

Ingrid Andrea Legran

An investigation of the mediating effect of work engagement between communicative leadership and innovation culture

A cross-sectional study of a Norwegian financial organisation

Master thesis in Work- and Organisational Psychology
Supervisor: Marit Christensen
May 2020

Norwegian University of Science and Technology
Faculty of Social and Educational Sciences
Department of Psychology



Norwegian University of
Science and Technology

Preface and acknowledgements

This master thesis represents the final research project of my educational days at the department of psychology at NTNU and Roehampton University, London. The process of being a student have provided me with rich insight and intelligence, that I would benefit from in the course of life. I will forever be grateful to have had the opportunity to complete five years of education at such great schools, in addition to have gained international experience.

The first main idea of this thesis was to perform a longitudinal study, with data from 2017-19. I was given access to the same survey, conducted in the same organisation at the same time for all three measurement points. Unfortunately, this was not completed, as it required a lot of time and work, and there were no one that had opportunity and knowledge to help me through with it. Therefore, a quicker and less comprehensive method was used – a cross-sectional study.

A couple of months before submission of my master thesis, Covid-19 broke out, with the consequence of shutting down the society on several levels – amongst other things were universities one of them. By being part of a joint community effort, means of writing a master thesis were reduced, and the opportunity to address and discuss matters with my supervisor and other class members, were limited.

I would like to thank my supervisor, Marit Christensen, for good advice, having faith in me, and for being encouraging. Data for the paper was provided by a Norwegian finance organisation and I would like to thank them for the enriched data, and for being available to answer questions and offer guidance during the process – especially in the initial phase. A big thanks goes to Harald Djupvik and Øivind Berg-Andersen for giving me access to data through Kantar TNS, and for offering sufficient help regarding indices, anchoring of theory and other concerns I had about the data. The biggest thank you goes to Hans Fredrik Sunde for helping me with data analysis. My friends and classmates deserve a thank you, for reminding me, and making sure that I did not forget about my social life, and that the master thesis, is actually just a master thesis. At last I would thank my parents, mainly for love and support during the process, and for relevant contributions and free proofreading.

Ingrid Andrea Legran
April 24th, 2020

Abstract

This cross-sectional study investigates the mediating effect of work engagement (vigor and dedication) between communicative leadership and innovation culture, respectively, testing direct effects among each included construct. Relevant theoretical background, such as the COR-theory and Dombrowski and colleagues (2007) eight elements of innovation culture, will be seen in context of included constructs. The study comprised of 529 participants with permanent employment in a large Norwegian finance organisation. Partial Least Square Structural Equation Modeling (PLS-SEM) was completed in STATA/MP version 16.0 to test the study's hypotheses. Results revealed that work engagement partially mediated (35%) the relationship between communicative leadership and innovation culture. The direct effect of communicative leadership had a greater effect on innovation culture without taking the mediating effect of work engagement into account. Communicative leadership proved to have a significant direct effect on work engagement, and employees work engagement turned out to directly promote innovation culture. Results are further discussed in light of previous related research findings and theory. The overall conclusion suggests that communicative leadership is sufficient for a modern working-life comprised with rapid change, as leadership communication is essential for both employees' engagement and the culture for innovation. Though, findings of the current study are applicable for workers and organisations outside of the finance industry, as suitable leadership concerning survival and success is fundamental for almost all businesses of this very day. It is suggested to conduct a longitudinal research in order to declare any cause-effect relationship between included constructs.

Keywords: innovation culture, innovation, communicative leadership, work engagement, structural equation modelling, mediation

Norwegian abstract

Hensikten med denne tverrsnittsstudien var å undersøke om jobbengasjement hadde en medierende effekt mellom kommunikativ ledelse og innovasjonskultur, i tillegg til å teste om inkluderte konstrukter hadde en direkte effekt på hverandre. Relevant teoretisk bakgrunn, som COR-teorien og Dombrowski og kollegaers (2007) åtte elementer for innovasjonskultur vil bli gitt og sett i sammenheng med de inkluderte konstruktene. Studien besto av 529 deltakere med fast ansettelse i en større norsk finansorganisasjon. Strukturell likningsmodellering (PLS-SEM) ble utført i STATA/MP versjon 16.0 for å teste studiens fire hypoteser. Resultatene viste at jobbengasjement delvis medierte (35%) forholdet mellom kommunikativ ledelse og innovasjonskultur. Den direkte effekten av kommunikativ ledelse hadde større effekt på innovasjonskultur uten å ta hensyn til den medierende effekten av jobbengasjement. I tillegg viste kommunikativ ledelse seg til å ha en betydelig direkte effekt på jobbengasjement, og jobbengasjement viste seg å direkte påvirke innovasjonskultur. Resultatene vil bli diskutert i lys av relaterte forskningsresultater og teori. Studiens konklusjonen foreslår at kommunikativ ledelse er egnet for et moderne arbeidsliv karakterisert av hurtig endring, ettersom kommunikasjon er viktig for både ansattes engasjement og en kultur for innovasjon. Funnene fra studien gjelder riktignok arbeidere og organisasjoner utenfor finansbransjen, da egnet ledelse for overlevelse og suksess er grunnleggende for nesten alle virksomheter i dag. Longitudinell forskning er foreslått som nødvendig for å erklære ethvert årsak-virkning-forhold mellom inkluderte konstrukter.

Stikkord: innovasjonskultur, innovasjon, kommunikativ ledelse, jobbengasjement, strukturell ligningsmodellering, mediering

Table of content

Introduction.....	1
Theoretical background.....	3
The concept of innovation	3
Culture.....	4
Organisational culture.....	5
Innovation culture.....	5
Leadership.....	6
Communicative leadership.....	7
Key principles of communicative leadership.....	8
Work engagement.....	10
Conservation of resources theory	11
The relationship between leadership and innovation culture.....	13
The relationship between leadership and work engagement	15
The relationship between work engagement and innovation culture	15
Method	17
Sample	17
Ethics	17
Design and procedure of the study	17
Instruments.....	18
Kantar TNS Alx.....	18
Leadership index.....	18
Innovation index.....	19
Engagement index	19
Statistical analysis.....	20
Measurement model.....	21
Structural model.....	22
Mediation.....	23
Results.....	23
Descriptive statistics	23
Measurement model evaluation	25
Construct reliability	25
Indicator reliability	25
Convergent validity	25
Discriminant validity	26
Structural model evaluation and hypotheses testing.....	26
The direct effects	26
The indirect effect.....	27
Discussion	29
Work engagement as a mediating effect between communicative leadership and innovation culture	29

The role of communicative leadership on innovation culture	31
The effect of communicative leadership on work engagement	32
Direct effect of work engagement on innovation culture	34
Implications of the current study	35
Theoretical implications.	35
Practical implications.....	36
Limitations and suggestions for future research	37
Conclusion	39
References.....	41
Appendices.....	55
Appendix 1: Questions from Kantar TNS Alx’s Questionnaire	55

Figures

Figure 1: The hypothetical model	13
Figure 2: Cross-sectional mediation model	17
Figure 3: Path Coefficients of the Hypothetical Reflective Model.....	28

Tables

Table 1: Mean Scores and Standard Deviations for Observed Variables	24
Table 2: Correlations of Observed Variables.....	24
Table 3: Indicator Reliability, Construct Reliability and Convergent Validity	26
Table 4: Discriminant Validity of Latent Variables.....	26
Table 5: Direct Effects of Path Coefficients	27
Table 6: R ² Values of Endogenous Latent Variables.....	27
Table 7: Mediating effects of Path Coefficients	28

Introduction

The interest of innovations has gained attention lately (Rosing, Frese, & Bausch, 2011; Zuraik, 2016). Innovations are important for organisations in order to achieve competitive benefits, because, without innovations, they may fail to build conditions for growth and development (Noefer, Stegmaier, Molter, & Sonntag, 2009) – which is important for survival and success. Janssen (2003) stated that organisations cannot be innovative off and on. Several initiatives are required for innovative work conditions at all levels, that contribute to success.

Leadership is proposed to be one of the greatest influential predictors of innovations (Mumford, Scott, Gaddis, & Strange, 2002). In a global survey by McKinsey, with business executives, managers, and professionals, results showed that respondents addressed leadership as the best predictor of innovation performance. Respondents that described their workplace as innovative, rated skills of its leaders as strong – and vice versa (McKinsey Global Survey Results, 2007). Implementation of innovations can sometimes be ineffective (Friedmann & Maurer, 2003), and a reason for that may be due to deficiency in communication between leader and followers during the process. Leadership communication is essential for the success of any organisations (Zerfass & Huck, 2007), which implies that it is equally needed during innovation processes. A recently emerged leadership concept in Sweden emphasizes communication, namely communicative leadership (Högström, Bark, Bernstrup, Heide, & Skoog, 1999). It is assumed that this concept is better at communication than other leadership styles as leader facilitate employees work, emphasize feedback, provide clear expectations, and convey directions (Högström et al., 1999).

Employees are one of the most central stakeholders within the process of innovation (Zerfass & Huck, 2007; Van de Ven, 1986). The core of innovations are ideas – that is developed, reacted to, and modified by employees. Put differently, innovations reflect the creativeness of employees. Innovation culture is therefore essential in a competitive and constantly changing environment (Karami, 2008). Innovative organisations will therefore have to adopt a culture of success, as it is important in order to manage innovation (Tushman & O'Reilly, 1996). On the basis of this, for an organisation to have the potential to develop an innovation culture, organisational culture becomes a powerful factor – as several features of organisational culture is found to profoundly impact innovation culture, e.g. adaptability (Smith, Busi, Ball, & Van Der Meer, 2008; Sharifirad & Ataei, 2012). With the aim to create and retain an innovation culture, Baqutayan, Jamaluddin, Omar, Parvez, and Baru (2018), indicated that organisations need to develop environments where employees feel free to

contribute. Adkins (2016) discovered that employees are likely to contribute in innovations, when they feel involved, enthusiastic, and committed to work. Organisations that seeks to be innovative must understand that characteristics and behaviour of employees enhance innovation. Adkins (2016) adds that work engagement is a significant resource in promoting innovative work conditions. There are several features that can impact employees work engagement, like, work environment, organisational factors (leadership), as well as individual factors. Gichohi (2014) specified that engaged employees achieve better satisfaction and innovative behaviour, and they are motivated to perform beyond what is requested, that in turn results into creativity and innovation (Rao, 2016). Schaufeli (2012) noted that engaged employees transfer their engagement to others, especially in the immediate environment, that again improve collective performance. Disengaged employees, on the other hand, negatively affect other employees' engagement, that can further cause sizable expenses (Loehr & Schwartz, 2003).

In line with previous literature, there is a need for a more throughout research on the mediating effect of work engagement between communicative leadership and the culture for innovation. Previous studies have investigated self-leadership and individual innovation with the mediating effect of work engagement (Gomes, Curral, & Caetano, 2015), and mediating effect of work engagement in relation to transformational leadership and innovative behaviour (Ariyani & Hidayati, 2018). Traditional leadership theories are said to take less account for communication aspects (Bryman, Collinson, Grint, Jackson, & Uhl-Bien, 2011) – which led to the concept of communicative leadership, as it emphasizes communication highly (Hamrin, 2016). The concept is mostly used in Sweden, meaning an investigation of communicative leadership is limited to a national level. Hamrin (2016) requested an expansion of the concept. The Volvo Group is the best-known organisation to practice with communicative leadership – which this paper will take further to the finance industry in Norway.

It will additionally be investigated whether communicative leadership has a direct effect on employees work engagement. This is due to the concepts newly emergence, but also due to previous literature's lack in attention on communication aspects in line with work engagement (Gözükara & Simsek, 2015; Ghadi, Fernando, & Caputi, 2013; Mikkelsen, York, & Arritola, 2015) – and innovation culture. On that account, there will also be examined whether communicative leadership has a direct effect on innovation culture. This answers to Sharifirad and Ataei (2012), that requested an investigation of leadership in relation to innovation culture, in order to broaden the literature, as innovation culture is rather less studied. The study additionally investigates whether work engagement have a direct effect on

the culture of innovation. Past literature discovered a relationship between work engagement and innovations with samples of Irish scientists and Indian pharmacists (Agarwal, 2014; Chughtai & Buckley, 2011) – which this study will take further to Norwegian financiers.

So, the main aim of the study is to investigate whether work engagement plays an indirect effect between communicative leadership and innovation culture. In addition to that, it will examine constructs direct effects on one another. The research question is as follows;

«Does communicative leadership have a direct effect on innovation culture, and does work engagement play a mediating role»

Theoretical background

In short, the upcoming section will present a theoretical framework relevant for the research question and constructs included. The concept of innovation will be explained, in order to bring innovation culture to the table. Theoretical perspectives on innovation culture will respectively be given, and to embrace the concept of innovation culture, a brief overview of organisational culture is also appropriate to be made. Theories and literature relevant to work engagement will subsequently be given. There is extensive literature on the term leadership, which forces this paper to narrow it down to what is applicable and relevant to the overall aim of the study. So, literature on leadership will mainly comprise of communicative leadership. The study's hypotheses will be given one by one through this section.

The concept of innovation

Introducing innovation is beneficial in order to announce the concept of innovation culture. The word «*innovation*» comes from the Latin word «*innovare*» and means to make something new. It may be defined as a discipline that can be learned and practiced (Lin, 2006; Zawawi et al., 2016). Innovations has been claimed to be an idea, a practice, or an object that is perceived as new by an individual or a unit (Daughtry, Chen, & Ferrin, 2011). Chen and Sawhney (2010) proposed that innovation comes in many forms; such as products, services, or technology. Similar, Bentz (1997) proposed that innovations are to bring out new and enhanced processes, services, and products for marketing. Innovations is a competitive strategy, and there is a growing interest of leadership within innovation processes. Zuraik (2016) discussed the effect of leadership on competitive advantages in modern working-life and proposed that leadership makes innovation sustainable. Businesses may struggle with innovation, and experience unsuccessful ones (Sniukas, 2012). Implementation of innovation sometimes tend to be ineffective. For instance, in Germany, around 40 billion euros are lost

annually due to the efforts by organisations to implement innovations, is merely unsuccessful (Friedmann & Maurer, 2003). A reason may be lack of professional communication between leader and followers within the process. There is no common model that organisations can adopt into their DNA in order to succeed, and there is no specific style of leadership that suits all companies to manage and generate innovation processes. It seems like every company goes through its own experience and builds its own innovation potential (Zuraik, 2016).

Innovations can be looked at in two stages (Koen et al., 2001). At the front end (FEI), ideas are generated and shaped – and the best are selected for further development. At this stage, work environment should be characterised as open minded, creative, driven by desire to learn, and supportive. Support from leader and work engagement, as well as the organisations infrastructure, have a central impact on the outcome and performance of innovations (Koen et al., 2001). On the other stage, at the back end (BEI), is where great ideas are developed, prototypes made, and new offerings are field-tested. Innovation performance at this stage is dependent on the organisation, such as how quickly they can implement, how fast decisions are made, and how well processes are defined and coordinated (Koen et al., 2001). Success at this stage depends on pace, discipline, and coordination (Borjesson & Elmquist, 2011).

Past studies have discovered a significant relationship between innovation and innovation culture (Birkinshaw, Bouquet, & Barsoux, 2011; Hilmarsson, Oskarsson, & Gudlaugsson, 2014). The relationship can be different for the stages FEI and BEI. Though, the complexity of organizing innovations is greater than the complexity of executing a plan. It is not a linear process; so, innovation culture must be flexible, and at the same time support creativity, open mindedness, and control (Hilmarsson et al., 2014).

Culture. In order to grasp the concept of innovation culture, an introduction of the term culture is needed. Culture is a broad concept, and may refer to the practices, traditions, ideas, values, languages, communication, and performances that are central to the social life of a given person or group (Cole, 2017). Strictly speaking, culture can be thought of as what a person or group do, think, or make. Hofstede (1994) defines culture as shared programming of the mind which distinguishes members of one group or category of people from another. While Spencer-Oatey (2008) refers to culture as a fuzzy set of basic assumptions and values, beliefs, procedures, and behavioural conventions that are shared by a group of people, which influence one members behaviour and his or her interpretations of the meaning of another individuals' behaviour. Consequently, culture is notoriously difficult term to define.

