





Are there essential ingredients for team reflexivity?

The influence of leadership and trust on team reflexivity within project teams

Master Thesis

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Rotterdam School of Management

Erasmus University

Huib Maclean, 349180

Prof. dr. ir. Jan Dul (Coach)

Dr. Michaéla Schippers (Co-reader)

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EXECUTIVE SUMMARY

Team reflexivity has been getting increasingly more attention in literature. Team reflexivity is the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies and processes, and adapt them to current or anticipated circumstances. It can be very beneficial in different organizational situations such as product development, organizational changes, enhancing team effectiveness and sometimes even in improving team performance. Most useful is embedding reflexivity in project teams. Therefore this study investigated project teams at an engineering company specialized in railroads and railway stations in the Netherlands.

In this research we reviewed the literature in order to look at all the known factors that would have a positive influence on team reflexivity. We discovered that leadership and trust are two of the most important factors influencing team reflexivity. However, both factors show some underexposed elements. Leadership has almost always been studied on specific leadership styles such as transformational leadership, participative leadership, etcetera. In this study we have tried to combine all these leadership styles and divided them in two different leadership styles: person-oriented and task-oriented. Although all person-oriented leadership styles like transformational, participative, facilitative leadership styles show positive relations with team reflexivity and trust, this study did not find strong evidence for the general form of person-oriented leadership style. We also could not find any mediating role for trust between person-oriented leadership and team reflexivity.

However, we did find a strong relation between trust and team reflexivity. In this study, opposed to other studies, we researched not only trust in the leader, but also trust between team members. Because reflexivity in teams is best to be done by all the members of a team, we measured both forms of trust. We found strong correlations between these forms of trust and team reflexivity. More trust in the leader and more trust between team members lead to more team reflexivity.

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1. INTRODUCTION OF THE STUDY

1.1 Introduction

"The act of knowing involves a dialectical movement that goes from action to reflection and from reflection upon action to a new action." (Freire, 1972).

Most organizations today are almost exclusively made up of teams. Almost every organization is divided into several divisions consisting of teams of different fields of expertise. Garvey (2002) has noted a huge increase in the use of team-based structures from less than 20 percent in 1980 to more than 80 percent in 2000. The importance of teams in organizations today is not hard to imagine. Teams contribute to the flexibility of an organization and share knowledge and skills with other teams. Teams often have a common goal, which contribute to the interest of the organization. That interest is at all times focused on the survival and growth of the organization, be it a profit or non-profit organization.

As there are many roads that lead to Rome there are also many ways to reach a goal. One is to look at the way one wants to achieve that goal. One does this by creating a strategy, preparation of planning, estimating risks and so on. These strategies and processes are often made at the beginning of a new initiative or project and sometimes adjusted halfway based on new ideas and new insights. However, it happens quite often that only at the end of a project or a certain period people check whether or not the goal has been achieved. When a strategy or process has not worked out this could threaten the survival of organizations. This can be prevented by reflecting periodically on the objectives, strategy and processes. And because society (e.g. the customer) changes rapidly, demanding for better or faster solutions, it is necessary to evaluate whether current processes and strategies still function well. Reflexivity can provide the change needed.

The concept of reflection is described by West (2000) as reflexivity. He describes reflexivity as "the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies and processes, and adapt them to current or anticipated circumstances." Reflexivity is of such importance that it can contribute to a better team performance (Carter and West, 1998; De Dreu, 2002; Hirst, Mann, Bain, Pirola-Merlo and Richter, 2004; Schippers, Den Hartog, Koopman and Wienk, 2003; Schippers, Den Hartog, Koopman and Van Knippenberg, 2008; Schippers, Rook and Van de Velde, 2010), higher quality (MacCurtain, Flood, Ramamoorthy, West and Dawson, 2010) and effectiveness of organizations (West, 2000 and Widmer, Schippers and West, 2009). It is also an important tool to embed reflexivity in risky projects where the stake of the organization are large.

To allow reflection in a team it is crucial that there is mutual trust. Trust, according to Widmer et al. (2009), is the basis for reflexivity. Trust provides an open attitude in the team and gives space for dialogue (Gillespie, 2012). Trust can be present in a team (from the start), but must often be won. In a team with usually one leader trust is often initially corresponding with trust in the leader. Trust in the leader has been the basis for many studies, also in relation to team reflexivity (Schippers, 2001; Widmer et al., 2009). However, reflexivity in teams must be done by the whole team if its full potential is to be exploited. Trust between team members is therefore equally important as trust in the leader.

To build confidence in a team, leadership is required. Leaders are well suited to facilitate and guide the process of trust (Widmer et al., 2009). Numerous books and articles have been written about leadership. Not only the importance of leaders, but especially the style of the leader has a significant influence on teams. This study therefore seeks to answer the question as to what extent leadership can affect trust and in turn team reflexivity.

