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Social Ties and Purpose of Work in the  
Principal-Agent Relationship  
Master's Thesis in Business Administration

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## ABSTRACT

This paper investigates the effect of strengthening social ties and purpose of work on motivation in the principal-agent relationship. We hypothesise that by building social ties to employees and give them purpose of work, the employees' motivation will increase and their effort and productivity will rise and lead to higher results. Our theory has three mechanisms supporting our hypothesis; reciprocity, belonging and meaning. To investigate this, we performed a small real-effort experiment with the help of students at the University of Stavanger during the spring of 2017. Our results suggest that the *purpose of work* treatment has a significant negative effect on effort, both alone and combined with the *strengthening social ties* treatment. However, *strengthening social ties* alone has no significant effect, and the difference has no significant effect when looking at *purpose* with and without *ties*, and vice versa. This means that neither treatments had the wanted effect on motivation.

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## PREFACE

This paper is written as a final assignment to our two-year master`s degree program in Business Administration at the University of Stavanger (UiS). We both find the subject human resources interesting, that is why we have chosen to study the effect of strengthening social ties and purpose of work on motivation in the principal-agent relationship.

First, we would like to thank our thesis advisor professor Mari Rege for good guidance and helpful advice through this process.

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# 1 INTRODUCTION

The area of leadership never ceases to evolve, and people are constantly doing research to improve their ideas and theories (Oldham & Hackman, 2010). What is common for all these theories is that motivation and support is the key to increase efficiency and economic profits. This makes leadership theories an important part of a company`s business-strategy.

This paper investigates the effect of strengthening social ties and purpose of work on motivation in the principal-agent relationship, where the principal and the agent represents the leader and the employee, respectively. We explore three possible mechanisms affecting motivation; reciprocity, belonging and meaning. We hypothesise that when a leader shows interest in her employees, they will develop a social bond that increases the employees` motivation. By nurturing these relationships and by giving the employees a meaning behind the task, the employees` motivation will increase and their effort and productivity will escalate and lead to higher results.

Motivation is the needs or wants that drive behaviour and explains what one does. One does not actually observe a motive, but one infers that it exists based on the behaviour one observes (Nevid, 2013, p. 288). An employee's motivation affects the effort he puts into the job he is performing. By strengthening the bond between leaders and employees, and giving them purpose of work, the leader tries to affect the employees' motivation, and by this make them want to perform better.

In the education literature, there is well-documented research that look at the student-teacher relation and how it can be used to increase students` motivation and academic results. Research show that the students who have this relationship with their teachers perform better than those who do not have it (Gelbach, Brinkworth, Harris, 2012; Hughes, Wu, Kwok, Villarreal & Johnson, 2012; Luckner & Pianta, 2011; Pennings et al., 2014).

Today, jobseekers and co-workers in a practice do not only have expectations about getting paid for their work in order to support themselves financially, but it is also expected that the job should satisfy social needs and needs for development (Mikkelsen & Laudal, 2014b, p. 79). We need to give the employees a purpose behind the work, so that they understand how they fit into the company and how their effort impacts the results. Because of this, we want to transform the teacher-student theories to the leader-employee relation and try to increase the

employee's motivation and effort. By combining teacher-student theories with existing leadership theories and give a purpose behind the task, we think we can find a way of leadership that is a cost-effective way for leaders to affect the effort of their employees.

Reciprocity is a mechanism that supports the strengthening of social ties in the principal-agent relationship. Reciprocity is when one gives back the kind of treatment one has received from others. Several studies show that people tend to reciprocate favours and punish unfair behaviour (Falk & Fischbacher, 2006; Fehr, Gächter, & Kirchsteiger, 1997). This supports our theory, that building ties and treating the employees in a fair way, will make them reciprocate by respecting the leaders and increasing their motivation to do their job.

The second mechanism is belonging. For one to feel that they belong, it is necessary to establish and maintain interpersonal relationships, and to be socially accepted (Leary & Allen, 2011). When the leader has a focus on strengthening her ties to the employees, it will give the employees a sense of belongingness. They will feel that they are connected to both the leader and the organisation. This can impact how the employees feel about the company and the job itself. The employees will be motivated to be accepted and keep their place in the group and therefore increase their effort. The sense of belongingness can affect the employees' motivation to do a good job.

To be able to get the employees to use the ties the leader is building and reciprocate by increasing their motivation and effort, they need to understand what the leader wants them to accomplish. Social ties are important when it comes to giving the employee an understanding of why they are doing the tasks at work, and understand the meaning behind it, this being the third mechanism. The work has meaning to the employee when the task has some point of purpose. By purpose, we mean that the employee understands the importance of their effort (Ariely, Kamenica & Prelec, 2008). One way to attack this is through the design of work. The point of using job design is to make the job psychologically motivating (Hackman & Oldham, 1980). When this is done correctly, the employees' motivation and effort are likely to rise. As a leader, you can design the job structure to maximise knowledge sharing and be able to give the employees a purpose of work.

Knowing how to use different approaches to affect the employees' motivation can be a helpful tool both in the leader's private and social life. If we can prove that by creating social relationships and give employees' purpose of work will increase their motivation and effort, it



is a small cost compared to the possibility in increased productivity. This makes our paper relevant for most companies. If it turns out, that by using small amounts of resources the results can increase, then companies will consider this when defining the expectations of their leaders. It is much easier to introduce a new policy to leaders about how to treat their employees than to make big organisational changes.

We tested our theory by conducting a small real-effort experiment at the University of Stavanger. One treatment looked at the effect of strengthening the social tie between the principal and the agent (*strengthening social ties* treatment), whilst the other looked at the importance of having an understanding of why the agent was performing the task at hand (*purpose of work* treatment). All the participants were given written instructions on how to perform the tasks. When it came to the *strengthening social ties* treatment, we greeted half of the participants in a warm way, trying to build some ties to them, whilst the other half were greeted in a neutral way. The *purpose of work* treatment was given through the instructions, the control group received instructions on how to perform the tasks, whilst the treatment-group received instructions where the meaning of why they were doing the tasks was included.

In this paper, we investigate the effect of strengthening social ties and purpose of work on motivation in the principal-agent relationship. Our results suggest that the *strengthening social ties* treatment alone, has no significant effect on effort. The *purpose of work* treatment, on the other hand, has a significant negative effect on effort, both alone and combined with the *strengthening social ties* treatment. However, the difference has no significant effect when looking at *purpose* with and without *ties*, and vice versa.

## 2 THEORETICAL AND EMPIRICAL BACKGROUND

Before we look into the theory, we want to go through the simple intuition of the mechanisms supporting our hypotheses. Human resources are one of the most important inputs in economic businesses and a key factor is therefore to determine how to affect the employee's effort (Mikkelsen & Laudal, 2014a). Building a relationship between the leader and employees and give purpose of work, could be a cost-effective way of maximising the employees' effort.

Think about a work-related relationship where the leader does not only care about business, but also cares about the employees in a personal manor. This kind of relationship will give the employees' motivation to work harder and work alongside the leader to achieve a common goal. We suggest that it is necessary to have good social ties in the principal-agent relationship to help motivate and encourage the agents to perform better, and at the same time give them purpose of work.

To explain this, say that an employee comes back to work after the weekend, if the relationship he has with his leader is strictly work-related, he shows up for work, gets told what to do and does it. But where does his motivation come from? Here the leader is relying on his employees' inner motivation, that he always wants to do his best. On the other hand, if he has a more personal or social relationship with his leader, the leader might ask him about his weekend and how he is feeling. This can give him a sense of belonging, which in turn can help improve his motivation and in reward he might work better and harder. There is, of course, a limit to how close this relationship should be, but when the leader is treating the employees kindly and care for them on a personal level, they are more likely to reciprocate by doing a good job. It will make it easier for the leader to get the team on-board and achieve a common goal.

On the purpose side, think about an employee that just does his daily tasks. Every day, he comes to work and performs his tasks, but has no understanding of the importance of the job. In the end, this employee's motivation will decrease as the job turns out to be routine. But if the leader provides him with information and explains what difference his performance has for the company, alongside with strengthening the social ties, the motivation and effort can increase. It can be as easy as knowing the weekly goal, and that any productivity under this would increase the employee's or the company's workload for the next week.

## 2.1 Hypotheses

Our research question; The effect of strengthening social ties and purpose of work on motivation in the principal-agent relationship, builds on two different treatments; *strengthening social ties* and *purpose of work*. To investigate this, we are conducting a lab experiment where the experimental conductor and the participant represents the principal and the agent. In the experiment, we are testing two hypotheses; the first is testing the *strengthening social ties* treatment, and the second is testing the *purpose of work* treatment. The hypotheses are as follows:

**Hypothesis 1:** A warm welcome increases the participant's effort, and has a positive effect on their motivation.

**Hypothesis 2:** Understanding the meaning behind the task or work increases the participant's effort, and has a positive effect on their motivation.

With hypothesis 1, we believe that by building ties to the participants before they execute the tasks, they will be more motivated to increase their effort and work harder than those that do not get this treatment. Hypothesis 2, suggest that it is important for the participant to understand why they are performing the task to get purpose of work and increase their intrinsic motivation. We believe that both social ties and purpose of work are needed in the principal-agent relationship to maximise the participant's motivation to do their best. In other words, that the combination of the treatments can give the agent the best foundation to perform the task as well as possible.

## 2.2 Motivation

Motives are the needs or wants that drive behaviour and explains what one does. One does not actually observe a motive, but one infers that it exists based on the behaviour one observes (Nevid, 2013, p. 288).

Motivation refers to factors that activate direct and sustain goal-directed behaviour (Nevid, 2013, p. 288), and is one of the most important triggers behind increased effort. What affects motivation differs from person to person. It is therefore necessary to understand how the

leader can affect employees' motivation, so that they are willing to put in more effort and increase their productivity. Leaders should take the employees needs and wants into considerations, and Maslow's hierarchy of needs (figure 2.1) is a good starting point to explain how to do this (Mikkelsen & Laudal, 2014b, p. 36).