From these definitions, however, it seems like some key characteristics of culture is that it affects behaviour and interpretations of behaviour. Avruch (1998) stated that culture is

a derivative of individual experiences, which could be something learned or created by the individual themselves or passed on to them socially from generations or relatives. Though, culture is one of the most central concepts within sociology, as it plays an important role in our social lives. For instance, it is fundamental for shaping relationships, and for shaping our everyday experiences (Cole, 2019) – which also applies at work.

Organisational culture. A determinant factor for organisations to have an innovation culture, is organisational culture (Smith et al., 2008; Sharifirad & Ataei, 2012). Organisational culture is referred to as a system of values, assumptions, and beliefs that show people in an organisation what is appropriate and inappropriate behaviour (Chatman & Eunyoung Cha, 2003). The reason to mention organisational culture in this paper is due to former research, as their findings provide evidence for an inter-relationship between innovation culture and organisational culture (Sharifirad & Ataei, 2012). Their research study (2012) showed that involvement and adaptability are central ingredients of organisational culture, which greatly have an impact on innovation culture. Jung, Chow, & Wu (2003) additionally specified that organisational culture play an important role in innovations. That is, the degree to which employees feel supported by the organisation and encourage them to take innovative initiatives, which further has an impact on intensity of the innovation.

Organisations that have great innovation cultures are found to be flexible, adaptable, and experiment with new ideas (O'Reilly, Chatman, & Caldwell, 1991). Flexibility is stated to be a central component of organisational culture, but also as an element of Dombrowski et al. (2007) eight elements of innovation culture – which is the upcoming focus of the paper.

Innovation culture. Innovation culture, according to Leavy (2005), is a culture that utilizes the full potential of all employees and their knowledge about customers, competitors, and processes. Another, more recent, definition by Krasnicka, Glod, and Wronka-Pospiech (2017) is that innovation culture is a culture that stimulates the creation of new solutions or their absorption from the outside, which contributes to a more effective implementation of creative ideas. As mentioned in a previous section, the relationship between innovation culture and efforts to succeed with innovation have been studied to some extent recently (Birkinshaw et al., 2011; Hilmarsson et al., 2014), however, research on the concept of innovation culture is still relatively young. In order to manage an innovation, it is central to create a culture where new ideas are generated, valued, and supported. Inculcating a culture for innovation is seen as a requirement to provide with necessary support to the process of innovation (Streets & Boundary, 2004). Organisations with greater innovation capability will achieve greater response from the environment and obtain abilities to increase organisational

performance and strengthen a sustainable competitive advantage more certainly (Calantone, Cavusgil, & Zhao, 2002). It is central to improve innovation culture in organisations, so that all members search for new products, services, or processes. Dombrowski and colleagues (2007) acknowledged eight key elements that were important for the innovation culture in organisations. Each element was found in over 80% of the organisations they investigated. The elements were as follows; innovative mission and vision statements, communication, safe innovative environment, flexibility, boundary spanning, collaboration, incentive schemes, and leadership. Dombrowski and colleagues (2007) argued that innovation culture is organisation specific and may differ from one organisation to another. They concluded that these eight elements are central preconditions for innovativeness in organisations and lead to innovation performance. Organisations that rank highly on each element will outperform those who rank highly on barely a few or none of the identified elements.

Lateral communication is itemised as an important element of innovation culture (Dombrowski et al., 2007). Ernst and Zerfass (2009) identified communication and innovation culture as critical factors for success of an organisation. In the establishment of an innovation culture, communication between members may encounter some difficulties (Linke & Zerfass, 2011). It is central to find ways to communicate effectively, which may depend on time, tone, and the message itself (Garvin & Roberto, 2005). Effective communication is a key factor to success, especially in a change process like innovations, but also along with commitment, cultural values, and interaction (Linke & Zerfass, 2011). Conversely, the nature of innovation processes, or generally in change processes, messages are not always received directly from the source, it may be told by another colleague or person. Also, messages are not understood and accepted once they reach the right person of the message. Messages can be interpreted subjectively and processed individually, and what may appear understandable and convincing for one person can differ from the perspective of another person. Hence, Linke and Zerfass (2011) noted that, in this regard, communication should adapt to specific conditions of each phase of identification within the innovation culture. Means of communication varies, and in order to be effective it must be appropriate to the needs of its subject. Bryman (2007) pointed at leadership as essential in supporting innovations and identified central aspects like proper communication with staff and open communication. In spite of that, the paper will now direct its attention to leadership, more specifically, communicative leadership.

Leadership

The term *leadership*, according to Janda (1960), is a word taken out from the common vocabulary, and integrated to the technical vocabulary of a scientific discipline, without being

defined properly. A consequence of this is uncertainty about the terms meaning, as it carries excessive connotations. Yukl (2013) specified that researchers mostly define leadership in the opinion of their individual perspective and deepest interest. Leadership can be interpreted as having an equal number of definitions, as attempts to define it (Stogdill, 1974). Still, most definitions of leadership reflect the assumption that it is a process where influence is exerted to guide, structure, and facilitate activities and relationships in groups or organisations (Yukl, 2013). Considering the fact that leadership has many different meanings to individuals, some might question whether it is useful as a scientific construct. Despite that, the majority of scientific researchers seem to believe that leadership is an actual phenomenon that is central for the effectiveness and success of an organisation (Alvesson & Sveningsson, 2003a).

In terms of existing theory and empirical findings on leadership, one may ask about necessity to continue to develop new approaches. For the matter of communicative leadership, there are two reasons for the need of further research development (Johansson, Miller, & Hamrin, 2014; Högström et al., 1999). First and foremost, work-life is constantly changing, meaning that organisations need a sufficient leadership, because employees understanding, collaboration, and learning are more important than ever before. It is therefore important to promote and improve leadership communication (Raelin, 2013). Second, leadership communication may have a positive, and at the same time a terrible, effect (Tourish, 2013). Previous studies have focused on destructive leadership communication (e.g. Krasikova, Green, & LeBreton, 2013), meaning it is important to focus on a positive aspect of leadership communication – such as, how leadership communication impact employees in terms of work engagement. Based on prior research findings, Barrett (2006) implied that communication skills within leaders are fundamental. In Barret's (2006) study, chief executive officers and other senior executives were requested to list the key skill a leader must possess. Results showed that participants itemised communication as a required ability. Effective leadership communication is important in an ever-changing world, and communicative leadership emphasizes the importance of a two-way communication, evokes notion of dialog, and uses communication that satisfies different needs (Johansson et al., 2014) – thus, the paper will now pay more attention to the leadership concept of interest.

Communicative leadership. It is difficult to say whether the concept communicative leadership existed before 1990s as it arose in Sweden and is not significantly known outside northern countries of Europe. The concept was developed as a reaction to a complex business environment characterised by rapid change, as well as a movement towards a more valuable leadership theory (Högström et al., 1999; Eriksen, 1997). Communicative leaders emphasize a

two-way communication notion and reciprocal interactions. One general characteristic of communicative leaders is that employees experience greater openness and support (Eriksen, 1997). Communitive leaders are said to outperform non-communicative leaders in achieving organisational goals and motivate employees (Alvesson & Sveningsson, 2003b). Based on previous literature (Högström et al., 1999; Johansson, Miller, & Hamrin, 2011; Johansson et al., 2014) eight key guiding principles of communicative leadership have emerged, that leaders can follow, with intention to acquire decent communication abilities. According to Johansson and colleagues (2014), these principles were a result of former research, both quantitative and qualitative – sort of a combination of knowledge.

In the 1970s, some of the principles were already proposed, which contribute to consolidate Johansson and colleagues (2014) findings. This illustrates that there are particular principles of communicative leadership that have an evident constancy with organisational settings over time. So, the theoretical contribution of the framework of communicative leadership is securely rooted in previous research and provides a concrete foundation for future development of the concept (Johansson et al., 2014). The principles highlight the essence of how to be a communicative leader. Based on what previous literature has recognised, it is stated that «*communicative leaders engage employees in dialogue, actively shares and seeks feedback, practice participative decision-making, and is perceived as open*». This definition encompasses leadership behaviours that are constructed socially and composed in discourse, which enables and shapes the interactions between employees and leader (Johansson et al., 2014). With this definition, along with the key principles of communicative leadership, an integrated theoretical framework was formed, that can guide future research on development of leadership communication.

However, the current study does not measure all eight principles directly. Recently, researchers have drawn to the conclusion that some dimensions of communicative leadership are more «central». For instance, Djupvik (2016) suggested that communicate/listen, point in direction to followers, motivate, and implement change are among the most important characteristics – thus, the point of view this master thesis draws on.

Key principles of communicative leadership. Although principles of communicative leadership are not directly measured in this study, the grounds for the questions used in the questionnaire are in strong resemblance to four key principles of communicative leadership ((Djupvik, 2016; Johansson et al., 2011; Johansson et al., 2014; Högström et al., 1999). The main focus will mostly be drawn to these principles, due to relevance of the research question (see Johansson et al., 2011, 2014 for all principles).

The four principles of interest in this paper is that communicate leaders «*communicate clear expectations*», «*convey directions and assist employees in achieving their goals*», «*they are available, respectful, and expresses concern for employees*», and «*provide structures that facilitate the work*». These four principles emphasize that communicative leaders convey priorities, ensure understanding, and follow-up in order to determine if assistance is necessary or not, in order to engage and motivate employees (Johansson et al., 2014). In cooperation with employees, they set clear directions and determine how work will be assessed. It also highlights that communicative leaders ensure employees on how their unit contribute to the organisation's overall objective. Informational dialogue and listening are crucial leadership behaviours (Alvesson & Sveningsson, 2003b), in order to accomplish organisational goals. Communicative leaders provide work structures that facilitate employees work. By doing that, they create workable structures that allow employees to accomplish their work, are responsive to feedback on operations, and demonstrate willingness to implement change (Johansson et al., 2014). Feedback should be given actively to employees, but it should also be sought. At last, they are willing to listen to employees' opinions, receive questions and complaints, as well as share appropriate information in an adequate manner (Johansson et al., 2014).

Based on these, and on the eight key principles by Johansson and colleagues (2011, 2014), it is not certain that all communicative leaders manage to possess all desired principles. Though, the concept can be somewhat questioned, as leading others without communicating seems virtually impossible. Yet, according to Johansson and colleagues (2014) the concept is supposed to signify that leaders that communicate, are not just communicating, they are decent communicators. There is a competence aspect, in which that implies that this ability for communicating can be developed in leaders. In addition, considering that there initially are eight key principles, it could also indicate that some of the principles are decent enough for guidelines, in order to become a competent communicative leader. This is based on Djupvik's (2016) research, that put confidence in the leadership index used in this paper, as it is well documented through the references to the original communicative leadership index. Hence, communication skills of a leader are related to their awareness, ability, and knowledge in order to convey that communication (Johansson et al., 2014). So, in order for a leader to obtain a desired, e.g. culture, at work, communicating that with followers is essential. Thus, principles proposed by Johansson and colleagues (2014) highlight how leaders communicate in the most effective manner, which can contribute to achievement of their desires. Effective communication between leader and followers creates value, which is seen as an important competitive factor for the organisation (Luthra & Dahiya, 2015). Also, well-functioning

communication may also lead to higher productivity, lower absenteeism, reduced costs, higher degree of innovation ability, and impact employees work engagement (Parsley, 2006; Shaffer, 2004; Nordfors, 2006) – thus the paper will now direct its focus to work engagement.

Work engagement

Features that impact work engagement can be related to job factors, organisational factors (leadership) or individual factors (Sun & Bunchapattanasakda, 2019). Engagement may be referred to as personal engagement, work engagement or job engagement (Hakanen, Bakker, & Demerouti, 2005; Rich, Lepine, & Crawford, 2010; Schaufeli & Bakker, 2004) – but, this paper refers to it as *work engagement*. The concept of engagement was developed by William Kahn, who provided the first formal definition as «*the harnessing of organisational members selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally in role performance*» (Kahn, 1990). Strictly speaking, people bring their personal selves to work. Definitions of work engagement is extensive – the literature provides a great deal of different definitions. Though, each definition represents a unique perspective of the time being, context, and field – but the incoherent attempts to define work engagement has caused misinterpretations (Shuck & Wollard, 2010). However, most definitions entail some key characteristics, that is, work engagement is a positive occupational state of mind (Schaufeli, Salanova, Gonzales-Roma, 2002; Schaufeli & Bakker, 2010).

Schaufeli, Bakker, and Salanova (2006) defined work engagement as a work-related state of mind, that is characterized by vigor, dedication, and absorption. *Vigor* can be explained as having high levels of energy and mental resilience during work and motivation to invest effort at work, even when work is difficult. *Dedication* is referred to as the state of mind people are in when they have a sense of their own significance and feel enthusiastic, inspired, or challenged. *Absorption* can be described as the state of mind in which a person is highly focused and engaged at work. Blomme, Kodden, and Beasley-Suffolk (2015) stated that high levels of dedication may be a central predictor of individual and organisational performance. This is relevant for the paper as it measures dimensions of dedication and vigor only, not absorption. Absorption is omitted due to measuring a more static engagement, and not instant engagement (Djupvik, 2016 – *explained in the method section*). According to recent research, it is suggested that dedication and vigor constitute the core of engagement, while absorption seems to be related to the concept of flow (Schaufeli, Bakker, & van Rhenen, 2009; Hakanen, Bakker, & Schaufeli, 2006). In essence, absorption plays a different role, in comparison to vigor and dedication. Kulikowski (2017) tested the factorial validity of the Utrecht Work Engagement Scale (UWES) and discovered that a two-factor UWES (vigor

and dedication) presented a better fit than the three-factor UWES on a sample ($N= 1420$) of Polish employees. One may therefore ask if the dimension of absorption is third dimension of work engagement, or a consequence of it.

According to Bakker (2009), there are four central reasons why engaged employees perform better at work; they frequently experience positive emotions, have a better health, communicate their engagement to others, and take responsibility and the initiative for creating their own work-related and personal resources. Engaged employees manage to create personal and work-related resources themselves in specific situations, which is central for maintenance of engagement (Bakker, 2009). A longitudinal study by Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009) specified that employees that ultimately become engaged at work, will remain engaged. A reason for that may be due to resource gain, because once primary gains are made, greater resources might become obtainable (Hobfoll, 2001). Resources can loosely be referred to as states, objects, conditions, or other factors that individuals' value, and value of resources may differ from individual to individual, as it is tied to personal experiences or situations (Hobfoll, 1988). Resources at work initiate motivational processes that may lead to work engagement and positive organisational outcomes, such as accomplishing organisational goals (Bakker & Demerouti, 2008). Work engagement is a dynamic process to unfold over time, and it is important to understand structures of psychosocial experiences and behaviours that explains work engagement, like positive work-related resources. Literally speaking, it is central to identify underlying motivational processes that relate various types of resources with work engagement, in addition to understand how resources and engagement develop over time. One approach that may clarify the dynamic relationship of various resources and work engagement is conservation of resources theory (COR).

Conservation of resources theory. The COR-theory assume that different resources are key components for gaining new resources and enhancing well-being at work (Hobfoll, 1989). Employees are expected to be engaged, show initiative, and be innovative. To achieve this, organisations must arrange working conditions with motivating and energizing resources (Schaufeli & Salanova, 2006). As supported by COR-theory, a resource is a factor that people value, and will therefore strive to obtain, protect, and retain. According to Hobfoll (1998), people who lack resources are not only vulnerable to resource loss but may create future loss of resources. On the other hand, individuals with greater resources are less vulnerable to loss of resources, they rather experience resource gain (Hobfoll, 2001) and are likely to generate more resources in future. Employees with resource surpluses are less vulnerable to invest in resources that are not required for everyday functioning (Hobfoll, 1998). This may indicate a

tendency to enrichment of resources among those with initial recourse reservoir, that further cause increased resources to form resource caravans (Hobfoll, 2002) – meaning resources not being individual, but travel in packs for both individual and organisation (Hobfoll, 2011). Resources tend to be a result of nurturance and learned adaptation, and they are likely to appear as co-travellers. For example, organisational- and innovation culture emerge from common environmental conditions and are therefore likely to be interrelated (Sharifirad & Ataei, 2012)

Resources take on an individualized meaning and can be hard to define properly. Too broad definitions might open the opportunity for researchers to define almost anything as a resource, just to make it fit into their current research question, which makes theory testing nearly impossible (Hobfoll et al., 2018). How resources operate, may depend on context. For instance, leadership can be found to play a supportive role in addressing several demands at work, whereas it also can, occasionally, not play a supportive role, or even make a situation worse. Previous studies have found support for that (Tosunoglu & Ekmekci, 2016; Wallace & Trinkka, 2009). It is central to determine resources in a context, exemplary, one employee may feel higher degrees of engagement by their leader, while another employee may experience the opposite effect - this can be explained by the fact that individuals are very different, even leaders themselves.