1.2 Essence of the study

The concept of 'team reflexivity' has not been researched much, in spite of the fact that reflexivity can have (such) a positive effect on the success of a organization. In recent studies more and more relations are found that lead to a higher team reflexivity. Schippers et al. (2003) investigate the influence of team composition and group longevity on team reflexivity, Hirst et al. (2004) examine facilitative leadership and leadership learning as possible factors influencing team reflexivity and Widmer et al. (2009) examine even 8 different influences on team reflexivity, including trust and leadership. The latter variables are two of the most important variables in this study. They can have an impact on team reflexivity. In order to reflect on the objective, process and strategy of a team both leader and team members should feel completely free to say whatever is on their minds. If trust does not exist between team members or in the leader, hidden agendas may arise, members may not feel free to speak out freely which does not give space to possible improvements and opportunities threatening the potential of the team will not surface. Trust is essential.

The expression that trust must be won first is partly true. Levin, Cross and Abrams (2002) show that trust may be present simply because of demographic backgrounds. Trust can even be won by (mere) charisma (Gillespie and Mann, 2004). But if trust in teams has to be won, leaders are the most obvious person to do this (Keller, 2006 and Gillespie et al, 2004). It is therefore important to find out what kind of leadership is suited best to create trust in a team. Many studies aim on specific styles of leadership in relation to trust in the leader. Because there are many types of leadership styles and as this diversity is often limited to a small group of leaders (e.g. how many transformational leaders do you know?), this study follows the division of leadership in two general categories. Fiedler (1967) has

described a relatively simple way to do so.. The first category is task-oriented, where the leader is guided by the established goals of an organization or team. The other category is person or relationship-oriented, where he describes inter-personal relationship as a starting point for leading a team or organization.

Because it is essential for team reflexivity that there is both trust in the leader and trust among team members and as this element is strongly underexposed in present literature, as we will prove in the next chapter, this study focuses on the relationship between leadership style and team reflexivity through trust in the leader and trust between team members.

1.3 Problem statement

This study focuses on the influence of leadership on trust first. More specifically, trust in the leader on one hand and between the team members on the other. Due to the fact that it is plausible that this dual form of trust is positively related to team reflexivity we look for empirical validation to prove this. Therefore, this study examines the following research question:

“What is the influence of trust in the leader and trust amongst team members on team reflexivity through leadership within project teams?”

Leadership has, as described, many styles. But usually, a certain leadership style fits one person better than somebody else. By nature, through experience or example, someone will have a preference for a certain style. Fiedler (1967) captured most leadership styles in one of the two leadership styles as described above (i.e. person and task-oriented). We will investigate which one of these styles has a stronger or weaker relationship with trust. At the same time, this study will measure the level of trust, based on a study by Gillespie (2012). The results will be compared to the degree of team reflexivity according to a study by Schippers, Den Hartog and Koopman (2007). In order to find the answer to the problem statement we have formulated sub-research questions. These questions guide the conceptual and empirical research of this study. The sub-research questions are:

1. *What leadership style(s) enhances trust?*
2. *Does this enhance trust in both the leader and amongst team members in a project?*
3. *Are trust in the leader and between team members both necessary for a higher level of team reflexivity?*
4. *Can leadership influence team reflexivity through trust?*

1.4 Research aim

The objective of this study is to provide insight in the role of leadership to improve trust in the leader and amongst team members. Furthermore whether this trust indeed enhances team reflexivity. The goal of this study is to provide organizations more insight in these constructs and to support training leadership to create better leaders. At the same time it hopes to provide detailed information about the importance of team reflexivity.

1.5 Research approach

Schippers (2001) states that reflexivity in project teams is most effective. This study also assumes that team reflexivity has more effect on teams with a fixed beginning and end than in ongoing teams because of the limited amount of time project teams have to reflect and act. Ongoing teams may not feel the need to act because of a lesser time pressure. Therefore this study examines an organization which consists for 90% of project teams. Because of the potential benefits for organizations, this study examines leadership styles based on the LPC method of Fiedler (1967) and measures trust using the questionnaire developed by Gillespie (2012). With both construct we try to explain the possible effect it is assumed to have on team reflexivity in project management organizations. The method for measuring team reflexivity is based on a study by Schippers et al. (2007).

1.6 Implications of the study

The intention of this study is to contribute to the existing literature on team reflexivity. First of all because team reflexivity is felt to be not a trend that will disappear soon, because the concept reflection itself has been circulating for many years. Reflecting on the process, strategy and objectives has been done to a greater or lesser extent. The importance of reflexivity, however, is of such significance to a team that research into this construct continues to be necessary. Secondly, this study will hopefully lead to more insight in different variables of reflexivity. It is important to identify all variables that lead to a higher degree of reflexivity. In the area of trust there is a research gap concerning the trust of the entire team. Up to now, trust in the leader is often measured and sometimes trust in teams as a whole, but they are never divided in the two categories earlier described. It is precisely this addition that makes this research (so) relevant. Finally, there is a theoretical implication from a leadership perspective. While most studies focus on specific leadership styles, we investigate a more general form of leadership. The difference between task or person-oriented leadership has been made deliberately. It describes a very clear leadership direction and is often easier shown in practice than specific other leadership styles.

Apart from the academic point of view, this study is also important for organizations. The study presents no tangible suggestions, but hopes to raise awareness of the benefits of team reflexivity. Team reflexivity can make the organization more efficient, create higher quality of work and sometimes even better performance of the organization. Although more research will be needed for the latter relationship to be anchored to team reflexivity. Not only the usefulness but also the need for team reflexivity is discussed in this study. Especially in risky projects, with poor performance, team reflexivity has proven necessary. (Schippers, Homan and Van Knippenberg, 2009). And because trust plays a crucial role in team reflexivity, creating trust by the leader is essential.