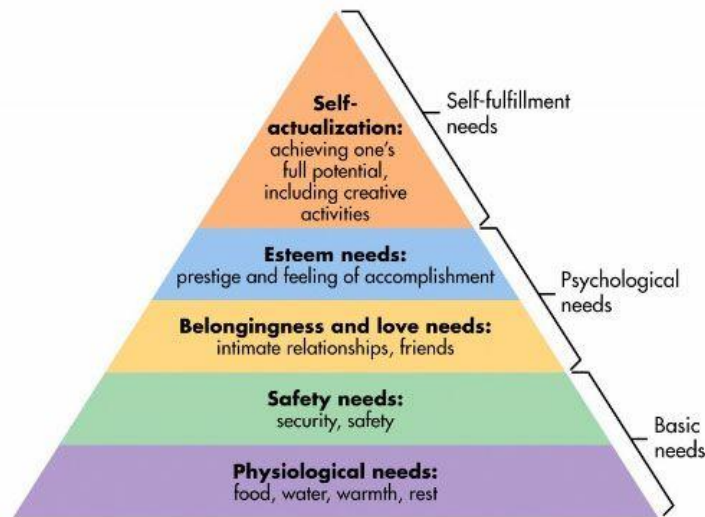


Figure 2.1 Maslow's hierarchy of Needs (2007).

The figure shows the needs and wants leaders should take into consideration when trying to affect employees' motivation

Our research focus lies in the third and fourth level, the psychological needs, which affects the belongingness, love, and esteem needs. We suggest that by building a tie or bond between the leader and the employees, and give the employees a meaning behind the work, they will feel a belonging to the company or at least to the leader. By strengthening these ties, the leader will be able to get the employees to see their views and because of this try to help them achieve a common goal. When they understand the importance of the job, the employees will feel like their effort has a meaning behind it, and their intrinsic motivation is triggered by the need to back up their leader.

Intrinsic motivation refers to motivation that is psychologically driven, which means that it is driven by internal rewards instead of outside rewards (Lazear & Gibbs, 2014, p. 388). This means that the motivation to engage in an activity comes from within the person. In our situation, it can be that when the relationship between the leader and employee is strengthened or when the employee gets meaning behind the work, it arouses something within the employee.

When the psychological needs are met, the employees will feel some self-actualisation by understanding the impact their job had on the result, and knowing that their effort helped the leader achieve their common goal. A common belief is that when helpers are thanked for their efforts, they experience stronger feelings of self-efficiency and social worth, which motivate them to engage in prosocial behaviour (Bear, Slaughter, Mantz & Farley-Ripple 2017; Grant & Gino 2010; Howells 2014).

Extrinsic motivation arises from the outside and often involves rewards as money, social recognition, or praise (Fehr & Falk, 2002; Ryan & Deci, 2000). One form of extrinsic motivation could be strengthening the ties between the leader and the employee. When the leader tries to build ties with her employees by showing an interest and getting to know them, the employees get recognition. This can make them feel appreciated and give them a sense of belonging, which can increase their extrinsic and intrinsic motivation.

One of the main building blocks for our paper is research done on the student-teacher relationship (Gelbach et al., 2012; Hattie, 2009; Lee, 2007; Lærer-elev-relasjonen, 2016; Relasjoner mellom elever, 2016), and how strengthening those relations can increase the student's motivation to do better (Pennings et al., 2014). To build a relationship, the teacher should care about all the students, show interest for each of them, be supportive and have expectation about the student's progress (Hughes et al., 2012). It is essential that the teacher is always polite, friendly and respectful in their dealings with the class and individual students to be able to create good relations both with the students and between the students (Hendrix, Mainhard, Boor-Klip, & Brekelmans, 2017; Luckner & Pianta, 2011).

### 2.3 Mechanisms affecting motivation

The issue with motivation is that it is not something one can see or touch, one only assumes that all employees can be affected by external factors. Our theory is that this combined with the strengthening of social ties to the leader and purpose of work can affect the employees intrinsic and extrinsic motivation, and increase their effort at work. Our theory is based on that by greeting the employees in the morning, asking about the weekend and showing appreciation for their effort, their motivation will increase. Hauser, Perkman, Puntischer,

Walde & Tappeiner (2016, p. 591) supports this by concluding that "firms benefit from the social connections of their workers in the form of more highly motivated workforce".

We want to use the evidence from the education literature, mentioned in section 2.2, and transform the teacher-student relation to the workplace and add purpose of work. It uses the same building blocks as we do. The teacher, in our case the leader, has to think about how she treats her students, i.e. the employees. By treating the employees' friendly and with respect, the employees will increase their effort and reciprocate the behaviour back to the leader. Trust, respect, and mutual obligation that generates influence between the parties is necessary for a relationship-based approach with a dyadic relationship between the principal and the agent (Graen & Uhl-Bien, 1995). By giving the employees a meaning behind the task they are performing, they will get an understanding of why they are doing the task and at the same time, a feeling of belongingness in the group. The combination of strengthening social ties and providing purpose of work will affect the employees' motivation. The effect can be explained by the mechanisms that affects motivation.

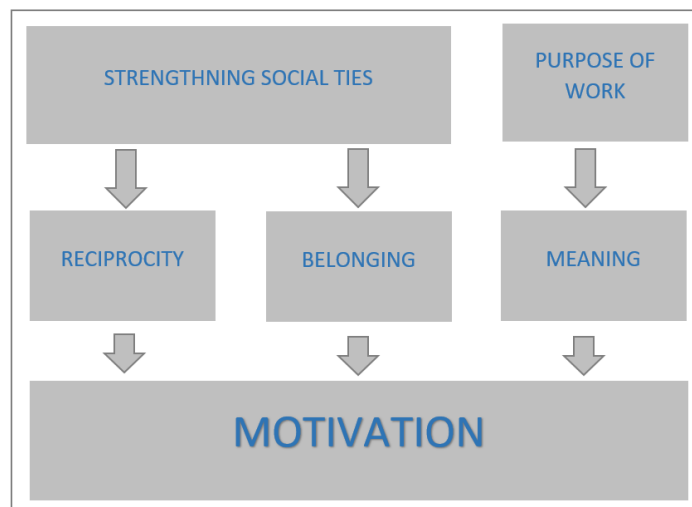


Figure 2.2 Mechanisms affecting motivation

This figure shows how the two treatments, *strengthening social ties* and *purpose of work*, activate the mechanisms; reciprocity, belonging, and meaning, and by that affects motivation.

Our theory is that the two treatments, *strengthening social ties* and *purpose of work*, will activate the three mechanisms that affect motivation; reciprocity, belonging and meaning. This can be explained by figure 2.2. By introducing the *strengthening social ties* treatment, one activates the mechanisms reciprocity and belonging, whilst introducing the *purpose of*

*work* treatment, activates the mechanism meaning. Activating these mechanisms will in turn affect the employees' motivation.

### 2.3.1 Reciprocity

That leaders must behave in the same way that they want employees to behave in return, is a main focus in this paper, and makes reciprocity an important factor activated by the *strengthening social ties* treatment. Berg, Dickhaut and McCabe (1995, p. 122) wrote, "A fundamental assumption in economics is that individuals act in their own self-interest", but studies show that people tend to reciprocate favours and punish unfair behaviour (Falk & Fischbacher, 2006; Fehr et al., 1997). In our case this means that if the leader treats her employees in a fair way and strengthen their social ties, the employees will reciprocate by doing a good job. On the other hand, if the employees feel that the leader is being unfair, they will decrease their effort.

Economists explain reciprocity with the trust game, which is an experiment on the choice to measure trust in economic decisions. In the trust game there are two players, in the beginning both players get the same amount of money. First, player one must decide whether she wants to transfer any of her endowment to player two. The amount,  $x$ , that player one decides to transfer is tripled, i.e. player two receives  $3x$ . Player two must then decide whether he wants to reciprocate by sending some of the money back to player one or keep it all to himself. In the end, all decisions depend on whether you trust the other player or not (Berg et al., 1995).

"Reciprocity is a behavioural response to perceived kindness and unkindness, where kindness comprises both distributional fairness as well as fairness intention" (Falk & Fischbacher, 2006, p. 294). This means that reciprocity is when one gives back the kind of treatment one has received from others. It is often seen as a future obligation that makes it possible to build continuing relationships and interactions. When an employee does not feel like they have a tie or a bond to their leader or the workplace, their intrinsic motivation may start to fade away, i.e. crowd out, and they reciprocate by doing a worse job. On the other hand, if he feels like there is a bond or a tie to the leader and the workplace this can increase his intrinsic motivation. It can often lead to the employee wanting to show the leader gratitude by increasing their productivity.

If the leader is able to build ties with her employees and make them feel safe, the employees should reciprocate by doing a good job. When the employees are treated with respect, they will show respect, if they feel that the leader cares about them, they are more likely to care about the leader, and so on. We assume that the leader must give a little of themselves for the employees to reciprocate in the way the leader wants. The negative side is that if the employees are treated badly or disrespectfully, they will reciprocate by having low effort, and not perform their best. This can result in taking it out on others, for example co-workers or customers.

Incentives is one of the most important factors in reciprocity, and has different outcomes on human motivation depending on what type of incentive it is, it might even have negative effects (Fehr & Falk, 2002; Kvaløy, Nieken & Schöttner, 2015). Miller & Whitford (2002, p. 231) say that "concentration on incentives can crowd out the very qualities in a relationship that make social efficiency possible". Because of this, one needs to be aware of reactions to incentives since it depends on the desire to reciprocate or the desire to avoid social disapproval, and by using the social connections the firm gets more motivated employees (Fehr & Falk, 2002; Hauser et al. 2016). When wanting social approval, there is a higher chance that one wishes to reciprocate by acting according to others.

It is important to consider the fact that people evaluate the kindness of an action, both by its consequences and its underlying intention (Falk & Fickbacker, 2006). Many have found that trust plays an important role when it comes to increasing motivation, and it is especially important in reciprocity. Evidence suggests that when people experience trust, they want to reciprocate trust, and that the trust one extends to an anonymous counterpart can explain that reciprocity exists as a basic element of human behaviour (Berg et al., 1995). Hauser et al. (2016) show evidence that having a focus on the employees' health and separating their work/private life will increase their trust in the firm and their leader. Trust and reciprocity affects the productivity in a firm and can give sizable economic profits (Hauser et al, 2016; Miller & Whitford, 2002). It goes beyond the individual in the firm, and can in very complex and hierarchical organisations, help to overcome the principal-agent problem, where the agent is the one with all the risk (Miller & Whitford, 2002).