Extensions regarding the COR-theory has played an important role to a more deeply understanding of the theory, since extensions offer new ways to test resource processes that is relevant (Hobfoll, Halbesleben, Neveu, & Westman, 2018). Recent attention has been drawn to leadership, because of its implications to leaders themselves and for others who work with them (Chi & Liang, 2013; Hunter, Cushenbery, & Jayne, 2017). The main focus of research has been on the relationship between leadership and employee performance at work, and the way employees manage their resources at work (Hagger, 2015; Tepper, Moss, & Duffy, 2011; Marchand & Vandenberghe, 2016; Halbesleben, 2010). In a study conducted by Adu-Oppong and Agyin-Birikorang (2014), it was discovered that miscommunication between leader and members can cause delays in daily work, especially in difficult times. Communication can be viewed as a recourse for members, and miscommunication leads to a wastage of resources and lowers the overall work productivity. Hence, an environment of decent communication is key for organisations to better utilize its recourses. Ekene (2015) agrees with communication being an essential instrument, especially in managing human and material resources. It is, after all, through communication that the leadership function of motivating, organising, and coordinating, can be successfully achieved. Besides, it is through communication that leader

and employee come together to share and learn about goals, vision, and culture – e.g. innovation culture.

By having introduced literature on communicative leadership, innovation culture and work engagement, the hypothetical model, along with the hypotheses of this master thesis, will now be provided. Communicative leaders are assumed to outperform non-communicative leaders in achieving organisational goals and engage employees, as they involve employees in dialogue, emphasize feedback, practices participative decision-making, as well as being open (Johansson et al., 2014). The current study takes on the assumption that communicative leaders are applicable to create an innovation culture, due to key attention on communication, decision-making, and achieve organisational goals – which are features found in Dombrowski et al. (2007) eight elements of innovation culture. Work engagement is chosen as a mediator in this study as it is previously shown that leadership impact employee's engagement at work and higher degrees of work engagement may lead to employee innovativeness and creativity. This has led to the main hypothesis of the paper:

H₁: Work engagement mediates a positive relationship between communicative leadership and innovation culture

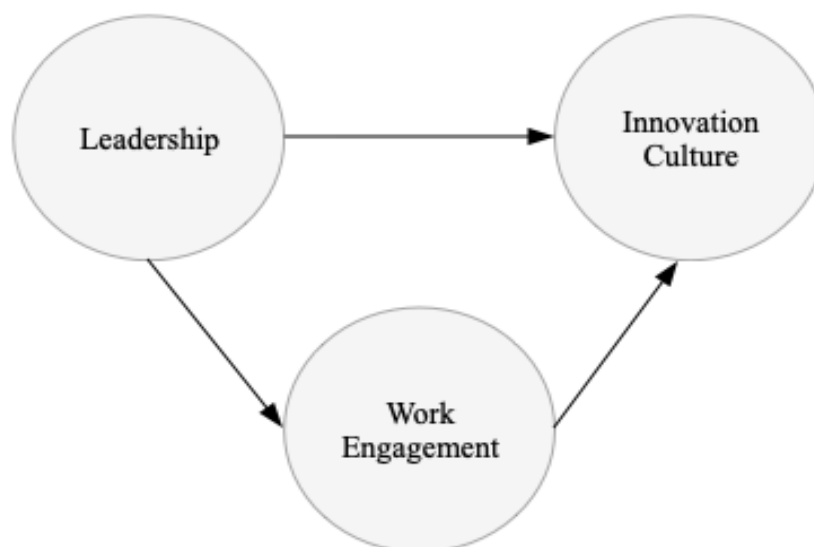


Figure 1: The hypothetical model: relationships between the three main constructs

The relationship between leadership and innovation culture

Leadership is proposed to be, by Mumford and colleagues (2002), the most essential and influential predictor of innovations – and innovative organisations needs efficient leadership. Leadership behaviour play a pivotal role as it contribute to produce a culture where members feel comfortable to go beyond current situations and take part in creative

performances (Shin & Zhou, 2007). Yuan and Woodman (2010) specified that a high-quality relationship between leader and follower, proved to have an impact on the innovation process. Likewise, Zhang, Zheng, and Darko (2018) conducted a study with construction personnel and noticed that leadership contributed to develop a culture for innovation among members, in addition to impact innovative work behaviour. Loewe, Williamson, and Chapman Wood (2001) studied about twenty innovative companies. By «*innovative*» they meant as compared to companies that introduces less successful strategies. The innovative companies had some factors in common, which were; big aspirations, a flexible definition of their businesses, and a habit of experimentation. Though, the overall organisation culture differed severely for the companies they investigated, which may be due to different types of leadership styles. Cummings et al. (2010) found that leaders using relational and transformational leadership styles presented a better fit for employees when it comes to job satisfaction, productivity, and effectiveness – than leaders practicing autocracy. Nevertheless, traditional leadership styles are said to be less considerate about communication aspects (Bryman et al., 2011), which Dombrowski and colleagues (2007) specified as an essential element of innovation culture. As communication is to share information or ideas, that can be accomplished in person or through information and communication technologies, it seems to be central in order to create innovation culture. As already mentioned, communication abilities are the primary feature of a communicative leader (Högström et al., 1999). This leadership concept is also assumed to better achieve organisational goals, than non-communicative leaders, which correspond with Dombrowski et al. (2007) «*innovative mission and vision statement*» element of innovation culture – that emphasizes that organisations need a mission to encourage innovation.

This paper's main focus surrounds a culture for innovation, not directly innovations, but innovation and innovation culture are previously discovered to be profoundly related to one another (Hilmansson et al., 2014) – as innovation culture is an important precondition to a successful idea administration. A culture for innovation creates willingness and motivation to participate in development and evaluation of ideas (FEI), which will further have an impact on the actual innovation process. In Dombrowski and colleagues (2007) eight elements of innovation culture, leadership is specified be a central element that is specifically needed in order to succeed with innovation processes. And, Barrett (2006) discovered that leadership communication is an essential skill of leaders in the context of several work-related issues – this has led to the second hypothesis:

H₂: Communicative leadership has a positive effect on innovation culture

The relationship between leadership and work engagement

Figure 1 offers an overview of included constructs, as well as the directions between them. It is mainly hypothesized that work engagement mediates the relationship between communicative leadership and innovation culture. However, it is additionally a need for a deeper investigation on communicative leadership, as it is a young and understudied concept. Some of the main drivers of work engagement are partially related to behaviours of leaders. Strictly speaking, attitudes and actions of leader can enhance engagement among employees – or for that matter, cause disengagement (Hobfoll, 1989).

Leadership play a central role in creating the right context for employees to become engaged at work (Kahn, 1990). Wallace and Trinka (2009) discovered that work engagement can increase by leader's right support, and that leadership is a more important organisational variable than any other. As supported by the COR-theory (Hobfoll, 1989), leadership can be considered as a great recourse for several employees, and the good conditions of a leader may benefit employees to feel engaged and motivated. Wiley (2010) specified that an element of building confidence and increase employees work engagement is dependent on having leaders that can inspire belief in the future of organisations. Wiley (2010) further argued that a key component of effective leadership is communication skills. Gözükarar and Simsek (2015) conducted a study with 252 higher education employees and noticed that leader had a positive effect on employees work engagement. Leaders inspire, motivate, and engage followers in the workplace, as they are in communication with them, and have an effect on their every single workday. Högström et al. (1999) concept of communicative leadership evoke notion of effective communication with followers, and they adopt a coaching personality that provides employees with compelling rationales for their job design. They additionally seek employee input when solving problems and make decisions – actually, employees' involvement in decision-making is found to be related to higher work engagement (Yoerger, Crowe, & Allen, 2015). Employees mostly consider the opportunity to engage in decision-making as valuable and rewarding (Allen, Shore, & Griffeth, 2003) – as they might feel respected and trusted by their leader. This has led to the third hypothesis:

H₃: Communicative leadership has a direct effect on work engagement

The relationship between work engagement and innovation culture

Previous research discovered that highly engaged employees show organisational productivity by instituting an innovative work behaviour (Agarwal, Datta, Blake-Beard, & Bhargava, 2012). Similar results are revealed by Agarwal (2014) in another study concerning

manufacturing and pharmaceutical firms in India, where engaged staff members repaid their workplace by exhibiting innovative and creative work behaviour. Chughtai and Buckley (2011) conducted a study with Irish scientists ($N= 168$) from different institutions. Their results revealed that there was a significant correlation between employees work engagement and innovation. Rao (2016) stated that the most effective way for an organisation to sustain competitive in an ever-changing business world, is to embed innovation into their culture. In the study, Rao investigated the reciprocation between work engagement and innovation. The results confirmed that work engagement positively impact innovativeness. Rao (2016) further noted that the capacity of an organisation when it comes to providing facilities and support to employees, is important in engaging them, which further promote innovativeness. Engaged employees are important for any organisation, especially when it comes to new ideas and uniqueness (Rao, 2016) – employees are beyond everything the most crucial members within an innovation, as they develop, react to, and modify new ideas (Zerfass & Huck, 2007).

Hakanen, Perhoniemi, and Toppinen-Tanner (2008) carried out a cross-lagged longitudinal study with 2555 Finnish dentists in order to detect any cause-effect relationship between work engagement, innovation, and job resources. Results revealed that employees that has been given values of empowerment and training often repaid their workplace by showing work engagement. Engaged behaviour promotes motivation to perform beyond what is expected of employees, that are supported to further result into creativity and innovative behaviour. However, in Hakanen and colleagues (2008) study, the ability an organisation to be innovative was investigated, whereas this study examines the culture of innovation – which a small number of studies have explored before. Based on former studies, that discovered a significant relationship between innovation culture and innovation (Hilmansson et al., 2014; Deshpande, Farley, & Webster, 1993), the culture for innovation appears to be a pivotal precondition to a successful innovation. Innovation culture is stated as essential for a successful idea management, as it creates willingness to participate in the development of new ideas, that further impact the performance of innovation (Kliewe, Davey, & Baaken, 2013). The culture of innovation may also lead to continuous improvement in organisation processes, which is important for the implementation of innovation. It is expected that employees work engagement would promote a culture for innovations. This has led to the fourth and final hypothesis of the paper:

H₄: Work engagement has an effect on innovation culture

Method

Sample

Participants in the current study were employed within a large Norwegian financial organisation ($N = 529$) and consisted of 257 women (48,6%) and 272 men (51,4%). Included participants were only permanent employees, and not temporary ones – regardless of duration of their temporary assignment. Due to ethical considerations, the paper did not have access to other demographics and background statements about included participants. The questionnaire did not normally account for a participant number for each participant, causing Kantar to assign each participant a fictive number before data were sent over for analysis. This entailed expenses. The response rate on the questionnaire was very high (90%), which is assumed to be the best way to acquire unbiased estimates (Rogelberg & Stanton, 2007).

Ethics

As this research project does not include personal data that can be linked to individual persons; through name, background information or other personalia – it was not required to send in a notification form to the Norwegian Centre for Research Data. Even though the paper processes information that is completely anonymous, NSD was notified about this project, as it follows the guidelines for performing research. They were informed in September 2019.

Design and procedure of the study

The current study used a cross-sectional design with a mediation variable. This type of study is also referred to as prevalence study, as it is useful for studying the prevalence of a particular phenomenon, whether it is assumed to be the cause or the consequence – or both – in a defined population (Zangirolami-Raimundo, Echeimberg, & Leone, 2018). Mediation is when a third variable (M) intervenes between two other related constructs (X and Y) (Hair, Hult, Ringle, & Sarstedt, 2017). Strictly speaking, mediation assumes that X influences M , which in turn influences Y ($a'b'$). It additionally allows to test the effect of X directly on Y (c') (see *figure 2*). As this is a cross-sectional study, the mediation effect will not provide any cause-effect relationship but indicate how variables in the study correlate with each other.

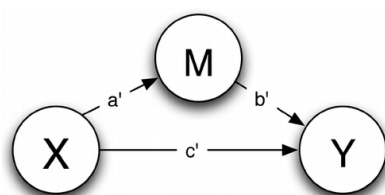


Figure 2: cross-sectional mediation model (Mitchell & Maxwell, 2013)

The inclusion criteria for the current study was that all participants had to be employed in a defined area of the finance business investigated (middle of Norway), it did not account for a national basis. The study did not contain any inclusion or exclusion criteria beyond that.

Instruments

This project used Kantar TNS Alx, which is an employee satisfaction survey used by several organisations in Norway to measure factors like work engagement, leadership and innovation culture. Alx is a modern model developed by Kantar (Djupvik, 2016) in 2014 that consist of one core model (Alx) and two extended models (Alx+ and Alx++), that comprise of primary and secondary drivers. Instruments for a comprehensive insight of background and demographics variables were not included.

Kantar TNS Alx. The Alx has a respectable theoretical foundation in modern work- and organisational psychology, such as theories related to work engagement, burnout and work engagement, well-being at work, leadership influence, and job satisfaction (Brøgger & Salomon, 2013; Schaufeli & Bakker, 2003; Kopperud, 2012; Schaufeli, Bakker, & Salanova, 2006). The core model consists of indices that is key for performance parameters for all types of organisations. The indices are work engagement, willingness to change, leadership and performance. Kantar TNS Alx extended models include driver questions related to interactions, competence development, organisational culture, and innovation culture. Even though the Alx measures several aspects of the modern working life, the current study will only investigate leadership, engagement and innovation culture.

Leadership index. Alx leadership index is developed in a cooperation between Kantar and Netsurvey. The items ($N=4$) in the leadership index were measured on a 5 – point likert scale, which is the most used rating scale (Likert, 1932). The scale ranges from «*strongly agree*» (5) to «*strongly disagree*» (1). Reliability statistics showed that the leadership index had an acceptable internal consistency (Hair et al., 2017 – *specified in the results section*). The leadership index is based on the Communicative Leadership Index (Djupvik, 2016; Johansson et al., 2011, 2014). CLI is based on the notion that communicative leaders create clarity in the situation and involve their employees in closing processes, listen, encourage open dialogue, and provide feedback (Nordblom & Hamrefors, 2007). The questions used in the Alx survey is comparable to the ones in CLI. For instance, «the feedback I get from my leader motivates me to do a better job» is similar to «do you receive regular feedback on your performance (CLI)». Also, «my leader set clear goals on what to achieve in the organisation» is in line with «do you know the organisations overall goals to achieve (CLI)».

Innovation index. This index belongs to the Alx++ (Djupvik, 2016). All items ($N=3$) were measured on a 5 – point likert scale (Likert, 1932) with a range from «*strongly agree*» (5) to «*strongly disagree*» (1). The innovation index had an internal consistency over the satisfactory level (Hair et al., 2017). The inter-item correlation ranges from .53 to .59, which is above the values Clark and Watson (1995) recommended of inter-item correlation. So, the innovation index contains items that is somewhat intercorrelated and have a narrower focus, as it is above .50. Further on, questions for the innovation index are made from each of the «spheres» of innovation – in fact, own leader, culture and practice. It is a pragmatic approach, where «*own leader*» emphasizes transformational skills, «*culture*» highlights openness and ability to create understanding, and «*practice*» considers whether you actively work on making improvements (Djupvik, 2016). The innovation index is to a larger extent leader controlled. Based on that perspective it can be interpreted that the index is more about culture than climate, as leader influences *culture* more than *climate* in organisations (Djupvik, 2016).

Engagement index. Items within the engagement index were measured on a 5 – point likert scale ($N=4$). Like the other two indices, this scale also ranges from «*strongly agree*» (5) to «*strongly disagree*» (1), meaning all three indices are measured with the same metric scale, that allows to directly compare the size of coefficients. The alpha levels of the engagement index are according to Hair and colleagues (2017) acceptable (see results). Also, the inter-item correlations are above average (between .53 to .62), which means that the items in the index may be close to each other (Clark & Watson, 1995).