1.7 Structure of the thesis

Chapter 2 provides a thorough review of literature on the key constructs of this study. It gives the definitions of teams, reflexivity, trust and leadership, but also shares some considerations about these key constructs. In chapter 3 we relate the definitions and considerations and list our research hypotheses that will lead to the conceptual framework of the study. Chapter 4 justifies the methodology of the study and describes the data collection process. Chapter 5 starts off with the empirical part of the study and further reports on the findings of the research phases. Finally, chapter 6 reports the results, followed by a discussion on how these results have contributed in answering the main research question as raised in this chapter. It also addresses the research limitations and provides an outlook on future research on this topic.

1.8 Conclusion

This chapter lays the foundation of this study by introducing the problem statement, research questions and objectives. It provides a schematic overview of the constructs at hand and possible implications and highlights the importance of leadership, trust and team reflexivity. It also provides a first look at the theoretical gaps in current research, in particular to the construct trust which is usually measured in a single relation. Understanding these implications could provide the literature (and practice) with more answers and understanding of the impact on team reflexivity.

2. LITERATURE REVIEW

This chapter describes the theoretical research about the main constructs of this study: team reflexivity, trust and leadership. It provides definitions of these constructs based on other studies and motivations for using these constructs. This chapter also describes and defines (project) teams. By exploring the existing theories on the constructs, the research gap is shown and described at the end of this chapter.

2.1 Team reflexivity

2.1.1 Defining reflexivity

Reflexivity is derived from the verb reflecting. Reflecting means mirroring, looking back, meditating and considering. It is possible to approach this from a personal perspective, but in this study, it focuses on the reflection of a team. Although there are numerous articles and books about team learning, little has been written about the concept of team reflexivity. West (1996) was one of the first who tried to define reflexivity in teams and defined it as "the extent to which team members collectively reflect upon the team's objectives, strategies and processes, and that team reflection involves behaviors such as questioning, debating, planning, exploratory learning, analyzing, divertive exploration, making use of knowledge explicitly, fits reviewing events, and coming to terms over time with new awareness". In this definition, a team can indeed reflect on its objectives, strategies and processes, but not necessarily take action. In a more recent study he continued to make the definition more specific. West (2000) began to describe the definition in a more active manner: "the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies and processes, and adapt them to current or anticipated circumstances.". This definition has been adopted by other scientists., and is strongly related to the principle of double loop learning: not only look at and solve existing problems, but also to challenge chosen assumptions (processes, strategies and objectives) leading to improved solutions. It is this definition that covers the intent of this research.

2.1.2 Motivations for team reflexivity

In recent years team reflexivity has been getting more and more attention in research. Companies are always looking for ways to increase performance. Reflexivity can help them. Some studies have already found positive relationships between team reflexivity and team performance (Carter et al., 1998; De Dreu, 2002; Hirst et al., 2004 and Schippers et al., 2003, 2007, 2010). However this relationship is not always shockingly strong. The common reason for the weak relationships is that reflexivity costs both money and time. These are often linked together because time itself costs money. Therefore, instead of performance, researchers have proven better results between the

relationship reflexivity and team effectiveness (West, 2000; Widmer et al., 2009). Yet, there is more to be gained through team reflexivity. Reflexivity helps teams with diverse backgrounds to pursue the same goal (Schippers, 2003) and yields a positive correlation with new product performance and quality (MacCurtain et al., 2010). In addition, reflexivity can also enhance trust within a team (Möllering, 2006). He describes it as a two way street, where reflecting gives insight into one's mind which in return gives trust because the other person have come to believe that through reflecting anything can be discussed. At the same time trust provides for an open line of thought leading to a better reflection. This last relationship establishes a link to the next variable: trust.

2.2 Trust

2.2.1 Defining trust

Philosophers such as Annette Baier (1986) have made a difference between trust and reliance by saying that trust can be betrayed, whilst reliance can only be disappointed. This summary gives a very deep meaning to the phenomenon of trust. One can fail agreements and be disappointed, but damaging trust means betrayal. In business, trust will generally be less heavily loaded. The words trust and reliance are often used in the same phrases and used interchangeably. In order to give a good definition of trust, we first look at what the literature says about trust where many studies have defined trust. Dietz and Den Hartog (2006) have made a list of commonly used definitions of trust in social studies (see table 2.1).

This overview gives, as expected, no clear definition of trust. The concept of trust can mean different things to different people, institutions, entities, etcetera. Trust in a private situation will be different from trust in a business environment, as will trust in engineering teams also mean something else than trust in the army. From the above mentioned definitions two major definitions can be extracted. Cook and Wall (1980), Boon and Holmes (1991), McAllister (1995) and Lewicki, McAllister and Blies (1998) all use the term 'confidence in others', with which they emphasize the dependence on others in the trust between two or more persons. Both Mayer et al. (1995) and Rousseau, Sitkin, Burt and Camerer (1998) describe trust as the vulnerability towards others. These two definitions together create a kind of two-way traffic. First the confidence or reliance in others and secondly the vulnerable position of yourself so that the other can put confidence in you. Gillespie (2012) used this combination of behaviors in her definition of trust that is fits this research: willingness to rely on someone else (Reliance) and willingness to share sensitive information with someone else (Disclosure).