There are two main theories from the field of leadership that are important when looking at reciprocity between leader and employee; leader-member exchange (LMX) theory and transformational leadership. Earlier, leadership was thought of as something leaders did



towards all their employees, but LMX theory has changed this view. Researchers now think that there are differences in the relationship between the leader and each of her employees (Northouse, 2007).

LMX is a perspective on leadership effectiveness, and looks at the interpersonal relationship between the leader and her employees (Northouse, 2007; van Knippenberg, 2011, p. 1085). In the beginning the study of exchange theory was called vertical dyad linkage (VLD) theory, the leaders' relation to the work unit as a whole was viewed as a series of vertical dyads. By looking at these, two main types of relationships occurred; in-group and out-group. The in-group was the ones who had responsibilities which went beyond their formal work description, whilst the out-group only acted according to their formal employment contract (Northouse, 2007). For simplicity, in our theory, think of the in-group as the ones with a social tie to the leader, and the out-group as the ones who do not have it.

According to Graen & Uhl-Bien (1991), LMX theory can be used for leadership making, and is something that develops over time. "Leadership making is a perspective approach to leadership that emphasizes that a leader should develop high-quality exchanges with all of her or his subordinates rather than just a few." (Northouse, 2007, p. 155). The process consists of three main stages; (1) the stranger stage, (2) the acquaintance stage, and (3) the mature partnership stage (Graen & Uhl-Bien, 1991). The leaders need to go through these stages with the employee to strengthen their social ties.

Leader effectiveness is dependent on the employees' perception of the leader as a group member (van Knippenberg 2011). It is first when the leader and her employees have developed a mature relationship the process of effective leadership can occur (Graen & Uhl-Bien, 1995). When the loyalty and support is present, their relationship is transformational. This means they are willing to help leaders and co-workers beyond their own self-interest to accomplish the greater good of the team and organisation (Northouse, 2007).

James Macgregor Burns, a political sociologist, introduced the theory of transformational leadership. He saw this as an important approach to leadership, where he tried to link the roles of leadership and employees. He distinguished between two types of leaderships; transactional and transformational leadership. Transactional leadership refers to the bulk of leadership models, which focus on the exchanges that occur between leaders and their employees (Northouse, 2007). An example can be leaders who give their employees

promotions when they reach a given goal. Transformational leadership, on the other hand, is the process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and the employees (Northouse, 2016). The goal is to change people with the use of emotions, values, ethics, standards, and long-term goals. By assessing the employee's motives, satisfying their needs, and treating them as humans, the leader will get a form of influence that moves the employees to accomplish more than what is normally expected of them (Northouse, 2016).

LMX and transformational leadership are good building blocks for our research. They both focus on the important connection between leaders and employees, and suggest that the employees will accomplish more with this connection than without it. We can tie these theories to our research because relationships between leader and employees consist of a transaction, or an exchange. They both study how to increase their employees' motivation. Transformational leadership looks at how building connection between the leader and the employee will increase the motivation of both of both parties, whilst LMX theory looks at building a connection with the employees to use in the exchange of favours. However, the process itself is a much more complex process than what we are suggesting, but we use these theories as a baseline for our further research.

When it comes to LMX, we have confidence in, that by getting all the employees into the in-group and speeding up the process of the three stages of leadership making, they will increase their effort, and do more than what they are obliged to do according to their formal employment contracts. They will reciprocate by showing higher motivation and effort. When this is done, the relationship becomes transformational. The leader can easier share information and explain to the employees what is expected of them.

In the theory of LMX they find that mutual trust in the principal-agent relationship is important for leaders and employees to experience reciprocal influences (Graen & Uhl-Bien, 1991). Trust, respect, and mutual obligation that generates influence between the parties is necessary for a relationship-based approach with a dyadic relationship between the principal and agent (Graen & Uhl-Bien, 1995). With the help of trust and self-efficiency, transformational leaders inspire and motivates their employees, leading to higher job satisfaction (Yildiz & Şimşek, 2016). Evidence suggest that employees in the in-group, will reciprocate with more efficient time planning, effort, enhanced commitment, and higher performance (Duarte, Goodson & Klich, 1993). In addition, LMX has a positive effect on

performance, outcomes, satisfaction with leaders, and the employees will do more than what is required of them. (Gerstner & Day, 1997; Graen & Uhl-Bien, 1995; Ilies, Nahrgang & Morgeson, 2007; Walumbwa, Cropanzano & Goldman, 2011). Transformational leadership also has a positive effect on the performance and development of the employees (Dvir, Eden, Avolio & Shamir, 2002). This increases both the employees and the leaders' morals and motivation (Bass, 1999). Studies on LMX and transformational leadership show that additional factors like extracontractual behaviour, respect, liking, and internalisation of common goals are important in creating good social ties in the principal-agent relationship (Duarte et al. 1993; Dulebohn, Wu & Liao, 2017; Graen & Uhl-Bien, 1991; Humphrey, Burch & Adams, 2016).

### 2.3.2 Belonging

A fundamental human desire is to be accepted by other people and belong to a social group (Leary & Allen, 2011). This makes people motivated to create and maintain connections to other people, making belonging the second mechanism activated by the *strengthening social ties* treatment. The employees need to find their place at work to be able to perform their best. Having this in mind, leaders should focus on strengthening their ties to their employees, making it easier for the employees to feel acceptance and get a sense of belonging. When the employees feel accepted and connected to the leader and the organisation, it may have an impact on how they feel about the company and the job itself, which can affect their motivation to do a good job. The work environment becomes more positive and it can create social relationships that go beyond work-related settings.

There are different factors affecting acceptance and belongingness, such as likeability, similarity, integration and favour-doing, competence and success, and shared goals, norms, and ways of being. All these factors are taken into consideration when creating new interpersonal relationships (Leary & Allen, 2011). As a human being, one has a desire to form and maintain lasting, positive, and significant interpersonal relationships (Baumeister & Leary, 1995).

For the feeling of belonging, it is necessary to establish and maintain interpersonal relationships. For this to happen people must act to promote acceptance and minimise the

likelihood of rejection (Leary & Allen, 2011). This can be done by encouraging building relationships with leaders and employees. Since people have a natural urge to feel belonging to people and groups, they will be receptive to strengthening the social ties.

The motive for establishing and maintaining relationships can be divided into two types of motivation; task-focused behaviour and interpersonal-focused behaviour. Task-focused behaviour is motivated by the desire for achievement, mastery, or competence, whilst interpersonal-focused behaviour is motivated by the desire for social rewards such as liking, status, or competence. People are motivated to show task-specific abilities to develop and display their skills and, by doing so, be valued and accepted by others. Nevertheless, most achievement-oriented behaviour seems to enact in the service of interpersonal goals, included belonging (Leary & Allen, 2011). Doing favours and be perceived as a nice person can increase liking and the likelihood of acceptance and belongingness. Performing favours at the workplace help "create a likable image in the eyes of one's supervisor and co-workers" (Leary & Allen, 2011, p. 41). By having social ties, the employee is likely to do favours to keep feeling liked by his leader.

To be accepted and feel a part of a group, one needs to be perceived as a good group member, as a person that is responsible and trustworthy, and supports the goals and rules of the group (Leary & Allen, 2011). This can be related to the work setting, where one wants to be acknowledged as a worker who is dependable, cooperative, a good co-worker and carries his own load. The leader can build on this by setting common goals for the whole group and let the group itself work towards it together.

When the interpersonal relationships are present in the principal-agent relations, it could influence the emotional costs, both for the leader and the employee. For the leader, there could be a higher cost, since she needs to have an increased focus on making her employees feel that they belong. Whilst the emotional costs for the employee could decrease, since there is a smaller need to focus on being accepted. Then again, the emotional cost of the employee could stay steady as their focus is moved from being accepted to doing a good job and maintaining the interpersonal relationships.

Hammell (2014, p. 44) says "cultural connectedness and belonging can be a motivating factor for engagement in specific occupation". Research on motivation show that it is important to have a sense of social belongingness (Keyes, 2007). It is critical for well-functioning

enterprises to give employees a sense of identity and attachment to the organisation (Akerlof & Kranton, 2005, pp. 10-11; Spiers, 2012, p. 16). Recent theory and research show that the motivation to perform well and to achieve, come from the interpersonal concerns and needs to appear competent, get approval, and pleasing others (Dweck & Legget, 1988; Miller, Greene, Montalvo, Ravindran & Nichols, 1996; Urdan & Mestas, 2006). Achievement motivation is enhanced by the sense of social connectedness and belongingness, both in organisations and at schools (Gillen-O'Neel & Fuligni, 2013; Goodenow, 1993; Goodenow & Grady, 1993; Walton, Cohen, Cwir & Spencer, 2012; Zumbrunn, McKim, Buhs & Hawley, 2014). Lambert et al. (2013) found that relationships that promote a sense of belonging are considered to promote meaningfulness of life.

Belonging is not something we accomplish once and for all, but something we actively need to keep achieving (May, 2011, p. 372). Crocker, Canevello & Brown (2017, p. 316) and Rogers & Ashforth (2017) argue that a sense of belongingness and connectedness can occur by asking, accepting, and receiving help, this can also foster health, well-being, relationships, organisation identification, and psychological safety. On the other hand, feeling rejected and not being able to develop a sense of belonging, can be the cause of decreased efficiency (O'Keeffe, 2013, p. 612).

### 2.3.3 Meaning

In order for an employee to be motivated in their work, it is important that the work itself meets certain requirements and has meaning. The mechanism meaning, activated by the *purpose of work* treatment, is important to our theory because it gives the work a purpose. By purpose we mean that the employees understand what impact their effort has on objectives (Ariely et al., 2008).

