competent store managers will possibly suggest new ways of doing things and generate new solutions. Thus:

Hypothesis 6: Competence is positively related to store managers' IWB.

***Relatedness*.** In the work environment, an individual is not only affected by personal factors but also by team-departmental and organizational level factors (Chen & Kao, 2011). Satisfying the need for relatedness or a sense of belongingness will lead individuals to perceive the interpersonal environment as being non-threating and supportive. The notion of social acceptance has been defined as an important element to enable creative and innovative efforts in the work environment (Devloo, Anseel, Beuckelaer, & Salanova, 2015). Previous studies propose that individuals are more innovative if they feel psychologically safe and can suggest new ideas or solutions without being judged by their colleagues (Anderson & West, 1998). Positive relationships with peers can build trust and support for innovative ideas, as well as facilitate successful implementation (Hammond et. al., 2011). Thus, in this research project, we expect that satisfaction of the basic need for relatedness has a positive impact on individual's innovative work behaviour:

Hypothesis 7: Relatedness is positively related to store managers' IWB.

2.4.3 The Role of Mindset in Innovative Work Behaviour

Finally, the last predictor that may trigger innovative work behaviour is the mindset. Dweck (2006) has examined implicit person theory of intelligence and distinguishes between an incremental theory and entity theory of intelligence, which needs to be studied in more detail in order to conclude whether IPTs have an impact on IWB. Individuals who believe their abilities can be improved have a growth mindset. Growth mindset people tend to achieve more than individuals holding a fixed mindset and believe their abilities are innate gifts (Neneh, 2012). Johnson (2009) claims that individuals with a fixed mindset, who have low self-confidence, tend to embrace low-performance targets, which in turn causes them to answer in a helpless manner when faced with difficulties. In contrast, individuals with a growth mindset believe that a person's ability and success depend on learning and that intelligence can be improved. They also tend to embrace learning goals, in addition to trying different approaches when faced with difficulties. This can contribute to explaining why most successful business

leaders hold a growth mindset, as they always come up with different ideas and solutions to build and maintain their organizations (Dweck, 2006).

There are no known studies that examine the impact of IPT of innovation on innovative work behaviour. According to Dweck (2006), 143 creativity researchers participated in a poll investigating what is the most important factor in creative achievement, and the answer was precisely the type of resilience and perseverance produced by incremental IPT. An entrepreneurial mindset study showed that holding a growth mindset played a key role in being successful in business (Neneh, 2012). Since entrepreneurship is, among other things, about generating ideas, it is possible that these findings also propose that mindset is important for IWB. Innovations do not occur as a result of a single experiment. Rather, it has been actualized by constant learning, the generation of new ideas and solutions, and most importantly the perception of failure as an opportunity to learn something new. Admittedly, these factors are strong characteristics of growth mindset individuals. People with a growth mindset are more open to learning new things and this tendency may be related to opportunity exploration behaviour. However, the situation is often different for fixed mindset people, as they do not like big and threatening challenges (Dweck, 2006). Based on these studies, we assume that:

Hypothesis 8: Incremental theory of intelligence is positively related to store managers' IWB, whereas entity theory of intelligence is negatively related.

Hypothesis 9: Incremental theory of innovation is positively related to store managers' IWB, whereas entity theory of innovation is negatively related.

2.5 Research Questions

Based on the theoretical framework, we have the following research questions:

1. *Who are the Store Managers (gender, age, educational level, job tenure) of an Anonymous Clothing Company in Norway?*
2. *What is the Level of Store Managers' IWB?*
3. *What is the Relationship between Demographic and Socioeconomic Characteristics (gender, age, educational level, job tenure) and IWB?*
4. *What is the Relationship between BPNT (autonomy, competence, relatedness) and IWB?*
5. *What is the Relationship between IPTs (IQ, innovation skills) and IWB?*

3 Methodology

Table 6 provides an overview of the different elements in this chapter. The chapter begins with a description of the research philosophy and approach that form the basis for this research project. Next, we clarify our choices regarding research design, while the third section of this paper explores innovation in the textile industry and describes our sample, which is store managers who work for an anonymous company. Afterwards, in the fourth section, we explain which selections we have made regarding data collection, including the choice of research strategy, time horizon and measurement method. Further, this chapter informs about what types of data analysis will be used in this project, in addition to informing about reliability and validity. Lastly, this chapter highlights important ethical guidelines and considerations in social research.

Table 6: Methodology Overview

Section Number	Section Title and Subthemes
3.1	**Research Philosophies and Approaches** • Realism, Internal Realism, Relativism or Nominalism • Positivism or Social Constructionism • Induction, Deduction or Abduction
3.2	**Research Design** • Quantitative or Qualitative • Exploratory, Descriptive or Explanatory
3.3	**Sample** • Innovation in the Textile Industry • Store Managers or Department Managers
3.4	**Data Collection** • Experiment, Survey, Case Study, etc. • Cross-sectional or Longitudinal • Self-ratings, Independent ratings or Objective criteria • Questionnaire
3.5	**Data Analysis**
3.6	**Reliability and Validity**
3.7	**Ethics** • No Harm to the Participants • Voluntary Participation and Consent • Confidentiality and Anonymity

Figure 5 is based on the work of Saunders, Lewis and Thornhill (2012, p. 128), but it has been adapted to suit this master thesis. The "research onion" summarizes central methodological choices we have made to answer our research problem, "What is the Relationship between Store Managers' Characteristics and Innovative Work Behaviour?" The figure illustrates outer layers such as positivism and deduction and inner layers like survey strategy and cross-sectional time horizon.

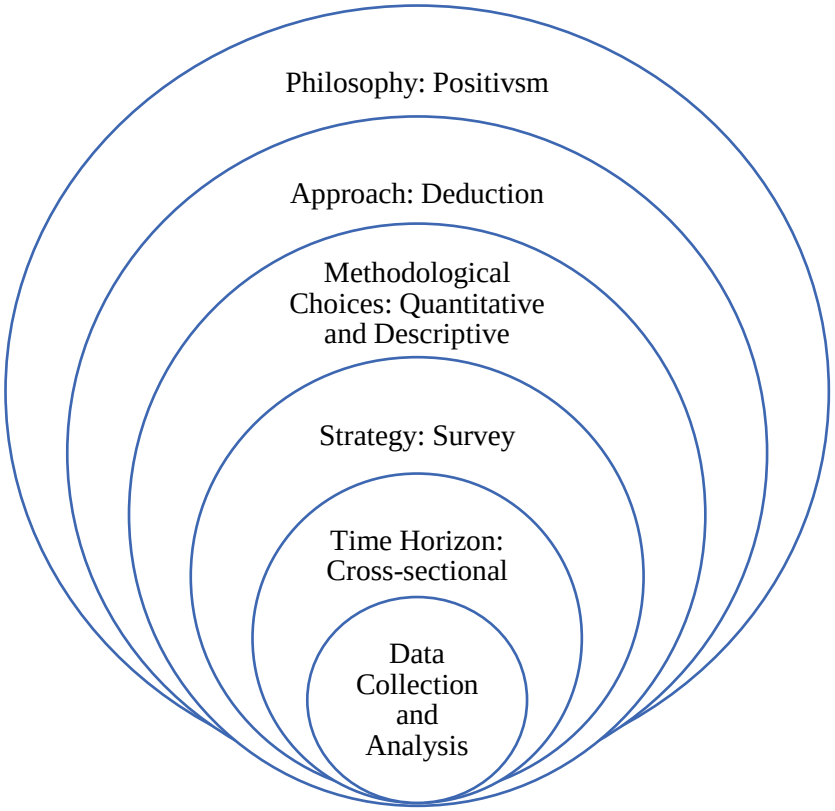


Figure 5: The Research Onion

3.1 Research Philosophies and Approaches

3.1.1 Research Philosophy

According to Saunders, Lewis and Thornhill (2012, p. 127), research philosophy relates to "*the development of knowledge and the nature of that knowledge*", and the authors note that the term contains central assumptions about how people believe the world work. It can be argued that it is of practical benefit to recognize these assumptions since it is necessary to have an understanding of them in order to assess their suitability and perhaps make adjustments (Saunders, Lewis, & Thornhill, 2012). Two fundamental concerns among philosophers are ontology and epistemology. Ontology is a concept that studies "*philosophical assumptions about the nature of reality*" (Easterby-Smith, Thorpe, & Jackson, 2012, p. 18). Table 7 shows four different ontologies, including realism, internal realism, relativism, and nominalism. From a traditional perspective of realism, it is assumed that the world is external and concrete, and this point of view also emphasizes that science builds on the observation that is directly related to the field of research being studied (Easterby-Smith et al., 2012). The internal realism position also proposes that there is a single reality, but this perspective emphasizes that it is impossible to access the reality directly, and evidence must hence be collected indirectly. Further along the continuum, relativism argues that there are essential differences between social and natural phenomena. In contrast to nature, people interpret observations differently and is influenced by

the culture around them, which causes many different "truths" to arise. A nominalism perspective asserts that facts are created by people and that there are no truths (Crowther & Lauesen, 2017).

Table 7: Continuum of Ontological Positions (Easterby-Smith, Thorpe, & Jackson, 2012, p. 19)

	Realism	Internal Realism	Relativism	Nominalism
Truth	Single truth.	Truth exists, but is obscure.	There are many "truths".	There is no truth.
Facts	Facts exist and can be revealed.	Facts are concrete, but cannot be accessed directly.	Facts depend on viewpoint of observer.	Facts are all human creations.

Epistemology examines «*the nature and justification of human knowledge*» (Hofer, 2001, p. 355). As shown in Table 8, we distinguish between two views on how social science should be conducted: positivism and constructionism. In brief, positivism proposes that the social world is external and observed facts of its properties underlie objective measurement. Contrary, constructionism asserts that meaning is socially constructed rather than discovered, as a mind is necessary to create meaning (Crowther & Lauesen, 2017). According to Easterby-Smith et al. (2012, p. 25), there is "*link between epistemology and ontology, with positivism fitting with realist ontologies, and constructionism fitting with nominalism*", and the links between epistemological and ontological assumptions are referred to as research philosophies (Crowther & Lauesen, 2017). Saunders, Lewis and Thornhill (2012) emphasize that no research philosophies are better than others, as they are used for different purposes and which philosophy researchers should adopt depends on their research question(s). The aim of this master thesis is to investigate possible predictors of IWB, and we believe it is most appropriate to adopt a positivist position based on the characteristics in Table 8. Positivism is commonly associated with quantitative research, particularly when the techniques for data collection are predetermined and highly structured (Saunders et al., 2012). In addition, positivism is the dominant epistemology in survey research (Easterby-Smith et al., 2012). Adopting a distinct ontology influence what type of questions are asked. In line with an internal realist perspective, we explore physical characteristics such as gender and age. However, in line with a realist view, we also focus on mental capabilities, for example, whether store managers perceive intelligence as a fixed or changeable trait. Admittedly, the philosophical assumptions adopted in this master thesis are more inclined towards internal realism and positivism relative to other approaches.

Table 8: Contrasting Implications of Positivism and Social Construction (Easterby-Smith, Thorpe, & Jackson, 2012, p. 24)

	Positivism	Social Constructionism
The observer	must be independent	is part of what is being observed
Human interests	should be irrelevant	are the main drivers of science
Explanations	must demonstrate causality	aim to increase general understanding of the situation
Research progress through	hypotheses and deductions	gathering rich data from which ideas are induced
Concepts	need to be defined so that they can be measured	should incorporate stakeholder perspectives
Units of analysis	should be reduced to simplest terms	may include the complexity of "whole" situations
Generalization through	statistical probability	theoretical abstraction
Sampling requires	large numbers selected randomly	small numbers of cases chosen for specific reasons

3.1.2 Research Approach

There are three types of research approaches: deduction, induction and abduction. Using the deductive method, researchers rely on prevailing literature and theory and use this as a basis for building hypotheses. Subsequently, the hypothesis can be tested through observation and are thus either accepted or rejected (Babbie, 2010). Deductive research is frequently used in relation to quantitative research methods (Ghauri & Grønhaug, 2010). Using the inductive method, researchers start with emphasizing observations and then attempt to find patterns in what has been observed. As a result, the inductive process can lead to theory building and upgrading of existing literature (Babbie, 2010). Inductive research is frequently used in relation to qualitative research methods (Ghauri & Grønhaug, 2010). Saunders, Lewis and Thornhill (2012, p. 147) explains that "*instead of moving from theory to data (as in deduction) or data to theory (as in induction) an abductive approach moves back and forth, in effect combining deduction and induction*".

This project is predominantly deductive and there are several reasons for this. To begin with, a lot of research has already been done on the theoretical framework in this master thesis, including Innovative Work Behaviour, Self-Determination Theory and Implicit Person Theory. Based on this existing literature, it is natural and logical to hypothesize relationships among different variables, in line with a deductive approach (Ghauri & Grønhaug, 2010). Relative to abductive reasoning, this research project did not start with an observation of a "surprising fact". Moreover, the limited time horizon also speaks for a deductive approach, as both abductive and especially inductive research are often a lot more prolonged. Typically, the longer time frame

is due to the fact that the desired ideas gradually appear from longer phases of collection and analysis of data. Lastly, risk concerns also contribute to justify the choice of deductive research, since it is an approach that may have a lower risk compared to the alternatives. In inductive and abductive research, there is a danger that valuable data patterns or theories fail to materialize. Admittedly, the deduction is not risk-free, and as an example, researchers may find that respondents do not return their questionnaires (Saunders, Lewis, & Thornhill, 2012).

3.2 Research Methods and Designs

3.2.1 Qualitative and Quantitative Method

According to Ghauri and Grønhaug (2010, p. 104), "*research methods refer to a systematic, focused and orderly collection of data for the purpose of obtaining information from them, to solve/answer a particular research problem or question*". We distinguish between two primary research methods, quantitative and qualitative methods. Quantitative research is based on numeric data (numbers), while qualitative research is based on non-numeric data, such as words, video clips and images. However, this can be considered a narrow distinction since researchers often combine elements from quantitative and qualitative methods, both in terms of collection techniques and data analysis procedures (Saunders, Lewis, & Thornhill, 2012).

It can be argued that a project's research problem and purpose are decisive for which techniques and methods are best suited (Ghauri & Grønhaug, 2010). The purpose of this research project is not simply to describe the store managers' level of innovative work behaviour without employing measurement in line with a qualitative study. Rather, the objective of this study is to investigate and quantify the variation among the respondents, and this speaks for a quantitative method (Kumar, 1999). Although quantitative and qualitative research is often mixed in practice, this master thesis builds primarily on a quantitative data collection and analysis method. There are both advantages and disadvantages to using a quantitative method. By using quantitative data there is a danger that the numbers lose the richness of meaning. On the contrary, quantification opens up opportunities for summarizing and comparing data, as well as various forms of statistical analysis (Babbie, 2010).

3.2.2 Exploratory, Descriptive and Causal Research Design

Churchill and Iacobucci (2015, p. 57) define research design as "*the framework or plan for a study, used as a guide to collect and analyse data*". Put differently, "*Your research design is the general plan of how you will go about answering your research questions(s)*" (Saunders, Lewis, & Thornhill, 2012, p. 159). There are three basic classes of research designs: exploratory, descriptive and causal. Yet, it is important to note that several studies use more

than just one research design, and the three design types are characterized by overlaps and grey areas. Figure 6 shows the relationship between research designs. The thick lines illustrate the most common order, whereas the dotted lines illustrate the other alternative orders (Selnes, 1999).

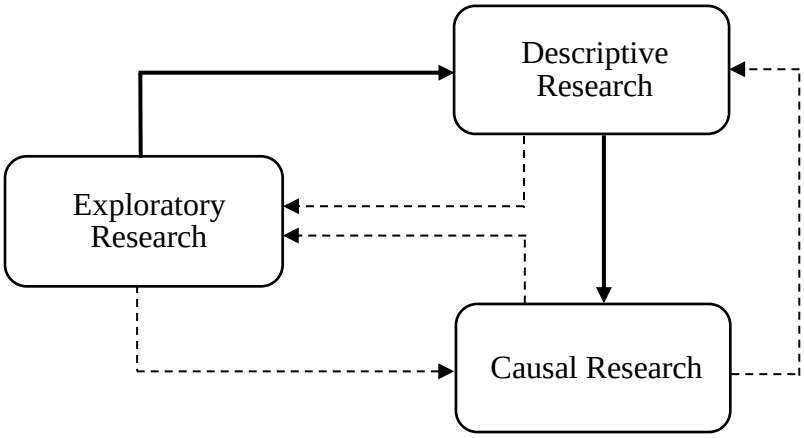


Figure 6: Relationship among Research Designs (Selnes, 1999, p. 96)

The purpose of using exploratory research is to get ideas and insight. In addition, an exploratory study is often used to clarify concepts (Churchill & Iacobucci, 2015). However, in this master thesis, there is no need to clarify the concept of "autonomy" for example, as other researchers have already developed comprehensive definitions and user-friendly investigative instruments (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992). Selnes (1999) argues that the nature of the problem determines which of the three research designs is most suitable for a research project. For example, an imaginary problem is: "What could be the reason why some managers are more innovative at work than others?" In this case, the first step would be to conduct an exploratory study to identify possible causes. Although it may be useful to generate even more potential explanations using an exploratory design in this master thesis, researchers have already identified several factors that might influence store manager's propensity to behave innovatively at work, including job complexity, role expectation and supervisor support (Hammond et. al., 2011). Rather, this research project builds on a descriptive design in order to examine a selection of the explanations, and investigate which ones are most likely and relevant. Generally, many tentative explanations can be eliminated using a descriptive study and it may show if further research is worth pursuing. For instance, this master thesis will probably indicate whether the store managers' mindset is affecting their innovative efforts or not. Exploratory designs are frequently chosen in the early stages of the research process since the researchers do not possess sufficient knowledge of the topic and it is problematic to formulate concrete

hypotheses (Churchill & Iacobucci, 2015). In contrast, this project highlights explanations that we have reason to assume are related in a certain way, and our hypotheses can be tested with a descriptive design.