The engagement index is in line with the Utrecht Work Engagement Scale (UWES) (Schaufeli & Bakker, 2003). The UWES is a widely used operationalization of engagement in academic studies (Farndale, Beijer, Van Veldhoven, Kelliher, & Hope-Hailey, 2014). It is a self-report questionnaire that includes the three constituting dimensions of work engagement: vigor, dedication and absorption (Schaufeli et al., 2002). Questions from the Alx is found in UWES, although there is not exactly the same formulation, but «*I am strongly engaged to my job and my tasks*» is the same as «*I find the work that I do full of meaning and purpose (DE)*». Also, «*I look forward to going to work*» is similar to «when I get up in the morning, I feel like going to work (VI)». Additionally, «*I am proud to be an employee of the organisation*» is in line with «*I am proud of the work that I do (DE)*». This means that the Alx has covered the dimensions dedication and vigor – but are missing absorption. Absorption is omitted due to measuring static engagement, and not instant engagement. Work engagement that is static can be measured periodically. The last question of Alx engagement index is related to whether engagement points in a direction «*the goals we have set motivate me to make an extra effort*».

All questionnaire questions from the leadership, work engagement and innovation indices can be found in *appendix 1*.

Statistical analysis

The statistical analyses were conducted using STATA/MP, version 16.0 (Software for Statistics and Data Sciences). First, the original questionnaire contained seven options to answer to, totally agree (5) – totally disagree (1), including «*do not know*» and «*do not want to answer*» – these two additional answers were excluded in the analysis as they were meant as *missing* (Djupvik, 2016). Second, the dataset consisted of string variables – variables in the form of textual characters. This caused an error message when trying to run data analysis, as the command used, only supported numeric variables. In order to obtain numeric variables, the *encode* command was utilized for all variables ($N= 11$). Third, the numeric label for all responses were in the incorrect order, which stata easily corrected with the command *recode*. After conducting the commands, the likert numeric scale were in the correct order ($1=$ *totally disagree* – $5=$ *totally agree*). At last, there were participants who did not complete the survey (*shown as incomplete in the dataset*) and were therefore removed. A further reduction in participants were present after STATA ran a technique that deletes observations that has missing data on one or more of the variables in the model. This technique goes by the name *listwise deletion* and left the study with a total of 494 participants (Mehmetoglu & Jakobsen, 2017). The reduction of observations followed by a listwise deletion can be accepted in this study due to the large sample size, which may have caused a problem in a smaller sample size. According to Haitovsky (1968) and Young, Weckman, and Holland (2011), listwise deletion is one of the least computation intensive and easily justified methods under large samples when the objectives is to obtain consistent and unbiased estimates of population parameters. In a large sample size, listwise deletion is one of the least risky and most quickly deployable missing data handling methods.

To examine correlations between the observed variables, a Spearman's correlation analysis was conducted (see *table 1* in results). The spearman correlation is a non-parametric test – based on ranked data. It is used to measure the degree of association between variables and does not carry any assumption about the distribution of data (Spearman, 1910). Variables in this study is measured on an ordinal scale, thus, spearman's correlation is appropriate as it requires data to hold an ordinal level. Also, data is not normally distributed, which is another reason to use this type of correlation measure.

A partial least square structural equation modeling (PLS-SEM) was conducted in order to test hypotheses. The method was chosen as it is a powerful multivariate technique to assess

multivariate causal relationships and is beneficial in prediction and theory development (Hair et al., 2017). Baron and Kenny (1986) specified that when a mediational model involves latent constructs, PLS-SEM is a preferred method for data analysis. Also, PLS-SEM is a suitable technique when analysing complex models with both observed and latent variables (Bowen & Guo, 2012). On top of that, PLS-SEM can investigate data that is not normally distributed (Uyar & Kuzey, 2016) – which other estimation techniques require, e.g. factor-based SEM (Hair, Sarstedt, Ringle, & Mena, 2012).

Measurement model. The measurement model, also called outer model, assesses how well observed variables relates to the latent variable (*table 3*). In this study, the measurement model is reflective, and PLS-SEM have algorithms that calculates the relationship between the latent variable and the observed variables (Hair et al., 2017). In a reflective measurement model, measures (e.g. new systems, improve work and new ideas) represent the effect of an underlying construct (e.g. innovation culture). Evaluation of a reflective measurement model includes assessment of reliability and validity (see *table 4*).

Reliability was investigated through indicator reliability and construct reliability. *Indicator reliability* estimates how much of the variation within an observed variable that is explained by the latent variable. A rule of thumb is that the standardized indicators outer loading should be .708 or higher. Because, the latent variable should explain a sizeable part of each indicator's variance, normally 50% ($.708^2 = 50$) (Hair et al., 2017). Although, .70 is close enough to be acceptable. *Construct reliability* is the measure of internal consistency. The usual criterion for internal consistency is Cronbachs alpha, which offers an estimate of reliability based on correlations of the observed variables. However, cronbachs alpha is sensitive to the number of observed items on a scale, and it may therefore be more appropriate to use a different measure of internal consistency, namely composite reliability. Composite reliability for a variable varies between 0 and 1, where higher values indicate higher levels of reliability. Usually, values between .70 to .90 are considered as satisfactory, but in exploratory research, .60-.70 is considered as acceptable (Hair et al., 2017).

Validity was investigated through convergent validity and discriminant validity. *Convergent validity* evaluates to what extent a measure correlates with other measures of the same latent variable. This can be evaluated by investigating a variables average variance extracted (AVE). AVE measures to what degree a latent variable explains the variance of its indicators, and the value should be .50 or higher, because then the construct explains more than half of the variance of its indicators (Hair et al., 2017). *Discriminant validity* is the extent to whether one latent variable is distinct from another one. Establishing discriminant validity

indicates that a latent variable is distinct and captures a phenomenon that is not represented by another latent variable. A method to determine this, is the Fornell-Larcker criterion (1981), which proposes that the square root of each latent variable's AVE should be higher than its highest correlation with another latent variable (Hair et al., 2017).

Structural model. Once it is confirmed that the measurement model is reliable and valid, the next step is the assessment of the structural model. The structural model measures the relationship between the latent variables (leadership, work engagement, and innovation culture). Hair and colleagues (2017) specified that there are key criteria for evaluating the structural model in PLS-SEM, where the first step is assessment of collinearity. As this is a reflective structural model, the indicators are essentially interchangeable, and there is not necessary to report for collinearity among indicators (Hair et al., 2017; Wong, 2013).

In the structural model, PLS-SEM algorithms estimates the relationship between the latent variables (path coefficients) based on the estimated loadings. Path coefficients and loadings in PLS-SEM are calculated as standardized coefficients, and ranges from -1 to +1. Values can be smaller or larger, but they normally fall between these bounds (Hair et al., 2017). Path coefficients close to +1 represent a strong positive relationship, and are usually statistically significant, whereas path coefficients close to -1 represent a weak relationship. To determine whether a coefficient is significant depends on its *standard error*, which is obtained by a method called bootstrapping. Bootstrap is a non-parametric resample test that does not rely on assumptions of normality (Hair, Hult, Ringle, & Sarstedt, 2014). PLS-SEM does not assume that data are normally distributed, and in order to assess the significance of the path coefficient, the bootstrap method is suitable to use (Preacher & Hayes, 2004, 2008). The bootstrap method has an advantage over other significance tests, e.g. Sobels test (1982), as it can determine mediation effect with certainty (Hadi, Abdullah, & Sentosa, 2016). Hair and colleagues (2017) recommend 5000 replications of bootstrapping as adequate.

To evaluate the structural model, the coefficient of determination (R^2) is a commonly used method of measurement. R^2 represents the percentage of variance that the endogenous variables (work engagement; innovation culture) in the model explain. The R^2 value ranges between 0 to 1, where higher levels indicate higher levels of predictive accuracy. For R^2 there is difficult to provide rules of thumb for acceptable values, but, respectively, the R^2 value for an endogenous variable of 0.25 is considered weak, 0.50 is moderate and 0.75 is strong (Hair et al., 2017). The effect size (f^2) can further assess the structural model, in terms of how removal of a certain predictor construct affects an endogenous constructs R^2 value. The value

of f^2 0.02 is considered small, 0.15 is medium and 0.35 is large effects, respectively, on an exogenous latent variable. The f^2 value was calculated with this equation in this paper:

$$f^2 = \frac{R_{\text{Included}}^2 - R_{\text{Excluded}}^2}{1 - R_{\text{Included}}^2}$$

The current study investigates direct effects (H^2 , H^3 and H^4) and indirect effects (H^1), therefore, two PLS-SEM analysis were conducted. The direct effect is the relationship that links two latent variables with a single arrow (leadership → innovation culture, leadership → work engagement, work engagement → innovation culture). The indirect effect on the other hand, refers to the relationship that involve a sequence of relationships, with at least one intervening variable involved (leadership → work engagement → innovation culture). The indirect effect of work engagement is referred to as the mediating effect (Hair et al., 2017).

Mediation. The second analysis was conducted to test the indirect effect (mediator) and the main hypothesis (H^1). The reason for including a mediating variable in this study is to posit an explanation of the relationship between leadership and innovation culture in terms of an intervening variable (work engagement). Thereby, the mediator can then reveal the true relationship between the exogenous and the endogenous variable (Hair et al., 2017). To test the mediating effect, a bootstrap test was conducted. As mentioned before, there are several methods to test mediation, either Sobels test (1982) or Baron and Kenny's mediation test (1986), but the bootstrap method is more appropriate, as it can determine mediation effects with more certainty. Bootstrapping makes no assumption about the shape of the distribution of the variables and is therefore used to test both direct and indirect effects in this study.

Results

Descriptive statistics

Descriptive statistics and correlations were performed in order to get mean scores, standard deviations and correlations between observed variables (*table 1 and 2*). The observed variables for work engagement (going to work, engaged at work, motivating goals, pride) had average responses well above middle scores of the scale ($M = 4.18 - 4.64$). Observed variables for leadership (feedback, clear goals, take care of opinions, implement change) did also have responses above the middle score of the scale ($M = 4.14 - 4.29$). The observed variables that measured innovation culture (improve work, new system, new ideas) had average responses that were slightly above the middle scores of the measurement scale ($M = 3.61 - 4.16$).

Table 1: Mean Scores and Standard Deviations for Observed Variables

Variables	Mean	Standard Deviation	Min-max
GoingToWork	4.35	.79	1-5
EngagedAtWork	4.60	.58	1-5
MotivatingGoals	4.18	.80	1-5
Pride	4.64	.58	1-5
Feedback	4.14	.84	1-5
TakeCareOpinions	4.29	.79	1-5
ClearGoals	4.24	.76	1-5
ImplementChange	4.16	.80	1-5
NewSystems	3.61	.95	1-5
ImproveWork	3.88	1.08	1-5
NewIdeas	4.16	.73	1-5

Correlations among observed variables are shown in table 2 and are all significant. The highest correlation was found between take care of opinions and feedback ($r = .75, p < .001$), followed by implement change and feedback ($r = .64, p < .001$), in addition to new ideas and improve work ($r = .64, p < .001$). Evans (1996) suggested that the r value is strong between .60 - .79. Work engagement dimensions were moderately interrelated with each other (mean $r = .45, p < .001$). According to Evans (1996), the value of correlation coefficients between .40 - .59 is a moderate correlation. The dimensions of the latent variable leadership were strongly interrelated with each other (mean $r = .62, p < .001$). Indicators of the variable innovation culture were moderately intercorrelated (mean $r = .41, p < .001$) with each other.

Table 2: Correlations of Observed Variables ($N= 494$)

Var.	1	2	3	4	5	6	7	8	9	10	11
1. GTW	-										
2. EAW	.54*	-									
3. MG	.50*	.51*	-								
4. Pride	.44*	.38*	.35*	-							
5. FB	.40*	.36*	.45*	.29*	-						
6. TCO	.32*	.30*	.40*	.28*	.75*	-					
7. CG	.29*	.23*	.41*	.24*	.55*	.55*	-				
8. IC	.26*	.26*	.41*	.29*	.64*	.63*	.62*	-			
9. NS	.25*	.20*	.35*	.21*	.19*	.19*	.23*	.21*	-		
10. IW	.32*	.28*	.39*	.19*	.37*	.37*	.36*	.38*	.31*	-	
11. NI	.32*	.30*	.39*	.23*	.45*	.48*	.42*	.44*	.29*	.64*	-

Notes: GTW = going to work EAW = engaged at work MG = motivating goals FB = feedback TCO = take care of opinions CG = clear goals IC = implement change NS = new systems IW = improve work NI = new ideas

* $p < .001$

Measurement model evaluation

As mentioned in a previous section, partial least square structural equation modeling comprise of both a measurement model and a structural model. The measurement model relates observed variables to latent variables. The structural model then specifies the relations among latent variables and regressions of latent variables on observed ones. In PLS-SEM, the measurement model is first tested, followed by the structural model (Khine, 2013).

Construct reliability. Usually, the cronbachs alpha (α) is used to measure internal consistency reliability of included variables, but it tends to give a conservative measurement in PLS-SEM. According to Hair et al. (2012) and Bagozzi and Yi (1988), the composite reliability is suggested to use as a replacement, as it takes the different outer loadings of the indicator variables into account. This provides a more accurate estimate of reliability. The latent variables of the current study are shown in table 3. All variables exhibit values of satisfactory internal consistency reliability; leadership (.88), work engagement (.79) and innovation culture (.71).

Indicator reliability. Most of the observed variables (indicators) of work engagement showed loadings above .708 – which is the recommended value. The last observed variable of work engagement (pride), had an outer loading of .59, which is below the acceptable value. For the leadership variable, all indicators had outer loadings above the recommended value of .708. Two of the indicators for innovation culture had an outer loading above the satisfactory level, but the indicator new systems (NS) had an outer loading of .56. Both pride (WE) and new systems (IC) had loadings below the suggested threshold of .708 (.70). According to Hair et al. (2017) should indicators with outer loading between .40 and .70 be considered for removal. Hulland (1999) specified that researchers may obtain weaker outer loadings in social science studies. However, as composite reliability and the AVE values of innovation culture and work engagement were above the suggested threshold, it is not recommended to remove them (Hair et al., 2017), therefore, they were not excluded. Besides, both indicators were above the critical value of elimination (.40).

Convergent validity. All latent variables in the current study explain on average more than half of the variance of its observed variables. In table 3 (*average variable extracted*), it is shown that work engagement (.57), leadership (.73) and innovation culture (.59) have an AVE that is above .50, which is a high and satisfactory level of convergent validity, as it indicates that the latent variables explains more than 50% of the variance of its observed variables (Hair et al., 2017).

Table 3: Indicator Reliability, Construct Reliability and Convergent Validity

Variables	Loading	Construct Reliability (composite reliability)	Average Variable Extracted (AVE)
<i>Work Engagement</i>		.79	.57
GTW	.82*		
EAW	.77*		
MG	.82*		
Pride	.59*		
<i>Leadership</i>		.88	.73
FB	.87*		
CG	.88*		
TCO	.79*		
IC	.87*		
<i>Innovation Culture</i>		.72	.59
NS	.56*		
IW	.83*		
NI	.88*		

* p < .001

Discriminant validity. To assess discriminant validity, the Fornell-Lacker criterion (1981) was used, which proposes that the square root of each latent variable's AVE should be higher than its highest correlation with any other latent variable. Table 4 shows that the square root of AVE for the variables work engagement, leadership and innovation culture is higher than the corresponding latent variables correlation. In turn, this indicates that discriminant validity is present for each latent variable.

Table 4: Discriminant Validity of Latent Variables

Variables	Work Engagement	Leadership	Innovation Culture
Work Engagement	-		
Leadership	.241	-	
Innovation Culture	.219	.295	-
\sqrt{AVE}	.76	.85	.77

Structural model evaluation and hypotheses testing

As the measurement model exhibited reliable and valid variables, the following step of the analysis is an evaluation of the structural model. The study investigates both indirect and direct effects, which the two following sections now will catch sight of – as well as determine whether the predicted hypotheses are supported.