To be able to get the employees to use the ties the leaders are building and reciprocate by increasing their motivation and effort, they need to understand what the leaders want them to accomplish. We suggest that it is necessary for the employees to have an understanding of the whole work process, from the beginning to the end. The employees need to know how their tasks affect the end result by getting information and sharing knowledge with co-workers and

leaders. Our hypothesis is that employees need an understanding of why they are doing the tasks they are, in order to be motivated to do their best.

One possible method that can be used to make the work personally rewarding and satisfying is job design. When it comes to designing work or work tasks, intrinsic motivation is an important factor. Hackman & Oldham's theory (1980), presented in figure 2.3, has three key conditions for intrinsic motivation, which are called "critical psychological states". The first condition is knowledge of the results. Knowing how well you have done compared to others will most likely affect your feelings. The second condition is experience responsibility for the result of the work, by feeling some kind of personal accountability for the outcome. The last condition, is experience the work as meaningful, tasks should be designed so that they have meaning for the employee. This demands that the design considers these three conditions for intrinsic motivation.

Hackman & Oldham (1980) have five core dimensions when it comes to job design and which task characteristics are needed for intrinsic work motivation; skill variety, task identity, task significance, autonomy, and feedback.

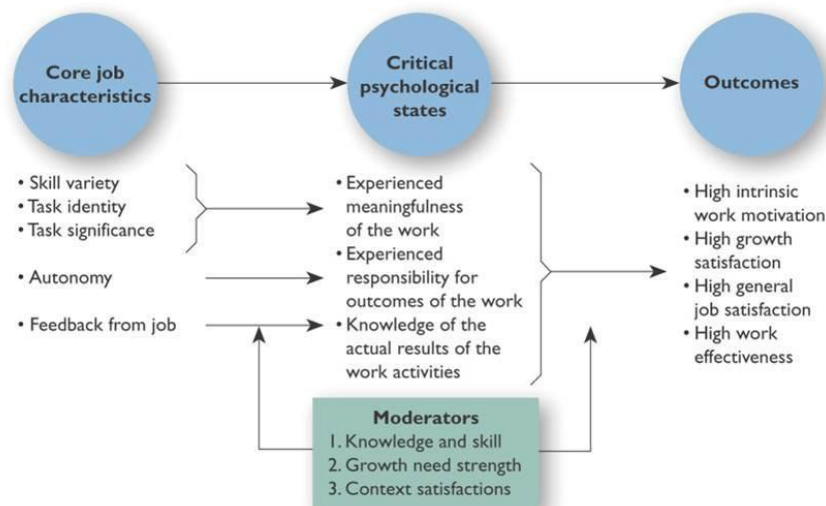


Figure 2.3 The job characteristics model (Hackman & Oldham, 1980, p. 90).

The figure shows the job characteristics that are needed for intrinsic motivation.

From these five characteristics, we find task identity, task significance and autonomy the most important when getting the *purpose of work* treatment. Task identity is how the task "fits" into the whole, it gives meaning knowing what the employee needs to do to reach a specific

outcome. If the task has an impact on the lives of other people, the task is significant, and when one knows that the work one does has an impact on others wellbeing the job becomes meaningful. Autonomy is when the employees get freedom and independence in the form of deciding how and when to work, and can be used to experience responsibility for outcomes of the work (Hackman & Oldham, 1980; Mikkelsen & Laudal, 2014b). By using these three characteristics we affect two of the psychological states, both meaningfulness of the work and responsibility for the outcome of the work.

Even though we are not designing the work, we can use task identity, task significance and autonomy to give the employees meaning behind what they are doing, which will make them increase their effort. Our theory is that by giving them a reason for why they are doing the job and let them know what the desired result is, the employees are more motivated to increase their effort to achieve a common goal. By giving them an understanding of the whole process, it will give them meaning of work. It is important that the employees know the impact of their effort, this could be by explaining to them what role they have in reaching the end result.

In addition to the five core dimensions of job design, there was later added two social dimensions to Oldham and Hackman's model; to which degree the job demands that you cooperate with others, and degree of feedback from other people (Mikkelsen & Laudal, 2014b; Oldham & Hackman, 2010). These two factors can be used to make the employees understand their value to the company. When the employees share knowledge, it will impact their understanding of the work and make the work meaningful.

Ariely et al. (2008) found evidence that perceived meaning influences productivity in a positive way, and that without purpose, work feels absurd, alienating and demeaning. There is little economic literature on the impact of meaning, but it's argued that meaning is an important factor in human behaviour and that it affects motivation (Loewenstein, 1999).

Researchers have found evidence that job design and job characteristics are important for employee satisfaction and motivation. Job design can affect the employee's intrinsic motivation (Hackman & Oldham, 1976; Hackman & Oldham, 1980). Especially job variety and task significance have a big impact (Rousseau, 1977). However, the intrinsic motivation is highest when all of the psychological states, mentioned above, are present. The critical psychological state, experience meaning at work, indicates that experiences at work should add purpose and significance to the lives of individual employees, and social processes in the

workplace is expected to have an influence (Clausen & Borg, 2011, p. 667-668). Keyes (2007, p. 98) supports this by saying that these needs can be met by experiencing purposefulness, autonomy and by having a sense of social belongingness. Falk & Kosfeld (2006) found that too controlling leaders entails hidden costs and can cause employees to feel distrust and limitation of autonomy.

The elements of Hackman and Oldham's theory can be used to stimulate different kinds of motivation toward knowledge sharing. Foss, Minbaeva, Pedersen & Reinholdt (2009) show evidence that adopting certain kinds of job design would result in particular job characteristics that would impact employee motivation to share their knowledge.



### 3 EXPERIMENTAL DESIGN

The purpose with our experiment was to look at how the participants work effort changed depending on how they were greeted at the start of the test-period. We hypothesise that creating a social bond between the principal and the agent by showing interest in the agent when he arrived, would help increase his effort. In addition, we wanted to look at the participant's effort and how it changed depending on if they understood why they were doing the tasks at hand. To do this we changed the experimental instructions in the second session so that the participants got information about why they were doing the tasks. Our theory is that by doing this, the participants would feel more obliged to do their best and therefore perform better than those who did not get the information.

The whole experiment lasted for approximately 40 minutes, and each participant were greeted in a separate room, where they received a treatment, before being shown to the computer lab where they performed the tasks.

#### 3.1 Real effort experiment

We conducted a real effort experiment with a two by two factorial design. A real effort experiment, is a laboratory experiment, where the participants work on specific tasks, whilst a chosen effort experiment is when the participants choose an effort level from a pre-defined set (Brüggen & Strobel, 2007, pp. 232-234). It is argued that real effort experiments give a result that is more generalisable and are more relevant for the field. Real effort experiments are less abstract and artificial, which is why we have chosen this kind of experiment (Dutcher, Salmon & Saral, 2015). The task the participants are solving requires actual physical or mental exertion, and can be something like solving math problems, decoding letters and so on (Dutcher et al., 2015, p. 2).

That we had a two by two factorial design, means that we tested the effect of two different independent variables against a single dependent variable. By testing two independent variables we get four different sets of conditions, and this makes it possible for us to measure the effects of the independent variables on the dependent variables (Trochim, 2006).

### 3.2 Task

In the experiment, the participants worked on a real-effort task. The task was to decode a sequence of letters into numbers. Each participant got a list of different sequences with four letters, where each letter had a corresponding number (Gjedrem & Kvaløy, 2016).

Example: Given this list of letters						
A	B	C	D	E	F	G
8	12	14	10	9	6	24
Task –						
Decode these letters: A   E   G   F						
Correct answer: 8   9   24   6						

Table 3.1 Example of a decoding task given in the experiments

The experiment consisted of six stages, each took 5 minutes with 15 seconds' breaks in between. The participant had to answer each sequence of numbers correctly to be able to move on to the next task. When the 5 minutes were over, they automatically moved on to the next stage. Each participant that completed the assignment earned 100 NOK.

The task was very straightforward and monotonous. The reason was to make it more likely that the only thing affecting the subject's effectiveness was if they got one of the main treatments or not. In addition, it was a simple task, which did not require any prior knowledge and was easy to understand. It gave us a precise measure of output, i.e. our effort indicator.

The task lasted for 30 minutes and only demanded a onetime participation. To ensure disutility of effort we allowed the participants to freely choose how to spend their time during the experiment, like using their mobile phones for Internet surfing, Instagram, or Facebook, but they were not allowed to communicate with other participants. We allowed these activities to make the experiment more realistic, like it would have been in a workplace.

### 3.3 Treatment

We have a two by two factorial design, where our treatment is four folded. In the first round the focus was on how we greeted the participants, i.e. the *strengthening social ties* treatment, and in the second round we added information to the instructions so they would get the meaning of the tasks they were doing, i.e. the *purpose of work* treatment. We called the first-round no purpose and the second-round purpose. From these two rounds, we got 4 different treatments; no purpose/no ties (*NP/NT*), no purpose/ties (*NP/T*), purpose/no ties (*P/NT*) and purpose/ties (*P/T*).

	No Ties	Ties
No Purpose	<i>NP/NT</i>	<i>NP/T</i>
Purpose	<i>P/NT</i>	<i>P/T</i>

Table 3.2 Summary of treatments.

We made scripts (see appendix A1) for what to say and how to greet the individuals, so that each person got the same experience. If an individual was chosen to get the *strengthening social ties* treatment (*ties*) the goal was to make them feel appreciated and welcomed and to create some form of ties in the principal-agent relationship. Therefore, we tried to greet them in a kind and warm way. They got a handshake when they were met, we presented ourselves, and made sure that they understood how grateful we were for their participation. We asked personal questions and told a little bit about ourselves to try to create a bond between the participants and the experimental conductor. The treatment was equal for each individual, but the participants' type and personality may have had some impact.

Those who did not get the treatment was greeted in a neutral way (*no ties*), instead of asking personal questions we tried to keep it as professional as possible and "get down to business" immediately. It was important that we did not seem rude, only neutral, so we tried to keep eye contact and smiling to a bare minimum.

The *strengthening social ties* treatment lasted for about 5 minutes whilst we only talked to those who got a neutral welcome for about 1 minute. Both groups got written instructions and were asked to fill out some forms for the payment, and then they were shown to the computer lab for the final stage of the experiment.