Alternatively, we could also have chosen to conduct a causal study in this research project instead. The purpose of causal research is to reveal the cause-and-effect relationship, and these relationships can be studied using experiments (Churchill & Iacobucci, 2015). Causal research answers the question of *why*, whereas descriptive research answers questions of *how*, *when*, *where* and *what* (Babbie, 2010). It would be very interesting to choose a causal design and investigate *why* some store managers behave more innovatively at work than others. Yet, we have not found any descriptive studies that examine the connection between innovative work behaviour and growth mindset, and this relationship is one of the main focuses of this project. There is a lack of previous research in this subject field, and it is, therefore, more natural to choose a descriptive design relative to a causal design. The actual research problem in this master thesis builds on this decision and points towards a descriptive design, "What is the Relationship between Store Managers' Characteristics and Innovative Work Behaviour?" Using a descriptive research design, we have no ground to claim cause-and-effect-relationships, but we can still study if there is covariance and suggest whether it is worthwhile to undertake a more extensive study (Gripsrud, Olsson, & Silkoset, 2004). In line with Figure 6, we propose that subsequent research can use a causal design to eliminate even more variables based on our findings, and then prove the effect of the remaining explanations (Selnes, 1999).

3.3 Sample

According to Mumford (2003), future research is most needed in contexts where innovation and daily work performance are not the same. Put differently, he requests more research on IWB of all types of employees, especially employees who do not have innovation-oriented jobs. Hence, we have chosen to examine store managers' innovative performance in an anonymous company in the textile industry. In this thesis, our population consists of 100 store managers located in Norway. Hopefully, all of them will answer our questionnaire. The findings of our research project are limited to this population, as our results and analysis will not be based on a probability sample. We cannot generalize our findings beyond our population, but our results are still likely to indicate whether, for example, IPTs are promising to study in a larger and more comprehensive innovation study.

Alternatively, we might have chosen to study department leaders instead of store managers. However, there are several reasons why we chose to study store managers rather than

department leaders. Firstly, the department leaders do not have many responsibilities, as they only have daily contact with the employees. Also, the department leaders must ask store managers for confirmation before making decisions. The store managers have the main responsible for the operations in the store. They have many different responsibilities and must ensure that the store's goals are achieved. One of the priority objectives is to ensure a high rate of customer satisfaction. For that, the team must be encouraged to develop their skills and put a high level of effort into their job. Store managers prepare work schedules for all employees, as well as weekly goals. In addition, they set work standards, such as deciding the number of people who will work in a day considering a budget. Store managers are always communicating with the headquarter office and discuss things that should be done in the store. Commercial rate and number of sold pieces ("takt") are also important targets of the store managers. The store managers lead morning meetings every day. In the meetings, they share the results of the store with the employees and facilitate direct communication, so employees can share their ideas in order to perform better.

3.3.1 Innovation in the Textile Industry

The world population has recently crossed over seven billion, and clothing is one of the essential needs of these people. Due to the growing population, the clothing and textile industry has experienced increased demand and growth. The industry is facing challenges in terms of sustainability and it requires novelties for global solutions. At this point, innovation is becoming important to ensure growth and sustainability in the textile industry. In fact, innovation is not a new notion in the textile industry. The clothing sector is labour-intensive, dynamic and considered to be an innovative sector (Nordås, 2004). The first huge radical innovation that was initiated in the textile industry was the industrial revolution. There have also been marked developments within sub-sectors of the textile industry, grounded on new ideas related to materials, manufacturing, process technologies and new products. Innovations are actualized based on the outcome of research in application-oriented and problem-solution oriented projects, with the purpose of developing products and processes for the market (Shishoo, 2012). Innovations in the textile industry are the outcome of efforts by entrepreneurs in the workplace. Additionally, in the past, innovation-driven research in textiles was actualized in R&D laboratories of medium and large textile firms, quality control system suppliers, fibre producers, and machinery manufacturers (Shishoo, 2012).

The scientific and technological advances that are performed in the textile industry in the last 60 years are simply unprecedented. For instance, the period between the 1950s and 1980s

indicates a strong improvement in the production of generically new man-made fibres, due to improvements in polymer chemistry and fibre-forming methods. In addition, in the period between the 1970s and 1990s, the improvements were actualized in fabric production technologies in weaving, warp-knitting and nonwovens. Also, thanks to improvements in manufacturing techniques, the process of production have become less complex (Shishoo, 2012). Apparently, the driving force behind most of the important textile innovations in the past years is due to three main headings, including technology push, market pull and environmental considerations. Technology push entails new material improvement lead by advances in polymer science, fibre technology and novel finishing methods. Market pull entails technological improvements that are made based on customer and market demands. In recent decades, there has been an increase in demand for value-added functions in fibres such as flame retardancy, electro conductivity, flame resistance and thermally adaptive materials (Shishoo, 2012). Environmental considerations have also become more important. Due to a lot of waste in the textile industry, several firms have tried to produce products which are less harmful to the environment. Thus, eco- friendly and renewable resource-based raw materials for fibre production have received higher priority (Montero, 2009). It can be seen in the light of the history that the life-cycle of many innovations have started with the implementation of an idea and commercialization, followed by a long-term profit and finally a period of stagnation and expiration of popularity. The industrial revolution was a radical innovation and it had a huge impact on the textile industry, but lately, the focus has to a higher degree been on incremental innovations and small improvements (Vila & Kuster, 2007).

Innovation in the Norwegian Textile Industry

Norway is one of the countries invests in innovation activities, however, Norway's innovation performance has been variable, and this can be related to the country's economy (OECD, 2017). Since the 1950s, the Norwegian textile industry has experienced a long decline that has affected Norway more than other OECD countries. Especially compared to its neighbour countries Sweden and Denmark, it can be said that the textile industry is not very innovative (Cooke, 2016). The Norwegian textile industry peaked in 1951 when the industry contributed about 1.5 percent to the country's GDP. From being one of the leading manufacturing industries for a long time, the textile industry is currently a small and fragmented one (Espeli, 2011). At the moment, the number of sources examining the current innovation performance of Norway in the textile industry is very limited, but it can be said that the degree of innovation activities in the textile industry has been pretty low relative to other sectors (Smith, Dietrichs & Nås, 1996).

3.4 Data Collection

Research Strategy

In brief, "*a strategy is a plan of action to achieve a goal*" (Saunders, Lewis, & Thornhill, 2012, p. 173). Hence, a research strategy can be defined as a plan for how researchers should go forward to answer their research problem. Some commonly used research strategies are an experiment, survey, archival research, case study, and ethnography to name a few. In line with a deductive research approach and quantitative method, it is natural for us to choose a survey strategy. This data collection method allows us to answer our research problem, as the survey strategy can be used to examine relationships between variables and analyse these quantitively. We have both the opportunity to suggest possible predictors of IWB and make models of the hypothesized relationships. The survey strategy comprises different data collection techniques, such as questionnaire, structures observation, and structured interviews (Saunders, Lewis, & Thornhill, 2012). The sample in this project is spread throughout Norway, and because of accessibility considerations, we have chosen to collect primary data in the form of electronic questionnaires.

The case study strategy involves "an *in-depth examination of a single instance of some social phenomenon, such as a village, a family, or a juvenile gang*" (Babbie, 2010, p. 308). Consistent with Babbie's (2010) definition, this master thesis studies an individual case, specifically the store managers of an anonymous *company*. However, in contrast to the case study strategy, the research strategy used in this project does not offer an opportunity for intensive analysis of several specific details, which other methods often miss out on (Kumar, 1999). Rather, this project is limited to data collection through a standardized investigative instrument and does not rely on multiple sources of data. Hence, it lacks the rich understanding that characterizes case studies (Yin, 2009). Although the research is undertaken in context, it can be argued that the research strategy in this paper differs from the case strategy. To conclude, this study is mainly based on a survey strategy, but it also has a few features that are associated with the case study strategy.

Time Horizon

There are two different time horizons for data collection, cross-sectional and longitudinal studies. Quantitative strategies based on surveys are often using a cross-sectional design, and we have also chosen to use this design in our master thesis. Using a cross-sectional design, the researchers only collects data at one point in time, whereas the longitudinal design involves the collection of data from the same respondents at several points in time (Ringdal, 2018).

According to Saunders, Lewis and Thornhill (2012), the choice of time horizon hangs upon the research problem. In this research project, the cross-sectional design is well suited to answer our problem, as it allows us to verify or deny the correlation between multiple variables. Admittedly, longitudinal research is better suited to investigate changes and development over time (Ringdal, 2018). However, a cross-sectional design is less risky, and this research project is time constrained. It would be interesting to do an intervention in a company in order to study whether changes in individuals' implicit beliefs affect their innovative efforts, using a longer time perspective. Yet, this issue is beyond the scope of this master thesis, and we believe it is fundamental to first examine whether there is a relationship between the variables at all before considering whether to conduct a more time-consuming and advanced study.

Measurement Method

In terms of measurement methods, Hülsheger, Anderson and Salgado (2009) distinguish between self-ratings, independent ratings and objective criteria. It is natural to let research subjects themselves report demographic and socioeconomic characteristics, basic psychological needs satisfaction, and implicit theories of intelligence and innovation. Yet, there are several methods to consider when it comes to measuring innovative work behaviour. Admittedly, the store managers in this study also assess their innovativeness themselves by completing the questionnaire. It is worth noting that a meta-analysis suggests that self-assessment of both predictors of creativity and individual performance may lead to larger effect sizes, compared to using a combination of measurement methods, due to common method bias (Hammond et. al., 2011).

The chances of obtaining a sufficiently large response rate are greater when we do not rely on independent rating methods, such as supervisor ratings and peer ratings. Using peer ratings, then we would have needed twice as many people who are willing to participate in the study. Supervisor ratings require fewer people, but we have chosen to exclude this opportunity since the company has only a few regional managers and this method would involve a large workload for each regional manager. We avoid specifying the number of managers in this paper to protect the company’s anonymity. Further, it is conceivable that the regional managers do not have enough knowledge of all store managers' innovative performance since they are not located in the same workplace. Other studies have relied on more objective measures to evaluate work-related innovation, such as the number of ideas submitted, patents, or technical papers (Oldham & Cummings, 1996; Scott & Bruce, 1994; Tierney, Farmer & Graen, 1999). Unfortunately, we have not found any objective criteria that are relevant to this research project. It is challenging

to find multi-dimensional indicators of IWB that are reported for 100 different stores and first and foremost as a result of the store managers' individual efforts.

Data Collection Instrument

The data collection instrument in this research project is a questionnaire, and Table 9 provides an overview of its five sections and the number of questions.

Table 9: Questionnaire Overview

Section Number	Section Title	Number of Questions
Section 1	**Information Sheet**	Consent to Participate
Section 2	**Demographic and Socioeconomic Characteristics**	4
Section 3	**Innovative Work Behaviour** • Opportunity Exploration • Idea Generation • Idea Championing • Idea Implementation	 2 3 2 3
Section 4	**Implicit Person Theory** • Implicit Theories of Intelligence • Implicit Theories of Innovation	 11 5
Section 5	**Self-Determination Theory** • Autonomy • Competence • Relatedness	 7 6 8
		Total: 51

As shown in Table 9, the questionnaire in this master thesis (see Appendix 1: Questionnaire, p. 98) consists of five parts. First, the questionnaire begins with an information sheet that describes the study and invites the store managers to participate. The store managers are informed about the purpose of the study, and it is stressed that the survey is anonymous, and participation is voluntary. Furthermore, it is provided various forms of contact information in case the respondents have questions or want to give feedback on the study. The participant information sheet is rounded off with a question regarding the respondents' consent to participate in the study. The store managers have two answer options, “I agree to participate in this study. Start the survey” or “I do not agree to participate in this study. End the survey”. Gratitude for the respondents' time and support is also emphasized.

Second, the investigative instrument in this project contains some fundamental and simple questions. There are several demographic and socioeconomic characteristics that might influence store managers’ tendency to act innovatively, including gender, age, education, and job tenure, and these four factors will be controlled for in this master thesis. Ringdal (2012)

claims that surveys should start with such neutral and harmless questions because an easy start motivates the informant to finish the completion of the form. The variables have different levels (scales) of measurement. Gender and education are studied using a nominal measurement level, whereas age and job tenure are studied using a ratio measurement level. In line with ethical guidelines, the questionnaire is consciously limited to only include personal questions that we believe are particularly relevant to answering the research problem. In addition, the number of response options is not too comprehensive or detailed, as this helps to preserve respondent's anonymity and can prevent dishonest responses. For example, the store managers are classified according to the number of years in current position, and the associated response categories are limited to "Less than 1 year", "1-5 years", 6-10 years", and "above 10 years".

The third part of the questionnaire offers the respondents a short definition of innovation in order to create an understanding of the topic and to avoid misunderstanding. This part also contains questions about the store manager's innovative efforts. De Jong and Den Hartog (2010) developed a multi-dimensional IWB measure based on the work of other researchers (e.g. Janssen, 2000; Kleysen, Street at al., 2001; Scott & Bruce, 1994) consisting of 17 items. Four experts in the field of organizational psychology helped to quality-assure the content and formulation of the items. However, a pilot study with 81 knowledge workers and their supervisors showed that a combination of only 10 of the items were best suited to measure IWB, and these questions are therefore included in our questionnaire to assess opportunity exploration (2 items), idea generation (3 items), idea championing (2 items), and idea implementation (3 items). All 10-items were re-worded so that each statement reflected a first-person claim about the respondent's propensity to innovate, and the response options for each question in the third part of the survey is a five-point rating scale ranging from "never" to "always".

Fourth, the investigative instrument in this project consists of 11 *well tried* and tested mindset measures. Three statements examine what the store managers think about effort, and one of these statements is for example "When something is hard, it just makes me want to work more on it, not less". A few mindset measures are very broad and not so specific, for instance, "Everyone, no matter who they are, can significantly change their basic characteristics". Yet, several of the 11 statements emphasize the intelligence and being smart specifically, including "No matter how much intelligence you have, you can always change it a good deal". As previously mentioned, Dweck (2006) emphasizes that people can have different beliefs about various abilities, such as business skill, social competence and innovative ability. Consistent with Dweck (1996, p. 71), because of "*the domain-specific nature of implicit theories,*

individuals' entity versus incremental theories about different attributes are assessed by separate implicit theory measures". We have included five items to examine store managers beliefs about innovative talent since it is possible that their beliefs about "intelligence" and "innovation skills" differs. Furthermore, the fourth section provides a short definition of the term "innovation skills" to make sure that the items are easy to understand for the respondents and to avoid confusion. The five statements have not been tested or validated by other researchers, but they are based on proven formulations and sentence structure from other studies. In line with Kumar's (1999) recommendations, the statements are phrased to reflect both positive and negative attitudes toward innovative ability. For example, one of the negative statements is "Your innovation skills are something very basic about you that you cannot change very much". The participants' implicit theories are measured using a five-point categorical scale that ranges from "strongly agree" to "strongly disagree".

Finally, the fifth part of the questionnaire addresses needs satisfaction in the respondent's work domain. Autonomy, competence and relatedness are assessed using the Basic Psychological Need Satisfaction Scale (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992). The scale consists of 21 brief items that the store managers respond to on a 7-point Likert-type scale, ranging from "not at all true" to "very true". Seven of the items assesses the satisfaction of the basic need for autonomy, including "I am free to express my ideas and opinions on the job". Six statements like "I do not feel very competent when I am at work" measures competence, and relatedness is measured using eight statements such as "I pretty much keep to myself when I am at work".

We prepared the questionnaire in Qualtrics, which is a software for collecting and analysing data. All the questions were adapted to the Norwegian language to make the questions easier to understand for the respondents. Before the questionnaire was distributed, we received constructive feedback on our investigative instrument from HR in the anonymous company about question formulation and language, in addition to guidance from our supervisor and a mentor from Studieverkstedet at UiS. We took into account all the feedback and attempted to make the questionnaire more understandable to the respondents. Next, HR sent the questionnaire to approximate 100 store managers located in Norway. Unfortunately, it took some time for the IT department to get the software program through the firewall of the company. Once the problem was resolved, HR sent reminder emails to the store managers two times to encourage them to participate in the survey and to prevent forgetfulness.

Table 10 shows an overview of the response rate. 56 store managers ticked the box "I agree to participate in this study. Start the survey" and started to fill out the questionnaire. However, three of them did not end the survey and are therefore listed as responses in progress in the table. As a result, we ended up with a response rate of 53%. Unfortunately, there are some missing values and only 49 of the store managers answered the questionnaire completely. All of them answered the questions about demographic and socioeconomic characteristics, but there are some gaps in the dataset when it comes to IWB, BPNs and IPTs. Surprisingly, none of the store managers ticked the box "I do not agree to participate in this study. End the survey". On one hand, this may indicate that all the store managers who took the time to read the information sheet were encouraged to participate in the survey and thought that their ethical concerns were adequately addressed. On the other hand, it is conceivable that some store managers were not motivated enough to participate and thought it was more comfortable to just overlook the invitation. It is also possible that several managers failed to open the questionnaire in Qualtrics as a result of IT problems and the company's firewall. Despite two reminder emails, some managers may have forgotten the questionnaire or did not want to prioritize it. Yet, we have not been able to detect any strong measurement biases in our data set and this may indicate that our obtained sample does not differ significantly from the rest of the population.

Table 10: Response Rate Overview

	Number	**Percent**
Response Rate	53	53%
Responses in Progress	3	3%
Actively Declined the Request to Participate	0	-
Passively Declined the Request to Participate	44	44%
Total	100	100 %

3.5 Data Analysis

To answer our research questions, we started the data analysis process by firstly coding our data correctly using both Stata 14.2 and IBM SPSS Statistics 25 software. We can distinguish between three main types of attitudinal scales, including the Likert scale, Thurston scale and Guttman scale. The questionnaire in this master thesis is based on the Likert scale, which is also called the summated rating scale (Kumar, 1999). Kumar (1999, p. 129) explains that the Likert scale is "*based upon the assumption that each statement/item on the scale has equal "attitudinal value", "importance" or "weight" in term of reflecting an attitude towards the issues in question*". For example, it is assumed that all the eleven items measuring IPT of intelligence

are just as decisive to whether the respondents lean towards a growth versus fixed mindset. However, the items rarely have equal attitudinal value in reality and this assumption in the key limitation of the Likert scale used in this thesis (Kumar, 1999).