The direct effects. The direct effect in the hypothetical model of the study is the direct path between the latent variables (leadership → innovation culture, work engagement → innovation culture, leadership → work engagement). Three of the current study's hypotheses were tested (H^2 , H^3 and H^4). Hypothesis 2 predicted that communicative leadership has a

positive effect on innovation culture. The PLS-SEM analysis showed that communicative leadership had a strong effect on innovation culture ($b = .41, p < .001$), and therefore the hypothesis can be supported. Further, hypothesis 3 predicted that communicative leadership has a direct effect on work engagement. The results revealed a significantly strong support of the hypothesis ($b = .49, p < .001$). Also, the results supported hypothesis 4, which predicted that work engagement has a positive effect on innovation culture ($b = .27, p < .001$). To determine whether an exogenous variable influences an endogenous variables R^2 values, the effect size (f^2) was calculated for. Leadership was shown to have the largest effect on work engagement ($f^2 = .32$). Hair and colleagues (2017) specified that this is close to a strong effect (.35). Leadership did also have a considerably strong effect on innovation culture ($f^2 = .20$), whilst work engagement had a noticeably lower effect on innovation culture ($f^2 = .08$). However, all values of f^2 were above the critical value of .02, which indicate no effect at all (Hair et al., 2017).

Table 5: Direct Effects of Path Coefficients

Variables	Path Coefficient (b)	Effect Size (f^2)	Confidence Interval (95%)
LS → WE	.49*	.32	[0.414 – 0.568]
WE → IC	.27*	.08	[0.390 – 0.546]
LS → IC	.41*	.20	[0.469 – 0.618]

Notes: LS = leadership, WE = work engagement, IC = innovation culture

* $p < .001$

From the structural model evaluation, it is indicated that the value of R^2 is weak for both endogenous latent variables, see table 6. Leadership accounted for 24% of the variance in work engagement, and 35% of the variance in innovation culture.

Table 6: R^2 Values of Endogenous Latent Variables

Endogenous Latent Variables	R^2
Work Engagement	.24
Innovation Culture	.35

The indirect effect. The indirect effect is the influence of leadership on innovation culture, running through work engagement (leadership → work engagement → innovation culture). The main hypothesis (H^1) of the study predicted that work engagement mediates a positive relationship between communicative leadership and innovation culture. The results revealed that there is a mediation effect ($b = .23, p < .001$), however, it is not larger than the direct effect between the leadership and innovation culture ($b = .41, p < .001$).

It is important to address the strength of the mediation, and this can be computed via variance accounted for (VAF). VAF is calculated with this equation; *indirect effect/total effect**100 ($0.230 / 0.643$) = $0.357*100 = 35.7$). The VAF estimation revealed that about 35% of the effect of leadership on innovation culture is mediated by work engagement. Since the value of VAF is between 20% and 80%, work engagement partially mediates the relationship of leadership and innovation culture (Hadi et al., 2016). Partial mediation can be identified as complementary or competitive mediation. In this analysis it is complementary, as the indirect and direct effect both are significant and point in the same direction (+). In order for work engagement to fully mediate the relationship, the VAF should have been higher than 80% (Hadi et al., 2016).

Table 7: Mediating effect of Path Coefficients

Variables	Mediating Effect(<i>b</i>)	VAF	Confidence interval (95%)
LS → WE → IC	.23*	35,7%	[0.151 – 0.301]

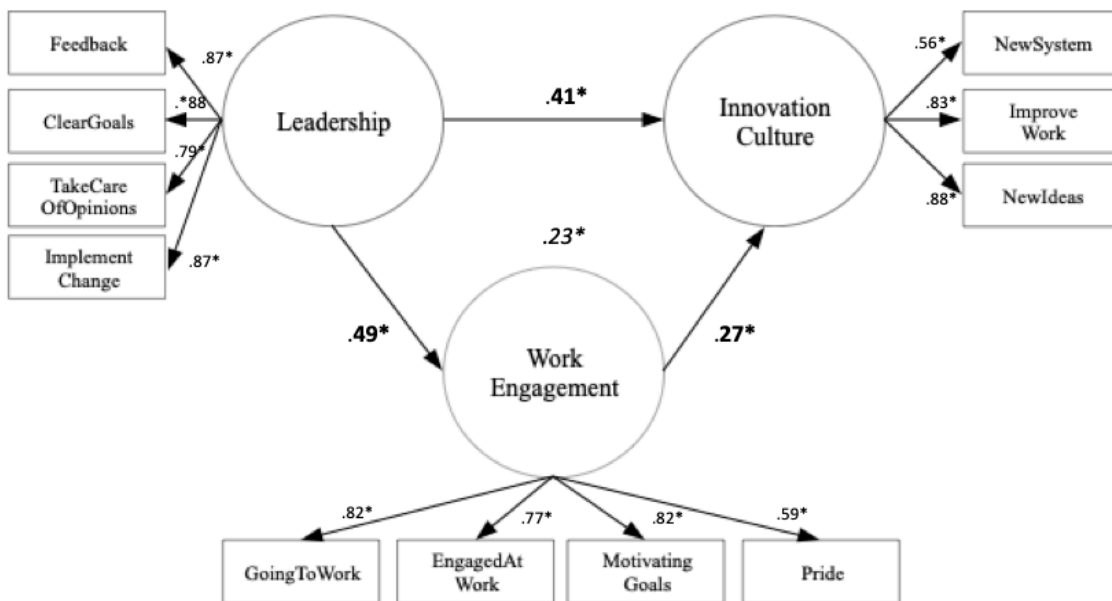
Notes: LS = leadership, WE = work engagement, IC = innovation culture

VAF = variance accepted for

* $p < .001$

In figure 3, the hypothetical model of the current study is visually displayed, with both the inner (structural) and outer (measurement) model. In the displayed model we can easily set eyes on the values of the path coefficients, outer loadings, and whether they are significant or not. The direct effects are shown in *bold*, whereas the indirect effect is exhibited in *italics*.

Figure 3: Path Coefficients of the Hypothetical Reflective Model



Notes: * = $p < .001$

Discussion

The aim of this study was to investigate whether work engagement has a mediating effect between communicative leadership and innovation culture. The results revealed that work engagement mediated the relationship by 35%, which is within the values of a partial mediation (20% - 80%). In addition to test the mediating effect of work engagement between communicative leadership and innovation culture, the study investigated whether there were any direct effects between the latent variables included. Results revealed that communicative leadership had a greater direct effect on innovation culture without taking the mediating effect of work engagement into account. Communicative leadership turned out to have a significant direct effect on work engagement, and work engagement proved to have a direct effect on innovation culture. Outcomes of this study will now be discussed and compared to previous related findings, COR-theory, key principles of communicative leadership, and Dombrowski and colleagues (2007) eight elements of innovation culture. There will further be discussed theoretical and practical implications, along with the study's limitations and suggestions for future research, and at last, rounded off with an overall conclusion.

Engagement as a mediator between communicative leadership and innovation culture

As predicted by the first hypothesis, results revealed that work engagement partially mediated (35%) the relationship between communicative leadership and innovation culture. In this paper, a *complementary* partial mediation was detected, as the direct and the indirect effect point in the same direction (Baron & Kenny, 1986). It was observed, in this case, that the portion of Y explained by X is larger than the portion of X on Y mediated through M (direct, $b = .41, p < .001$; indirect, $b = .23, p < .001$). Even though the portion is larger for the direct effect, the complementary partial mediation suggests that the mediating variable, *work engagement*, to some extent explains the relationship between communicative leadership and innovation culture (Hair et al., 2017).

The results found in this study are somewhat comparable to what equivalent studies of the mediating effect of work engagement between various types of leadership and innovation has discovered (Gomes et al., 2015; Ariyani & Hidayati, 2018; Edelbroek et al., 2019). But previous studies have investigated leadership styles like transformational, transactional, and self-leadership. Besides, innovation culture was not a subject of interest either, but rather open innovation, innovative behaviour, and individual innovation. In Gomes and colleagues (2015) study, 337 doctors (14,5%) and nurses (85,5%) working at an integrated health care unit were asked to complete questionnaires about self-leadership, work engagement, and individual innovation. By using a bootstrap method, their result revealed that work engagement fully

mediated the relationship between self-leadership and individual innovation, as self-leadership failed to predict individual innovation after introducing the mediator. Gomes and colleagues (2015) used the same analysis method for the indirect effect as this study, and discovered a full mediation of work engagement, whereas this study noticed a partial one. Self-leadership, work engagement, and individual innovation are all on an individual level, while communicative leadership, work engagement, and innovation culture include a term that is on a collective level. An individual experience is of the individual itself, whereas collective experience, e.g. *culture*, is that of the society or the environment around the individual. Not all individual experiences necessarily impact that of the collective experience, though, the collective experience can more often impact the individual one (Nicolopoulou & Weintraub, 1998). The same appears to be the case in Edelbroek and colleagues (2019) study, where they investigated the mediating effect of work engagement between transformational and transactional leadership and the quality of open innovations. Open innovation and innovation culture are both collective experiences, and the current study, as well as Edelbroek et al. (2019), discovered that work engagement partially mediated the relationship of leadership and innovation, either open or culture. Whether the partial mediation is a result of including both an individual and a collective experience is not certain, as other studies that included individual experiences only, discovered both a full and a partial mediation (Gomes et al., 2015; Ariyani & Hidayati, 2018). Although, the mediating effect of work engagement still contributes to explain the relationship between communicative leadership and innovation culture ($b = .23, p < .001$). Based on the current study, and previous related research that are somewhat comparable, leadership is suggested to directly and indirectly improve innovation activities, mediated through work engagement.

Consequently, from the discussion above, it appears that work engagement mediates the relationship between leadership and innovation of several kinds. Previous research has supported the notion that engaged employees achieve greater levels of innovative work behaviour (Gichohi, 2014; Gallup, 2003). For that matter, leadership may be seen as a great resource for employees to get engaged and perform beyond what is requested by them at work, which in turn is found to result into creativeness and innovation (Rao, 2016). As supported by COR-theory, a resource is a feature that people value and strive to protect and retain (Hobfoll, 1989). So, when employees have a leader that is valuable and effective, they will most likely repay their workplace by showing engagement, or other positive work attitudes, for instance creativity or productivity. It is, in fact, supported by former research that leadership as a resource, by their position of power and virtue, impacts employee's well-

being at work, in addition to promote work engagement (e.g. Kelloway & Barling, 2010; Wallace & Trinkka, 2009; Wiley, 2010).

The effect of communicative leadership on innovation culture

The current study's subsequent hypothesis (H^2) predicted that communicative leadership had a positive effect on innovation culture. As predicted, the PLS-SEM analysis revealed that communicative leadership had a positive significant effect on innovation culture ($b = .41, p < .001$). Communicative leadership is a newly emerged concept, meaning the literature is somewhat narrow, especially when it comes to innovation culture.

Former related research has investigated the effect of leadership in relation to innovations. For instance, Yuan and Woodman (2010) conducted a study that comprised of 425 permanent employed workers and 96 supervisors in the United States on individual innovative behaviour and supervisor relationship quality. Their results supported the notion that supervisor relationship quality was positively related to innovative work behaviour. Yuan and Woodman (2010) specified that it is central for leaders to effectively communicate with employees that do not want to be innovative, in order to let them know how to contribute new ideas and utter innovate work behaviour. In a more recent study conducted by Zhang and colleagues (2018), 251 construction workers in China were asked to answer a questionnaire about transformational leadership, innovation climate, and innovation behaviour. Their results revealed that leadership promote an innovative climate among employees. Although, the current study investigates a different sample and leadership style than Yuan and Woodman (2010) and Zhang and colleagues (2018), yet, results proved to be quite consistent in the sense that there is a positive effect of leadership on innovation. Also, the current study investigated innovation culture, which was not the case for the above-mentioned studies. Former studies discovered that an innovation culture is an essential precondition to a successful innovation, as innovation culture creates an organisational spirit and unites member of the organisation towards innovative behaviour (Deshpande et al., 1993).

Leadership is acknowledged as one of the most important elements of innovation culture (Dombrowski et al., 2007). Based on the current study and former research (Shin & Zhou, 2007; Zhang et al., 2018; Yuan & Woodman, 2010), various leadership theories were shown to be effective in their own way in order to support and sustain innovative activities. Even though there are different types of leadership theories in former related studies that were found to have a positive effect on innovations – this is the first study to discover a positive relationship between communicative leadership and innovation culture with a sample of Norwegian financiers. The concept of communicative leadership emphasize communication

highly, and this paper investigated four of the most central dimensions of the concept; listen and communicate, motivate, point followers in direction, and implement change (Djupvik, 2016). These mentioned abilities of leader appeared to be appropriate and beneficial in order to create a culture for innovation ($p < .001$). For instance, in order to succeed with innovation, the direction of it, as well as the purpose, is critical to be communicated with followers, in order for them to understand the necessity and importance of it. Without communicating a clear goal, employees may become unmotivated and unengaged to the process (Sharifirad & Ataei, 2012). This is stated as critical in Dombrowski and colleagues (2007) key elements of innovation culture – *mission and vision statement* – that emphasizes that organisations need a clear mission to encourage innovations. Nevertheless, communicative leaders may differ from another one. Not all leaders possess desired principles of one type of leadership theory, so, the principles of communicative leadership can rather be considered as a desired goal. Nor is it a complete model that organisations can adopt into their DNA for the purpose to succeed with innovations. Dombrowski and colleagues (2007) argued that a culture for innovations is organisation specific and may differ from one organisation to another. So, it is suggested that every single organisation goes through its own experience and builds its own innovation culture, as well as potential to succeed with it.

The effect of communicative leadership on work engagement

The discussion now turns its focus to consider the direct effect of communicative leadership on work engagement. The third hypothesis predicted that communicative leaders have a positive effect on work engagement, and results revealed a positive effect between the two constructs ($b = .49, p < .001$). The outcomes are in line with the results of Johansson (2015), that conducted a study in a large Swedish multinational manufacturing organisation with headquarters in Sweden, and operation and sales all around the world. Semi-structured interviews were conducted on 32 leaders in ten units of the business organisation. The results revealed that communicative leadership is related to employees work engagement, by virtue of communication between leader and employee. Johansson (2015) points at communicative leaders as a bottom-up leadership, which is contrary to e.g. charismatic leaders, that focus on convincing visions that influence employees in order to create work engagement (Berson & Avolio, 2004). In comparison to the current study, Johansson (2015) discovered the same effect of communicative leadership on work engagement, although choice of method and sample differed. Semi-structured interviews as a method is considered to be employed when examining unknown territory with unidentified, but potentially, important issues (Adams, 2015). Communicative leadership is a young concept, hence, employing interview as a

method may provide a deeper insight in relation to employees work engagement. Still, either by using a qualitative or quantitative method, the results are in accordance to one another, namely, communicative leadership promote employees work engagement ($p < .001$).

Results of the current study are to some extent comparable to Gözükara and Simsek (2015), as their findings showed a positive relationship of leadership on work engagement. In their study, participants ($N= 252$) hired in higher education in Turkey were asked to answer questionnaires concerning transformational leadership and work engagement (UWES). Even though they found a positive relationship between the two constructs, Gözükara and Simsek (2015) argued that leaders should develop and improve their communication skills, in order to provide a clear vision and transmit organisational goals – which is in line with the key focus of this study's leadership concept. Moreover, Gözükara and Simsek (2015) measured work engagement with a three-factor UWES, whereas this study used a two-factor one (vigor and dedication). So, this study does not take absorption into account. Thus, one may therefore wonder if the result would have been the same if absorption was included. Previous studies (Hakanen et al., 2006; Schaufeli et al., 2009) suggested that the core of work engagement is vigor and dedication, and not absorption. Since the current study and Gözükara and Simsek (2015) found a positive relationship between leadership and work engagement, it is suggested that work engagement can be measured with both a two- and three-factor UWES. However, sample selection and method of research may play a part to the results of the two studies, so whether it is a two- or three-factor UWES measuring work engagement, it may come down to what provides a better overall fit for the study being conducted (Kulikowski, 2017). The current study measured a more static engagement, meaning work engagement is measured periodically, not instantly. Therefore, a two-factor UWES presented a better fit.