<i>Table 2.1 Common definitions of trust</i>	<i>Author</i>
The conscious regulation of one's dependence on another	Zand (1972)
The extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people	Cook and Wall (1980)
A state involving confident positive expectations about another's motives with respect to oneself in situations entailing risk	Boon and Holmes (1991)
The extent to which a person is confident in, and willing to act on the basis of, the words, actions and decisions, of another	McAllister (1995)
The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party	Mayer et al. (1995)
The specific expectation that an other's actions will be beneficial rather than detrimental and the generalised ability to take for granted . . . a vast array of features of the social order.	Creed and Miles (1996)
Confident positive expectations regarding another's conduct in a context of risk	Lewicki et al. (1998)
. . . reflects an expectation or belief that the other party will act benevolently	Whitener et al. (1998)
A psychological state comprising the intention to accept vulnerability [to another] based upon positive expectations of the intentions or behavior of another	Rousseau et al. (1998)

Source: Dietz et al. (2006)

2.2.2 Motivation for trust

Why is trust in teams so important? What makes trust in teams so essential? Trust touches almost every aspect of an organization. Trust is in many studies (very) positively related to performance (De Jong and Elfring, 2010; Simmons and Peterson, 2000; Jung and Avolio, 2000; Lee, Gillespie, Mann and Wearing, 2010; Porter and Lilly, 1996), effectiveness (Gillespie, 2004), innovation (Freire, 2010), changes (Morgan and Zeffane, 2003) and reflexivity (De Jong et al., 2010; Schippers, 2001; Widmer et al., 2009). Trust also contributes to risk taking. Most decisions are about future things where sometimes a certain amount of risks should be taken. Trust enables people to take risks, "where there is trust there is the feeling that others will not take advantage of me". Porter, Lawler and Hackman (1975). Are there any disadvantages to trust? Hardly. Of course trust can cost time and money, but lack of trust costs more (Lorenz, 1998).

Looking at the importance of reflexivity, one can say that this is most effective when all cards are open. In order to get the cards open trust is necessary. If group members trust each other, they will be more likely to accept stated disagreements at face value and less likely to misinterpret task conflict behaviors by inferring hidden agendas or personal attacks as the driving force behind the behavior (Mishra, 1996). Thus he states that trust removes obstacles allowing communication to be sincere contributing to the improvement of the situation. This kind of trust is described by Edmondson (1999) as psychological safety which is essential for team learning. She refers to team learning as: "an ongoing process of reflection and action, characterized by asking questions, seeking feedback,

experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions“. Therefore trust is essential for reflexivity.

2.2.3 Trust in leader and between team members

In teams, the leader has a very important role. In the following paragraphs we will discuss this role at a deeper level, but here we focus on the role of trust in the leader. Because leaders have a very important role in teams, it is of equal importance that he be trusted. This subject - trust in the leader - is therefore widely studied, showing very positive relationships between trust in the leader and the proper functioning of the team which improves the efficiency of the organization (Costa, 2003).

The definition of trust as described by Gillespie (2012) in the first paragraph of this chapter, could apply to the trust from team members in their team leader. In the literature there are major differences between the definitions of trust in the leader. Common and very general definitions declare trust in the leader as, 'to tell the truth and to keep promises made' (Mayer, Davis and Schoorman, 1995; Palanski and Yammarino, 2009; Butler, 1991; Gabarro, 1978; Giffin, 1967). To what extent can you rely on this truth, and can you just assume this trust to be present? Dirks and Ferrin (2002) go further and describe confidence in the leader as "... the belief or expectation of the team members regarding the actions and words of the leader, and whether he / she has good intentions towards the team." Here team members establish themselves to be vulnerable by believing in the leader.

Yet, in this research we will go a step further. Trust in teams not only focuses on the team leader, but also on the team members. Gillespie et al. (2004) calls this interpersonal trust which is the core of team effectiveness. Naturally, it is the leader who plays the primary role to facilitate this. That such trust must be present in the whole team is confirmed by Cook et al. (1980), where they argue that trust between individuals and groups within an organization is a highly important ingredient in the long-term stability of the organization and the wellbeing of its members. This inter-personal or intra-group trust, according to Simmons et al. (2000), is of such importance that in situations with lack of sufficient trust task conflicts enlarges into relationship conflicts, thereby decreasing the performance. It is for these reasons of crucial importance that confidence must not only be present in the leader, but also between team members. That there is a difference between these two forms of trust has simply to do with the hierarchical difference and the facilitating role of the leader.

2.3 Leadership

2.3.1 Definition of leadership

Lots of academic and popular literature has been written about leadership. What makes a (good) leader? How do leaders compare to managers? Are leaders only found in the top-level of the organization or also in the workplace? Greenberg and Baron (2008) give a clear distinction between leaders and managers. They make a distinction between the roles by saying that leaders are primarily responsible for establishing an organizational mission, whereas managers are primarily responsible for bringing a mission to completion through others. This difference has been even more clear described by Bennis (1989) in table 2.2.