In the questionnaire, statement number 41(R) is, for example, a reversed statement measuring the respondents' level of autonomy, "When I am at work, I have to do what I am told". The answer options range from 1 (not at all true) to 7 (very true). The most positive attitude on statement number 41(R) is "not at all true", and store managers' who chose this answer options are given the highest score, 7 (8-1=7). In contrast, the least positive attitude on this item is "very true", and respondents' who chose this answer option is given the lowest score, 1 (8-7=1). The other reversed items (R) in Table 11 is coded in Stata and IBM SPSS Statistics following exactly the same scoring system. Similarly, we code the negative items (N) measuring IPTs following almost the same procedure, but since these questions have fewer response options, we use number 6 is used instead of 8 to obtain the correct value. As a result, this system ensures that both positive and negative/reversed statements code favourable attitudes with high values, whereas less favourable attitudes are coded with lower values. Finally, each store manager's attitudinal score can be calculated by adding all numerical values. For instance, the sum of statement 31, 35(R), 38, 41(R), 43, 47, 50(R) gives an attitudinal score of autonomy.

Table 11: Positive and Negative/Reversed Questions

Theoretical Framework	**Question Number**
Gender, Age, Educational Level and Job Tenure	1, 2, 3, 4
Innovative Work Behaviour	5, 6, 7, 8, 9, 10, 11, 12, 13, 14
Implicit Theories of Intelligence	15(N), 16, 17(N), 18(N), 19, 20(N), 21, 22(N), 23, 24, 25(N)
Implicit Theories of Innovation	26, 27(N), 28(N), 29, 30(N)
Autonomy	31, 35(R), 38, 41(R), 43, 47, 50(R)
Competence	33(R), 34, 40, 42, 44(R), 49(R)
Relatedness	32, 36, 37(R), 39, 45, 46(R), 48(R), 51

After our data was coded correctly in Stata and IBM SPSS Statistics, we assured us that there were no obvious errors or outliers in the dataset. Then, we used simple univariate analysis for analyzing single variables, such as IWB. For example, some of our descriptive statistics include mean, median, percentage, frequency and range. The univariate analysis was used to summarize the data and discover individual patterns in the data set. In addition, we provide standard deviations to indicate the amount of variation among our variables. Next, in order to answer our research questions, we examined IWB more extensively in an Exploratory Factor Analysis

(EFA) to investigate different dimensions of the concept. Additionally, we conducted some inferential analysis to study the relationships between multiple variables. First, we used Spearman's correlations and Pearson's correlations to describe the relationship between two variables. These analyzes are limited to two variables and therefore fall under the category of bivariate analyzes (Ringdal, 2018; Gripsrud, Olsson & Silkoset, 2004).

Afterwards, in order to answer our research problem, inferential statistics were also used to predict the relationship between two variables. To test our hypotheses (Table 12), we conducted numerous hierarchical regressions utilizing Stata 14.2. Specifically, based on our EFA, we distinguished between three dependent variables, including ideation, implementation and IWB (see section 4.2 for details). For each dependent variable, we conducted five hierarchical multilevel regressions. Some statistical parameters were tested to find out whether or not the regression analysis satisfy and are within the required limits. For example, the regression models were checked to see whether or not there was multicollinearity present. By checking the values of the variable inflation factor of the five models revealed that they were all within the acceptable limits. The highest value was 1.94 which is far below the upper limit of 10 that is suggested (Babin, Anderson, Black, & Hair Jr., 2014). Our first regression model tested the relations between demographics and socioeconomic characteristics (gender, age, educational level and job tenure) and the dependent variables. The second tested the dependent variables relationship with BPNs (autonomy, competence and relatedness). The third regression tested their relation to IPTs (intelligence and innovation). The fourth regression included six independent variables, and these were BPNs and IPTs SDT. Finally, the last model tested the relations including all the potential predictors of ideation, implementation and IWB.

Table 12: Overview of Hypotheses

Hypothesis Number	**Hypothesis Name**
1	Younger store managers show more IWB than older store managers.
2	Male store managers show more IWB than female store managers.
3	Highly educated store managers show more IWB than store managers without such education.
4	Store managers with short job tenure show more IWB than store managers with long job tenure.
5	Job autonomy is positively related to store managers' IWB.
6	Competence is positively related to store managers' IWB.

7	Relatedness is positively related to store managers' IWB.
8	Incremental theory of intelligence is positively related to store managers' IWB, whereas entity theory of intelligence is negatively related.
9	Incremental theory of innovation is positively related to store managers' IWB, whereas entity theory of innovation is negatively related.

3.6 Reliability and Validity

The assessment of a measurement instrument depends on two important elements, reliability and validity. Reliability explores the capacity to measure consistently and reveals whether repeated studies with the same instrument give similar results (Tavakol & Dennick, 2011). Put differently, reliability can be defined *as "the degree to which measures are free from error and therefore yield consistent results*" (Peter, 1979, p. 6). Cronbach's coefficient alpha (α) is the prevailing measure of scale reliability. It is an estimator of internal consistency and is expressed as a number ranging from 0 to 1 (Peterson, 1994).

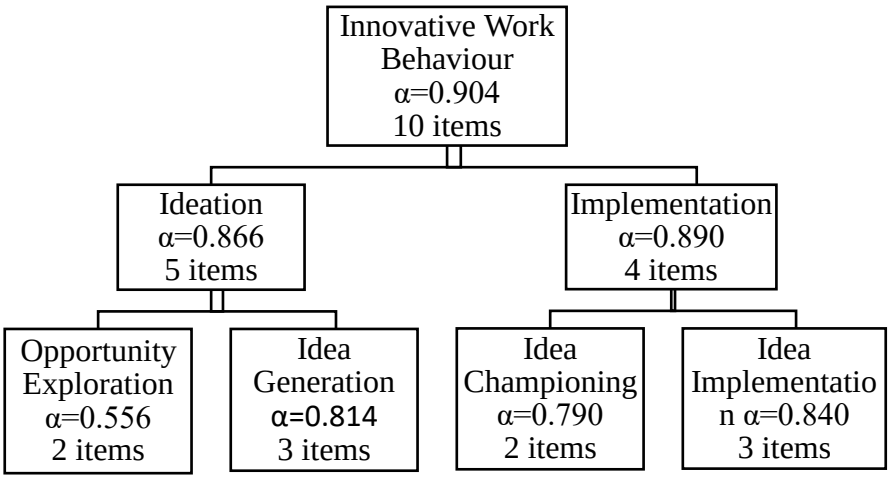
Many researchers have found satisfactory Cronbach's alpha coefficients for BPNs. For example, Gagne (2003) reported $\alpha = 0.69$ for autonomy, $\alpha = 0.83$ for competence and $\alpha =$ for relatedness in her study. However, in our research project, we did not get any satisfactory coefficients ($\alpha<0.7$) by including all items associated with BPNs. According to Field (2018), all statements should correlate highly with the total score in reliable scales. Items with correlations below 0.3 may indicate that there is a problem with the scale and these items should possibly be dropped. After further investigation of our data, it turned out that some items had too low correlations with the total score. Therefore, we decided to drop some of these items, such as Q41(R), Q33(R), Q46(R), Q37(R) and Q39. Despite a slightly low correlation, Q47 was chosen to be retained because any omission would affect the Cronbach's alpha coefficient for autonomy negatively. As a result, the Cronbach's alpha coefficients for autonomy ($\alpha = 0.669$), competence ($\alpha = 0.702$) and relatedness ($\alpha = 0.756$) were significantly improved. Likewise, we chose to drop Q23(R), which is associated with IPT of intelligence, because of the statement's low correlation with the total score ($r = 0.093$). No researcher has previously used our composition of IPT statements, so we cannot compare the Cronbach's alpha coefficients of IPTs with other studies.

Table 13 demonstrates an overview of relevant Cronbach's alpha coefficients in this study. Note that the original coefficients, before low correlations were taken into account, are reported in brackets. The variable innovative work behaviour includes all 10 items (2+3+2+3). Ideation

includes five items primarily associated with opportunity exploration and idea generation, whereas implementation includes four items associated with idea championing and idea implementation. Originally, our investigative instrument included five questions related to implementation activities, but we decided to drop one of them as a result of exploratory factor analysis (see section 4.2 for details). All variables, except autonomy and opportunity exploration, have satisfactory Cronbach's alpha coefficients ($\alpha < 0.7$), as shown in Table 13. In contrast, in the study of De Jong and Den Hartog (2010), all four dimensions of IWB met the common threshold for reliability.

Table 13: Cronbach's Alpha

Variable	**Cronbach's Alpha**	**Number of Items**
Basic Psychological Needs		
• Autonomy	0.669 (0.663)	6 (7)
• Competence	0.702 (0.648)	5 (6)
• Relatedness	0.756 (0.605)	5 (8)
Implicit Person Theory		
• Implicit Theory of Intelligence	0.832 (0.811)	10 (11)
• Implicit Theory of Innovation	0.743	5



Reliability is an essential but not sufficient condition for validity. Conceptually, "*validity refers to the degree to which instruments truly measure the constructs which they are intended to measure*" (Peter, 1979, p. 6). Random errors affect reliability, whereas systematic errors affect the validity of the data. Valid measurements must be both trustworthy and accurate (Ringdal, 2018). There are many different types of validity and it is difficult to evaluate them. Admittedly, there is a common distinction between internal and external validity. Internal validity is concerned with the quality of causality in experiments. However, using a descriptive research design, internal validity is not relevant in this study, as we have no ground to claim cause-and-

effect relationships. External validity is concerned with whether the results of the study can be generalized to similar situations. Our study might indicate some typical relationships which are likely to be valid for store managers in other clothing companies as well, yet the intention of this thesis is not to generalize the result beyond our sample, as we strive to find distinctive patterns within our study's population (Gripsrud, Olsson, & Silkoset, 2004).

In this thesis, we have made some conscious choices in the hope of strengthening the validity of our study. Firstly, we have chosen to primarily base our questionnaire on prior research in order to reduce systematic errors. Although the statements about IPT of innovation are new and are our contribution to a new research domain, they still build on well-tried and proven formulations (Dweck, 2006). Secondly, we alternate between positive and negative items in our questionnaire. Often respondents tend to simply confirm positive statements and not necessarily reflect on the meaning of the sentence, but we have tried to eliminate this tendency by including reversed statements that force the respondents to concentrate and actually take a stand on the matter (Ringdal, 2018). Another source of systematic risk is that respondents may try to answer the questionnaire in line with what they perceive as socially acceptable. For example, it may be conceivable that respondents who show low innovative efforts fear being identified by the management of the company and fear that it will have negative consequences. We have tried to mitigate this risk by clarifying and emphasizing that the managers' information is treated confidentially and that they are anonymous in this master's thesis.

3.7 Ethics

Ethics address norms for correct and proper behaviour, and ethics give people guidance and help in making good assessments in the face of challenging decisions (Dalland, 2017). Babbie (2010, p. 64) explains that ethical can be defined as "*conforming to the standards of conduct of a given profession or group*". Put differently, the consensus among members of a group is crucial to what is considered as ethics and morality on a daily basis. In a research context, different professions relate to different ethical concerns, and in this master thesis, we are naturally most concerned with what ethical principles dominate in research regarding social science (Ringdal, 2018).

No Harm to the Participants

Ethical guidelines emphasize that social research should not harm the people being studied. Kumar (1999) note that some studies cause harm to the participants in the form of anxiety, embarrassment, harassment, discomfort, or invasion of privacy, and researchers should

minimize the risk of this. Compared to non-sensitive personal data, sensitive personal data is more likely to cause unwanted damage. Sensitive personal data include information about health, religious or philosophical beliefs, racial or ethnic origin, political opinions, trade-union membership, health, sexual orientation, and the like. In order to process sensitive personal data, permission is required from Data Inspectorate (Datatilsynet), but research projects are exempt from the license requirement if the project is approved by a privacy officer (Ringdal, 2018). This master thesis has been approved by NSD and does not contain any of the sensitive information mentioned above, so it is not necessary to contact Data Inspectorate. Yet, Ringdal (2018) points out that what is considered sensitive information may vary among people. It is possible that some research subjects find it uncomfortable to answer the eight questions about relatedness in the questionnaire, especially if the basic psychological need is not satisfied, and in severe cases, it can be a sign of ostracism and bullying. Furthermore, the questions about competence and associated answers can indicate that one or more store managers might not be suitable and skilled enough for their job, and such information can cause concern for the respondent. On one hand, a low score on relatedness and competence may imply that the company should implement measures such as team building or more in-depth training. On the other hand, it may simply reflect that the person is newly employed. It is not possible to identify the responses of individual subjects in this paper, and we believe that the risk of damaging respondents beyond the harm they possibly already experience in daily life is minimal.

All the universities in Norway use the Norwegian Centre for Research Data (NSD) as their Data Protection Officer. It is required by law to report research projects to NSD when processing personal data, and this is the case for this master thesis (Dalland, 2017). We took a test on the NSD's website that confirmed that our thesis should be reported. Therefore, we had to notify NSD about our project by filling out a Notification Form, and we received the following feedback a few days later:

> After reviewing the information in the Notification Form with attachments, we consider that the project has a low level of privacy protection disadvantage because it does not process specific categories or personal information about criminal convictions and offences or includes vulnerable groups. The project is of reasonable duration and is based on consent. We, therefore, give the project a simplified assessment with terms (excerpt from Appendix 2, p. 105).

In line with the feedback from NSD (Appendix 2), we have updated the information letter in our questionnaire, as well as fulfilled the remaining conditions so that the research project is approved and meets ethical guidelines.

Voluntary Participation and Consent

The concept of informed consent highlights the ethical requirements of no harm to respondents and voluntary participation. Informed consent is a process where the research subjects are informed about all aspects of the research project and afterwards are requested to voluntarily confirm their willingness to participate (Nijhawan, et al., 2013). In this master thesis, we have ensured that participants are provided with enough information about our research project by following NSD's guidelines. The participant information sheet, the first section of the questionnaire, emphasizes that it is voluntary for the store managers to participate in the study, in addition, to inform the sample about the purpose and expected duration of the study, various contact information, and so forth. The consent we gain from the respondents is explicit, voluntary and informed. We will only process personal data from respondents who chose to check the box "I agree to participate in this study. Start the survey".

Confidentiality and Anonymity

Confidentiality and anonymity are important ethical considerations in this study. This master thesis guarantees the store managers and company confidentiality, and this implies that individual responses are not made public and unauthorized persons do not have access to this information (Babbie, 2010). According to Babbie (2010, p. 67), "*anonymity is achieved in a research project when neither the researcher nor the readers of the findings can identify a given response with a given respondent*". In this project, we have tried to anonymize the respondents completely and limited the scope of personal data. Dalland (2017) explains that personal data is information that can be linked to individuals. We have excluded questions in the questionnaire which we consider superfluous to answer the research problem, and this includes questions that reveal directly identifiable personal data such as names and personal identification numbers. Moreover, we have avoided using a scrambling key and we are not able to trace respondents e-mail or IP address when they answer the online survey. We used the setting for anonymizing responses in Qualtrics and this means that we ticked the box "*Do NOT record any personal information and remove contact association".*

However, we believe it is possible to indirectly identify a few research subjects through a combination of background information if you have access to the entire data material, notably if you have knowledge of all the 100 store managers. For instance, we assume that there are

only a few or no male store managers over the age of 50 who have less than one year's experience and that this imaginary combination would then cause the respondent to stand out from the rest of the population. One of the research questions in this paper is: Who are the Store Managers (gender, age, educational level, job tenure) of an Anonymous Clothing Company in Norway? In order to maintain the anonymity of the store managers who have answered the questionnaire, we will therefore not present the answers to this question using revealing cross tables where we, for example, combine age and gender. For the same reason, we have also chosen to use wide intervals when it comes to age and reporting and analysis of data are only done at a group or aggregate level. Further, we have also taken other precautions to try to maintain confidentiality and anonymity. We have chosen to keep the case (or company) in this master thesis anonymous, mainly because the country HR wanted this to protect the employees. Also, we do not specify the exact number of store managers in Norway but choose instead to state that it is approximately 100.

4 Results and Analysis

In this chapter, we will present our results and analysis in order to answer our research problem, "What is the Relationship between Store Managers' Characteristics and Innovative Work Behaviour?" We will examine the research problem by investigating five research questions and nine hypotheses (see Table 12).

4.1 Research Question 1

The first research question in this research project is:

- *Who are the Store Managers (gender, age, educational level, job tenure) of an Anonymous Clothing Company in Norway?*

Data for this survey were collected from store managers of clothing stores who work for an anonymous company all around Norway. We received 53 answers from store managers out of 100, which entails a respondent rate of 53%. According to our hypothesis, demographic characteristics data plays an important role in measuring IWB. Here, Table 14 represents the number and percentage of the store manager's gender. The survey is answered by 4 male and 49 female store managers. Put differently, 92.5% of respondents are female while 7.5% are male.

Table 14: Frequency Distribution of Gender

		Frequency	Percent
Gender	**Male**	4	7.5 %
	Female	49	92,5 %
Total		53	100 %

Age distribution of store managers is gathered in 4 categories. Table 15 illustrates the number and percentage of store manager's age. It can be seen that the majority of respondents of the store managers are in the group of 31-40 and 41-50 years. Almost half of the store managers are between 31 and 40 years and around 30% of the store managers are between 41 and 50 years. The least percentage of store managers are in above 50 years of the group with 4 frequency which is equal to 7.5% of all population.

Table 15: Frequency Distribution of Age

		Frequency	Percent
Age	**18-30 years**	9	17 %
	31-40 years	25	47,2 %
	41-50 years	15	28,3 %
	Above 50 years	4	7,5 %
Total		53	100 %

The store managers' level of education is divided into three different groups. As it can be observed in Table 16, the majority of store managers are high school graduated by 54.7% and followed by higher education graduated (bachelor, master etc.) by 39,6%. Lastly, the lowest percentage respondent is obtained from the store managers who are graduated from primary and lower secondary school by 5.7% which is equal to 3 respondents.

Table 16: Frequency Distribution of Educational Level

		Frequency	Percent
Educational Level	**Primary and lower secondary school**	3	5,7 %
	High school	29	54,7 %
	Higher education	21	39,6 %
Total		53	100 %

Finally, the job tenure distribution of store managers is categorized into four groups. Table 17 indicates the frequencies and percentages of job tenure of the 53 store managers. The store managers who have more than 10 years job tenure are the majority in the group with 32.1% and followed by store managers who have between 1 and 5 years by 26.4%. Lastly, both the rate of store managers who have under 1 year and between 1-6 years' experience are the same with 20.8%.

Table 17: Frequency Distribution of Tenure

		Frequency	Percent
Tenure	**Under 1 year**	11	20,8 %
	1-5 years	14	26,4 %
	6-10 years	11	20,8 %
	Above 10 years	17	32,1 %
Total		53	100 %

Additionally, Appendix 3 (see p. 108) presents some descriptive statistics of the demographic and socioeconomic variables.