As discussed above, results from this study and former related studies on leadership and work engagement (Gözükara & Simsek, 2015; Johansson, 2015; Wallace & Trinko, 2009) support the notion that employees feel engaged and motivated by the good conditions of their leader (Hobfoll, 1989). As supported by the COR-theory, resources at work can be contextual, for instance, leaders can play a supportive role in addressing demands (Johansson, 2015; Wallace & Trinko, 2009), whereas it also can, occasionally, not play a supportive role (Wu & Cao, 2015; Hobfoll, 1989; Tosunoglu & Ekmekci, 2016). This can be explained by the fact that leaders are different, meaning that e.g. communicative leaders are not equal – principles are to be seen as a desired goal of communicative leadership. Also, there is no clear method for employees to acquire work engagement, there are rather numerous of different means that play a role. As supported by the COR-theory, employees with resources, like decent leaders,

are likely to gain greater resources in the future (Hobfoll, 2001), which is important for the maintenance of work engagement – as Xanthopoulou and colleagues (2009) noticed in their longitudinal study «once employees ultimately become engaged, they will to a greater extent remain engaged».

Direct effect of work engagement on innovation culture

The discussion will now address the last direct effect measured in this study – namely, the direct effect of work engagement on innovation culture. The fourth hypothesis predicted that work engagement had a positive effect on innovation culture. Predictably, results exposed a significant effect between the two latent variables ($b = .27, p < .001$). Researchers have to a lesser extent focused on the culture of innovation in previous related literature, the attention has rather been drawn to innovative behaviour or innovation processes – especially in relation to work engagement. In close accordance with the current papers result, Agarwal and colleagues (2012) noticed a positive correlation of work engagement on innovative work behaviour. In their study, 979 Indian managerial employees from the service sector were asked to answer questionnaires about innovative work behaviour and work engagement (UWES). Even if Agarwal and colleagues (2012) measured innovative work behaviour, and this study innovation culture, work engagement showed to have an effect on both innovative activities. Chughtai and Buckley (2011) noticed a similar association of work engagement on innovative work behaviour, with a sample of Irish scientists ($N=168$). In spite of that, organisations increasingly need employees that go beyond what is requested by them (Macey, Schneider, Barbera, & Young, 2009). It is pivotal with engaged employees in order to achieve competitive advantages in modern working life, and work engagement may play a key role when it comes to innovative culture and behaviour – which this study, Chughtai and Buckley (2011) and Agarwal et al. (2012) support. Rao (2016) noticed that an organisation sustains competitive in a changing world by embedding innovation into their culture and discovered that work engagement had an impact on employees' innovative work behaviour. Ergo, seeing that several prior studies discovered a correlation between work engagement and innovative work behaviour, one can therefore assume that a culture for innovation is present in samples investigated, as innovation culture creates an organisational spirit and unites member of the organisation towards innovative behaviour. Hence, innovation culture is found to be a critical precondition to a successful innovation (Hilmarsson et al., 2014; Deshpande et al., 1993; Kliewe et al., 2013).

Dombrowski and colleagues (2007) specified that innovation culture is organisation specific, meaning that it can differ from one organisation to another, and a reason for this may

be just *culture*. Culture is a broad concept that may refer to several factors, like language, values, or beliefs – that can be different for each individual. Culture may function as an adaptable regulation that unites the members of the organisation, and it is a key by which leaders can direct and influence the course of their organisation (Schwartz & Davis, 1981). For an organisation to create their desired culture, it is essential to communicate it to employees – and especially to newly hired ones. Culture is a social and individual construct (Spencer-Oatey, 2012) that can be learned (Hofstede, 1991). For instance, if a leader desires a culture of innovation, it is something that can be communicated with employees, in order for them to *learn* how such a culture works in practice.

In a large organisation, like the Norwegian financial organisation in this study, there are different individuals that can influence, or be influenced, by one another. Individuals may transfer their work engagement to other individuals, especially in the immediate environment (Schaufeli, 2012). As supported by the COR-theory, resources for becoming engaged at work can be individual specific (Hobfoll, 1989). For instance, in a larger group of people, different experiences may arise about the same leader. So, in regard to a culture for innovation, there is essential to take into account that there are different individuals, which impact each other in a positive, sometimes negative, way (Loehr & Schwartz, 2003). The COR-theory support that when employees gain initial resources, greater resources may become accessible (Hobfoll, 1989). In other words, when employees feel valued and appreciated by their leader (Notar, Uline, & Eady, 2008; Hobfoll, 1989), it may be seen as a resource that promotes their work engagement in a positive way – and this engagement may influence other employees, and together this can further promote a culture for innovation. Consequently, leadership and employees together may increase the individual experience of work engagement and the joint experience of innovation culture.

Implications of the current study

Theoretical implications. Results in this study makes central theoretical contributions to the notion that communicative leadership promotes work engagement ($b = .49$) as well as a culture for innovations ($b = .41$). Communicative leadership as a concept was developed as a reaction to a complex business environment illustrated by rapid change (Eriksen, 1997). Communication is necessary for success and survival in an ever-changing world, as absence of information flow can result into absenteeism, low productivity, higher costs, and lower degrees of innovation ability (Johansson et al., 2011). In accordance with the results in this study, communication appears to be appropriate in several ways, especially when it comes to employees, that otherwise find an ever-changing workday demanding. The principles of

communicative leadership included in the current study emphasize that decent communication between leader and its followers are essential in today's workplaces. An understanding of the direction of innovation is important in order to succeed, because, if there is no clear purpose as to if innovation may contribute something effective or positive, then the motivation for implementing it may become very low (Djupvik, 2016). Thus, communicative leadership as a concept can rather be questioned, as leading others without communicating seems virtually impossible. It is supposed to show that leaders that communicate, are not just communicating, they are decent communicators. Considering that there initially are eight key principles, the current study's results support that the four principles included are decent enough in relation to a culture for innovation. Communication is after all a main key to a successful innovation – between all included parties (Zerfass & Huck, 2007). Further research on communicative leadership is welcome to expand the horizons, for instance, compare it with transformational leadership, in order to reveal that value of communication is essential, especially during innovation processes and times of change – or just generally at all times.

The results also contribute to the growing body of research on work engagement, in terms of what influences it and its outcomes. Leadership communication showed to improve employees work engagement ($b = .49, p < .001$), and engaged employees showed to improve a culture for innovation ($b = .27, p < .001$). By the means of this, leadership, especially one that communicate efficiently, seems to influence employees work engagement in a positive manner, whereas the outcome of engaged employees is that they are likely to perform beyond what is requested – which can result into creative thinking and behaviour, and as well as innovativeness (Rao, 2016).

Practical implications. The findings of this study may have implications for workers and organisations in the modern working-life, as understanding of an effective leadership is essential for survival and success. Based on the results, it is suggested that the role of leaders is central in stimulating employees work engagement. Leaders are viewed as a role model for employees and in order to better utilise supportive work behaviours, programs and workshops could be employed. Amagoh (2009) indicated that successful organisations focus on building a comprehensive set of leadership development activities, like coaching, in order to better support followers in the organisation. Organisations should conduct workshops and programs for its leaders on how to treat employees in the most fairly and respectfully way possible, and to improve managerial and interpersonal skills (Agarwal et al., 2012). One proposed focus in the workshops is communication between leader and employees, where the principles of communicative leadership is suggested as the key subject of matter – as the principles can be

a useful guide on how leaders can best behave, operate, and become «decent communicators» (Johansson et al., 2015; Högström et al., 1999). Barrett (2009) discovered that leadership communication is important in numerous of job-related contexts, and that it is a skill that leaders should possess. Leaders play an important role in organisations, and it is therefore crucial to undertake training sessions, perhaps a couple of times a year, in order to serve its employees in the best manner possible. In a meta-analysis conducted by Lacerenza, Reyes, Marlow, Joseph, and Salas (2017), it was provided substantial evidence from 335 leadership training evaluation studies that leadership programs are effective and should be used across a variety of domains. Results of the analysis suggested that programs for leaders led to 28% increase in behaviour and 8% in subordinate outcome – implying that training programs is effective for both leaders and employees.

Innovation culture, according to Dombrowski and colleagues (2007), can be incredibly organisation specific, meaning there is no solid method in order to create one. In order for an organisation to create a culture for innovation, a key factor to take into account is employees – as they are one of the most central stakeholders within the innovation process (Zerfass & Huck, 2007). Innovation is mostly new ideas – that are reacted to, developed, and modified by employees, and it is critical for leaders to communicate properly with employees, for the purpose of taking advantage of new ideas in the best manner possible. Communication is stated as a central element of innovation culture by Dombrowski and colleagues (2007), so, when practitioners plan to make new changes in their organisation, communicating those ideas with followers is necessary in order to succeed. Even if the ability to be innovative is pursued by different organisations – innovation does not happen in the abstract. Strictly speaking, to think about something in a general manner, without referring to a specific situation or practical experience – is not how to implement innovations (Sharifirad & Ataei, 2012). The direction of the innovation, as well as the purpose of it, is important for employees understanding in order to succeed. Without a clear direction or goal, employees may find the process of innovation as unmotivating (Sharifirad & Ataei, 2012).

However, these practical implications do not apply for the finance industry in Norway only, but generally for all organisations, small or big – old or young.

Limitations and suggestions for future research

Despite the fact that the results revealed a significant direct effect between the latent variables, in addition to positive indirect effect of work engagement between communicative leadership and innovation culture – some limitations of the study should be acknowledged.

First, the study used a cross-sectional design, and the results can therefore draw no conclusion about any cause-effect relationship between the variables (Eden, Stone-Romero, & Rothstein, 2015). The mediating effect is somewhat insufficient in determining any causal relationship that may exist between communicative leadership and innovation culture. When testing a mediational effect with a cross-sectional design, it can produce biased estimates, as data is collected at a single time point (Eden et al., 2015). Therefore, future studies should employ a longitudinal design to investigate the causality between included variables.

Second, the current study does not account for age, educational background, or other demographics among participants. The grounds for that is due to ethical considerations, so, the results must be viewed with some caution – however, few datasets are absolute. Future studies are recommended to control for both age and gender, in reference to the same hypothetical model of this study. However, generalizability is somewhat impaired based on the sample, but it provides knowledge about the relationship of communicative leadership on innovation culture, and how the mediating role of work engagement impact the relationship.

Another limitation of the current study is the sample – as it only contained permanent employees. Temporary employees did not attend due to boundaries and principles. Temporary workers often report an increase of job uncertainty and they consider themselves much more likely to lose their job in comparison to permanent employees (Dütsch, 2011). Dütsch (2011) noted that temporary workers are considerably less satisfied with their employment compared to permanent employment. Grund, Minten, and Toporova (2017) argued that discontent can be traced to differences in employment, job uncertainty, and pay conditions. The results of this study may have turned out different if temporary employees attended. Future research could test same hypotheses by including both permanent and temporary employees. It would also be noteworthy to combine a quantitative and a qualitative investigation, in order to achieve a more in depth and detailed insight of temporary employee's experience of leader and how it affects work engagement (Adams, 2015).

The questionnaire used in this study is a well-known organisational survey. The Alx has a respectable theoretical foundation in modern work- and organisational psychology. For instance, theories related to work engagement, engagement as a function of demands and control, well-being at work, leadership influence, and job satisfaction at work (Brøgger & Salomon, 2013; Schaufeli & Bakker, 2003; Kopperud, 2012; Schaufeli, Bakker, & Salanova, 2006), however, the indices are to some extent limited. The leadership index is only based on the Communicative Leadership Index (CLI). The CLI actually contains of 12 questions, of which 4 are included in the Alx. The four included questions are according to Djupvik (2016)

selected as they are based on the most central factors a leader should possess; communicate/listen, motivate, point in direction, and implement change. Future recommendations for testing the study's proposed model is to use the original CLI to measure communicative leadership. Furthermore, the work engagement index is in line with the UWES, though, Alx have omitted the absorption dimension, due to measuring static engagement. Former studies have also omitted absorption (e.g. Kulikowski, 2017), as absorption play a different role compared to vigor and dedication. Hakanen et al. (2006) and Schaufeli et al. (2009) proposed that dedication and vigor constitute the core of engagement, while absorption seems to be related to the concept of flow. Yet, absorption is a part of UWES, so, suggestions for future research is to examine whether a two-factor (*vd*) or a three-factor UWES (*vda*) present a better fit when measuring the mediating effect of work engagement, between communicative leadership and innovation culture.

Conclusion

Taking everything into account, the current study aimed to investigate the mediating effect of work engagement between communicative leadership and innovation culture. Results showed that work engagement partially mediated (35%) the relationship, however, the direct effect of communicative leadership on innovation culture revealed to have a greater effect ($b = .41, p < .001$), than the indirect effect ($b = .23, p < .001$).

Despite the fact that communicative leadership is a young concept, communication competence is important for leaders to possess. Leadership communication produces value and satisfaction for employees, which further lead to higher degrees of work engagement. Highly engaged employees, in turn, perform beyond what is demanded, that results into creativity and innovation, that again is essential for organisations in an ever-changing world. Even though this study based its analysis on four principles of communicative leadership, communicative leaders will most likely never be equal to each other and possess all eight key principles – they are after all humans, and humans are different, and they act upon a new situation differently. However, the principles can be a useful guide on how a communicative leader behave, operate, and become «decent communicators» (Johansson et al., 2015; Högström et al., 1999). In a wider perspective, the current paper contributes to emphasize the significance of leadership communication for organisations of any kind, especially during innovations. Information flow about new ideas are essential in order for involved parties to understand the purpose and direction of the innovation. Communication abilities of leader is more critical than ever before, as new and advanced technologies cause organisations to

continuously think «*new*» – therefore, an organisation cannot be innovative on and off, they most likely have to stay «*on*» in order to survive and succeed in today's society. Leadership communication is additionally essential for employees in times of uncertainty, because, lack of information flow may result into lower work engagement and productivity at work, which further can put the organisations degree of innovation ability at stake (Johansson et al., 2011).

As far as I understand, this is the first study to investigate the mediating effect of work engagement between communicative leadership and innovation culture. Future research is suggested to expand the horizons on the concept of communicative leadership by comparing it to other leadership theories with the purpose to reveal the true value of communication. In spite of this, a longitudinal research should be conducted in order to declare any cause-effect relationship between included constructs.