Table 2.2 *Differences between managers and leaders*

Managers...	Leaders...
<ul style="list-style-type: none">• Administer	<ul style="list-style-type: none">• Innovate
<ul style="list-style-type: none">• Ask how	<ul style="list-style-type: none">• Ask what and why
<ul style="list-style-type: none">• Focus on systems	<ul style="list-style-type: none">• Focus on people
<ul style="list-style-type: none">• Do things right	<ul style="list-style-type: none">• Do the right things
<ul style="list-style-type: none">• Maintain	<ul style="list-style-type: none">• Develop
<ul style="list-style-type: none">• Rely on control	<ul style="list-style-type: none">• Inspire trust
<ul style="list-style-type: none">• Have a short-term perspective	<ul style="list-style-type: none">• Have a longer-term perspective
<ul style="list-style-type: none">• Accept the status quo	<ul style="list-style-type: none">• Challenge the status quo
<ul style="list-style-type: none">• Have an eye on the bottom line	<ul style="list-style-type: none">• Have an eye on the horizon
<ul style="list-style-type: none">• Imitate	<ul style="list-style-type: none">• Originate
<ul style="list-style-type: none">• Emulate the classic soldier	<ul style="list-style-type: none">• Are their own person
<ul style="list-style-type: none">• Copy	<ul style="list-style-type: none">• Show originality

Source: Bennis (1989)

The reason why we mention this study is because of the distinct characteristics. In particular, the third difference where the manager focuses on the tasks (control) and the leader on people is distinctive. Many researchers (Greenberg et al., 2008) name another clear difference between a manager and a leader, i.e. a manager has employees, but a leader has followers. Again we can see the difference between task and person-oriented leadership. For this research it is not the question whether or not someone is a leader but whether a leader is task or person-oriented.

2.3.2 Motivations for leadership

As Bennis (1989) indicates in the differences between managers and leaders, leaders are the very persons to instill trust. In the paragraph on trust, we see that this important role is fully attributed to the leader. This is particularly so in relation to team reflexivity where trust plays a crucial role. In the literature much has been written about leaders and leadership styles so much so that stressing the

importance of this feels like breaking through an open door. Leadership remains one of the most important factors for good performance (Keller, 2006) and effectiveness (House and Podsakoff, 1995). Yet it is important to reflect on the differences between person-oriented leadership and task-oriented leadership.

Person-oriented leadership styles as transformational, consultative, contingent reward, participatory and facilitative leadership, has a positive relation with trust (Den Hartog, Schippers and Koopman, 2002; Gillespie et al., 2004; Podsakoff, MacKenzie, Moorman and Fetter, 1990), team reflexivity (Hirst et al., 2004; Widmer et al., 2009; Somech 2006, Schippers et al., 2008; Schippers, 2001) and team performance (Schippers et al., 2008; Podsakoff et al., 1990). While on the other hand, it is task-oriented leadership styles as transactional, directive and passive corrective leadership that is negatively related to trust (Jung et al. 2000, Gillespie et al., 2004; Den Hartog et al., 2002).

The opinions on task-oriented leadership in relation to team performance are less clear. On one hand Jung et al. (2000) concluded a negative relationship, due to the low level of trust by this form of leadership. On the other hand, Sagie, Zaidman, Amichai-Hamburger, Te'eni and Swartz (2002) argue that this is not necessarily always the case. They emphasize a combined form of leadership: the so-called situational leadership where both participative (person-oriented) and directive (task-driven) leadership style together are the most effective way of managing for improved team performance (Sagie, 1996). It is, however, depending on the situation. In some cases, a leader must focus on the task at hand and at other times on the relationship. He is not alone in this opinion. Also Fiedler (1967, 1972) proves this in his contingency theory, where he clearly distinguishes between these two forms of leadership. Greenberg et al. (2008) also clarify that both leadership styles have their positive and negative sides, and that the combined use of these styles form the "ultimate" type of leadership. But then in a much broader sense than merely team reflexivity.

2.4 Teams

2.4.1 Definition of a team

That teams are important for organizations has been demonstrated by Garvey (2002), as described in the first chapter, in studies about the enormous rise of teams within organizations. A fairly general definition of teams comes from Ilgen (1999): "Teams have been defined as small groups of interdependent individuals who share responsibility for outcomes". This looks right, but there are more differences between teams than Ilgen states. De Jong et al. (2010) make a distinction between teams based on time: ongoing teams versus short term teams. This seems to be a nice distinction, but there is still much a more particular distinction to be made between different kind of teams. Hollenbeck

Beersma and Schouten (2012) divided 42 teams according to three main characteristics. 1. Skill differentiation 2. Authority differentiation and 3. Temporal stability. Because we investigate which factors influence team reflexivity and where both West (1996) and Schippers (2001) recommend project teams as most appropriate, we will follow the definition of Cohen and Bailey (1997) as described in the research of Hollenbeck et al. (2012): project teams: “[These] are time-limited. They produce one-time outputs. . . Project team tasks are non-repetitive in nature and involve considerable application of knowledge, judgment, and expertise. The work that a project team performs may represent either an incremental improvement over an existing concept or a radically different new idea. . . [they draw] members from different disciplines and functional units”