4.2 Research Question 2

The second research question in this research project is:

- *What is the Level of Store Managers' IWB?*

In order to investigate this research question, we first conducted a principal axis factor analysis (FA) on the 10 items associated with IWB using oblique rotation (direct oblimin). We chose this method of factor rotation since we expect that the four dimensions of IWB correlate with each other. The sampling adequacy for conducting factor analysis was verified, as the Kaiser-Meyer Olkin statistics is 0.815. Following Kaiser and Rice (1974), the KMO measure is above

the minimum criterion of 0.5 and is considered to be «meritorious». In addition, all individual items have KMO values which are higher than the acceptable limit of 0.5 (Kaiser & Rice, 1974). Further, Bartlett's test of sphericity was significant ($p < 0.001$), and this indicates that factor analysis may be useful with our data (Field, 2018).

We did an initial analysis to obtain eigenvalues for each factor in the data. Two factors had eigenvalues over Kaiser's criterion of 1 and they accounted for 67.32% of the variance in combination (see 63

Appendix 3: Descriptive Statistics of Demographic and Socioeconomic Variables

Table 35: Descriptive Statistics of Gender

		Gender	
		Male	**Female**
Overall IWB Average	**Mean**	4,375	3,906
	Std. Dev.	,31	,570
	Min (1)	4,10	2,50
	Max (5)	4,80	5,00
Total (n=51)		4	47
Missing Values		-	2

Table 36: Descriptive Statistics of Age

		Age			
		18-30 years	**31-40 years**	**41-50 years**	**Over 50 years**
Overall IWB Average	**Mean**	4,125	3,916	3,879	3,975
	Std. Dev.	,632	,537	,673	.206
	Min (1)	3,10	2,5	3,00	3,70
	Max (5)	4,90	4,70	5,00	4,20
Total (n=51)		8	25	14	4
Missing Values		1	-	1	-

Table 37: Descriptive Statistics of Educational Level

		Educational Level		
		Primary and lower secondary school	**High school**	**Higher education**
Overall IWB Average	**Mean**	4,1	3,96	3,9
	Std. Dev.	,265	,557	,622
	Min (1)	3,9	2,9	2,5
	Max (5)	4,4	5	4,9
Total (n=51)		3	27	21
Missing Values		-	2	-

Table 38: Descriptive Statistics of Tenure

		Tenure			
		Under 1 year	**1-5 years**	**6-10 years**	**Above 10 years**
Overall IWB Average	**Mean**	3,47	4,069	4,091	4,029
	Std. Dev.	,447	,625	,635	,413
	Min (1)	3	2,9	2,5	3,3
	Max (5)	4,2	4,9	4,8	5
Total (n=51)		10	13	11	17
Missing Values		1	1	-	-

Appendix 4: Exploratory Factor Analysis, p. 108 for more details).The factor loadings after rotation are demonstrated in Table 18. There are several items that cluster on the same factor, and it is conceivable to label Factor 1 "Ideation" and Factor 2 "Implementation". In line with recommendation, we have chosen to drop item number 5, as the factor loading is below 0.4 (Field, 2018). Field (2018, p. 811) claims that Kaiser's rule is "*accurate when there are less than 30 variables and communalities after extraction is greater than 0.7*". However, only three out of ten items had communalities (i.e. the proportion of common variance within a variable) which were higher than 0.7 after extraction, and this proposes that the Kaiser's criterion is possibly inappropriate for our data. An alternative to the eigenvalues is to use the scree plot (Field, 2018). The scree plot (see Figure 7, p. 110 in Appendix) was ambiguous and showed inflexions that would justify retaining only one factor. Due to lack of convergence between the Kaiser's criterion and the scree plot for our data, we have decided to do some analysis with both one factor (IWB) and two factors (ideation and implementation). This gives us the opportunity to compare our findings among different dependent variables. Likewise, other studies are both based on both one-factor (De Jong & Den Hartog, 2010; Janssen, 2000) and two-factor models (Dorenbosch et. al., 2005; Krause, 2004). The one-factor (IWB) model includes all four IWB dimensions, and these are opportunity exploration, idea generation, idea championing and idea implementation. The two-factor (ideation and implementation) model uses the items on opportunity exploration and idea generation to form the first factor, whereas the items on idea championing and idea implementation form the second factor.

Table 18: Summary of Exploratory Factor Analysis of IWB (N=51)

		Rotated Factor Loadings	
Question Number	**Item**	**Factor 1 ("Ideation")**	**Factor 2 ("Implementation")**
5	I pay attention to issues that are no part of my daily work.	0.31	0.27
6	I wonder how things can be improved.	**0.81**	-0.12
7	I search out new working methods, techniques or instruments.	**0.98**	-0.08

8	I generate original solutions for problems.	**0.47**	0.23
9	I find new approaches to execute tasks.	**0.64**	0,20
10	I make important organizational members enthusiastic for innovative ideas.	0.14	**0.68**
11	I attempt to convince people to support an innovative idea.	-0.11	**0.90**
12	I systematically introduce innovative ideas into work practices.	0.01	**0.86**
13	I contribute to the implementation of new ideas.	0.08	**0.78**
14	I put effort in the development of new things.	**0.54**	0.35
Eigenvalues		1.3	5.43
Explained Variance		13%	54.32%
Cronbach's Alpha (of bold items)		0.866	0.890

Note: Factor loadings over 0.40 appear in bold.

Table 19 shows the correlations between three different dependent variables, including ideation, implementation and IWB. IWB correlates strongly with both factors that were identified in the EFA, and there is also a high positive correlation between ideation and implementation.

Table 19: Pearson's Correlations between Dependent Variables

		Ideation	**Implementation**	**IWB**
Ideation	Pearson's r Sig. (2-tailed) N	1 . 52		
Implementation	Pearson's r Sig. (2-tailed) N	,618** ,000 51	1 . 51	
IWB	Pearson's r Sig. (2-tailed) N	,899** ,000 51	,887** ,000 51	1 . 51

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 20 shows descriptive statistics of ideation, implementation and IWB. It can be said that the store managers' innovative efforts are relatively high since the mean values are close to 4. The potential minimum value is 1, while the highest is 5.

Table 20: Descriptive Statistics of Ideation, Implementation and IWB

	Ideation	**Implementation**	**Innovative Work Behaviour**
Mean	3,95	3,897	3,943

Median	4	4	4
Standard Deviation (Std. Dev.)	,594	,711	,567
Minimum (1)	2,2	2	2,50
Maximum (5)	5	5	5
Valid N (listwise)	52	51	51
Missing Values	1	2	2

IWB are categorized into five groups, ranging from very low to very high level of innovative effort. It can be seen from Table 21 that around 80% of store managers' efforts are greater than medium. More specifically, 52.8% is high and 26.4% is very high. There are no store managers who possess a very low level and only 1.9% have a low level of IWB.

Table 21: Frequency Distribution of IWB

		Score	Frequency	Percent
Overall IWB Score (Sum)	**Very low**	10-18	0	-
	Low	19-26	1	1,9%
	Medium	27-34	8	15,1%
	High	35-42	28	52,8%
	Very high	43-50	14	26,4%
Total			51	96,2%
Missing Values			2	3,8%

Ideation is the first half of IWB. Table 22 indicates that the majority of the store managers have a medium, high or very high rate of ideation. 24 of the respondents fit into the high-level group, whereas only one person fit into the low-level group.

Table 22: Frequency Distribution of Ideation

		Score	Frequency	Percent
Ideation Score (Sum)	**Very low**	5-9	0	-
	Low	10-13	1	1,9%
	Medium	14-17	11	20,8%
	High	18-21	24	45,3%
	Very high	22-25	16	30,2%
Total			52	98,1%
Missing Values			1	1,9%

Implementation is the last half of IWB. Table 23 illustrates that 30.2% of the respondents show a medium level, 35.8% shows a high level and 26.4% show a very high level of implementation. Only 3.8% belong to the low-level group.

Table 23: Frequency Distribution of Implementation

		Score	Frequency	Percent
	Very low	4-7	0	-

Implementation Score (Sum)	**Low**	8-11	2	3,8%
	Medium	12-14	16	30,2%
	High	15-17	19	35,8%
	Very high	18-20	14	26,4%
Total			51	96,2%
Missing Values			2	3,8%

4.3 Research Question 3, 4 and 5

The third, fourth and fifth research question in this research project are, respectively:

- *What is the Relationship between Demographic and Socioeconomic Characteristics (gender, age, educational level, job tenure) and IWB?*
- *What is the Relationship between BPNT (autonomy, competence, relatedness) and IWB?*
- *What is the Relationship between IPTs (IQ, innovation skills) and IWB?*

Table 24 shows some descriptive statistics of BPNs. It can be argued that the store managers have on average a high level of satisfaction of the basic need for relatedness since the average value is 6.1. The average value for autonomy is 5.18 and 5.79 for competence, which is also relatively high values considering that the potential maximum value is 7.

Table 24: Descriptive Statistics of BPNs

	Basic Psychological Needs		
	Autonomy	**Competence**	**Relatedness**
Mean	5,18	5,79	6,1
Median	5,33	5,9	6,2
Std. Dev.	,95	,83	,83
Minimum (1)	2,50	3,8	4
Maximum (7)	7	7	7
Valid N (listwise)	50	50	50
Missing Values	3	3	3

Table 25 shows some descriptive statistics of IPTs. The mean value for IPT of intelligence is 3.82 and 3.89 for IPT of innovation, which is very similar values.

Table 25: Descriptive Statistics of IPTs

	Implicit Person Theory	
	Intelligence	**Innovation**
Mean	3,82	3,89
Median	3,9	4
Standard Deviation	,73	,70
Minimum (1)	2,50	2,6
Maximum (5)	4,9	5
Valid N (listwise)	51	51

Missing Values	2	2

Table 26 indicates the frequency distribution of the IPT of intelligence. Only 9.4% of the respondents seem to possess a fixed mindset, whereas 86.8% are inclined towards a growth mindset.

Table 26: Frequency Distribution of IPT of Intelligence

		Score	Frequency	Percent
Implicit Person Theory of Intelligence	**Strong Fixed Mindset**	10-20	0	-
	Fixed Mindset with some Growth ideas	21-30	5	9,4%
	Growth Mindset with some Fixed ideas	31-40	24	45,3%
	Strong Growth Mindset	41-50	22	41,5%
Total			51	96,2%
Missing Values			2	3,8%

Table 27 indicates the frequency distribution of the IPT of intelligence. 20.8% of the store managers seem to hold a fixed mindset, whereas 75.4% are inclined towards a growth mindset.

Table 27: Frequency Distribution of IPT of Innovation

		Score	Frequency	Percent
Implicit Person Theory of Innovation	**Strong Fixed Mindset**	5-10	0	-
	Fixed Mindset with some Growth ideas	11-15	11	20,8%
	Growth Mindset with some Fixed ideas	16-20	21	39,6%
	Strong Growth Mindset	21-25	19	35,8%
Total			51	96,2%
Missing Values			2	3,8%

In Appendix 5 (p. 113), we have included the Pearson's correlations between IPT measures in two different tables. Table 44 presents a correlation matrix of our IPT of intelligence measures, whereas Table 45 presents a correlation matrix of our IPT of innovation measures. Note that item Q23(N) is included in the IPT of intelligence matrix, although it is excluded from the rest of the analysis for the sake of reliability (see section 3.6 for details). As expected, only positive correlations are statistically significant, and these relationships vary from weak to strong (Field, 2018).

Table 28 demonstrates Spearman's correlations between all the independent variables. Apparently, most statistically significant correlations are understandable and can be explained.

For example, it is reasonable that longer-tenured store managers are older than shorter-tenured store managers. The significant correlation coefficients range from having a low ($r_s > 0.1$) to large ($r_s > 0.5$) effect (Field, 2018). Admittedly, only the relationship between autonomy and relatedness can be considered strong ($r_s = 0.537$).

Table 28: Spearman's Correlations between Independent Variables

		1	2	3	4	5	6	7	8	9
1 Gender (1: male, 2: female)	Correlation Sig. (2-tailed) N	1 . 53								
2 Age	Correlation Sig. (2-tailed) N	,271* ,050 53	1 . 53							
3 Educational Level	Correlation Sig. (2-tailed) N	,011 ,940 53	-,205 ,141 52	1 . 53						
4 Job Tenure	Correlation Sig. (2-tailed) N	,165 ,239 53	,306* ,026 53	-,311* ,023 53	1 . 53					
5 Autonomy	Correlation Sig. (2-tailed) N	-,143 ,321 50	,031 ,831 50	-,100 ,489 50	,182 ,205 50	1 . 50				
6 Competence	Correlation Sig. (2-tailed) N	,051 ,724 50	,353* ,012 50	-,228 ,111 50	,405** ,004 50	,351* ,012 50	1 . 50			
7 Relatedness	Correlation Sig. (2-tailed) N	,142 ,327 50	,195 ,175 50	-,182 ,206 50	,318* ,024 50	,537** ,000 50	,400** ,004 50	1 . 50		
8 IPT IQ	Correlation Sig. (2-tailed) N	-,114 ,425 51	-,207 ,144 51	-,149 ,298 51	,290* ,039 51	,343* ,015 50	-,018 ,900 50	,086 ,551 50	1 . 51	
9 IPT Innovation	Correlation Sig. (2-tailed) N	-,173 ,226 51	-,062 ,668 51	-,267 ,058 51	,451** ,001 51	,312* ,028 50	,393** ,005 50	,237 ,098 50	,491** ,000 51	1 . 51

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

We have tested several multilevel regressions and obtained several correlation coefficients to test our proposed hypotheses. Due to lack of measurement of control variables at interval/ratio level, Spearman's rank correlation coefficient was used in order to examine the correlation between the variables, and we base our hypothesis testing on these correlations for some variables (Field, 2018). However, we have also included Pearson's correlation coefficients in Table 30. Gripsrud, Olsson and Silkoset (2004) emphasize that the strict requirement for interval/ratio level data is not always followed, and highlight that Pearson's correlations are likely to work well for data at the ordinal level which has the same distance between the individual scale points in the questionnaire. In our thesis, it is reasonable to assume that this is the case for BPNs and IPTs, but that the demographic and socioeconomic variables to a lesser extent meet this criterion. The measurement of BPNs and IPTs uses the Likert scale, and the indexes are based on many questions with up to seven answer alternatives. In contrast, the

demographic and socioeconomic variables are measured with single questions and very few answer options (Gripsrud, Olsson & Silkoset, 2004). The correlation coefficients are interpreted as small when the coefficient is higher than .1, medium when the coefficient is higher than .3, and large when the correlation coefficient is .5 or higher (Field, 2018).

Table 29 shows Spearman's correlations between independent and dependent variables. These correlations are commented in more detail in the hypothesis testing section below.

Table 29: Spearman's Correlations between Independent and Dependent Variables

	Ideation	**Implementation**	**Innovative Work Behaviour**
Gender	-,283*	-,137	-,246
Age	-,108	-,094	-,114
Educational Level	-,091	-,030	-,034
Job Tenure	,196	,308*	,252
Autonomy	,107	,128	,105
Competence	,053	,137	,090
Relatedness	,052	,237	,138
IPT of Intelligence	,345*	,223	,270
IPT of Innovation	,334*	,409**	,393**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 30 shows Pearson's correlations between independent and dependent variables. Relative to the Spearman's correlations in Table 29, this table suggests a higher amount of statistically significant relationships and the increased number of grey squares highlights this. For example, one of Pearson's coefficients regarding competence are now statistically significant, as well as two correlation coefficients regarding relatedness.

Table 30: Pearson's Correlations between Independent and Dependent Variables

	Ideation	**Implementation**	**Innovative Work Behaviour**
Gender	-,270	-,146	-,224
Age	-,093	-,087	-,090
Educational Level	-,117	-,031	-,082
Job Tenure	,203	,330*	,288*
Autonomy	,203	,250	,239
Competence	,213	,300*	,266
Relatedness	,220	,352*	,315*

IPT of Intelligence	,395**	,230	,332*
IPT of Innovation	,360*	,410**	,412**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

For every dependent variable, we have conducted five different hierarchical multilevel regression models, and the Stata output is provided in Appendix 6: Stata Output (p. 115). Table 31 investigates potential predictors of ideation activities.

Table 31: Hierarchical Multilevel Regression of Ideation

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Parameters:					
Gender	-0.43 (0.27)				-0.44 (0.28)
Age	-0.11 (0.11)				-0.03 (0.12)
Educational Level	-0.05 (0.15)				0.07 (0.15)
Job Tenure	0.15* (0.08)				0.03 (0.09)
Autonomy		0.06 (0.11)		-0.03 (0.11)	-0.07 (0.11)
Competence		0.08 (0.13)		0.09 (0.13)	0.09 (0.14)
Relatedness		0.1 (0.13)		0.09 (0.12)	0.16 (0.14)
Implicit Theory of Intelligence			0.24* (0.12)	0.28 (0.13)	0.29 (0.14)
Implicit Theory of Innovation			0.19 (0.13)	0.15 (0.15)	0.11 (0.16)
Model Fit:					
R-squared	0.12	0.07	0.19	0.24	0.29
Adjusted R-squared	0.05	0.01	0.16	0.15	0.13
N	52	49	50	49	49
Significance	-	-	***	**	*

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors reported in brackets.

Table 31 illustrates that neither Model 1 nor Model 2 are statistically significant. These models R^2 and adjusted R^2 levels are pretty low. However, Model 3, 4 and 5 are significant and the associated adjusted R^2 levels are much higher. For example, the adjusted R^2 levels in Model 3 tells us that 16% of the variation in the y-variable is explained by the x-variables. Among the three significant models, only two independent variables, job tenure and IPT of Intelligence, are statistically significant.

In Table 32, a five-model hierarchical multilevel regression is created to check the relationship between the nine independent variables and implementation activities. Implementation is used as the dependent variable in all five models. It can be seen that all models except Model 2 is significant at five percent and Model 2 is barely significant at 10 percent. Model 5 seems to be the best-fitted model with 35% R^2 and 20% adjusted R^2. Among these models, job tenure and IPT of innovation are significant independent variables.