In the second round, we changed the instruction sheet by adding information about the purpose behind the task, so that all the participant in the second round got the *purpose of work* treatment. They were still randomly selected into the *strengthening social ties* treatment, so that half of the participants in the second round got the combination of *strengthening social ties* and *purpose of work*, whilst the other half only got *purpose* behind the task.

## 4 PROCEDURES

We conducted the experiment at the University of Stavanger, Norway, March the 3<sup>rd</sup> and March the 17<sup>th</sup> of 2017. We ran 2 sessions, where each participant was randomly chosen to be treated or not treated, i.e. greeted in a warm (*strengthening social ties*) or neutral way, or if they would receive *purpose* (*purpose of work*) or not. In the first session, the participants got no purpose behind the task, but in the second session the purpose was added to the experimental instructions (see appendix B1). The participants were recruited through their student email accounts, where we sent them a formal invitation (see appendix B2). Students signed up for the experiment using the recruitment program Expmotor, which was a link in the invitation. In Expmotor we added 45 sessions for March the 3<sup>rd</sup> and 41 sessions for March the 17<sup>th</sup>, all with 5 minutes' intervals and the students could freely choose what time they would like to attend. On March the 3<sup>rd</sup> there was 42 registered participants where 29 showed up, whilst on March the 17<sup>th</sup> there was 41 registered participants where 25 showed up.

To randomise the treatment, we decided that every other participant would get the *strengthening social ties* treatment. Since the students chose what time they would like to attend, they did the randomisation themselves, unknowingly. By doing so, we had no say in who did and did not get the treatment.

The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007). Z-Tree is used for developing and carrying out economic experiments. We got permission to use Gjedrem & Kvaløy's (2016) z-Tree file, which they used in their paper. In the programming file, we changed the timespan on the breaks, payment, and created a questionnaire, to make it better suited for our experiment.

When it came to executing the experiment, we had to divide the tasks between the experimental conductors, one conductor greeted the participants whilst the other was in the computer-room available to help the participants understand the task if necessary. We did this so that they would not get mixed signals from the conductor who greeted them, and by that corrupt the result from the greeting. It was also important that the one in the computer-room stayed as neutral as possible towards all the participants. To be sure that the results were as accurate as possible we did not change tasks between us, it was the same conductor who greeted all the participants, whilst the other stayed in the computer room.

To be able to have as many treatments as possible, the participants were greeted individually in a room where we registered the participant and performed the *strengthening social ties* treatment on them. We did this so that the subjects would not notice that other participants were greeted differently. In the separate room, they were asked to fill out a receipt form and were given a paper with rules and instructions about how to conduct the lab experiment (see appendix B1). This was only given in writing and not oral. After the conductor had talked to the participants, they were shown to the computer-room where they performed the tasks.

After the participants had done all the tasks they were asked to answer a few questions about their participation. The questionnaire (see appendix B3) was divided into three parts, both the purpose and no purpose group got parts one and two, but only the purpose group got the third part. The first part asked some demographic questions about gender, age and which faculty they belonged to. The second and third part had claims about different aspects of the experiment, and the participants had to answer how much they agreed with them. The claims were:

Part 2:

- Overall, I experienced being met in a very positive way.
- Overall, I experienced the quality of the program I worked in to be high.
- Overall, I am very satisfied with the payment in relation to the task.
- The person who greeted me welcome, made a positive contribution to my effort today.

Part 3:

- Overall, I did the best I could.
- Overall, my goal was to solve as many tasks as possible.
- I would say that this type of task is well suited for me.
- It was easy to memorise the combination of letters and numbers.

We ran the questionnaire to verify whether the results were correlated by how the participants were welcomed and if their effort increased when they got the meaning of why they were performing the tasks. This was to give us another way to confirm the result. What we were looking for, was evidence that the participants acknowledged the way they were greeted and that we actually managed to build some ties to them in the beginning of the experiment.

# 5 EXPERIMENTAL RESULTS

## 5.1 Main results

We used STATA to analyse our results. 54 students participated in our experiment, of these 41 % were women and 59 % were men. All the participants were students at the University of Stavanger, and overall the average age of the participants was between 20 and 30 years.

Figure 5.1 and 5.2 shows the number of correct answers depending on treatment.

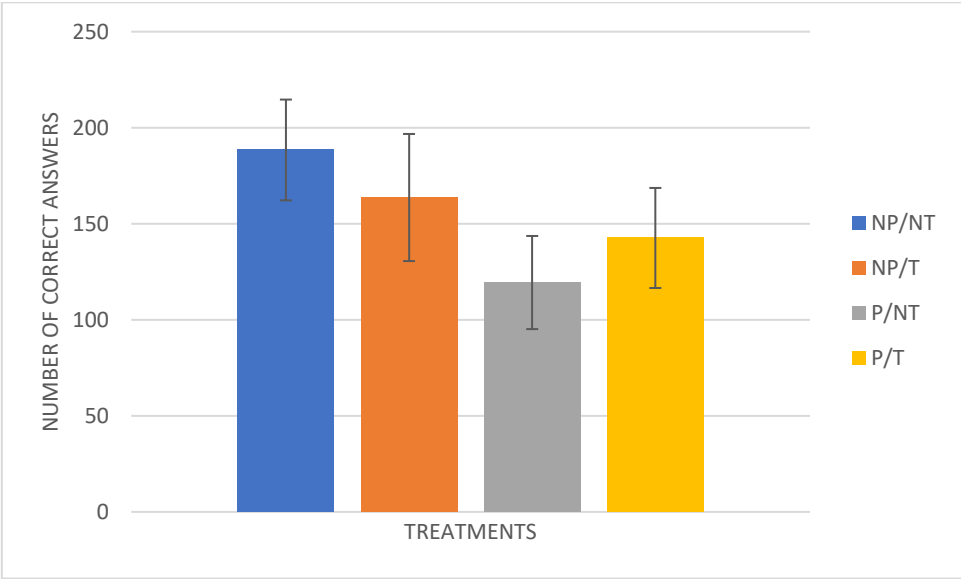


Figure 5.1 The average total number of correct answers per treatment, and their 95% confidence intervals, where number of correct answers is the effort indicator.

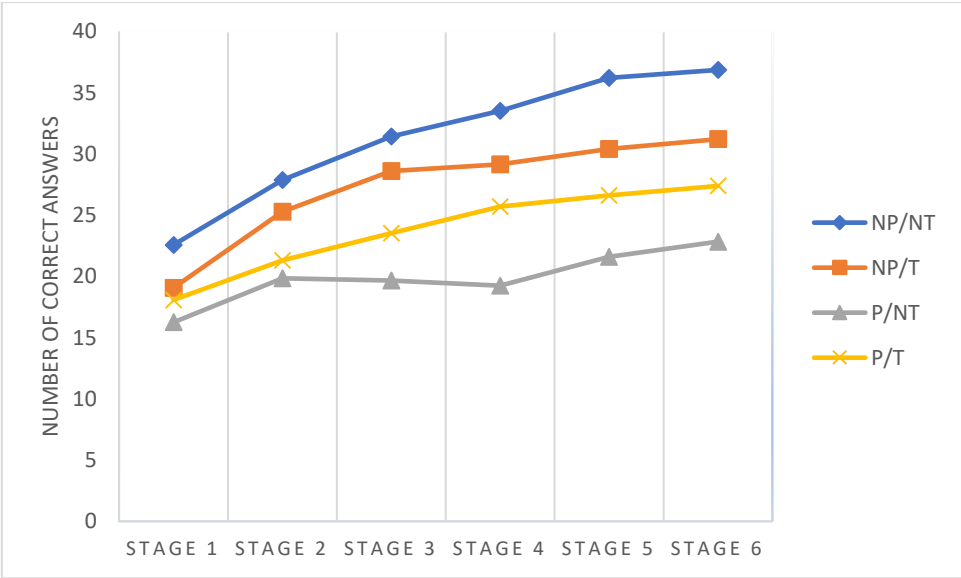


Figure 5.2 The average number of correct answers for each stage per treatment, where number of correct answers is the effort indicator.

The bar chart in Figure 5.1 shows the average total number of correct answers, i.e. our effort indicator, the participants got depending on what treatment group they were in and the 95 % confidence intervals. The figure shows that in both the first and second round of experiments there was a large difference in effort between the *NP/NT* and *NP/T* treatment, *P/NT* and *P/T* treatment, respectively. Figure 5.2 clearly shows that there is an increase in the number of correct answers for each stage, this applies to both the control and treatment groups. Overall, one can see that the second round of experiments had a lower number of total correct answers than the first round. (See appendix C1, for detailed descriptive statistics)

Table 5.1 shows the statistical significances from the Man-Whitney *U* test between *NP/NT* and *NP/T*, *NP/NT* and *P/NT*, *NP/NT* and *P/T*, *NP/T* and *P/T*, and *P/NT* and *P/T*.

**Table 5.1** Man-Whitney *U* test

Man-Whitney *U* test, *strengthening social ties* and *purpose of work* treatments

	Man-Whitney z-Statistics (p-value)				
	(1) vs. (2)	(1) Vs. (3)	(1) vs. (4)	(2) vs. (4)	(3) vs. (4)
Correct stage 1	- 0.919 (0.3582)	2.036 (0.0417)**	- 1.410 (0.1585)	0.046 (0.9632)	0.900 (0.3680)
Correct stage 6	- 1.332 (0.1828)	2.909 (0.0036)***	- 2.454 (0.0141)**	0.692 (0.4892)	0.790 (0.4296)
Total correct	- 1.310 (0.1902)	3.087 (0.0020)***	- 2.475 (0.0133)**	0.760 (0.4471)	1.143 (0.2532)

Notes: All Man-Whitney *U* tests are two-sided.  
(1) *NP/NT*, (2) *NP/T*, (3) *P/NT*, (4) *P/T*  
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

As figure 5.1 shows, the participants in the *NP/NT* treatment group had a higher score on the total number of correct answers (with a mean value of 188.43) than those in the *NP/T* treatment group (with a mean value of 163.67), but even though there was a noticeable difference in the two mean values, table 5.1 shows that the difference is not statistically significant (Man-Whitney *U* test,  $p = 0.1902$ ). Adding *purpose* to *ties* (*P/T*) decreases the number of total correct answers further giving a mean value of 142.62, making effort decrease significantly (Man-Whitney *U* test,  $p = 0.0133$ ). *P/NT* treatment alone has a negative significant effect (Man-Whitney *U* test,  $p = 0.0020$ ), and the difference is statistically the same (Man-Whitney *U* test,  $p = 0.2532$ ) when looking at the effect of the *P/NT* and *P/T*



treatments, even though the mean total correct answers decreases even further to 119.42 for the *P/NT* treatment group. Also, the difference between *NP/T* and *P/T* treatments has no significant effect (Man-Whitney *U* test,  $p = 0.4471$ ). We get the same results by looking at how many correct answers the participants got in stage 1 and 6, except in stage 1 for *NP/NT* vs. *P/NT*, and *NP/NT* vs. *P/T*.