2.5 Research gap

In science, team reflexivity has received more and more attention. In particular different leadership styles are seen as the independent variable that contributes to team reflexivity. Several styles of person-oriented leadership, as opposed to task-oriented leadership, are all positively related to team reflexivity (Hirst et al., 2004; Widmer et al., 2009; Somech 2006, Schippers et al., 2008; Schippers, 2001). This raises the question whether this would also apply to person-oriented leadership in a more general sense. Can we make a clear distinction between task and people-oriented leadership? This study aims at bridging this gap. The second, and largest, research gap is the degree of trust in relation to team reflexivity. Trust is also often positively correlated to team reflexivity and, along with leadership, is considered as the main factors for better team reflexivity (Schippers, 2001; Widmer et al., 2009). Except from the fact that trust (in relation to team reflexivity) was never divided into trust in the leader and trust amongst team members. Because trust is a key determinant for team reflexivity there has to be trust in both the leader and between team members. In this study we attempt to answer in what way this dichotomy has an effect on team reflexivity.

2.6 Conclusion

This chapter reviewed the literature addressing the concepts of leadership, trust and team reflexivity. Having examined the relationships among these concepts, the importance of the relationship between these concepts and the gaps in the literature of leadership styles and trust in relation to team reflexivity have been identified. Because of the importance of leadership and trust towards team reflexivity (Schippers, 2001; Widmer et al., 2009), we have found definitions of the concepts that suited best for this research. According to Fiedler (1967) a leader can either be task or person-oriented. Trust is seen as: “The willingness to rely on another (reliance) and willingness to share sensitive information with another (disclosure)” (Gillespie, 2012). And for team reflexivity we use the definition of West (2000): “The extent to which group members overtly reflect upon, and communicate

about the group's objectives, strategies and processes, and adapt them to current or anticipated circumstances.”.

3. THEORETICAL FRAMEWORK

In this chapter we transform the research questions into hypothesis, based on the theoretical exploration in chapter 2. These hypothesis together form the conceptual model of this study.

3.1 Person-oriented leadership style and the relation with trust

As described earlier in this study we make a distinction between two forms of leadership: person-oriented leadership and task-oriented leadership. In recent years there has been much research into the effects of person-oriented leadership as opposed to task-oriented leadership. Task-oriented leadership is not necessarily a bad form of leadership, but is usually only positively related to team performance (Somech, 2006). This form of leadership dates back to the early 20th century in which Taylor (1911) in his book "Principles of Scientific Management" described task-oriented leadership as the leadership style best fit for better performance. In other fields, task-oriented leadership can cause damage. For example, and for this study very important, in relation to trust (Jung et al., 2000). It is strikingly person-oriented leadership that is positively related to trust (Gillespie et al., 2004; Kotlyar, Karakowsky and Ng, 2011; Den Hartog et al., 2002; Podsakoff et al., 1990). This trust is often measured in relation to the leader himself, but it is of great importance for this study whether this form of leadership also ensures mutual trust among team members. This leads to the first probabilistic hypothesis:

H 1. Leaders with a more person-oriented leadership style, will likely lead to a more trust in the leader and more trust between team members

3.2 Trust as the backbone of team reflexivity

That trust is important for an organization feels like breaking through an open door. In the previous chapter, we extensively discussed the advantages of trust. In relation to team reflexivity trust is described as one of the main conditions for team reflexivity (Edmondson, 1999; Möllering, 2006; Schipper, 2001, Widmer et al., 2009). Team reflexivity is a *collective* process involving the entire team reflecting on the processes, strategies and objectives (West 2000). This collectiveness means that nobody is excluded and that trust therefore must be present with everybody. Sometimes team members can have trust in the leader, but not in (a) team member(s) or vice versa. Because everyone should feel free to say what he or she thinks, which of course is crucial for team reflexivity, both forms of trust are needed. That brings us to the second probabilistic hypothesis of this research.

H 2. More trust in the leader and more trust between team members, will likely lead to a higher team reflexivity

3.3 The mediating role of trust

These two former hypotheses suggest that there is a positive relation between the leadership style and team reflexivity. Schippers et al. (2008) already concluded that there was a positive relation between transformational leadership style and team reflexivity. Also Somech (2006) and Hirst et al. (2004) found that different kinds of leadership styles affect team reflexivity positively. The mediating role of trust in both leader and team members has, however, not been tested before. This results in the third and final probabilistic proposition.