Table 32: Hierarchical Multilevel Regression of Implementation

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Parameters:					
Gender	-0.46 (0.31)				-0.46 (0.31)
Age	-0.16 (0.12)				-0.20 (0.14)
Educational Level	0.11 (0.17)				0.17 (0.17)
Job Tenure	0.29*** (0.09)				0.15 (0.1)
Autonomy		0.05 (0.12)		0.00 (0.12)	-0.02 (0.12)
Competence		0.13 (0.14)		0.06 (0.15)	0.1 (0.16)
Relatedness		0.23 (0.15)		0.22 (0.14)	0.29 (0.15)
Implicit Theory of Intelligence			0.05 (0.14)	0.06 (0.15)	0.02 (0.16)
Implicit Theory of Innovation			0.39** (0.15)	0.3* (0.17)	0.2 (0.18)
Model Fit:					
R-squared	0.2	0.15	0.17	0.24	0.35
Adjusted R-squared	0.13	0.09	0.13	0.15	0.2
N	51	49	50	49	49
Significance	**	*	**	**	**

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors reported in brackets.

Table 33 displays five multilevel regression models that use IWB as the dependent variable. We can see that Model 5 is the best-fitted model with 34% R^2 and 18% adjusted R^2. Among all variables, job tenure, relatedness and IPT of innovation have a statistically positive significant relationship with IWB.

Table 33: Hierarchical Multilevel Regression of Innovative Work Behaviour

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Parameters:					
Gender	-0.42				-0.43

	(0.25)				(0.26)
Age	-0.12 (0.1)				-0.1 (0.11)
Educational Level	0.02 (0.14)				0.1 (0.14)
Job Tenure	0.2** (0.07)				0.08 (0.08)
Autonomy		0.05 (0.1)		-0.02 (0.1)	-0.05 (0.1)
Competence		0.09 (0.12)		0.06 (0.12)	0.08 (0.13)
Relatedness		0.16 (0.12)		0.16 (0,12)	0.22* (0.13)
Implicit Theory of Intelligence			0.14 (0.11)	0.17 (0.12)	0.15 (0.13)
Implicit Theory of Innovation			0.27** (0.12)	0.21 (0.14)	0.15 (0.15)
Model Fit:					
R-squared	0.17	0.12	0.19	0.26	0.34
Adjusted R-squared	0.10	0.06	0.16	0.17	0.18
N	51	49	50	49	49
Significance	*	-	***	**	**

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors reported in brackets.

Hypothesis Testing

The first hypothesis predicted that male store managers would show more IWB than female store managers. As it can be seen from Table 33 (Model 1 and 5) and Table 29 (Spearman's correlations), the coefficients were negative (b= -.42, -.43) and did not reach statistical significance either as regression or correlation. Hence, hypothesis 1 is not supported. Yet, it can be seen from Table 29 that being a female store manager is negatively correlated with ideation, and the coefficient is significant at 5 percent. However, the negative Spearman's coefficients for implementation and IWB are not statistically significant.

Hypothesis 2 stated that younger store managers are more innovative than older store managers. Table 33 indicated that the regression coefficients were negative both in Model 1 and 5 (b = -.12, -0.1), however, it is not significant and the hypothesis is thus not supported. Also, it can be seen from Table 29 that age is negatively correlated with both ideation and implementation activities associated with IWB. However, the stages are not statistically significant and the hypothesis is therefore not supported.

Next, hypothesis 3 suggested that highly educated store managers are more innovative than store managers without such education. As shown in Table 33, the regression coefficients for

IWB are positive in both Model 1 and Model 5 (b = .02, .01), yet not significant, and thus not supported. However, it can be seen from Table 29 that educational level is negatively correlated with all dependent variables, ideation, implementation and IWB, but the coefficients did not obtain statistical significance and are therefore not supported.

Hypothesis 4 predicted that store managers with short job tenure would show more IWB than store managers with longer tenure. In contrast to our assumptions, the regression and correlation tables indicate a positive relationship. In Table 33 (Model 1 and 5), the regression coefficients for IWB are positive in both models (b = 0.2, 0.08), and the coefficient in Model 1 is statistically significant at 5 percent. However, the result did not reach statistical significance in Model 5. Similar kind of results can be observed for ideation and implementation. The ideation part of IWB is positive and barely significant at 10 percent in Table 31 (Model 1). The coefficient of job tenure is positively related to implementation activities, and it can be seen from Model 1 that it is statistically significant at 1 percent. Also, Table 29 shows that there is a positive medium correlation between job tenure and implementation which is significant at 5 percent.

Hypothesis 5 stated that autonomy would be positively related to store managers' IWB. Contrary to this claim, the regression coefficient to this dependent variable is slightly negative in Table 33 (Model 5) (b = -.05), but it is not statistically significant and thus not supported. However, Table 29 and Table 30 show that autonomy is positively correlated with IWB, however, neither the Spearman's coefficient nor the Pearson's coefficient is statistically significant. As a result, our assumptions are not supported. The regression analysis in Table 31 and Table 32 even show that autonomy might have negative regression coefficients both in terms of ideation and implementation activities (b = -.07, -.02), but they are not significant.

Next, hypothesis 6 suggested that competence would be positively related to store managers' IWB. The IWB regression coefficient investigating this relation was positive, however, it did not reach statistical significance and the hypothesis is therefore not supported (b = .08) (Table 33). The same result is obtained for the ideation and implementation parts of IWB. The coefficients were positive but not significant, hence not supported. Also, the Spearman's correlation coefficients reveal that there possibly is a small positive correlation between competence and ideation, implementation and IWB. However, none of them reached statistical significance, and is therefore not supported. In contrast, a Pearson's coefficient confirm a medium correlation between competence and implementation which is significant (Table 30).

Hypothesis 7 stated that relatedness would be positively related to store managers' IWB. Consistent with this prediction, one regression coefficient (Model 5) was positive and marginally significant ($b = 0.22$, $p < .1$). However, it can be seen from Table 29 that relatedness has a small positive relationship with ideation, implementation and IWB, however, none of these Spearman's correlation coefficient was significant. Yet, Table 30 illustrates that two of Pearson's correlation coefficients confirm a positive medium relation between relatedness and implementation and IWB that are statistically significant.

Hypothesis 8 predicted that incremental IPT of intelligence is positively related to store managers' IWB, whereas an entity IPT of intelligence is negatively related. It can be seen from Table 33 that the regression coefficient for IWB is positive ($b = .15$), yet it was not significant and hence not supported. In addition, Table 29 shows that there is a positive medium effect correlation between IPT of intelligence and ideation which is significant ($p < 0.05$). However, the other Spearman's correlations in terms of implementation and IWB not significant. On the other side, two of Pearson's correlation coefficients reveal a medium effect that is significant (Table 30).

Lastly, hypothesis 9 suggested that an incremental IPT of innovation is positively related to store managers' IWB, whereas an entity IPT of innovation is negatively related. There are three regression models which include the variable IPT of innovation, and the coefficients show a positive direction in all models, but they are only significant in Model 3 ($b = .27$, $p < 0.05$) (Table 33). On the other hand, it can be seen from Table 29 that there is medium positive Spearman's correlation between IPT of innovation and ideation that it is significant at 5 percent. There is also a medium positive correlation between IPT of innovation and implementation, and this Spearman's correlation is highly significant at 1 percent. Lastly, there is a medium positive correlation between IPT of innovation and IWB, and it is highly significant at 1 percent. Similarly, Table 30 shows a positive medium relationship between IPT of innovation and all dependent variables.

Table 34 shows an overview of our hypothesis and key findings. Spearman's correlation coefficients examine the relationship between the dependent variables and demographic and socioeconomic variables, whereas Pearson's correlation coefficients examine the relationship between the dependent variables and BPNs and IPTs. In addition, the table summarizes the findings based on Model 5 from the regression analysis, which includes all the independent variables. We do not have enough statistical power to investigate nine independent variables,

such as in Model 5, because of too few respondents, but the results nevertheless indicate a positive or negative direction that can be useful for future studies.

Table 34: Overview of Hypotheses and Key Findings

		Ideation		Implementation		IWB	
		Spearman's Corr	**Reg. Coef.**	**Spearman's Corr**	**Reg. Coef.**	**Spearman's Corr**	**Reg. Coef.**
H1	Younger store managers are more innovative than older store managers.	-**	-	-	-	-	-
H2	Male store managers are more innovative than female store managers.	-	-	-	-	-	-
H3	Highly educated store managers are more innovative than store managers without such education.	-	+	-	+	-	+
H4	Store managers with short job tenure are more innovative than store managers with long job tenure.	+	+	+**	+	+	+
		Pearson's r	**Reg Coef.**	**Pearson's r**	**Reg Coef.**	**Pearson's r**	**Reg Coef.**
H5	Job autonomy is positively related to store managers' IWB.	+	-	+	-	+	-
H6	Competence is positively related to store managers' IWB.	+	+	+**	+	+	+
H7	Relatedness is positively related to store managers' IWB.	+	+	+**	+	+**	+*
H8	Incremental theory of intelligence is positively related to store managers' IWB, whereas entity theory of intelligence is negatively related.	+***	+	+	+	+**	+
H9	Incremental theory of innovation is positively related to store managers' IWB, whereas entity theory of innovation is negatively related.	+**	+	+***	+	+***	+

* p < 0.1, ** p < 0.05, *** p < 0.01

To conclude, we have found little support for our hypotheses about demographic and socioeconomic variables in this thesis, but long job tenure may play a significant role in implementation activities. Surprisingly, we ended up with very sprawling results for job autonomy, however, none of the coefficients is statistically significant. The results are more promising for competence and relatedness, as both of these BPNs have at least one positive correlation coefficient that is statistically significant. Finally, IPT of innovation appears to be

the strongest predictor of IWB in this study, and IPT of intelligence has also positive medium correlations with ideation and IWB.

5 Discussion

The growth and survival of companies rely on their capability to create a sustainable competitive advantage (Kak & Sushil, 2002). Accordingly, in today's dynamic and shifting market, it is essential to foster innovative abilities. Innovation plays a crucial role in order to achieve sustainable advantage, and organization do not simply depend on R&D professionals, scientists and specialists to innovate anymore (Madhavi & Raja, 2018). Additionally, it has become more important to take advantage of the innovative capabilities of regular employees. Innovative efforts of regular employees help to increase the chances of succeeding with innovation and obtaining significant advantages (Madhavi & Raja, 2018). Therefore, it can be argued that regular employees' innovative work behaviour is highly relevant for organizations in today's competitive work environment. In this thesis, we aim to contribute to the field of individual innovative behaviour research by investigating variables that possibly are vital for achieving innovative results.

It can be debated whether it is most appropriate and suitable to create an overall, composite scale of IWB relative to dividing the concept into separate dimensions. The questionnaire in this master thesis is based on the work of De Jong and Den Hartog (2008), and they identified four different factors using exploratory factor analysis (EFA), including opportunity exploration, idea generation, idea championing and idea implementation. In contrast to this four-factor model, the EFA in this research study proposed a two-factor model that distinguishes between ideation and implementation. Our model reflects the findings of Dorenbosch, van Engen, and Verhagen (2005) and Krause (2004). Yet, in line with the study of De Jong and Den Hartog (2009), we expected that the statement "I put the effort in the development of new things" would have a high factor loading associated with the implementation dimension. Rather, the EFA revealed that the statement belongs to the ideation dimension, and this may be due to the fact that the sentence is formulated in an ambiguous manner. Our results signal that the word "development" is not exclusively reserved for implementation activities and the word can also be linked to the discovery of new ideas and creativity, which is the main features of ideation. The result might be different if the term "development" was replaced by the term "implementation" in the above statement. Yet, Kanter (1988) emphasizes that IWB is easier to understand if one presumes that the generation of new ideas and their implementation are distinct stages, but in reality, innovation is characterized of a reciprocal and recurring tendency. For this reason, in addition to the lack of convergence between the Kaiser's criterion and the scree plot for our data, we decided to do some analysis

with both the one factor-model (IWB) and the two-factor model (ideation and implementation) (see section 4.2 for details).

Gender. Consistent with our hypothesis, the results of this research project indicate that male store managers show more IWB compared to female store managers. Yet, only the Spearman's correlation coefficient associated with ideation was statistically significant. Other research studies have also proposed that innovation is a male-dominated activity (Ranga & Etzkowitz, 2010). One possible reason for this is that women generally show less interest in technology, mathematics and engineering (Etzkowitz & Kemelgor, 2001). In addition, it is observed that women tend to be specialized in a sector where innovation is not common like retail trade, personal services and professional services (Carrasco, 2014). Another possible explanation is that women often show a more conservative attitude, prefer to work in safe environments characterized by clear guidelines and specific goals, and have a greater tendency to minimize the potential for doing mistakes. Conversely, men are often more open to challenges and testing new working methods (Babalis, Xanthakou, Kaila, & Stavrou, 2012). It is important to note that only four male respondents participated in the study and this suggests that our results are not particularly meaningful. It can be questioned whether male store managers are underrepresented in our study and whether it is conceivable that our data set represents a skewed selection. However, we can dispute such speculations, since we know the true gender distribution of the population. We do not want to provide the true gender distribution for the sake of anonymity, but we can confirm that almost all male store managers have taken the survey. Hence, it will probably be useful to expand the size of the sample considerably in future studies if researchers aim to observe the effect of gender on innovative work behaviour in the textile industry, since men may also be under-represented in other large companies as well. Four male store managers is a small number, and it is necessary with a higher number to conduct a good analysis (Field, 2018).

Age. Before analysing our dataset, we predicted that younger store managers show more IWB than older store managers. Put differently, we though age would be negatively related to IWB. Our findings indicate this negative relationship, but neither the Spearman's correlation coefficients nor the regression coefficients are statistically significant. In previous studies, age is also found to be a negative factor when it comes to creativity (Rietzschel & Zacher, 2015). There are several possible reasons why our findings propose a negative relationship. First, Salthouse (2012) claims that ageing causes a reduction in cognitive, affective and physical functioning. In individual innovative behaviour, cognitive ability is essential because of the

continuous need for improvisation and adaption, as well as for acquiring new information. Further, the relationship between age and IWB can also be examined in the perspective of risk-taking, since IWB is itself a socially risky behaviour. Older workers are already under the risk of being negatively stereotyped when it comes to innovative performance (Chiu, Chan, Redman, & Snape, 2001). The negative relationship between aging and IWB can possibly be explained by the fact that older store managers are less willing to take risk compared to younger store managers. Often, young workers are eager to try new things and achieve more success in order to build-up their careers. For instance, a young store manager may be open to new things because he/she aims to achieve a better position in her career, as there are many years left of her working life. On the other hand, the situation may be reversed for an older store manager. He/she is at the end of his/her career and he may think less ambitiously relative to younger colleagues (Zwick, 2011). Older store managers may prefer to secure their current positions and avoid pursuing risky opportunities.

In contrast, there are numerous possible reasons for the absence of significant relationships in this study. One possibility for the insignificant negative relationship is perhaps the low degree of variation in the age distribution. 17% of the store managers are below 31 years and only 7.5% are above 50 years, and this entails that the majority are 31-50 years. Another reason for the insignificant negative relationship may be that the store managers seldom need to perform at their maximum. In other words, our sample might rarely need to perform at a level at which deficits actually are manifested. In the face of new challenges on a daily basis, it is probably sufficient to generate two or three potential original solutions to a problem. It is probably not desirable that managers utilize their full potential and are able to generate 100 solutions since this activity would have limited value and would be very time-consuming. Also, even though ageing can weaken cognitive, affective and physical functioning, these capabilities are probably not as important for store managers as they are for stricter and more demanding occupations. Despite our statistically insignificant results, the findings are nonetheless important as they may indicate the correct direction of the relationship and it is plausible that the relationship is significant in studies that are more comprehensive.

Educational Level. We predicted that educational level positively affects store managers' innovative performance based on prior research studying the relation between innovation and education (Baumol, 2005). The regression coefficients confirm the hypothesized direction, while the Spearman's correlation coefficients indicate a negative relationship. Other studies have suggested that there is a positive relationship between workers' knowledge and their

innovative capabilities (Østergaard, Timmermansa, & Kristinsson, 2009). However, none of the coefficients in our study is statistically significant, and there are several potential reasons for this. First, the questionnaire only distinguishes between three levels of education, as we strived to preserve the respondents' anonymity. Three respondents have only completed primary and lower secondary school, and this leads to a limited variation in the analysis. Furthermore, we have not controlled for different types of higher education. It is conceivable that the focus on creativity and innovation in different study programs are fluctuating. For example, some studies empathize old theory heavily, and store managers with such backgrounds may try to follow what was considered "best practice" in their school career thoughtlessly instead of breaking with traditional and outdated ways of doing things. Other studies may highlight that knowledge is fresh and will eventually become obsolete, encourage students to be open-minded and embrace evolvement, inspire them to try new procedures and stress that mistakes are simply a source of learning. Another perspective suggests that educational background may be more important to newly educated employees, while employees who graduated many years ago base their behaviour on work experience and the skills they have gained over the past years to a greater extent (Bell et. al., 2011).

Admittedly, it is also conceivable that higher education might not facilitate the cultivation of innovation skills for some students. Rather, educational institutions may foster abilities that conflict with innovative guidelines. For example, some professors create tests that force students to memorize extensive amounts of detailed curriculum and then make a clear distinction between right and wrong answers where there is no room for trial and error. In this way, educational institutions may nurture students' ability to solve problems within strictly regulated frameworks as opposed to thinking outside the box. Another possibility is that skills related to innovation have simply been neglected for several years and that a long course of study does not necessarily counteract students' ability to think creatively and new. It is possible that the focus on these desirable skills will be even stronger in the future and increase in line with the growing interest in innovation.

Job Tenure. In our last hypothesis related to demographic and socioeconomic characteristics, we predicted that shorter-tenured store managers would show more IWB relative to longer-tenured store managers. In contrast to our assumption, the results indicated a positive relationship between job tenure and innovative efforts. Spearman's correlation coefficient between job tenure and implementation is considered a moderate correlation, and the coefficient was significant, but that was not the case when we examined ideation and IWB. Moreover, job

tenure is statistically significant in all regression models including only four independent variables, but the significance disappears when we also control for BPNs and IPTs. The indications of a positive relationship in our study conflicts with the findings of Pieterse et. al. (2010). On one side, long working experience and routines can be harmful to creativity, since it can lead to habitual behaviours, and longer-tenured workers may try to solve problems in familiar and conventional ways (Binnewies, Ohly, & Niessen, 2008). On the other side, many years in the same position can create a sense of security and confidence in the role as store managers, which are needed to break poor and boring routines and try new innovative workings methods instead.