These results indicate that the *strengthening social ties* treatment, alone, has no significant effect on effort. The *purpose of work* treatment, on the other hand, has a negative significant effect on effort. Also, when the combination of treatments is given the results are negative and significant. However, to investigate whether *ties* decreases the effect of *purpose* (and vice versa), we have studied the interaction between the treatments by performing a linear regression analysis where the interaction term is included.

In our regression analysis, we use the number of total correct answers as the dependent variable, whilst *strengthening social ties* and *purpose of work* are the main independent variables. We also included the independent variable with the interception of the two treatments, *strengthening social ties* and *purpose of work*.

$$y_i = \beta_0 + \beta_1 a_i + \beta_2 r_i + \beta_3 a_i r_i + \varepsilon_i$$

Here,  $a_i = 1$  if the participant got *ties* (i.e., was in the *NP/T* or *P/T* treatment) where  $\beta_1$  show the effect of *ties*,  $r_i = 1$  if the participant got the *purpose* (i.e. was in the *P/NT* or *P/T* treatment) where  $\beta_2$  shows the effect of *purpose*, whilst  $\beta_3$  estimates the interaction between *ties* and *purpose*. The results of the regression analysis are reported in table 5.2.

Column 1 in table 5.2 shows the empirical results of the two different treatment results, *ties* and *purpose*. We have included the whole sample size in this regression, total of 54 participants. We created dummy variables for both, the *strengthening social ties* and *purpose of work*, treatments which takes value 1 when treatment is introduced and zero if not. As can be seen from the table, there is a negative but insignificant treatment effect of *strengthening social ties* on effort. On the other hand, the *purpose of work* treatment is significant at the 99 % confidence interval and has a substantial negative effect on effort.

In the second Column in table 5.2 we added the interaction between the two treatments, called *strengthening social ties and purpose of work*. The results show that both the *purpose*, and *strengthening social ties and purpose of work* (the interaction) treatment are statistically

significant. *Purpose* is significant at the 99 % confidence level and the interaction at the 90 % level. The *purpose* treatment alone has a negative effect on effort, but in combination with *ties* the negative effect becomes weaker. That the interaction of these two treatments is positive and significantly different from zero, means that when *purpose* is combined with *ties* it no longer has a large negative effect on effort.

**Table 5.2** Regression effect of treatments

Effect of *strengthening social ties* and *purpose of work* treatments on effort (i.e. total correct answers)

	Column (1)	Column (2)
Strengthening social ties	- 2.56282 (13.36577)	- 24.7619 (17.83091)
Purpose of work	- 44.13362*** (13.39339)	- 69.0119*** (18.87628)
Strengthening social ties and purpose of work		47.96062* (26.20888)

Note: This table shows the regression results of treatment effect on effort. The dependent variable in this regression is number of total correct answers. The independent variables are described in Appendix C2. All regressions are estimated using OLS with robust standard errors in parentheses.

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

The results seem to work against our theory. Therefore, we have to investigate the results further, to see if they were affected by other factors, like observable and non-observable characteristics. We will check for this in section 5.2.

## 5.2 Discussion of results

### 5.2.1 Selection bias

To investigate our results further, we are first going to discuss the limitations in implementation, which can give rise to selection issues. The main limitation with our implementation was that we recruited participants on two separate occasions, one for each round of experiments. Our intention was to keep the recruiting methods equal for both rounds to avoid selection issues. Even though we used the same recruiting methods in both rounds, where the first was for the experiment which included the *NP/NT* and *NP/T* treatments, and

the second was for *P/NT* and *P/T*, we might have reached out to different types of people in each recruiting session and by this ended up with selection issues caused by observable or non-observable characteristics. This may in turn have led to an effect on the randomness of the treatments.

If placement into treatment was not random, it justifies conducting regressions controlling for the observable characteristics. From the observable characteristics, we can check for the demographic variables, these include age, gender, and which faculty the student belonged to, which might have had an impact on the results (see appendix C2, for definition of variables). Age can be a factor that can influence the results because the task might be more suited for older students than younger and vice versa. Younger participants can be more technical than the older ones and considering that the task is performed on the computer this might influence the results. Gender is another variable to consider because there are often differences between how well males and females perform. There might also be a difference in performance according to which faculty the student belongs to, some of the faculties might be more technically driven, and the different courses might have similar tasks in their syllabus.

Because of this, we ran a regression analysis where the observable variables were included, the results are presented in Column 1 in table 5.3. Column 1 shows that the *purpose* treatment was the only statistically significant variable, and that all the variables have a negative effect. *Purpose* is significant at a 99 % confidence level, and it has a negative effect on effort. These regression results show that there is a tendency in our sample, that the older one is the worse one does, women do better than men, and if one is a student at the faculty of Science and Technology one does better than the other faculties.

At the end of the questionnaire we asked about how the participants experienced being met (felt more warmly greeted) and whether this affected their effort (increased effort caused by greeting). This was done to control for whether the participants were aware of their own effort, and if the *ties* treatment had increased their effort. To test for the effect and to investigate our mechanisms, we tested these endogenous variables. Column 2 in table 5.3 shows the results from the regression where the variables "felt more warmly greeted" and "increased effort caused by greeting" are included (see appendix C2, for definition of variables). The table shows that all variables except "increased effort caused by greeting" are statistically significant. *Strengthening social ties* and "felt more warmly greeted" are significant at the 90 % confidence level, whilst the combination of *ties* and *purpose* is

significant at a 95 % level and *purpose* at a 99 % level. Both the interaction and "felt more warmly greeted" variables have a positive effect on effort.

**Table 5.3** Regression effect of treatments and observable variables

Effect of *strengthening social ties* and *purpose of work* treatments on effort (i.e. total correct answers)

	Column (1)	Column (2)
Strengthening social ties	- 19.8563 (18.6691)	- 34.21765* (18.92395)
Purpose of work	-67.32442*** (20.20738)	- 80.50203*** (19.44876)
Strengthening social ties and purpose of work	44.85225 (27.31557)	58.62869** (26.38744)
Age	- 7.392499 (6.827994)	
Male	- 8.682718 (14.10577)	
Faculty of Social Sciences	- 13.58868 (17.16597)	
Faculty of Arts and Education	- 16.6426 (21.86694)	
Felt more warmly greeted		21.47355* (10.71029)
Increased effort caused by greeting		1.569542 (7.866665)

Note: This table shows the regression results of treatment effect on effort. The dependent variable in this regression is number of total correct answers. The independent variables are described in Appendix C2. All regressions are estimated using OLS with robust standard errors in parentheses.

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

The non-observables variables can impact effort on many levels. These are individual characteristics within the participants that we as conductors cannot see or measure. It is therefore not possible for us to check for the non-observable variables, however we cannot rule out these variables. These characteristics can be personal characteristics like introvert or extrovert, knowledge, different levels of understanding, the time it takes to understand the task and so on. Since we ran the experiment at campus, with no prior knowledge of the students that participated, we assume that the baseline is equal for all, but we know that every

participant has some characteristics that we do not know about them. This means that we cannot rule out selection on the non-observables, and must question whether the participants figured out which treatment they got.

5.2.2 Fidelity

To investigate whether the participants understood the treatment they got, we test for the treatment fidelity. This tells us whether we succeeded in the conduction of the treatments. To control for effects of fidelity, we ran two new regressions in table 5.4 testing for the treatment effects, one with "felt more warmly greeted" as the dependent variable and one with "increased effort caused by greeting".

**Table 5.4** Regression controlling for fidelity  
 Effect of *strengthening social ties* and *purpose of work* treatments on the observable variables "felt more warmly greeted" and "increased effort caused by greeting"

	Felt more warmly greeted		Increased effort caused by greeting	
	Column (1)	Column (2)	Column (3)	Column (4)
Strengthening social ties	0.1668713 (0.1751493)	0.3714286 (0.2375848)	0.5954573** (0.2405107)	0.9428571*** (0.3234666)
Purpose of work	0.25885 (0.1755113)	0.4880952* (0.2515136)	0.2535298 (0.2410078)	0.6428571* (0.3424303)
Strengthening social ties and purpose of work		- 0.4419414 (0.3492156)		- 0.7505495 (0.4754495)

Note: This table shows the regression results of treatment effect on how the participants felt they were met and how this affected their effort. The dependent variable in this regression is "felt more warmly greeted" and "increased effort caused by greeting". The independent variables are described in Appendix C2. All regressions are estimated using OLS with robust standard errors in parentheses.

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

As can be seen from table 5.4, column 1 and 2 show the results from the regression with "felt more warmly greeted" as the dependent variable, and column 3 and 4 show the regression results for "increased effort caused by greeting" as the dependent variable. It seems as there is no treatment effect on how the participants felt they were greeted (felt more warmly greeted) in column 1, but in column 2 *purpose* has a positive and significant treatment effect on how

they felt they were greeted. This means that the ones who got the *purpose of work* treatment had a positive experience of how they were met. On the other hand, the treatments seem to have had a larger effect on increased effort depending on how they perceived that they were greeted. As column 3 in table 5.4 show, *ties* are statistically significant and has a positive effect on effort, whilst *purpose* is positive and insignificant. In column 4, both *ties* and *purpose* are statistically significant, at the 99% and 90% confidence intervals, respectively, and both has a positive effect on effort. This means that no matter if the participant received the *ties* or *purpose* treatment, they experienced that their effort was affected by how they were greeted.