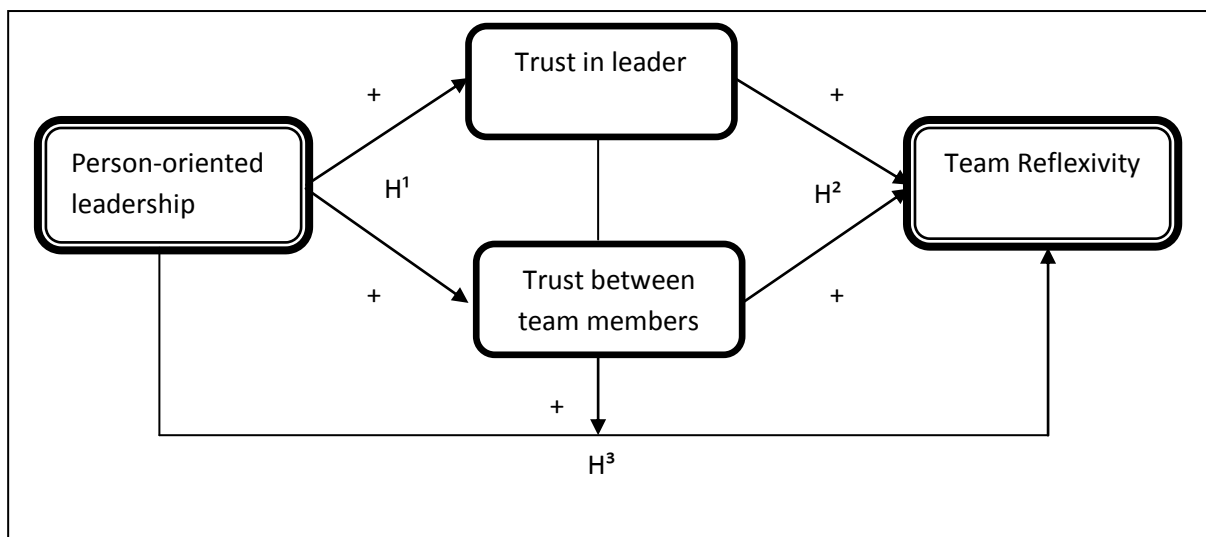
H3. More trust in the leader and more trust between team members will likely mediate the relation between person-oriented leadership and team reflexivity.

3.4 Conceptual model

Now that literature on leadership style, trust and team reflexivity have been explored, the conceptual model can be developed capturing the research question: “*What is the influence of trust in the leader and trust amongst team members on team reflexivity through leadership within project teams?*”

The conceptual framework presented in Figure 3.1 represents the study’s main constructs and the relationships, which will be investigated, corresponding to the three sub-research questions

Figure 3.1 *Conceptual model*



4. METHODOLOGY

4.1 Overview research questions and hypotheses

This chapter will show the methodological approach to answer the research questions that have been transformed into the following hypotheses shown in Table 4.1.

Table 4.1 *Overview research questions and hypotheses*

	Research Question		Method
RQ1	What leadership style enhances trust?	H1	Leaders with a higher person-oriented leadership style, will likely lead to a higher trust in the leader and a higher trust between team members
RQ2	Does this leadership enhance trust in both the leader and among team members in a project?		
RQ3	Is trust in the leader and between team members both needed for a higher level of team reflexivity?	H2	More trust in the leader and more trust between team members, will likely lead to a higher team reflexivity
RQ4	Can leadership influence team reflexivity through trust?	H3	More trust in the leader and more trust between team members will likely mediate the relation between person-oriented leadership and team reflexivity.

4.2 Research Design

To perform this research a deductive approach through five sequential stages (Saunders, Lewis and Thornhill 2009) has been followed: 1) Deducing a hypothesis from the theory; 2) expressing the hypothesis in operational terms, which proposes a relationship between the specific variables; 3) testing these operational hypotheses; 4) examining the specific outcome and 5) if necessary, modifying the theory in the light of the findings. The research strategy which is used in this study is a survey which seeks to establish causal probabilistic relations between the following variables: 1. Leadership (Independent variable); 2. Trust in the leader and trust between team members (Mediators); and 3. Team reflexivity (Dependent variable).

Although an experiment would be the preferred research strategy for probabilistic relations (Dul and Hak, 2008), a survey strategy has been chosen because an experiment was not achievable. This study uses questionnaires to measure the variables in order to test the hypothesized relations between these variables. The quantitative data collected from the questionnaires will then be analyzed statistically.

4.3 Unit of Measurement

This research focuses on a population of project teams as described by (Cohen et al., 1997): “time-limited. They produce one-time outputs. . . . Project team tasks are non-repetitive in nature and involve considerable application of knowledge, judgment, and expertise. The work that a project team performs may represent either an incremental improvement over an existing concept or a radically different new idea. . . . [they draw] members from different disciplines and functional units”. It research uses a population of project teams in an engineering company in the Netherlands. This company is distributed over more than 5 different regions operating the entire nation.

4.4 Data collection

This paragraph elaborates on the data collection procedures. Because this research is aimed at project teams it was necessary to locate a company which mainly consist of project teams. Therefore the research setting was an engineering company in the Netherlands with its headquarters in Utrecht. It has four regional offices in Rotterdam, Amsterdam, Zwolle and Eindhoven and they are part of an international engineering company. They are specialized in engineering railroads and railway stations, divided in eight different fields of expertise and have approximately 150 employees in total.

For measuring trust between team members, it was necessary for a team to consist of one leader and at least two team members. Therefore we collected an overview of all the projects that were running at the time of the research. In total, some 400 projects were running at that time. Because normally most projects are run by only one or two employees, we assumed that about 300 projects would not meet the required 3 members per project needed for this research. Unfortunately, the overview did not provide the information needed to select the population of teams. Therefore we visited the teams of every field of expertise in person and listed the teams consisting of 3 or more project members. In total, 58 teams met the requirements. The teams were asked to complete a questionnaire, whereas the leader of the teams were asked to complete a questionnaire that was partially different from the one the team members were asked to complete. For reasons of reliability on the measurement of trust, the questionnaires were distributed in hardcopy, as well digitally. The hardcopy questionnaires were distributed in an envelope with a seal and signature to ensure that team members' answers to the questions on trust would not be read by the team leader which would allow the team members to respond with genuine answers as the best moment to fill in the questionnaire simultaneously would be when they had a team meeting. By the personal visits to the different teams not only the team leaders, but also all team members, were all made conscious of the confidentiality of this method. In case they would not see each other shortly, the team members also received the questionnaire in digital form. More than 80 percent of the questionnaires were returned digitally.