Interestingly, our findings suggest that job tenure is of greater importance for implementation compared to ideation. It is also plausible to assume that the significance disappears when BPNs and IPTs are included because job tenure correlates with all or some of these variables. One possibility is that job tenure reflects elements from competence or relatedness in the correlation matrix and that this reflection disappears when the basic needs are controlled for in the regression analysis. On one hand, it is reasonable to believe that job tenure and relatedness largely co-vary, since it can take time to build solid relationships in the workplace, and the degree of job tenure and satisfaction of the need for relatedness will thus increase in pace. From this perspective, it makes sense that job tenure correlates higher with implementation relative to ideation. The managers can to a high degree look for opportunities to improve things on their own. It is often more fruitful to receive input from others when generating original solutions to problems, but this is also an activity one can do alone. In contrast, the store managers rely on their relationships with co-workers when they strive to implement their ideas in practice, which is especially emphasized in the dimension labelled idea championing.

On the other hand, it is reasonable to believe that job tenure and competence largely co-vary, since the store managers acquire experience, attend courses and the like while the years go by. It can be discussed whether competence is more decisive when it comes to implementation relative to ideation. When it comes to ideation, it can be argued that some store managers can easily wonder how things can be improved and search out new working methods even if they are poorly skilled, but in such cases, the quality of the work of the managers can be questioned. However, this phase may be performed alone and there is no one else that evaluates the quality of the work. It is possibly only when the store manager strives to implement the idea in practice that he finds that high demands are placed on quality, as he attempts to convince other people to support the innovative idea. Therefore, the results may indicate that both highly competent

and less competent respondent's claim they score high on behaviour associated with ideation and that this has led to a weakened relationship between competence and ideation in this study. Yet, in many cases, only competent respondents will succeed in implementing their ideas. Poorly respondents will to a lesser extent claim that they score high on behaviour associated with implementation because they have no concrete results to substantiate the claim. Implementation of innovative ideas must typically receive some support from other workers. In addition, it is difficult to implement the idea in practice if the store manager does not have sufficient expertise in the area.

Autonomy. This research project also examines the relationship between self-determination theory and innovative work behaviour. SDT has been used in numerous studies, yet the application of the theory on workers' IWB is relatively limited. The three needs of SDT may contribute to explain and predict human's behaviour when it comes to innovation activities. Consistent with our hypothesis and the conclusion of a meta-analysis (Hammond et. al., 2011), Pearson's correlation coefficients suggest a positive relationship between the basic need for autonomy and IWB. However, none of the correlations coefficients is statistically significant, and this is also the case for the regression coefficients. But to our surprise, several of the regression coefficients indicate a negative relationship between autonomy and IWB.

There are many potential reasons for these conflicting results. On one side, it is natural to assume that giving store managers a higher degree of freedom will lead to more creativity and innovative behaviour (Alpkan et. al., 2010). When the store manager's preferences, interests and wants are taken into account, it is reasonable to believe that it will strengthen his motivation and well-being at work. In addition, it will hopefully have ripple effects in the form of more engagement, curiosity, independent thinking, and create a working environment where the store manager can try new things with minimal fear of failure. At the same time, it is possible that there is a strong top-down pressure on store managers to make practical use of the freedom and create innovative results that backfire, since the pressure can harm their genuine creativity and inspiration.

On the other side, the indicated negative result may be because some respondents prefer to do given tasks rather than experimenting on their own. The respondents might prefer to work within their comfort zone and do not want to risk failing with a new project unless they are requested to do so by someone with authority. The negative direction of some regression coefficients may also be because the store managers depend on being encouraged and inspired by the regional managers or the management team in order to show innovative work behaviour.

Due to high amounts of responsibilities and hectic days at work, store managers may not prioritize innovative projects unless they are motivated to do it. It is also conceivable that systems are already in place to facilitate creative thinking in the workplace and that, as a result, store managers do not need to break everyday routines to be innovative.

Another possible reason for the absence of a positive statistically significant relationship is that the management of the anonymous company may be satisfied with the current level of innovative behaviour. In fact, almost 80% of the store managers' show a high or very high level of innovative effort. In contrast, there is more variation when it comes to the store managers' experience of work autonomy. Despite the fact that the store managers have the freedom to spend their time experimenting with even more working methods, techniques and instruments, it may not be desirable to spend more time on this neither from their own point of view nor from the regional managers' side. Is possible that the store managers have recognized that it is more valuable to pursue other common goals and objectives, thus choosing to invest their resources and put in extra effort in these areas instead. To conclude, there are many different angles that can help explain why our findings indicated a negative relationship between work autonomy and IWB. However, it is important to note that the results in this study are not significant and that the findings may be misleading and would have been different if the response rate was higher.

Competence. We predicted that satisfaction of the basic psychological need for competence would have a positive impact on IWB. Consistent with another hypothesis, the direction of all Pearson's correlation coefficients and regression coefficients are positive, but only one correlation coefficient is statistically significant. It is likely to assume that workers who feel competent in their positions will also be more confident in their abilities to handle the work-related issue and that this will lead to more IWB (Bandura, 1977), and it can be discussed why we do not have this positive result in this study. There are many possible reasons for the insignificant positive relationship. Obviously, in line with other studies, we would probably have found a statistically significant relationship if our sample was larger. On the other hand, it can be debated whether incompetent workers in some cases can be just as innovative as competent workers can be. For example, in order to solve a problem, competent store managers might play around with different techniques aiming to optimize their working methods, but it is also conceivable that less competent store managers do the same. Rather than playing around on purpose, they are forced to experiment with different methods to have a chance to solve the problem.

Further, in the results and analysis section, a Spearman's correlation coefficient shows a moderate positive significant relationship between competence and job tenure. It is plausible that less competent store managers are more open to experimenting in general, as they may be new to the job, have a greater need for knowledge and may have a desire to learn and develop. However, from an innovation perspective, it is likely that competent managers are better at evaluating and applying the outcome of experiments. For instance, an incompetent researcher may not register and realize that he has discovered something exceptional since he does not know the existing knowledge base and he cannot tell if the discovery is known from before. The same reasoning may apply to store managers. Innovation is not just about discovering new things, but also about realizing and implementing it in practice. For this to happen, the store manager must first understand whether his discoveries are valuable, both for himself and for others. Similarly, both qualified and less qualified workers can generate ideas for solving problems in unusual ways. Yet, the competent worker will probably be better at filtering the good ideas from those who are poor. The questions in our questionnaire mainly measure respondents' efforts and intention to be innovative rather than the amount of valuable and successful attempts, and this may be one of the reasons why incompetent workers seem to be as innovative as competent workers since the quality of their innovative efforts is not controlled for.

Relatedness. In our last hypothesis regarding basic psychological needs theory, we assumed that relatedness is positively related to store managers' IWB. Indeed, all Pearson's correlation coefficients and regression coefficients confirmed the predicted positive impact, but only two correlation coefficients and one regression coefficient were statistically significant ($p < 0.1$), namely the coefficient in Model 5 which examined the relationship between relatedness and IWB. There are many different reasons that can help defend this positive relation. First, store managers who have frequent and good contact with other employees may possibly stay largely updated on what works and what does not work in the store, and in this way strengthen their competence and gain an integrated understanding of the work situation. Second, close relationships also increase the chances of the store manager receiving useful and valuable input from other employees who feel confident enough to address issues. Third, previous studies propose that individuals are more innovative when they feel psychologically safe and can suggest new ideas or solutions without being judged by their peers (Anderson & West, 1998). Moreover, positive relationships with co-workers can promote necessary support for innovative ideas and facilitate successful implementation (Hammond, et. al., 2011).

However, it can be questioned why some of the positive relationships between relatedness and IWB is not statistically significant. Notably, consistent with other studies, we might have established a statistically significant impact if our sample was greater. Further, in the regression analysis, it is likely that the coefficients for relatedness have been weakened because of correlations with other variables, such as job tenure. Logically, chances are greater that longer-tenured store managers have developed stronger relationships in the workplace compared to shorter-tenured managers. Another vague possibility for the non-significant coefficients is that respondents with very strong relationships might spend some time taking care of these connections at the expense of other work that is not urgent and required, such as innovation may not be. A slightly more plausible reason why strong relationships can put a damper on IWB is possibly other employees' resistance to change. It is conceivable that store managers do not want to make unpopular choices and implement innovative methods that are perceived as undesirable by close colleagues. Admittedly, it is not possible to draw any precise conclusions, and the insignificant result is probably due to a combination of several reasons.

IPT of Intelligence. Consistent with our hypothesis, the results of this research project appear to suggest that the incremental theory of intelligence is positively related to store managers' IWB, whereas the entity theory of intelligence is negatively related. The Pearson's correlation coefficient shows a moderate positive significant relationship between IPT of intelligence and ideation and IWB. Likewise, one of the regression coefficients reveals a slightly statistically positive relation between IPT of intelligence and ideation. However, some regression and correlation coefficients associated with implementation and IWB are not significant. Unfortunately, we cannot compare these results with former studies, since we have not found any other studies that have examined this connection between IPT and IWB. The findings indicate that almost 87% of the respondents predominantly hold an incremental IPT of intelligence. On one hand, this may suggest that our investigative instrument has weak validity or that or that the threshold for respondents being classified as holding an incremental IPT should have been higher. On the other hand, the high proportion of incremental theorists may suggest that store managers typically are more inclined to hold an incremental theory. Specifically, the opportunity is possibly greater for growth-mindset workers to climb the career ladder and go from being a shop assistant to eventually becoming a store manager. Indeed, several studies have confirmed that incremental theorists favour learning goals, use mastery-oriented strategies in the goal pursuit, and have higher levels of confidence and expectations

when evaluating their potential for goal success (Kray & Haselhuhn, 2007; Nussbaum & Dweck, 2008; Thompson & Musket. 2005).

There are quite a few potential reasons why IPT of intelligence seem to have a positive impact on innovative efforts. For instance, growth-mindset managers have a stronger tendency to seek and accept constructive feedback from employees (Dweck, 2006). When working on challenging innovative projects, it is probably an advantage to be open to input from co-workers in order to overcome obstacles and push the project forward. Furthermore, performance-oriented individuals typically believe high effort implies low ability and this can trigger a helpless pattern, while from a mastery-oriented perspective, failure may simply signal that the manager should reconsider their present strategy or put in more effort to succeed. The positive attitude towards effort is valuable in an innovation setting, as store managers' are likely to try and fail several times in the pursue of new innovative working methods, techniques and instruments.

However, it can be discussed why our findings suggest that IPT of intelligence seems to have a stronger influence on ideation compared to implementation. One possible explanation is that store managers might associate intelligence to a greater extent with ideation relative to implementation. Put differently, the creativity aspects of ideation are possibly perceived to be characterized by psychological factors such as being smart, while implementation is considered to be more related to physical conditions and involves action. If this is the case, it may explain why the implicit belief that intelligence is a fixed and innate trait is only inhibiting ideation activities. According to Dweck (2006), 143 creativity researchers participated in a poll that investigated what is the most important factor in creative achievement, and the answer was precisely the type of resilience and perseverance produced by incremental IPT. In other words, prior research support that IPT of intelligence is extremely important when it comes to ideation. It is possible that other beliefs and abilities are more important for implementation activities, such as relational competence that is, for example, highlighted by the idea championing dimension. Yet, persistence and resilience are also very important when it comes to implementation, and no store managers' benefit from a destructive helpless pattern caused by an entity theory. It is not possible to draw any clear conclusions from our results, but we can still try to interpret what the findings indicate and identify potential explanations that can be investigated in future studies.

***IPT of Innovation*.** Lastly, our results confirm that there is a positive relationship between IPT of innovation and IWB. All Pearson's correlation coefficients that examine the relationship

between IPT of innovation and the three variables ideation, implementation and IWB are statistically significant and show a medium effect. Moreover, two of the regression coefficients regarding implementation are statistically significant. We cannot compare these findings with other research papers since we have not been able to find other studies exploring this connection. Further, our results indicate that close to 80% of the respondents predominantly hold an incremental IPT of innovation, and we can draw parallels from this high proportion to the distribution of IPT of intelligence. However, IPT of innovation excels as the predictor with the most statistically significant relationships. Also, we found only a medium correlation between IPT of innovation and IPT of intelligence as opposed to a perfectly positive correlation. Therefore, instead of only investigating IPT of intelligence, our analysis signal that it was a good idea to distinguish between two types of IPTs.

As expected, the findings propose that believing that innovation is a malleable and controllable skill is positively related to innovative work behaviour, and apparently, IPT of innovation is particularly important for implementation. One plausible explanation for this assumes that tolerance for failure and willingness to experiment are essential parts of individual innovation. For entity theorists, high effort and failure can be interpreted as an indication of low ability. Conversely, incremental theorists are better at acknowledging that experimentation and failure are valuable. In fact, several products have been a consequence of failed experiments. Yet, the important thing is how the store managers deal with failure, as failure itself do not cause innovation. Rather, the store managers must recognize what they did wrong and learn from it, and this is precisely what characterizes a mastery-oriented pattern. It is conceivable that fixed-mindset managers are less afraid of being judged by co-workers when they discover new ideas in the ideation phase compared to working on implementation, since it may not be so dangerous if others think a few ideas are bad. In contrast, there is often more at stake when it comes to the implementation stage, both in terms of money and time. Thus, it can be argued that store managers possibly perceive implementation activities as more intimidating than ideation activities and that this is the reason why IPT of innovation is of the greatest importance in this context.

5.1 Limitations of the Study and Future Research Directions

Although this research study indicates some important relationships, it still has several limitations that should be discussed briefly. First of all, even though the participant rate were satisfactory, the number of respondents were relatively low and the findings may not reflect the whole population. Due to the small sample size, several correlations and regression coefficients

were not statistically significant. Among the respondents, the number of male store managers was really low compared to the number of female respondents. This situation made us unable to accurately analyse the relationship between gender and IWB. The results would conceivably be different and significant if we received more answers from male respondents. Furthermore, we only used three different categories to measure store managers' educational level to ensure their anonymity, and it is possible that the relationship between education and IWB would have been clearer with more answer categories to distinguish the respondents from each other. Additionally, our findings are solely based on the answers of some store managers of an anonymous company located in Norway. It may be that the results would have been dramatically different in another occupation, company and country, and therefore, more research is needed with different approaches.

There are also some limitations associated with the data collection process. To begin, we had some problems in the data collection process which possibly affected the response rate negatively. Unfortunately, because of the company's security policy, the respondents were not able to open the survey on their work computers at first and it took a long time before the IT department were able to fix the problem. Furthermore, another potential limitation is that the results may be biased due to our measurement method. Specifically, when employees report their own performances and perspectives, there is a possibility that the self-reports lead to biased results (Donaldson & Grant-Vallone, 2002). Despite these limitations, our research project indicates that more studies should investigate the connection between IWB and IPT. There is a lack of previous studies in this subject field, and our findings propose that it is worthwhile to undertake a more extensive study.

6 Conclusion

From the companies' perspective, innovation is perceived as one of the most important determinants for continuous growth and for achieving a sustainable advantage in the competitive market. Therefore, it is not only the contributions of engineers and R&D professionals that matter, but also the contributions of regular employees in the organization are highly essential as well (Madhavi & Raja, 2018). In this research study, we asked the following research problem: What is the Relationship between Store Managers' Characteristics and Innovative Work Behaviour?

The main purpose of this study was to investigate some predictors that may affect employees Innovative Work Behaviour (IWB). Firstly, we examined whether demographic and socioeconomic characteristics have a positive or negative impact on store managers' IWB. Our findings indicated that male store managers' showed more IWB compared to female store managers. However, the number of male store manager respondents were not statistically sufficient. Therefore, the obtained result may not fully reflect the true relationship between gender and IWB. Secondly, the results suggested that age may affect store managers' IWB negatively. It was observed that the highest IWB was shown by store managers who are from 18 to 30 years old. However, these results were not statistically significant. Next, we investigated whether educational level effect store managers' IWB, and we expected that education would be positively related to store managers' IWB. In contrast to our prediction, our findings indicated that education may have a negative impact on store managers' IWB, however, this relationship was not significant. Lastly, we predicted that shorter-tenured store managers would show more IWB than longer-tenured store managers. Contrary to our hypothesis, the result of the study showed that job tenure possibly has a positive impact on store managers' IWB. Thus, it is plausible that more IWB is expected when the period of time in the working position increases.

This study also investigated the relationship between Basic Psychological Needs (BPN) and IWB. We wanted to find out whether the satisfaction of store managers' three BPN would affect their IWB. Firstly, our findings for autonomy were not very clear. In contrast to our prediction, that autonomy would be positively related to store managers' IWB, we observed a slightly negative relationship in some regression models. That result was very surprising as there is a common belief that autonomy would affect IWB positively. Secondly, the results supported the positive relationship between competence and IWB, which means competent store managers'

are likely to show more IWB, yet these results were not statistically significant in several regression models. Furthermore, according to our results, relatedness is possibly positively related to IWB. Store manager's show more IWB, when they feel physiologically safe and cared for.

Finally, this thesis aims to increase our understanding of the relationship between IPTs (intelligence, innovation) and IWB. This study proposes that about 87% of the store managers predominantly hold an incremental IPT of intelligence. In addition, the indicators point towards a positive relationship between IPT of intelligence and IWB.

IPT of innovation is a new concept that has apparently not been measured in the literature before. Our findings indicate that the majority of store managers possess a growth mindset and no store managers seem to hold a strong fixed mindset, which means that most store managers believe that people's innovation skills can be improved. This belief will most likely result in a higher degree of IWB. Pearson's correlation coefficient indicates that IPT of innovation is the most significant variable among all the predictors of IWB, and this proposes that IPT of innovation should be examined more deeply in future studies.

7 References

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Appendix

Appendix 1: Questionnaire

Seksjon 1: Invitasjon til deltakelse i undersøkelse

Kjære Butikksjefer,

Vi, Tina Gimre og Hüseyin Caner Sönmez, er to studenter ved Universitet i Stavanger. Som avslutning på studiet vårt i økonomi og administrasjon ønsker vi å undersøke sammenhengen mellom tankesett og innovativ atferd i vår masteroppgave.