### 5.2.3 Outliers

As can be seen from figure 5.3, there is a substantial spread in the average effort on the individual level depending on which treatment they got, but there is a steady increase in each treatment. Since there is such a spread in the number of correct answers, as a last step in our discussion of the limitations in the implementation we check for outliers. When testing for outliers we are manipulating the data, therefore any statistically significant results from the regressions without the outliers cannot be used to confirm our hypotheses. However, it does give us the possibility of finding an explanation for our results.

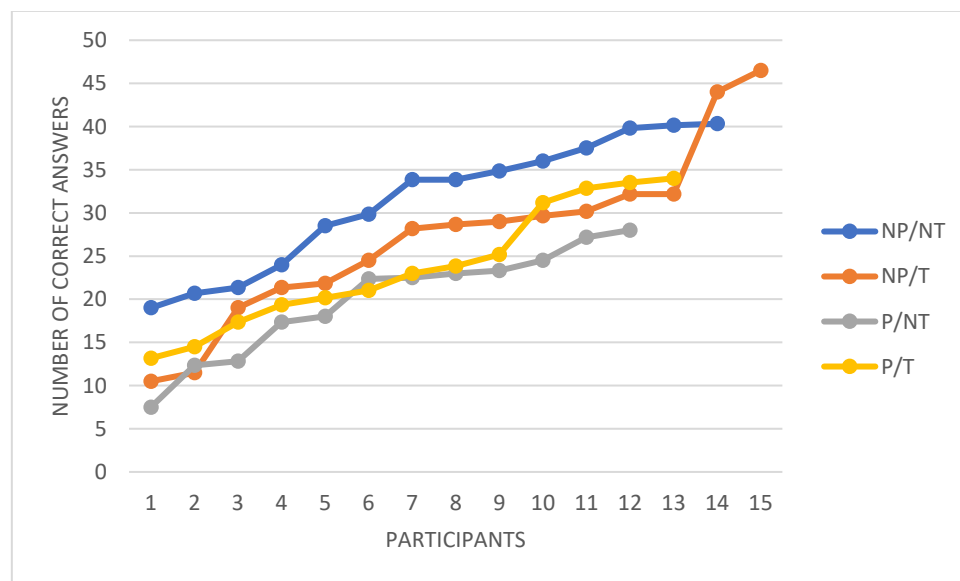


Figure 5.3 The average number of correct answers on the individual level per treatment, where number of correct answers is the effort indicator.

Figure 5.3 shows the average effort (mean total correct answers) on the individual level. As the figure shows, there is a rapid increase in effort (from 32 to 44) for the *NP/T* treatment. Because of this we extracted these two participants from the sample, and they are not included in the regression performed in table 5.5. The average effort on each stage for the whole sample was just under 25.9, and there was a noticeable difference between those who had answered less than 41 (participant no. 14 *NP/NT*) and more than 44 (participant no. 14 *NP/T*). With these outliers, we removed two participants from the sample, both from the *NP/T* treatment, and ran the regression presented in table 5.5.

**Table 5.5** Regression controlling for outliers

Effect of *strengthening ties* and *purpose of work* treatments on effort (i.e. total correct answers)

	Column (1)	Column (2)	Column (3)	Column (4)
Strengthening social ties	- 10.3215 (12.64309)	- 41.35165** (16.50771)	- 41.23058** (17.47369)	- 48.60127*** (17.31993)
Purpose of work	- 36.64095*** (12.65245)	- 69.0119*** (16.86059)	- 66.78888*** (17.90435)	- 78.94181*** (17.36661)
Strengthening social ties and purpose of work		64.55037*** (23.80917)	66.95685*** (24.89365)	73.03809*** (23.86474)
Age			- 7.535018 (6.078695)	
Male			17.13464 (12.69046)	
Faculty of Social Sciences			0.2516201 (15.63563)	
Faculty of Arts and Education			- 9.958312 (19.45956)	
Felt more warmly greeted				19.43705** (9.57624)
Increased effort caused by greeting				0.688756 (7.02637)

Note: This table shows the regression results of treatment effect on effort. The dependent variable in this regression is number of total correct answers. The independent variables are described in Appendix C2. All regressions are estimated using OLS with robust standard errors in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table 5.5 shows the regression results from the sample where the outliers have been extracted. As can be seen, removing the outliers does seem to increase the significance of

treatments. *Purpose of work* has a negative and significant effect on effort, and is the only variable which is significant at the 99 % confidence interval in all the regressions without the outliers. In columns 2, 3 and 4, both treatments and the interaction of treatments are significant. *Purpose of work* and *strengthening social ties* has negative effects on effort, whilst the interaction decreases this effect. The demographic variables still do not have a significant effect on effort, column 3. Column 4 shows that also the variable "felt more warmly greeted" gets more significant and it is now significant at the 95% confidence interval, however, the positive effect has decreased substantially by excluding the outliers.

Even though we only extracted participants who received the *NP/T* treatment, by removing the two outliers, the significance of the results has increased. From these regressions, the results still suggest no selection on the observables. However, since we are manipulating the data and all treatments are significant without the outliers, in most regressions, we cannot justify removing them, and can therefore not rule out selection on the observables in the whole sample.



## 6 CONCLUDING REMARKS

This paper investigates the effect of strengthening social ties and purpose of work on motivation in the principal-agent relationship. We ran a real effort experiment to see whether any of these treatments had an effect on motivation in the principal-agent relationship. From our analysis, our results suggest that the *strengthening social ties* treatment alone, has no significant effect on effort (i.e. motivation). This means that our results cannot support hypothesis 1: *A warm welcome increases the participant's effort, and has a positive effect on motivation*. The *purpose of work* treatment has a significant negative effect on effort, both alone and combined with the *strengthening social ties* treatment. This means that *purpose* has a significant but negative effect on motivation, and we cannot support hypothesis 2: *Understanding the meaning behind the task or work increases the participant's effort, and has a positive effect on motivation*, either. However, the difference has no significant effect when looking at *purpose* with and without *ties*, and vice versa. These results show that the *purpose of work* treatment and the combination of treatments has a significant effect on motivation, and that the treatments, both alone and combined, suggests a negative effect.

There are many weaknesses in this experiment. One weakness with our experiment is that all the participants were greeted in some way. They were all being greeted in a separate room and they had no knowledge that they were being treated differently. The feedbacks we have received after this experiment is that they all strongly agreed that they were greeted in a positive way, where the group who received the neutral welcome responded 4,4 and 4,9 on a 5-point scale (see appendix C1, variable "felt more warmly greeted"). The experiment could probably be strengthened by only greeting the treatment group in the separate room and greet the control group all at once.

The *strengthening social ties* treatment varied a bit depending on the participants' personality and attitude. Some of those who were in the control group were extrovert and it was difficult to keep eye contact and smiling to the bare minimum, whilst others who were chosen to get the treatment were more introvert and it was difficult to get them to talk without pressuring them. The *purpose of work* treatment, did not work out the way we wanted. This could be because the participants might not have understood the meaning behind the task and therefore not have got the purpose. It could also be that the task itself was so boring that the purpose did not have any effect on the motivation.

Another weakness was that it was conducted in a computer room at campus and it did not reflect a real work experience. The students who participated were asked to do a boring decoding task, where the ability to memorise was an important factor. As our analysis show, the more they thought the task was suited for them, the worse they did, which tells us that they had no idea whether they were performing well or not.

With more time to conduct the experiment, it would be better to perform it in a firm, where the people participating already knows the task and it is easier to measure whether the effort is changing. In a firm, the leader already has a baseline of performance on each employee, whilst we did not know whether we increased the effort of the students who participated in our experiment or not, since we had no baseline of their performance. We separated them into control and treatment group, and with only 54 participants, a few contestants could have a big effect on the results.

It was also based on student's willingness to join this experiment and considering that we were paying them 100 NOK to be a part of it, we must assume that some of them only came for the money.

Further research on this topic could be to perform an experiment in an actual firm, where the leader has to work on how to treat her employees in a different way and provide the employees with an understanding of the purpose behind their work. This is also an interesting topic for the HR literature, considering that it is about making human resources more effective and make the employees do more than what they are obliged to. Even though we did not find evidence supporting our hypotheses, we still believe that when *strengthening social ties* and *purpose of work* are performed correctly they can have a positive effect on motivation. As our theory shows, there are many building blocks that support our theory, it only requires proper execution. We believe that we have found a good starting point for further research and we would like to see others try to provide better links between the already existing theory and our hypotheses in the future, as we believe it is a very interesting topic.

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## APPENDIX

Appendix A: Experimental design

Appendix A1: Script

*Script for warm greeting (ties)*

Petition of candidate.

Hand greeting: Hi, my name is \_\_\_\_\_

Just sit down her.

Thank you so much for helping us, we really appreciate it!

Have you participated in anything similar before?

If yes: What was it?

If no: This is the first time for us to, so it will be very exciting trying something new.

It would be great if you could fill out this form, this is a receipt form for the payment. You give this to Christine who is in the computer room when you are finished with the tasks, then you will get the money from her.

What do you study? How long do you have left?

Alternatives:

Do you enjoy being a student? Is it an interesting line/study? Work experience?

What do you do outside of school? Thinking about a master's degree?

Now we are in the last part of our education, we only have to finish this master's degree then we are finished for this time.

Are you from here? Have you lived here long?

Here is your username and instructions.

The experiment will take place on the computer, it should be a pretty self-explanatory program, but there will be a person that can help you if you have any questions. Here is your username. Again, thank you so much for participating. Good luck!

You can bring the papers to room 209, at the end of the hall.

*Script for neutral greeting (no ties)*

Petition of candidate.

Hi

You can take a sit and fill out the papers on the table. (keep eye contact and smiling to the bare minimum)

This is a receipt form for the payment. You give this to the person in the computer room when you are finished with the tasks, then you will get the money from her.

Here is your username and instructions.