References

- Adams, W. C. (2015). Conducting semi-structured interviews. In K. E. Newcomer, H. P. Hatry, & J. S. Wholey, J. S. (Eds.). *Handbook of Practical Program Evaluation*, 492 - 505. doi: 10.1002/9781119171386.ch19
- Adkins, A. (2016, 13, January). Employee Engagement in U.S. stagnant in 2015. Retrieved from <https://news.gallup.com/poll/188144/employee-engagement-stagnant-2015.aspx>
- Adu-Oppong, A. & Agyin-Birikorang, E., (2014). Communication in the Workplace: Guidelines for Improving Effectiveness. *Global Journal of Commerce & Management Perspective*, 3(5), 208-213.
- Agarwal, U. A. (2014). Examining the impact of social exchange relationships on innovative work behaviour: Role of work engagement. *Team Performance Management*, 20(3/4), 102-120. doi.org/10.21776/ub.jam.2018.016.04.03
- Agarwal, U. A., Datta, S., Blake-Beard, S., & Bhargava, S. (2012). Linking LMX, innovative work behaviour and turnover intentions: The mediating role of work engagement. *Career Development International*, 17(3), 208-230. doi.10.1108/13620431211241063
- Allen, D. G., Shore, L. M., & Griffeth, R. W. (2003). The role of perceived organizational support and supportive human resource practices in the turnover process. *Journal of Management*, 29, 99-118. doi.10.1177/014920630302900107
- Alvesson, M. & Sveningsson, S. (2003a). The great disappearing act: Difficulties in doing leadership. *Leadership Quarterly*, 14, 359–381. doi.10.1016/S1048-9843(03)00031-6
- Alvesson, M. & Sveningsson, S. (2003b). Managers doing leadership: the extra-ordinarization of the mundane, *Human Relations*, Vol. 56 No. 12, pp. 1435-1459. doi.org/10.1177/00187267035612001
- Amagoh, F. (2009). Leadership Development and Leadership Effectiveness. *Management Decision*, 47, 989-999. doi.org/10.1108/00251740910966695
- Ariyani, N. & Hidayati, S. (2018). Influence of Transformational Leadership and Work Engagement on Innovative Behaviour. *Journal of Ekonomi*, 17 (2): 275 – 284. doi: <http://dx.doi.org/10.15408/etk.v17i2.7427>.
- Avruch, K. (1998). *Culture and Conflict Resolution*. Washington DC: United States Institute of Peace Press.
- Bagozzi, R. P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. doi: org/10.1007/BF02723327
- Bakker, A. B. (2009). *Building engagement in the workplace*. Oxon: Routledge. doi.10.1.1.395.2276

- Bakker, A. B. & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, 13, 209-223. doi: org/10.1108/13620430810870476
- Baqutayan, S. M. S., Jamaluddin, N., Omar, H., Parvez, D. H., & Baru, P. A. (2018). Leadership framework intensifies innovation culture in an organisation. *Journal of Advanced Research in Social and Behavioural Sciences*, 10, Issue 1, 33-49. <https://www.researchgate.net/publication/330751067>
- Baron, R. M. & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. doi.org/10.1037/0022-3514.51.6.1173
- Barrett, D. J. (2006). Leadership Communication: A communication approach for senior level manager. In: *Handbook of Business Strategy*. Emerald Group Publishing, p.p. 385-390. <https://hdl.handle.net/1911/27037>
- Bentz, F. (1997). *Managing Technological Innovation: Competitive Advantage from Change*. New York: Wiley.
- Berson, Y. & Avolio, B. J. (2004). Transformational leadership and the dissemination of organizational goals: A case study of a telecommunication firm. *Leadership Quarterly*, 15(5), 625-646. doi: 10.1016/j.leaqua.2004.07.003
- Birkinshaw, J., Bouquet, C., & Barsoux, J. L. (2011). The 5 Myths of Innovation, *Mit Sloan Management Review*, Volume 52, Number 2, Pages 43-50. <https://www.researchgate.net/publication/237379284>
- Blomme, R. J., Kodden, B., & Beasley-Suffolk, A. (2015). Leadership theories and the concept of work engagement: Creating a conceptual framework for management implications and research. *Journal of Management & Organization*, 21(2): 1-20. doi:10.1017/ jmo.2014.71
- Borjesson, S. & Elmquist, M. (2011). Developing innovation capabilities: A longitudinal study of a project at Volvo cars, *Creativity and Innovation Management*, Volume 20, Number 3, Pages 171-184. doi:10.1111/j.1467-8691.2011.00605.x
- Bowen, N. & Guo, S. (2012). *Structural equation modeling*. New York: Oxford University Press.
- Bryman, A. (2007). Effective leadership in higher education: A literature review. *Studies in Higher Education*, 32(6), 693-710. doi:10.1080/03075070701685114
- Bryman, A., Collinson, D., Grint, K., Jackson, B. & Uhl-Bien, M. (2011). *The Sage Handbook of Leadership*. London: SAGE Publications Ltd.

- Brøgger, B. & Salomon, R. (2013). Å jobbe med arbeidsglede – hva kan virksomheten få ut av det? AFI-rapport 6. Oslo: Arbeidsforskningsinstituttet.
- Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, Vol. 31 No. 6, pp. 515-524. doi: org/10.1016/S0019-8501(01)00203-6
- Chatman, J. A. & Eunyong Cha, S. (2003). Leading by leveraging culture. *California Management Review*, 45, 19–34; Kerr, J., & Slocum, J. W. (2005). Managing corporate culture through reward systems. *Academy of Management Executive*, 19, 130–138. doi:10.2307/41166186
- Chen, J. & Sawhney, M. (2010). Defining and measuring business innovation: The innovation radar. Working paper, Kellogg School of Management. doi:10.13140/RG.2.2.22863.07846
- Chi, S. C. S. & Liang, S. G. (2013). When do subordinates' emotion-regulation strategies matter? Abusive supervision, subordinates' emotional exhaustion, and work withdrawal. *Leadership Quarterly*, 24(1), 125–37. doi: 10.1016/j.leaqua.2012.08.006
- Chughtai, A. A. & Buckley, F. (2011). Work engagement: Antecedents, the mediating role of learning goal orientation and job performance. *The Career Development International*, 16(7), 684–705. <https://doi.org/10.1108/13620431111187290>
- Clark, L. A. & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7 (3), 309. doi: 10.12691/jpar-2-1-2
- Cole, N. L. (2019, 2. august). So, what is culture, exactly? Retrieved from <https://www.thoughtco.com/culture-definition-4135409>
- Cole, N. L. (2017). Definitions of cultural appropriations. What it is, why it matters and how to avoid it. Retrieved from internet archive on May 16, 2017 by WritingTheOther.com
- Cummings, G. G., MacGregor, T., Davey, M., Lee, H., Wong, C. A., Lo, E., Muise, M., & Stafford, E. (2010). Leadership styles and outcome patterns for the nursing workforce and work environment: a systematic review. *International journal of nursing studies* 47, 3: 363-385. doi: 10.1016/j.ijnurstu.2009.08.006.
- Daugherty, P. J., Chen, H., & Ferrin, B. G. (2011). Organizational structure and logistics service innovation. *International Journal of Logistics Management*, 22(1), 26-51. doi:10.1108/09574091111127543
- Deshpande, R., Farley, J. U., & Webster, F. E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *Journal of Marketing*, 57(1), 23-37. doi: 10.2307/1252055

- Djupvik, H. S. (2016). *Alx-en – den smarte måten å gjennomføre medarbeiderundersøkelser på*. Kantar TNS. Hentet den 13.11.2019 fra <https://kantar.no/radgivningsekspertise/kunde-medarbeider-og-omdommeutvikling/alx-en-den-smarteste-maten-a-gjennomfore-medarbeiderundersokelser-pa/>
- Dombrowski, C., Kim, J. F., Desouza, K. C., Braganza, A., Papagari, S., Baloh, P., & Jha, S. (2007). Elements of Innovative Cultures. *Knowledge and Process Management* 14(3):190–202. doi: org/10.1002/kpm.279
- Dütsch, M. (2011). Wie prekär ist Zeitarbeit? Eine Analyse mit dem Matching-Ansatz, *Zeitschrift für Arbeitsmarkt Forschung. Journal for Labour Market Research*, 43, 4, 299-318. doi.org/10.1007/s12651-011-0060-z
- Edelbroek, R., Peters, P., & Blomme, R. J. (2019). Engaging in open innovation: The mediating role of work engagement in the relationship between transformational and transactional leadership and the quality of the open innovation process as perceived by employees. *Journal of General Management*, 45(1), 5-17. doi.org/10.1177/0306307019844633
- Eden, D., Stone-Romero, E. F., & Rothstein, H. R. (2015). Synthesizing results of multiple randomized experiments to establish causality in mediation testing. *Human Resource Management Review*, 25, 342-351. doi:10/gfzz9v
- Ekene, C. (2015). Communication as a veritable tool for effective human resource management in organisation. *Review of Public Administration and Management*, 4, 8, ISSN 2315-7844.
- Ernst, N. & Zerfass, A. (2009). Kommunikation und Innovation in deutschen Unternehmen – Eine empirische Typologie in Zukunftstechnologie-Branchen”, in Zerfass, A. and Moßlein, K.M. (Eds), *Kommunikation als Erfolgsfaktor im Innovationsmanagement. Strategien im Zeitalter der Open Innovation*, Betriebswirtschaftlicher, Verlag Gabler, Wiesbaden, pp. 57-81.
- Eriksen, E. O. (1997). Kommunikativt ledarskap. Om styrning av offentliga institutioner. *Communicative Leadership. Managing Public Institutions*, Daidalos, Göteborg.
- Evans, J. D. (1996). *Straightforward statistics for the behavioural sciences*. Pacific Grove, CA: Brooks/Cole Publishing.
- Farndale, E., Beijer, S. E., Van Veldhoven, M. J., Kelliher, C., & Hope-Hailey, V. (2014). Work and organisation engagement: Aligning research and practice. *Journal of Organizational Effectiveness: People and Performance*, 1, 157–176. doi:10.1108/JOEPP-03-2014-0015

- Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, pp. 39-50.
doi:10.2307/3151312
- Friedmann, J. P. & Maurer S. (2003). Innovation: A wealth of contradictions. *Executive Agenda*, 6(3), 55–63
- Gallup, 2003, cited in Melcrum (2005). Employee Engagement: *How to Build A High Performance Workforce*. <https://dera.ioe.ac.uk/1810/1/file52215.pdf>
- Garvin, D. A. & Roberto, M. A. (2005). Change through persuasion, *Harvard Business Review*, 83, 2, 104-12.
- Ghadi, M. Y., Fernando, M., & Caputi, P. (2013). Transformational leadership and work engagement: The mediating effect of meaning in work, *Leadership & Organization Development Journal*, 34 (6), p. 532-550, doi: 10.1108/LODJ-10-2011-0110
- Gichohi, P. K. (2014). The Role of Employee Engagement in Revitalizing Creativity and Innovation at the Workplace: A Survey of Selected Libraries in Meru County- Kenya. *Library Philosophy and Practice*, 1, 1-33. <https://digitalcommons.unl.edu/>
- Gomes, C., Curral, L., & Caetano, A. (2015). The Mediating Effect of Work Engagement on the Relationship between Self-Leadership and Individual Innovation. *International Journal of Innovation Management*, 19, 1550009. doi:10.1142/S1363919615500097
- Grint, K. (2007). *What is Leadership? From Hydra to Hybrid*. Working Paper. Business School and Templeton College. Oxford University.
- Grund, C., Minten, A., & Toporova, N. (2017). *The Motivation of Temporary Agency Workers: An Empirical Analysis*. Institute of Labour Economics, Deutsche Post Foundation. IZA DP No. 11229.
- Hadi, N. U., Abdullah, N., & Sentosa, I. (2016). Making Sense of Mediating Analysis: A Marketing Perspective. *Review of Integrative Business and Economics Research*, 5(2), 62- 76. <http://sibresearch.org/riber-5-2.html>
- Hagger, M. S. (2015). Conservation of resources theory and the “strength” model of self-control: conceptual overlap and commonalities. *Stress Health*, 31(2):89–94.
doi:10.1002/smi.2639
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. (1st eds), London: SAGE Publications, Inc.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. (2nd eds), Thousand Oaks: SAGE

Publications, Inc.

- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414-433. doi:10.1007/s11747-011-0261-6
- Haitovsky, Y. (1968). Missing data in regression analysis. *Journal of the Royal Statistical Society, Series B*, 30, 67-82.
- Hakanen, J. J., Bakker, A. B., & Demerouti, E. (2005). How dentists cope with their job demands and stay engaged: the moderating role of job resources, *European Journal of Oral Sciences*, Vol. 113, pp. 487-497. doi:10.1111/j.1600-0722.2005.00250.x
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43(6):495–513.
doi: 10.1016/j.jsp.2005.11.001
- Hakanen, J. J., Perhoniemi, R., & Toppinen -Tanner, S. (2008). Positive gain spirals at work: from job resources to work engagement, personal initiative and work-unit innovativeness. *Journal of Vocational Behaviour*, 73(1), 78-91. doi: 10.1016/j.jvb.2008.01003
- Halbesleben, J. R. B. (2010). The role of exhaustion and workarounds in predicting occupational injuries: a cross lagged panel study of health care professionals. *Journal of Occupational Health Psychology*, 15(1), 1–16. doi:10.1037/a0017634
- Hamrin, S. (2016). Communicative leadership: (Re)Contextualizing a Swedish concept in theory and within organizational settings. Diss. (Sammanläggning) Mittuniversitet Sundsvall, 2016 (Mid Sweden University doctoral thesis: 235)
- Hilmarsson, E., Oskarsson, G., & Gudlaugsson, T. (2014). The relationship between innovation culture and innovation performance. *International Journal of Business and Research*, 14(1), 86-95. doi:10.18374/IJBR-14-1.8
- Hobfoll, S. E. (1988). *The Ecology of Stress*. Washington, DC: Hemisphere.
doi:10.1002/smi.2460050415
- Hobfoll, S. E. (1989). Conservation of resources: a new attempt at conceptualizing stress. *American Psychologist Journal*, 44(3), 513– 524. doi:10.1037/0003-066X.44.3.513
- Hobfoll, S. E. (1998). *Stress, culture, and community. The psychology and philosophy of stress*. New York: Plenum
- Hobfoll, S. E. (2001). The influence of culture, community and the nested self in the stress process: Advancing the Conservation of Resources theory. *Applied Psychology: An International Review*, 50, 337-421. doi:10.1111/1464-0597.00062

- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6 (4), 307–324. doi:10.1037/1089-2680.6.4.307
- Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational Organisational Psychology*, 84, 116–22. doi:10.1111/j.2044-8325.2010.02016.x
- Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behaviour*, 5, 103–128. doi:10.1146/annurev-orgpsych-032117-104640
- Hofstede, G. (1991). *Cultures and Organizations: Software of the Mind*. London: Harper Collins Business.
- Hofstede, G. (1994). *Cultures and Organizations: Software of the Mind*. London: Harper Collins Business.
- Hulland, J. S. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, 20(4), 195–204. doi: 10.1002/(SICI)1097-0266(199902)20:2<195::AID-SMJ13>3.0.CO;2-7
- Hunter, S.T., Cushenbery, L. D., & Jayne, B. (2017). Why dual leaders will drive innovation: resolving the exploration and exploitation dilemma with a conservation of resources solution. *Journal of Organisational Behaviour*, 38, 1183–1195. doi: 10.1002/job.2195
- Högström, A., Bark, M., Bernstrup, S., Heide, M., & Skoog, A. (1999). *Communicative Leadership – A Book on Organizational Communication Sveriges Verkstadsindustrier, Industrilitteratur, Stockholm*.
- Janda, K. F. (1960). Towards the explication of the concept of leadership in terms of the concept of power. *Human Relations*, 13, 345-63. doi:10.1177/001872676001300404
- Janssen, O. (2003). Innovative Behaviour and Job Involvement at the Price of Conflict and Less Satisfaction with co-Workers. *Journal of Occupational and Organizational Psychology*, 76(3), pp. 347- 364. doi:10.1348/096317903769647210
- Johansson, C. (2015). Empowering employees through communicative leadership. *I Organizational and Strategic Communication Research: European Perspectives II*. Braga: CECS - Centro de Estudos de Comunicação e Sociedade Universidade do Minho. S. 85-110.
- Johansson, C., Miller, V. D. & Hamrin, S. (2011). Communicative leadership. *Theories, concepts, and central communication behaviours*. Demicom rapport nr 4. Sundsvall: Mittuniversitetet.