Hüseyin Caner Sönmez har fått tillatelse av [anonym person fra HR] til å gjennomføre denne studien blant alle butikksjefer hos (anonym bedrift) i Norge. For bruk i oppgaven vil bedriften holdes anonym. Alle respondenter er også anonyme, og svarene på undersøkelsen vil oppbevares og behandles konfidensielt. Fokuset vårt er sammenhengen mellom teoriene vi undersøker og det store bildet, og ingen enkeltpersoner vil kunne bli gjenkjent i den endelige oppgaven. Din besvarelse vil ikke kunne spores tilbake til deg eller din e-post.

På oppdrag fra Universitetet i Stavanger har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket. Prosjektet avsluttes 1. juli 2019 og alle besvarelser og personopplysninger vil da bli slettet.

Vi vil gjerne invitere deg til å delta i undersøkelsen ved å fylle ut det vedlagte spørreskjemaet. Dette er et kort spørreskjema med fire deler som tar **cirka ti minutter** å fylle ut.

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til undersøkelsen, eller ønsker å benytte deg av dine rettigheter knyttet til deltakelse i studien, ta kontakt med:

- Tina Gimre på e-post tina-gimre@hotmail.com eller Hüseyin Caner Sönmez på e-post hcanersonmez@gmail.com.
- Vår veileder: Marte C.W. Solheim ved UiS, på e-post (marte.solheim@uis.no) eller telefon: 970 02 235.
- Kjetil Dalseth, personvernombud ved UiS, kan nås via e-post: personvernombud@uis.no.
- Dersom du opplever noe du mener er et brudd på regelverket, kan du klage ved å sende en skriftlig henvendelse til Datatilsynet sin postadresse: Datatilsynet, Postboks 458 Sentrum, 0105 Oslo.
- NSD – Norsk senter for forskningsdata AS, på e-post (personverntjenester@nsd.no) eller telefon: 55 58 21 17.

Samtykke

Ettersom det ikke er mulig å direkte identifisere enkeltpersoner i denne studien, så er det ikke mulig å trekke seg når spørreskjemaet er besvart. Det er frivillig å delta i denne undesøkelsen, og vi behandler opplysninger om deg basert på ditt samtykke. Ved å krysse av i boksen nedenfor samtykker du til å være med i studien. Takk for din tid og støtte.

☐ **Jeg samtykker til å delta i denne studien. Start undersøkelsen.**

☐ **Jeg samtykker ikke til å delta i denne studien. Avslutt undersøkelsen.**

Seksjon 2: Bakgrunnsinformasjon

1. Kjønn

- ☐ Mann
- ☐ Kvinne

2. Hvor gammel er du?

- ☐ 18-30 år
- ☐ 31-40 år
- ☐ 41-50 år
- ☐ Over 50 år

3. Hvilken utdanning har du?

- ☐ Grunnskole
- ☐ Videregående utdanning (studiekompetanse, yrkesfaglig utdannelse; vgs)
- ☐ Høyere utdanning (universitet, høgskole)

4. Hvor lang erfaring har du som butikksjef i en (anonym) butikk?

- ☐ Under 1 år
- ☐ 1-5 år
- ☐ 6-10 år
- ☐ Over 10 år

Seksjon 3: Innovasjon

Definisjon: Innovasjon referer til introduksjonen og implementeringen av nye ideer, produkter og prosesser i butikksjefer sin rolle, i butikken de tilhører eller i organisasjonen som helhet.

	5 Alltid	**4** Ofte	**3** Noen ganger	**2** Sjelden	**1** Aldri
5. Jeg er oppmerksom på saker som ikke er en del av mine daglige gjøremål.	☐	☐	☐	☐	☐
6. Jeg funderer på hvordan ting kan forbedres.	☐	☐	☐	☐	☐
7. Jeg søker etter nye arbeidsmetoder, systemer og rutiner.	☐	☐	☐	☐	☐
8. Jeg kommer opp med originale løsninger på problemer.	☐	☐	☐	☐	☐
9. Jeg forsøker ulike nye teknikker til å utføre oppgaver.	☐	☐	☐	☐	☐
10. Jeg bidrar til å gjøre ansatte entusiastiske for innovative ideer.	☐	☐	☐	☐	☐
11. Jeg forsøker å overtale folk til å støtte innovative ideer.	☐	☐	☐	☐	☐
12. Jeg introduserer systematisk innovative ideer i arbeidspraksisen.	☐	☐	☐	☐	☐
13. Jeg bidrar til å implementere nye ideer.	☐	☐	☐	☐	☐
14. Jeg gjør en innsats for å utvikle nye ting.	☐	☐	☐	☐	☐

Seksjon 4: Tankesett

	5 Veldig enig	4 Litt enig	3 Verken enig eller uenig	2 Litt uenig	1 Veldig uenig
15. Du kan lære nye ting, men du kan egentlig ikke endre din grunnleggende intelligens.	☐	☐	☐	☐	☐
16. Uansett hvor mye intelligens du har, så kan du alltid forandre den ganske mye.	☐	☐	☐	☐	☐
17. Du har en viss mengde intelligens og det er ikke særlig mye du kan gjøre for å endre det.	☐	☐	☐	☐	☐
18. Din intelligens er noe du ikke kan endre særlig mye.	☐	☐	☐	☐	☐
19. Alle, uansett hvem de er, kan endre sine grunnleggende karakteristikker betydelig.	☐	☐	☐	☐	☐
20. Å prøve nye ting er stressende for meg og jeg unngår det.	☐	☐	☐	☐	☐
21. Når noe er vanskelig, får jeg lyst til å jobbe mer med det, ikke mindre.	☐	☐	☐	☐	☐
22. Virkelig smarte personer trenger ikke å prøve hardt for å få ting til.	☐	☐	☐	☐	☐
23. Dersom du jobber hardt vil du mest sannsynlig prestere bra, uansett hvor smart du er.	☐	☐	☐	☐	☐
24. Jeg liker oppgaver jeg kan lære av, selv om det innebærer at jeg gjør mange feil.	☐	☐	☐	☐	☐
25. Bare noen få mennesker kan bli virkelig gode, uansett om det er innen idrett, musikk, kunst, et skolefag eller noe annet – du må ha et medfødt talent.	☐	☐	☐	☐	☐

Definisjon: Innovasjonsferdigheter er evnen til å introdusere, implementere og bruke nye prosesser, ideer og produkter.

	5 Veldig enig	**4** Litt enig	**3** Verken enig eller uenig	**2** Litt uenig	**1** Veldig uenig
26. Uansett hvem du er, så kan du alltid forbedre dine innovasjonsferdigheter.	☐	☐	☐	☐	☐
27. Uansett hvor mange nye ting du lærer, så vil dine innovasjonsferdigheter alltid være på et konstant nivå.	☐	☐	☐	☐	☐
28. Hvis du må forsøke veldig hardt å være innovativ, så betyr det at dine innovasjonsferdigheter ikke er så gode.	☐	☐	☐	☐	☐
29. Du kan i stor grad forbedre dine innovasjonsferdigheter.	☐	☐	☐	☐	☐
30. Bare noen få personer er virkelig innovative – du må være «født med det».	☐	☐	☐	☐	☐

Seksjon 5: Selvbestemmelsesteori

	1 Ikke sant i det hele tatt	2	3	4 Noe sant	5	6	7 Veldig sant
31. Jeg føler at jeg kan gi mange innspill i bestemmelsen av hvordan jobben min skal utføres.	☐	☐	☐	☐	☐	☐	☐
32. Jeg liker personene jeg jobber med veldig godt.	☐	☐	☐	☐	☐	☐	☐
33. Jeg føler meg ikke veldig kompetent når jeg er på jobb.	☐	☐	☐	☐	☐	☐	☐
34. Personer på jobb forteller meg at jeg er god på det jeg gjør.	☐	☐	☐	☐	☐	☐	☐
35. Jeg føler meg presset på jobb.	☐	☐	☐	☐	☐	☐	☐
36. Jeg kommer overens med personene jeg jobber med.	☐	☐	☐	☐	☐	☐	☐
37. Jeg holder meg stort sett for meg selv når jeg er på jobb.	☐	☐	☐	☐	☐	☐	☐
38. Jeg er fri til å uttrykke mine ideer og meninger på jobb.	☐	☐	☐	☐	☐	☐	☐
39. Jeg betrakter personene jeg jobber med som mine venner.	☐	☐	☐	☐	☐	☐	☐
40. Jeg har vært i stand til å lære interessante nye ferdigheter på jobb.	☐	☐	☐	☐	☐	☐	☐
41. Jeg må gjøre det jeg blir fortalt når jeg er på jobb.	☐	☐	☐	☐	☐	☐	☐
42. De fleste dager opplever jeg en følelse av prestasjon knyttet til jobben min.	☐	☐	☐	☐	☐	☐	☐
43. Mine følelser blir tatt hensyn til på jobb.	☐	☐	☐	☐	☐	☐	☐

	1 Ikke sant i det hele tatt	**2**	**3**	**4** Noe sant	**5**	**6**	**7** Veldig sant
44. På jobb får jeg ikke så mange muligheter til å vise hvor dyktig jeg er.	☐	☐	☐	☐	☐	☐	☐
45. Folk på jobb bryr seg om meg.	☐	☐	☐	☐	☐	☐	☐
46. Det er ikke mange personer på jobb som jeg har et nært forhold til.	☐	☐	☐	☐	☐	☐	☐
47. Jeg føler at jeg stort sett kan være meg selv når jeg er på jobb.	☐	☐	☐	☐	☐	☐	☐
48. Personene jeg jobber med ser ikke ut til å like meg noe særlig.	☐	☐	☐	☐	☐	☐	☐
49. Når jeg jobber føler jeg ofte at jeg ikke er veldig dyktig.	☐	☐	☐	☐	☐	☐	☐
50. Det er ikke mange muligheter for meg til å bestemme selv hvordan jeg skal utføre jobben min.	☐	☐	☐	☐	☐	☐	☐
51. Personene på jobb er ganske vennlige mot meg.	☐	☐	☐	☐	☐	☐	☐

Appendix 2: NSD sin vurdering

Prosjekttittel

Problemstilling: Hva er sammenhengen mellom tankesett og innovativ atferd?

Referansenummer

712744

Registrert

08.02.2019 av Tina Gimre - T.Gimre@stud.uis.no

Behandlingsansvarlig institusjon

Universitetet i Stavanger / Handelshøgskolen ved UiS

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Marte Cecilie Wilhelmsen Solheim, marte.solheim@uis.no, tlf: 51833764

Type prosjekt

Studentprosjekt, masterstudium

Kontaktinformasjon, student

Tina Gimre, tina-gimre@hotmail.com, tlf: 40611075

Prosjektperiode

01.03.2019 - 01.07.2019

Status

12.02.2019 - Vurdert med vilkår

Vurdering (2)

12.02.2019 - Vurdert med vilkår

NSD bekrefter å ha mottatt et revidert informasjonsskriv/endret dokument. Vi gjør oppmerksom på at vi ikke foretar en vurdering av skrivet/dokumentet, og vi forutsetter at du har foretatt de endringene vi ba om. Dokumentasjonen legges ut i Meldingsarkivet og er tilgjengelig for din institusjon sammen med øvrig prosjektdokumentasjon. Vurderingen med vilkår gjelder fortsatt.

11.02.2019 - Vurdert med vilkår

FORENKLET VURDERING MED VILKÅR

Etter gjennomgang av opplysningene i meldeskjemaet med vedlegg, vurderer vi at prosjektet har lav personvernulempe fordi det ikke behandler særlige kategorier eller personopplysninger om straffedommer og lovovertredelser, eller inkluderer sårbare grupper.

Prosjektet har rimelig varighet og er basert på samtykke. Vi gir derfor prosjektet en forenklet vurdering med vilkår.

Du har et selvstendig ansvar for å følge vilkårene og sette deg inn i veiledningen i denne vurderingen.

Dersom du følger vilkårene og prosjektet gjennomføres i tråd med det som er dokumentert i meldeskjemaet vil behandlingen av personopplysninger være i samsvar med personvernlovgivningen.

VILKÅR

Vår vurdering forutsetter:

1. At du gjennomfører prosjektet i tråd med kravene til informert samtykke

2. At du ikke innhenter særlige kategorier eller personopplysninger om straffedommer og lovovertredelser

3. At du følger behandlingsansvarlig institusjon (institusjonen du studerer/forsker ved) sine retningslinjer for datasikkerhet

4. At du laster opp revidert(e) informasjonsskriv på utvalgssiden(e) i meldeskjemaet og trykker «bekreft innsending», slik at du og behandlingsansvarlig institusjon får korrekt dokumentasjon. NSD foretar ikke en ny vurdering av det reviderte informasjonsskrivet.

1. KRAV TIL INFORMERT SAMTYKKE

De registrerte skal få skriftlig og/eller muntlig informasjon om prosjektet og samtykke til deltakelse. Du må påse at informasjonen minst omfatter:

- Prosjektets formål og hva opplysningene skal brukes til
- Hvilken institusjon som er behandlingsansvarlig
- Hvilke opplysninger som innhentes og hvordan opplysningene innhentes
- At det er frivillig å delta og at man kan trekke seg så lenge studien pågår uten at man må oppgi grunn
- Når prosjektet skal avsluttes og hva som skal skje med personopplysningene da: sletting, anonymisering eller videre lagring
- At du/dere behandler opplysninger om den registrerte basert på deres samtykke
- Retten til å be om innsyn, retting, sletting, begrensning og dataportabilitet (kopi)
- Retten til å klage til Datatilsynet
- Kontaktopplysninger til prosjektleder (evt. student og veileder)
- Kontaktopplysninger til institusjonens personvernombud

På nettsidene våre finner du mer informasjon og en veiledende mal for informasjonsskriv:

http://www.nsd.uib.no/personvernombud/hjelp/informasjon_samtykke/informere_om.html

Det er ditt ansvar at informasjonen du gir i informasjonsskrivet samstemmer med dokumentasjonen i meldeskjemaet.

2. TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 01.07.2019.

3. FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

Dersom du benytter en databehandler i prosjektet må behandlingen oppfylle kravene til bruk av databehandler, jf. art 28 og 29.

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

NSD SIN VURDERING

NSDs vurdering av lovlig grunnlag, personvernprinsipper og de registrertes rettigheter følger under, men forutsetter at vilkårene nevnt over følges.

LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Forutsatt at vilkår 1 og 4 følges er det NSD sin vurdering at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER

Forutsatt at vilkår 1 til 4 følges vurderer NSD at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen

- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål

- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet

- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19) og dataportabilitet (art. 20).

Forutsatt at informasjonen oppfyller kravene i vilkår 1 vurderer NSD at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

MELD ENDRINGER

Dersom den planlagte behandlingen av personopplysninger endrer seg, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. På våre nettsider informerer vi om hvilke endringer som må meldes. Vent på svar før endringer gjennomføres.

OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Tlf. Personverntjenester: 55 58 21 17 (tast 1)

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Appendix 3: Descriptive Statistics of Demographic and Socioeconomic Variables

Table 35: Descriptive Statistics of Gender

		Gender	
		Male	**Female**
Overall IWB Average	**Mean**	4,375	3,906
	Std. Dev.	,31	,570
	Min (1)	4,10	2,50
	Max (5)	4,80	5,00
Total (n=51)		4	47
Missing Values		-	2

Table 36: Descriptive Statistics of Age

		Age			
		18-30 years	**31-40 years**	**41-50 years**	**Over 50 years**
Overall IWB Average	**Mean**	4,125	3,916	3,879	3,975
	Std. Dev.	,632	,537	,673	.206
	Min (1)	3,10	2,5	3,00	3,70
	Max (5)	4,90	4,70	5,00	4,20
Total (n=51)		8	25	14	4
Missing Values		1	-	1	-

Table 37: Descriptive Statistics of Educational Level

		Educational Level		
		Primary and lower secondary school	**High school**	**Higher education**
Overall IWB Average	**Mean**	4,1	3,96	3,9
	Std. Dev.	,265	,557	,622
	Min (1)	3,9	2,9	2,5
	Max (5)	4,4	5	4,9
Total (n=51)		3	27	21
Missing Values		-	2	-

Table 38: Descriptive Statistics of Tenure

		Tenure			
		Under 1 year	**1-5 years**	**6-10 years**	**Above 10 years**
Overall IWB Average	**Mean**	3,47	4,069	4,091	4,029
	Std. Dev.	,447	,625	,635	,413
	Min (1)	3	2,9	2,5	3,3
	Max (5)	4,2	4,9	4,8	5
Total (n=51)		10	13	11	17
Missing Values		1	1	-	-

Appendix 4: Exploratory Factor Analysis

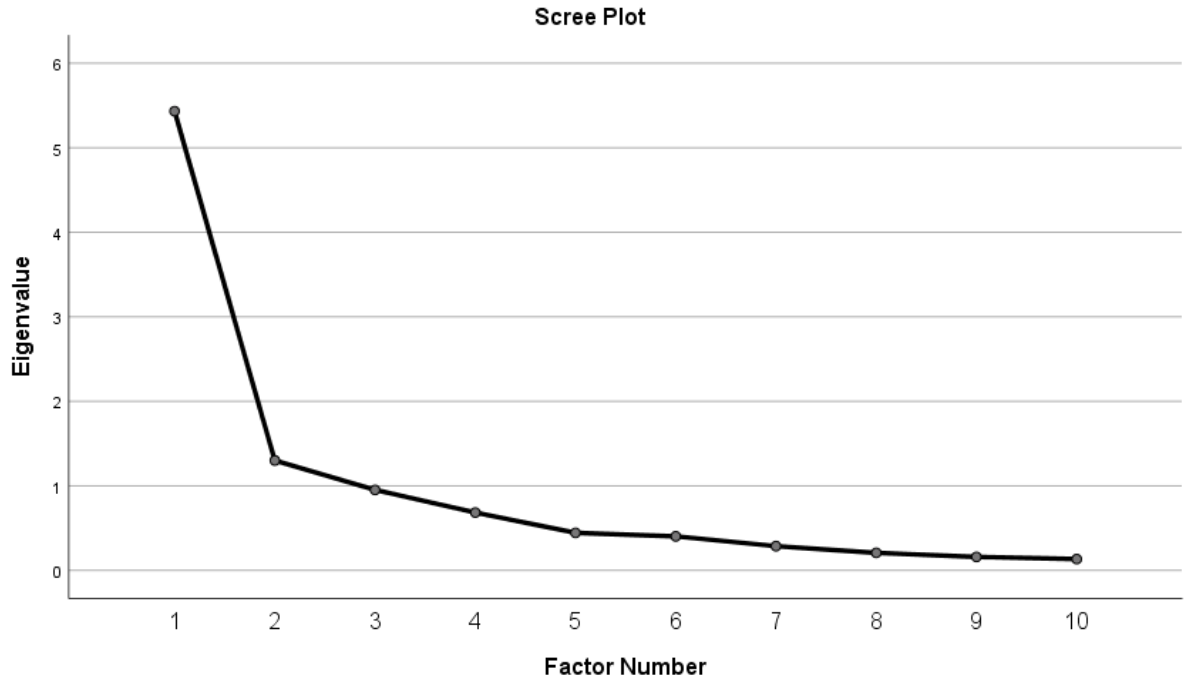

Figure 7: Scree Plot

Table 39: Total Variance Explained

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5,432	54,324	54,324	5,068	50,675	50,675	4,315
2	1,300	13,000	67,324	,991	9,910	60,585	4,138
3	,952	9,516	76,840				
4	,684	6,843	83,683				
5	,444	4,437	88,120				
6	,403	4,025	92,145				
7	,286	2,862	95,008				
8	,207	2,069	97,077				
9	,159	1,593	98,670				
10	,133	1,330	100,000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 40: Communalities

Communalities

	Initial	Extraction
Q5	,571	,273
Q6	,575	,551
Q7	,749	,880
Q8	,506	,395
Q9	,671	,594
Q10	,637	,595
Q11	,696	,706
Q12	,745	,755
Q13	,660	,676
Q14	,730	,635

Extraction Method: Principal Axis Factoring.