The experiment will take place on the computer, it should be a pretty self-explanatory program, but there will be a person that can help you if you have any questions.

You can bring the papers to room 209, at the end of the hall.

## Appendix B: Procedures

### Appendix B1: Experimental instructions

*No purpose*

## **Experimental instructions**

### **Welcome to the experiment**

#### Task description:

Your task is to decode letters into numbers. You are given a list of letters, all of which have been assigned with a corresponding number. Your task is then to decode given sequences of four letters into numbers.

Example: Given this list of letters

A	B	C	D	E	F	G
8	12	14	10	9	6	24

Task –

Decode these letters: A | E | G | F

Correct answer: 8 | 9 | 24 | 6

#### Stages and process of the experiment:

The experiment consists of six working stages, with 10 second's breaks between each stage. The stages last for a total of 30 minutes. There are an unlimited number of tasks. A countdown in the upper right corner of the computer screen display remaining time of the working stage. When you have finished, we will ask you to fill out a short questionnaire. Total duration of the experiment is estimated to be 35 minutes.

#### Payment:

Everyone earns 100 NOK for participating in the experiment.

#### Rules:

You choose freely how to spend your time during the experiment. However, we do require you to remain in your seat throughout the experiment, and refrain from communication with

other participants. You may use your mobile phone to surf the internet, but please ensure that it is in a mute state before we start. It is strictly prohibited to use the pc to anything other than the experiment, as different usage may cause technical problems with the experiment.

**Thank you for participating in the experiment.**

### *Purpose*

## **Experimental instructions**

### **Welcome to the experiment**

In this experiment, we will ask you to work on a decoding task. We want to learn how university students work and what they think about this type of decoding task. To be able to conduct a successful experiment, it is important for us that you do your very best.

At the end of the experiment, we will ask you to answer a few questions. Please be as honest as possible. This is important for the quality of our research and we will appreciate it.

### **Task description:**

Your task is to decode letters into numbers. You are given a list of letters, all of which have been assigned with a corresponding number. Your task is then to decode given sequences of four letters into numbers.

Example: Given this list of letters

A	B	C	D	E	F	G
8	12	14	10	9	6	24

Task –

Decode these letters: A | E | G | F

Correct answer: 8 | 9 | 24 | 6

### **Stages and process of the experiment:**

The experiment consists of six working stages, with 10 second's breaks between each stage.

The stages last for a total of 30 minutes. There are an unlimited number of tasks. A countdown in the upper right corner of the computer screen display remaining time of the working stage. When you have finished, we will ask you to fill out a short questionnaire. Total duration of the experiment is estimated to be 35 minutes.

Payment:

Everyone earns 100 NOK for participating in the experiment.

Rules:

You choose freely how to spend your time during the experiment. However, we do require you to remain in your seat throughout the experiment, and refrain from communication with other participants. You may use your mobile phone to surf the internet, but please ensure that it is in a mute state before we start. It is strictly prohibited to use the pc to anything other than the experiment, as different usage may cause technical problems with the experiment.

**Thank you for participating in the experiment.**

## Appendix B2: Invitation to the experiment

The following text applies only to Norwegian speaking students:

Dear student.

We would like to invite you to participate in an economic experiment conducted by master's students at the Business School UiS.

*Anyone who registers and turns up for the experiment will earn 100 kr. The money you earn will be paid in cash immediately after the experiment.*

The experiment requires no prior knowledge and consists of decoding letters into numbers.

The duration is approximately 40 minutes. No kind of prior knowledge is required.

All information gathered during the experiment will be anonymous.

The instructions are in English and good English skills are therefore necessary to be able to participate in the experiment.

Participants are to turn up in **Ellen og Axel Lunds (EAL) hus H-216 (i.e. 2. Floor in the building of the Norsk Hotellhøgskole)**. The experiment takes place in **Ellen og Axel Lunds (EAL) hus H-209 (i.e. computerroom on the 2. Floor in the building of the Norsk hotellhøgskole)**.

Date:

Friday March the 3<sup>rd</sup> between the hours 9:00-15:00

(40 min per participant)

To participate, you register by clicking on the link below and pick one of the times. Note that there are limited spaces. Only available times will show in the link. Remember to check your spam for confirmation of enrolment.

[http://thomas.nhh.no/dj/expmotor/new\\_participant/22/](http://thomas.nhh.no/dj/expmotor/new_participant/22/)

FAQ about participation in experiments:

**Do we earn real money, and how much?** Yes, we have project funding's to provide participants with real money. You will earn 100 kr. and this is tax-free.



**What is the experiment about?** It is to decode letters into numbers, and answer some questions.

**Do I have to do anything in front of those who carry out the experiment or in front of others?**

One is welcomed individually at room (H-216) where you enrol and get some information about the experiment before you are shown to the compute room (H-209).

**Where does the experiment take place?** Turn up in the room H-216 in the building EAL to enrol, the experiment will take place in the computer room (H-209). This is the building for the Hotellhøyskolen, i.e. the building just across the bookstore on campus.

**I have never participated in an experiment before, does that matter?** There are no disadvantages of not having participated previously. We encourage those who have not participated previously to join.

**Why are you performing the experiment?** The experiment is one of many methods used to gather data for scientific research.

Best regards,

Christine Willumsen og Caroline Winum

## Appendix B3: Questionnaire

### *Part 1:*

Dear student

Each year there are held several experiments by students at the University of Stavanger. We need feedback to be able to improve these experiments. Please help us by taking a few minutes to tell us about how you experienced the experiment so far. We appreciate your participation and want to make sure we meet your expectations.

Gender

- Male
- Female

Age

- Under 20
- 20-25
- 26-30
- 31-35
- Over 36

Which faculty are you a student at?

- Faculty of Social Sciences/Det samfunnsvitenskapelige fakultet
- Faculty of Arts and Education/Det humanetiske fakultet
- Faculty of Science and Technology/Det teknisk-naturvitenskapelige fakultet

### *Part 2:*

Overall, I experienced being met in a very positive way.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree

- Somewhat agree
- Strongly agree

Overall, I experienced the quality of the program I worked in to be high.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Overall, I am very satisfied with the payment in relation to the task.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

The person who greeted me welcome, made a positive contribution to my effort today.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

*Part 3:*

Overall, I did the best I could.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Overall, my goal was to solve as many tasks as possible.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

I would say that this type of task is well suited for me.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

It was easy to memorise the combination of letters and numbers.

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

## Appendix C: Experimental results

### Appendix C1: Descriptive statistics

Variables	Round 1 of experiment				Round 2 of experiment			
	<i>NP/NT</i>		<i>NP/T</i>		<i>P/NT</i>		<i>P/T</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Correct stage 1	22.57143	7.663242	19.06667	7.045431	16.25	4.938255	18.07692	6.422117
Correct stage 2	27.85714	6.848438	25.26667	7.638873	19.83333	4.628633	21.30769	6.21
Correct stage 3	31.42857	8.045202	28.6	10.08393	19.66667	6.678777	23.53846	6.690981
Correct stage 4	33.5	8.993587	29.13333	10.90129	19.25	8.00142	25.69231	8.38038
Correct stage 5	36.21429	8.701711	30.4	11.55607	21.58333	8.959082	26.61538	8.01601
Correct stage 6	36.85714	9.718002	31.2	14.17342	22.83333	9.408249	27.38462	9.179129
Total stage Correct	188.4286	45.44263	163.6667	59.74908	119.4167	38.15389	142.6154	43.08816

The table shows Means and Standard Deviations for total correct answers (effort) for each stage divided by treatment.

Variables	Round 1 of experiment		Round 2 of experiment	
	<i>NP/NT</i>	<i>NP/T</i>	<i>P/NT</i>	<i>P/T</i>
	(1)	(2)	(3)	(4)
	Mean	Mean	Mean	Mean
	(Std. dev.)	(Std. dev.)	(Std. dev.)	(Std. dev.)
Felt more warmly greeted	4.428571	4.8	4.916667	4.846154
	(0.9376145)	(0.5606119)	(0.2886751)	(0.5547002)
Increased effort caused by greeting	3.857143	4.8	4.5	4.692308
	(1.167321)	(0.5606119)	(1)	(0.6304252)
Best	–	–	4.5	4.846154
			(1.167748)	(0.3755338)
Goal	–	–	4.416667	4.846154
			(1.240112)	(0.3755338)
Suited	–	–	3.5	3.615385
			(1.243163)	(1.043908)
Memorise	–	–	3.25	3.692308
			(1.05529)	(1.436698)

The table shows Means and Standard Deviations divided by treatment. Each variable was measured on a 5-point scale, 1 meaning the participant did not agree with the statement, and 5 meaning that they did agree. See appendix C2 for definition of variables.

Appendix C2: Definition of variables

Strengthening social ties	1 when the participant has received the <i>strengthening social ties</i> treatment, i.e. the <i>tie</i> treatment
Purpose of work	1 when the participant has received the <i>purpose of work</i> treatment, i.e. the <i>purpose</i> treatment
Strengthening social ties and purpose of work	1 when the participant received both treatments, i.e. both the <i>tie</i> and <i>purpose</i> treatment
Total correct	Is the measure of how many tasks the participant managed to do during the whole experiment, all 6 stages.
Correct stage 1-6	Is the measure of how many tasks the participant managed to do during in each stage, there was a total of 6 stages.
Age	Which age the participants had, 1 being under 20, 2 being in the age group 20-25, 3 being in the age group 26-30, 4 being in the age group 31-35, and 5 being over 36.
Male	1 when the participant was male
Faculty of Social Sciences	1 when the participant went to the faculty of social sciences
Faculty of Arts and Education	1 when the participant went to the faculty of arts and education
Felt more warmly greeted	The participant experienced being met in a positive way, measured one a scale from 1-5
Increased effort caused by greeting	The way the participant was met, made a positive contribution to his or her effort, measured one a scale from 1-5
Best	The participant did their best, measured one a scale from 1-5

Goal	The participants goal was to solve as many tasks as possible, measured one a scale from 1-5
Suited	The participant thought the task was suited for them, measured one a scale from 1-5
Memorise	How easy the participants thought it was to memorise the combination of letters and numbers, measured one a scale from 1-5