- Johansson, C., Miller, V. D., & Hamrin, S. (2014). Conceptualizing communicative Leadership. *Corporate Communications: An International Journal*, Vol. 19, Issue 2 pp. 147-165. doi: 10.1108/CCIJ-02-2013-0007
- Jung, D. I., Chow, C., & Wu, A. (2003). The Role of Transformational Leadership in Enhancing Organizational Innovation: Hypotheses and Some Preliminary Findings. *The Leadership Quarterly*, 14, 525-544. doi:10.1016/S1048-9843(03)00050-X
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724. doi:10.2307/256287
- Karami, A. (2008). An investigation on environmental scanning and growth strategy in high tech small and medium sized enterprises, Groen, A., Oakey, R., Van Der Sijde, P. and Cook, G. (Ed.) *New Technology-Based Firms in the New Millennium* (Vol. 9), Emerald Group Publishing Limited, Bingley, pp. 99-108. doi:10.1108/S1876-0228(2012)0000009010
- Kelloway, E. K. & Barling, J. (2010). Leadership development as an intervention in occupational health psychology. *Work & Stress*, 24, 260–279. doi: 10.1080/02678373.2010.518441
- Khine, M. S. (2013). *Application of Structural Equation Modeling in Educational Research and Practice*. The Nederland: Sense Publishers.
- Kliewe, T., Davey, T., & Baaken, T. (2013). Creating a sustainable innovation environment within large enterprises: A case study on a professional services firm. *Journal of Innovation Management*, 1(1), 55-84. doi:10.24840/2183-0606_001.001_0006
- Koen, P., Ajamian, G., Burkart, R., Clamen, A., Davidson, J., D'Amore, R., ... Wagner, K. (2001). Providing clarity and a common language to the "fuzzy front end". *Research Technology Management*, 44(2), 46-55. doi:10.1080/08956308.2001.11671418
- Kopperud, K. H. (2012). *Well-Being at Work: On concepts, measurement, and leadership influence*. Oslo: Handelshøyskolen BI.
- Krasikova, D. V., Green, S. G., & LeBreton, J. M. (2013). Destructive Leadership: A Theoretical Review, Integration, and Future Research Agenda. *Journal of Management*, 39(5), 1308-1338. doi: 10.1177/0149206312471388
- Krasnicka, T., Głód, W., & Wronka-Pospiech, M. (2017). Management innovation, pro-innovation organisational culture and enterprise performance: testing the mediation effect. *Review of Managerial Science*, 1–33. doi:10.1007/s11846-017-0229-0
- Kulikowski, K. (2017). One, two or three dimensions of work engagement? Testing the factorial validity of the Utrecht Work Engagement Scale on a sample of Polish

- employees. *International Journal of Occupational Safety and Ergonomics*, 25:2, 241-249. doi: 10.1080/10803548.2017.1371958
- Lacerenza, C. N., Reyes, D. L., Marlow, S. L., Joseph, D. L., & Salas, E. (2017). Leadership training design, delivery, and implementation: A meta-analysis. *Journal of Applied Psychology*, 102, 1686–1718. [http:// dx.doi.org/10.1037/apl0000241](http://dx.doi.org/10.1037/apl0000241)
- Leavy, B. (2005). A leader's guide to creating an innovation culture. *Strategy and Leadership*, 33(4), 38–45. doi:10.1108/10878570510608031
- Likert, R. (1932). A Technique for the Measurement of Attitudes. *Archives of Psychology*, 140, 1–55. doi:10.4236/psych.2012.38094
- Lin, C. (2006). A study on the organizational innovations in Taiwan's logistics industry. *The Business Review*, Cambridge, 5(1), 270. doi:10.5539/ijbm.v11n6p87
- Linke, A. & Zerfass, A. (2011). Internal Communication and Innovation Culture: Developing a Change Framework. *Journal of Communication Management*, 15, 332-348. doi:10.1108/13632541111183361
- Loehr, J. & Schwartz, T. (2003). *The Power of Full Engagement: Managing Energy, Not Time is the Key to Performance, Health and Happiness*. The Free Press, New York.
- Loewe, P., Williamson, P., & Chapman Wood, R. (2001). Five styles of strategy innovation and how to use them. *European Management Journal*, Elsevier, vol. 19(2), pages 115-125. doi:10.1016/S0263-2373(00)00081-5
- Luthra, A. & Dahiya, R. (2015). Effective leadership is all about communicating effectively: connecting leadership and communication. *International journal of management & business studies*, 5(3), 43-48.
- Manz, C. C. (1992). *Mastering Self-Leadership: Empowering Yourself for Personal Excellence*, Prentice-Hall, Englewood Cliffs, NJ.
- Marchand, C. & Vandenberghe, C. (2016). Perceived organizational support, emotional exhaustion, and turnover: the moderating role of negative affectivity. *International Journal of Stress Management*, 23(4), 350–75. doi:10.1037/str0000020
- McKinsey Global Survey Results. (2007, October). How companies approach innovation: A McKinsey Global Survey. The McKinsey Quarterly: *The Online Journal of McKinsey & Co.* Premium Edition. Retrieved from http://www.mckinseyquarterly.com/Surveys/How_companies_approach_innovation_A_McKinsey_Global_Survey_2069
- Mehmetoglu, M. & Jakobsen, T. G. (2017). *Applied Statistics Using Stata: A Guide for The Social Sciences*. London: Sage Publications Ltd.
- Mikkelsen, A. C., York, J. A., & Arritola, J. (2015). Communication competence,

- leadership behaviors, and employee outcomes in supervisor-employee relationships. *Business and Professional Communication Quarterly*, 78 (3), 336-354. doi: 10.1177/2329490615588542
- Mitchell, M. A. & Maxwell, S. E. (2013). A Comparison of the Cross-Sectional and Sequential Designs when Assessing Longitudinal Mediation. *Multivariate Behavioural Research*, 48:3, 301-339. doi: 10.1080/00273171.2013.784696
- Mumford, M. D., Scott, G. M., Gaddis, B., & Strange, J. M. (2002). Leading Creative People: Orchestrating Expertise and Relationships. *The Leadership Quarterly*, 13, 705-750. doi:10.1016/S1048-9843(02)00158-3
- Nicolopoulou, A. & Weintraub, J. (1998). Individual and Collective Representations in Social Context: A Modest Contribution to Resuming the Interrupted Project of a Sociocultural Developmental Psychology. *Human Development*, 41(4), 215-235. doi: 10.1159/000022583
- Noefer, K., Stegmaier, R., Molter, B., & Sonntag, K. (2009). A great many things to do and not a minute to spare: can feedback from supervisors moderate the relationship between skill variety, time pressure and employees' innovative behaviour? *Creativity Research Journal*, Vol. 21 No. 4, pp. 284-293. doi:10.1080/10400410903297964
- Nordblom, C. & Hamrefors, S. (2007). Kommunikativt ledarskap. *Utveckling av mellanchefers kommunikative förmåga inom Volvokoncernen*. Rapport 2/07. Sveriges Informationsförening.
- Nordfors, D. (2006). PR and the Innovation Communication System. *Innovation Journalism* 3(5): 1-9.
- Notar, C. E., Uline, C. S., & Eady, C. K. (2008). What Makes an Effective Leader: The Application of Leadership, *International Education Studies* 1, no. 3.
- O'Reilly, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparisons approach to assessing person-organization fit. *Academy of Management Journal*, 34, no. 3, pp. 487-516. doi:10.2307/256404
- Parsley, A. (2006). Road map for employee engagement. *Management Services*, 10-11.
- Preacher, K. J. & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behaviour Research Methods, Instruments & Computers*, 36(4), 717-731. doi: org/10.3758/BF03206553
- Preacher, K. J. & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behaviour Research Methods*, 40(3), 879-891. doi: org/10.3758/BRM.40.3.879

- Raelin, J. A. (2013). The manager as facilitator of dialogue. *Organization*, 20(6), 818-839.
doi: 10.1177/1350508412455085
- Rao, V. (2016). Innovation through employee engagement. In *Second Asia Pacific Conference on Advanced Research*, Vol.1, pp.1-9.
- Rich, B.L., Lepine, J. A., & Crawford, E.R. (2010). Job engagement: Antecedents and effects on job performance, *Academy of Management Journal*, Vol. 53, pp. 617-635.
doi:10.5465/amj.2010.51468988
- Rogelberg, S. & Stanton, J. (2007). Understanding and dealing with organizational survey non-response. *Organizational Research Methods*, 10, 195–209.
doi:10.1177/1094428106294693
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the Leadership innovation relationship: ambidextrous leadership. *The Leadership Quarterly*, 22, 956- 974. doi: 10.1016/j.leaqua.2011.07.014
- Schaufeli, W. B. (2012). Work Engagement. What Do We Know and Where Do We Go? Work Engagement in Everyday Life, Business, and Academia. *Romanian Journal of Applied Psychology*, 14(1), 3-10.
- Schaufeli, W. B. & Bakker, A. B. (2003). *Test manual for the Utrecht Work Engagement Scale*. Unpublished manuscript, Utrecht University, the Netherlands. Retrieved from <http://www.schaufeli.com>
- Schaufeli, W. B. & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study, *Journal of Organizational Behaviour*, Vol. 25, pp. 293-315. doi:10.1002/job.248
- Schaufeli, W. B. & Bakker, A. B. (2010). Defining and measuring work engagement: Bringing clarity to the concept. In A. B. Bakker & M. P. Leiter (Eds.). *Work engagement: A handbook of essential theory and research*, p. 10-24. New York: Psychology Press.
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a brief questionnaire: a cross-national study, *Educational and Psychological Measurement*, 66, 701-16. doi:10.1177/0013164405282471
- Schaufeli, W. B., Bakker, A. B., & van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organisational Behaviour*, 30(7):893–917. doi: 10.1002/job.595
- Schaufeli, W. B. & Salanova, M. (2006). Work engagement. An emerging psychological concept and its implications for organizations. In S. W. Gilliland, D. D. Steiner, & D.

- P. Skarlicki (Eds.), *Research in social issues in management (Vol. 5): Managing social and ethical issues in organizations* (pp. 135–177). Greenwich: Information Age Publishers.
- Schaufeli, W. B., Salanova, M., Bakker, A. B., & Gonzales-Roma, V. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71–92. doi: 10.1023/A:1015630930326
- Schwartz, H. & Davis, S. M. (1981). Matching Corporate Culture and Business Strategy. *Organizational Dynamics*, 10, 30-48. doi.org/10.1016/0090-2616(81)90010-3
- Shaffer, J. (2004). *Measurable payoff: How employee engagement can boost Performance and profits*. New York: Communications world.
- Sharifirad, M. S. & Ataei, V. (2012). Organizational culture and innovation culture: Exploring the relationships between constructs. *Leadership and Organization Development Journal*, 33 (5): 494-517. doi:10.1108/01437731211241274
- Shin, J. S. & Zhou, J. (2007). When Is Educational Specialization Heterogeneity Related to Creativity in Research and Development Teams? Transformational Leadership as a Moderator. *Journal of Applied Psychology*, 92, 1709-1721. doi:10.1037/0021-9010.92.6.1709
- Shuck, B. & Wollard, K. K. (2010). Employee engagement and HRD: a seminal review of the Foundations. *Human Resource Development Review*, (9) (1), 89-110. doi:10.1177/1534484309353560
- Smith, M., Busi, M., Ball, P., & Van Der Meer, R. (2008). Factors influencing an organisation's ability to manage innovation: A structured literature review and conceptual model. *International Journal of Innovation Management* 12(4):655-676. doi:10.1142/S1363919608002138
- Sniukas, M. (2012). How to Make Business Model Innovation Happen, Innovation Management. (n.d.). Retrieved November 19, 2019, from <http://www.innovationmanagement.se/2012/07/02/how-to-make-business-modelinnovation-happen/>
- Sobel, M. E. (1982). Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models. *Sociological Methodology*, 13, 290-321. doi: org/10.2307/270723
- Spearman, C. (1910). Correlation Calculated from Faulty Data. *British Journal of Psychology*, 3, 271-295. doi: org/10.1111/j.2044-8295.1910.tb00206.x
- Spencer-Oatey, H. (2008). *Culturally Speaking. Culture, Communication and Politeness Theory*. 2nd edition. London: Continuum.

- Spencer-Oatey, H. (2012). What is culture? A compilation of quotations. *GlobalPAD Core Concepts*. Available at GlobalPAD Open House, https://warwick.ac.uk/fac/soc/al/globalpad/openhouse/interculturalskills/global_pad_-_what_is_culture.pdf
- Stogdill, R. M. (1974). *Handbook of leadership: A survey of the literature*. New York: Free Press. doi:10.1080/00220612.1975.10778712
- Streets, R. & Boundary, C. (2004). Managing Innovation. *Australian Institute of Management - Version 1.0*.
- Sun, L. & Bunchapattanasakda, C. (2019). Employee Engagement: A Literature Review. *International Journal of Human Resource Studies*, 9, 63. doi:10.5296/ijhrs.v9i1.14167
- Tepper, B. J., Moss, S. E., & Duffy, M. K. (2011). Predictors of abusive supervision: supervisor perceptions of deep-level dissimilarity, relationship conflict, and subordinate's performance. *Academy of Management Journal*, 54(2), 279–94. doi:10.5465/amj.2011.60263085
- Tosunoglu, H. & Ekmekci, O. T. (2016). Laissez-Faire Leaders and Organizations: How Does Laissez-Faire Leaders Erode the Trust in Organizations?’, *Journal of Economics, Finance and Accounting*, 3(1), pp. 90. doi:10.17261/Pressacademia.2016116538
- Tourish, D. (2013). *The dark side of transformational leadership: A critical perspective*. Hove: Routledge. doi:10.4324/9780203558119
- Tushman, M. & O'Reilly, C. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38, 8-30. doi:10.2307/41165852
- Uyar, A. & Kuzey, C. (2016). Does management accounting mediate the relationship between cost system design and performance? *Advances in Accounting*, 35, 170-176. doi: 10.1016/j.adiac.2016.06.004
- Van de Ven, A. (1986). Central Problems in the Management of Innovation. *Management Science*, 32(5), pp. 590-607. doi:10.1287/mnsc.32.5.590
- Wallace, L. & Trinkka, J. (2009). Leadership and Employee Engagement, *Public Management*, Vol. 91, No. 5, pp. 10-13.
- Wiley, J. W. (2010). The Impact of Effective Leadership on Employee Engagement, *Employment Relations Today*, pp. 47-52. doi:10.1002/ert.20297
- Wong, K. K. K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, 24(1), pp. 1-32. doi: org/10.17524/repec.v10i3.1376

- Wu, S. Q. & Cao, K. (2015). Abusive Supervision and Work-Family Conflict: The Mediating Role of Emotional Exhaustion. *Journal of Human Resource and Sustainability Studies*, 3, 171-178. doi: org/10.4236/jhrss.2015.34023
- Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational Behaviour*, 74(3), 235-244. doi: 10.1016/j.jvb.2008.11.003
- Yoerger, M., Crowe, J., & Allen, J. A. (2015). Participate or else! The effect of participation in decision-making in meetings on employee engagement. *Consulting Psychology Journal: Practice and Research*, 67, 65–80. doi:10.1037/cpb0000029
- Young, W., Weckman, G., & Holland, W. (2011). A survey of methodologies for the treatment of missing values within datasets: limitations and benefits. *Theoretical Issues in Ergonomics Science*, 12(1), 15-43. doi:10.1080/14639220903470205
- Yuan, F. & Woodman, R. W. (2010). Innovative behaviour in the workplace: the role of performance and image outcome expectations. *Academy of Management Journal*, 53(2), 323-342. doi:10.5465/AMJ.2010.49388995
- Yukl, G. (2013). *Leadership in organizations* (8th ed.). Harlow: Pearson Education Limited.
- Zangirolami-Raimundo, J., Echeimberg, J. O., & Leone, C. (2018). Research methodology topics: Cross-sectional studies. *Journal of Human Growth and Development*, 28 (3):356-360. doi: http://dx.doi.org/10.7322/jhgd.152198
- Zawawi, N. F. M., Wahab, S. A., Al-Mamun, A., Yaacob, A. S., Samy, N. K. A., & Fazal, S. A. (2016). Defining the concept of innovation and firm innovativeness: A critical analysis from resource-based view perspective. *International Journal of Business and Management*, 11(6), 87-94. doi:10.5539/ijbm.v11n6p87
- Zerfass, A. & Huck, S. (2007). Innovation, communication, and leadership: New developments in strategic communication. *International Journal of Strategic Communication*, 1 (2), 107–122. doi: 10.1080/15531180701298908
- Zhang, Y., Zheng, J., & Darko, A. (2018). How Does Transformational Leadership Promote Innovation in Construction? The Mediating Role of Innovation Climate and the Multilevel Moderation Role of Project Requirements. *Sustainability*, 10, 1506. doi.org/10.3390/su10051506
- Zuraik, A. (2016). *The effective leadership for innovation. Effective Leadership for Innovation in Modern Organizations*. Alliant International University.

Appendices

Appendix 1: Questions from Kantar TNS Alx's Questionnaire

Work engagement index:

1. Jeg gleder meg til å gå på jobben
2. Jeg er sterkt engasjert i jobben og oppgavene mine
3. De målene vi har satt oss motiverer meg til å gjøre en ekstra innsats
4. Jeg er stolt av å være ansatt i selskapet

Innovation culture index:

1. Her i selskapet bidrar nye verktøy og systemer som blir innført til forenkling av mine arbeids-oppgaver
2. I vår enhet bidrar alle til å forbedre måten vi jobber på
3. I vår enhet får nye ideer støtte og oppmuntring

Leadership index:

1. De tilbakemeldinger jeg får fra min leder motiverer meg til å gjøre en bedre jobb
2. Jeg opplever at mine meninger og innspill blir ivaretatt av min leder
3. Min leder setter klare mål for hva vi skal oppnå i vår enhet
4. Min leder gjennomfører endringer på en god måte