Table 41: Factor Matrix

Factor Matrix[a]

	Factor	
	1	2
Q7	,791	,505
Q14	,790	
Q12	,787	-,367
Q13	,766	
Q9	,740	
Q10	,737	
Q11	,715	-,441
Q8	,616	
Q6	,599	,438
Q5	,522	

Extraction Method: Principal Axis Factoring.

a. 2 factors extracted. 10 iterations required.

Table 42: Pattern Matrix (Oblique Rotation)

Pattern Matrix[a]

Factor	
1	2
,901	
,864	
,775	
,682	
	,984
	,807
	,635
,352	,537
	,468
	,314

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Table 43: Structure Matrix (Oblique Rotation)

Structure Matrix

	Factor
	1
Q12_R	,869
Q11_R	,835
Q13_R	,820
Q10_R	,763
Q7_R	,497
Q9_R	,575
Q14_R	,668
Q6_R	,353
Q8_R	,502
Q5_R	,457

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

Appendix 5: Pearson's Correlation between IPT Measures

Table 44: Pearson's Correlation between Implicit Theory of Intelligence Measures

		Q15	Q16 (N)	Q17	Q18	Q19 (N)	Q20	Q21 (N)	Q22	Q23 (N)	Q24 (N)	Q25
Q15	Pearson's r	1										
	Sig. (2-tailed)	.										
	N	51										
Q16 (N)	Pearson's r	,455**	1									
	Sig. (2-tailed)	,001	.									
	N	51	51									
Q17	Pearson's r	,597**	,684**	1								
	Sig. (2-tailed)	,000	,000	.								
	N	51	51	51								
Q18	Pearson's r	,493**	,658**	,784**	1							
	Sig. (2-tailed)	,000	,000	,000	.							
	N	51	51	51	51							
Q19 (N)	Pearson's r	,416**	,558**	,412**	,470**	1						
	Sig. (2-tailed)	,002	,000	,003	,000	.						
	N	51	51	51	51	51						
Q20	Pearson's r	,163	,382**	,338*	,329*	,218	1					
	Sig. (2-tailed)	,254	,006	,015	,018	,124	.					
	N	51	51	51	51	51	51					
Q21 (N)	Pearson's r	,171	,392**	,266	,323*	,393**	,404**	1				
	Sig. (2-tailed)	,231	,004	,059	,021	,004	,003	.				
	N	51	51	51	51	51	51	51				
Q22	Pearson's r	,255	,099	,293*	,242	,208	,360**	,210	1			
	Sig. (2-tailed)	,071	,488	,037	,086	,144	,010	,138	.			
	N	51	51	51	51	51	51	51	51			
Q23 (N)	Pearson's r	,041	,291*	,002	-,003	,078	,063	,061	-,168	1		
	Sig. (2-tailed)	,776	,039	,986	,984	,585	,660	,672	,238	.		
	N	51	51	51	51	51	51	51	51	51		
Q24 (N)	Pearson's r	,089	,356*	,157	,145	,250	,323*	,225	,143	,307*	1	
	Sig. (2-tailed)	,537	,010	,271	,310	,077	,021	,113	,318	,029	.	
	N	51	51	51	51	51	51	51	51	51	51	
Q25	Pearson's r	,256	,338*	,356*	,306*	,171	,313*	,031	,295*	-,027	,383**	1
	Sig. (2-tailed)	,070	,015	,010	,029	,229	,025	,827	,035	,852	,006	.
	N	51	51	51	51	51	51	51	51	51	51	51

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 45: Pearson's Correlation between Implicit Theory of Innovation Measures

		Q26(N)	Q27	Q28	Q29(N)	Q30
Q26(N)	Pearson's r Sig. (2-tailed) N	1 . 51				
Q27	Pearson's r Sig. (2-tailed) N	,165 ,247 51	1 . 51			
Q28	Pearson's r Sig. (2-tailed) N	,156 ,275 51	,391** ,005 51	1 . 51		
Q29(N)	Pearson's r Sig. (2-tailed) N	,483** ,000 51	,471** ,000 51	,405** ,003 51	1 . 51	
Q30	Pearson's r Sig. (2-tailed) N	,225 ,112 51	,483** ,000 51	,506** ,000 51	,456** ,001 51	1 . 51

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 6: Stata Output

Dependent Variable: IWB

Model 1

Source	SS	df	MS	Number of obs	=	51
				F(4, 46)	=	2.42
Model	2.79431105	4	.698577762	Prob > F	=	0.0617
Residual	13.270787	46	.288495369	R-squared	=	0.1739
				Adj R-squared	=	0.1021
Total	16.065098	50	.321301961	Root MSE	=	.53712

IWB_Mean	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender_Dummy	-.4229032	.2528953	-1.67	0.101	-.9319551	.0861487
Age	-.1183907	.0997278	-1.19	0.241	-.3191323	.0823508
Educ	.0236216	.1363097	0.17	0.863	-.2507556	.2979987
Tenure	.1968692	.0751336	2.62	0.012	.0456331	.3481053
_cons	4.02602	.48684	8.27	0.000	3.046062	5.005978

Model 2

Source	SS	df	MS	Number of obs	=	49
				F(3, 45)	=	2.07
Model	1.93275642	3	.644252139	Prob > F	=	0.1174
Residual	13.998264	45	.311072533	R-squared	=	0.1213
				Adj R-squared	=	0.0627
Total	15.9310204	48	.331896259	Root MSE	=	.55774

IWB_Mean	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_Autonomy	.0493992	.1004048	0.49	0.625	-.1528265	.2516248
NY_Competence	.090627	.1192129	0.76	0.451	-.1494801	.3307342
NY_Relatedness	.1610264	.12411	1.30	0.201	-.088944	.4109968
_cons	2.159369	.721497	2.99	0.004	.7061997	3.612539

Model 3

Source	SS	df	MS	Number of obs	=	50
				F(2, 47)	=	5.67
Model	3.09807931	2	1.54903965	Prob > F	=	0.0062
Residual	12.8371207	47	.273130228	R-squared	=	0.1944
				Adj R-squared	=	0.1601
Total	15.9352	49	.325208163	Root MSE	=	.52262

IWB_Mean	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_IQ	.1385666	.1147592	1.21	0.233	-.0922992	.3694323
NY_Inno	.2679627	.1210864	2.21	0.032	.0243682	.5115572
_cons	2.356706	.4778493	4.93	0.000	1.395398	3.318015

Model 4

Source	SS	df	MS	Number of obs	=	49
				F(5, 43)	=	2.97
Model	4.09020328	5	.818040655	Prob > F	=	0.0217
Residual	11.8408171	43	.27536784	R-squared	=	0.2567
				Adj R-squared	=	0.1703
Total	15.9310204	48	.331896259	Root MSE	=	.52476

IWB_Mean	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_Autonomy	-.0197814	.0999762	-0.20	0.844	-.2214026	.1818398
NY_Competence	.0573585	.1231037	0.47	0.644	-.1909038	.3056208
NY_Relatedness	.1578017	.1167956	1.35	0.184	-.0777391	.3933426
NY_IQ	.1662058	.1248083	1.33	0.190	-.0854941	.4179058
NY_Inno	.2112503	.1376335	1.53	0.132	-.0663141	.4888148
_cons	1.277231	.7655989	1.67	0.103	-.2667462	2.821208

Model 5

Source	SS	df	MS	Number of obs	=	49
				F(9, 39)	=	2.19
Model	5.35230635	9	.594700706	Prob > F	=	0.0439
Residual	10.5787141	39	.271249078	R-squared	=	0.3360
				Adj R-squared	=	0.1827
Total	15.9310204	48	.331896259	Root MSE	=	.52082

IWB_Mean	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender_Dummy	-.4321112	.2586409	-1.67	0.103	-.9552618	.0910393
Age	-.0970828	.1146011	-0.85	0.402	-.3288854	.1347198
Educ	.104932	.1382917	0.76	0.453	-.1747893	.3846533
Tenure	.07448	.08374	0.89	0.379	-.0949002	.2438602
NY_Autonomy	-.0462327	.1021483	-0.45	0.653	-.2528471	.1603816
NY_Competence	.0758176	.1309447	0.58	0.566	-.189043	.3406783
NY_Relatedness	.2198559	.1251811	1.76	0.087	-.0333467	.4730585
NY_IQ	.1521234	.1289713	1.18	0.245	-.1087457	.4129925
NY_Inno	.1486835	.1461464	1.02	0.315	-.1469254	.4442925
_cons	1.402634	.9965736	1.41	0.167	-.6131268	3.418394

Dependent Variable: Ideation

Model 1

Source	SS	df	MS	Number of obs	=	52
				F(4, 47)	=	1.65
Model	2.21688507	4	.554221268	Prob > F	=	0.1772
Residual	15.7731149	47	.33559819	R-squared	=	0.1232
				Adj R-squared	=	0.0486
Total	17.99	51	.352745098	Root MSE	=	.57931

Ideation_5~s	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender_Dummy	-.4340022	.2717771	-1.60	0.117	-.9807472	.1127427
Age	-.1076969	.1051587	-1.02	0.311	-.3192488	.103855
Educ	-.0467016	.1457621	-0.32	0.750	-.3399371	.2465338
Tenure	.1466791	.0809053	1.81	0.076	-.0160814	.3094395
_cons	4.318766	.5158661	8.37	0.000	3.280978	5.356555

Model 2

Source	SS	df	MS	Number of obs	=	49
				F(3, 45)	=	1.13
Model	1.25044891	3	.416816302	Prob > F	=	0.3452
Residual	16.5307756	45	.367350569	R-squared	=	0.0703
				Adj R-squared	=	0.0083
Total	17.7812245	48	.370442177	Root MSE	=	.60609

Ideation_5It~s	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_Autonomy	.0621734	.1091099	0.57	0.572	-.1575852	.2819319
NY_Competence	.0843351	.1295486	0.65	0.518	-.1765893	.3452594
NY_Relatedness	.0959994	.1348703	0.71	0.480	-.1756434	.3676421
_cons	2.549638	.7840506	3.25	0.002	.9704791	4.128797

Model 3

Source	SS	df	MS	Number of obs	=	50
				F(2, 47)	=	5.71
Model	3.47983355	2	1.73991677	Prob > F	=	0.0060
Residual	14.3249665	47	.30478652	R-squared	=	0.1954
				Adj R-squared	=	0.1612
Total	17.8048	49	.363363265	Root MSE	=	.55207

Ideation_5~s	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_IQ	.2377757	.1212273	1.96	0.056	-.0061023	.4816536
NY_Inno	.1935403	.1279112	1.51	0.137	-.0637838	.4508644
_cons	2.282586	.5047821	4.52	0.000	1.267096	3.298077

Model 4

Source	SS	df	MS	Number of obs	=	49
				F(5, 43)	=	2.73
Model	4.28419459	5	.856838918	Prob > F	=	0.0315
Residual	13.4970299	43	.313884416	R-squared	=	0.2409
				Adj R-squared	=	0.1527
Total	17.7812245	48	.370442177	Root MSE	=	.56025

Ideation_5It~s	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_Autonomy	-.034626	.1067394	-0.32	0.747	-.2498865	.1806345
NY_Competence	.0855646	.1314315	0.65	0.518	-.1794923	.3506214
NY_Relatedness	.0940023	.1246967	0.75	0.455	-.1574724	.3454771
NY_IQ	.2792095	.1332514	2.10	0.042	.0104825	.5479366
NY_Inno	.1508934	.1469442	1.03	0.310	-.1454479	.4472346
_cons	1.405301	.8173904	1.72	0.093	-.2431237	3.053726

Model 5

Source	SS	df	MS	Number of obs	=	49
				F(9, 39)	=	1.81
Model	5.22871382	9	.580968203	Prob > F	=	0.0984
Residual	12.5525107	39	.321859248	R-squared	=	0.2941
				Adj R-squared	=	0.1311
Total	17.7812245	48	.370442177	Root MSE	=	.56733

Ideation_5It~s	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender_Dummy	-.4444861	.2817384	-1.58	0.123	-1.014356	.1253836
Age	-.031678	.1248354	-0.25	0.801	-.2841814	.2208253
Educ	.0738907	.1506416	0.49	0.627	-.2308107	.378592
Tenure	.0313459	.0912183	0.34	0.733	-.1531605	.2158523
NY_Autonomy	-.0655159	.1112705	-0.59	0.559	-.2905817	.1595498
NY_Competence	.0906775	.1426385	0.64	0.529	-.197836	.3791911
NY_Relatedness	.1592988	.1363602	1.17	0.250	-.1165157	.4351132
NY_IQ	.2859978	.1404889	2.04	0.049	.0018322	.5701634
NY_Inno	.1101266	.1591978	0.69	0.493	-.2118813	.4321345
_cons	1.499274	1.085571	1.38	0.175	-.6965008	3.695049

Dependent Variable: Implementation

Model 1

Source	SS	df	MS	Number of obs	=	51
				F(4, 46)	=	2.85
Model	5.02619532	4	1.25654883	Prob > F	=	0.0340
Residual	20.2458635	46	.440127467	R-squared	=	0.1989
				Adj R-squared	=	0.1292
Total	25.2720588	50	.505441176	Root MSE	=	.66342

Implementa~n	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender_Dummy	-.4644702	.3123638	-1.49	0.144	-1.093226	.1642855
Age	-.1615932	.1231788	-1.31	0.196	-.4095392	.0863528
Educ	.1141085	.1683629	0.68	0.501	-.2247885	.4530056
Tenure	.2880562	.0928013	3.10	0.003	.1012568	.4748555
_cons	3.659464	.6013205	6.09	0.000	2.449069	4.869859

Model 2

Source	SS	df	MS	Number of obs	=	49
				F(3, 45)	=	2.64
Model	3.57117285	3	1.19039095	Prob > F	=	0.0611
Residual	20.3165823	45	.451479606	R-squared	=	0.1495
				Adj R-squared	=	0.0928
Total	23.8877551	48	.497661565	Root MSE	=	.67192

Implementation	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_Autonomy	.0494858	.1209603	0.41	0.684	-.1941406	.2931123
NY_Competence	.1335816	.1436189	0.93	0.357	-.1556817	.4228449
NY_Relatedness	.22559	.1495185	1.51	0.138	-.0755558	.5267358
_cons	1.444339	.8692061	1.66	0.104	-.306332	3.19501

Model 3

Source	SS	df	MS	Number of obs	=	50
				F(2, 47)	=	4.82
Model	4.0894911	2	2.04474555	Prob > F	=	0.0125
Residual	19.9417589	47	.424292743	R-squared	=	0.1702
				Adj R-squared	=	0.1349
Total	24.03125	49	.490433673	Root MSE	=	.65138

Implementa~n	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_IQ	.0456605	.1430327	0.32	0.751	-.2420842	.3334053
NY_Inno	.3892784	.1509188	2.58	0.013	.0856689	.6928879
_cons	2.178364	.5955783	3.66	0.001	.9802147	3.376513

Model 4

Source	SS	df	MS	Number of obs	=	49
				F(5, 43)	=	2.70
Model	5.70047125	5	1.14009425	Prob > F	=	0.0332
Residual	18.1872838	43	.42296009	R-squared	=	0.2386
				Adj R-squared	=	0.1501
Total	23.8877551	48	.497661565	Root MSE	=	.65035

Implementation	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
NY_Autonomy	.0021703	.1239052	0.02	0.986	-.2477084	.2520489
NY_Competence	.0603663	.1525683	0.40	0.694	-.247317	.3680495
NY_Relatedness	.2207283	.1447504	1.52	0.135	-.0711886	.5126453
NY_IQ	.0644071	.1546809	0.42	0.679	-.2475366	.3763508
NY_Inno	.2972984	.1705758	1.74	0.088	-.0467004	.6412972
_cons	.7459815	.948843	0.79	0.436	-1.167543	2.659506

Model 5

Source	SS	df	MS	Number of obs	=	49
				F(9, 39)	=	2.33
Model	8.34229143	9	.92692127	Prob > F	=	0.0332
Residual	15.5454637	39	.398601633	R-squared	=	0.3492
				Adj R-squared	=	0.1991
Total	23.8877551	48	.497661565	Root MSE	=	.63135

Implementation	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender_Dummy	-.4629318	.3135325	-1.48	0.148	-1.097111	.1712475
Age	-.2020958	.138923	-1.45	0.154	-.4830941	.0789025
Educ	.1714943	.1676415	1.02	0.313	-.1675926	.5105812
Tenure	.1478718	.1015122	1.46	0.153	-.0574561	.3531997
NY_Autonomy	-.0203526	.1238273	-0.16	0.870	-.270817	.2301117
NY_Competence	.0994998	.1587352	0.63	0.534	-.2215725	.4205721
NY_Relatedness	.2851219	.1517484	1.88	0.068	-.0218182	.5920619
NY_IQ	.0186672	.156343	0.12	0.906	-.2975664	.3349009
NY_Inno	.1971283	.1771632	1.11	0.273	-.161218	.5554747
_cons	.8969134	1.208077	0.74	0.462	-1.546654	3.340481