From the 58 available teams that were asked to participate in this research, only 46 teams participated in this study. Due to too many unanswered questions in one team, the total number of teams with reliable data was 45. The data collection was carried out in the months April and May 2012 and covered a range of topics on the independent, dependent and mediator variables as well as general items and extra constructs.

4.5 Measurement and validation of constructs

This paragraph describes the study's operationalization of the measurements. The definitions of the constructs as describes in the second chapter of this thesis, are operationalized through questionnaires in order to be measured. All the used questionnaires are based on existing measurements in the literature and can be found in appendix A and B.

4.5.1 Reliability and validity

Most questions in the questionnaires are measured through Likert scales. Rossiter (2002) claims that these scales should never be used because they cannot provide precise item scores. The questions can be interpreted in more than one way and for that they would not be reliable anymore. Although this sometimes may be true, in this research we did not adjust the existing questionnaires from well respected researchers. Not merely to avoid a time-consuming exercise, but mostly for the reason that the current questionnaires already passed the bar of reliability and validity.

Aslo important were the common method biases in behavioral research by Podsakoff, MacKenzie, Lee and Podsakoff (2003). Before sending the questionnaires some common method biases were considered: 1) Item complexity and/or ambiguity, 2) Scale format and scale anchors, 3) Negatively worded (reverse-coded) items and 4) Scale length. The item complexity and/or ambiguity were bypassed in two ways: the first was to perform a back-translation of the words from English to Dutch and from Dutch back to English. In doing so differences could be spotted. The second one was to let different people fill in the questionnaires and discuss the problems they met. To avoid the second method bias, (e.g. using the same scale format and scale anchors) the scales were disrupted by different scales on different topics. The third method bias can come from negative or reverse coded items. Podsakoff et al. (2003) see these cognitive "speed bumps" as a danger to the reliability and validity of the outcomes. In our questionnaires there are no negative or reverse coded items. And at last the scale length. The two questionnaires used for this research are not longer than 3 pages. The maximum tested time to complete the questionnaire is 10 minutes, so possible respondent fatigue and carelessness are minimized.

4.5.2 Independent variable: Leadership style

The purpose of this study is to demonstrate whether the style of the leader influences the degree of team reflexivity by trust in the leader and among team members. Because there are many different types of leadership styles it is possible to choose one of them and see whether this form of leadership influences trust or team reflexivity. As described in Chapter 2 a clear separation exists between person-oriented leadership and task-oriented leadership. In order to see whether this dichotomy (in relation to trust and team reflexivity) can actually be explained, we have tried to find an instrument of measurement in the literature. It has been Fiedler (1967) who developed the LPC contingency theory where this distinction was clearly made. LPC stands for 'The esteem for Least Preferred Coworker' and measures the degree of person-oriented or task-oriented leadership. His method is straightforward. The questionnaire consists of 16 different items. Each item consists of two extremes in terms of qualities or characteristics of a human being. The leader must decide with whom he or she (can) work least well. That may be someone he is now working with or has worked with. It need not be a person whom he or she least favors, but must be the person with whom he or she had more difficulty on getting the task done. Subsequently, the leader must indicate on a 16 items (e.g. pleasant-unpleasant, unfriendly-friendly) questionnaire how this person appears to him. He can indicate this on an 8-point Likert scale. The reason for an 8-point Likert scale is that when you describe someone you know personally (e.g. a colleague you work(ed) with), you have to form an opinion and choose a more clear and definite direction. To measure the extent to which the leader is person-oriented or task-oriented is just the sum of all scores. The lowest possible score is 16 (16 x 1) and the highest possible score is 128 (16 x 8). A higher score means a more person-oriented leader. The underlying idea is that when a person-oriented leader has trouble with someone accomplishing a task, he will need not judge that person itself in a negative manner. A task-oriented leader will connect poor performances of that person with a negative image of him or her.

The reliability of the individual items were evaluated by the use of Cronbach α . The scale for leadership ($\alpha = .915$) was reliable and checked for reasonable assumptions of normality (see table 4.2 for the values per team of the mean, standard deviation, skewness and kurtosis)

4.5.3 Mediators: Trust in the leader and trust between team members

The mediator 'trust' will be measured on two levels. First trust in the leader and secondly trust among team members. Because of hierarchical differences in project teams, in which the leader of the team is responsible for the final result of the team, trust in the leader will not necessarily be equal to trust between team members. For this reason, the distinction between trust in the leader and trust between team members is made. Because these mediators are aimed at team reflexivity, and as trust can be

measured in many different ways, we have searched for literature and existing instruments that fit best. Given the fact that with team reflexivity it is important that everyone can speak out what's on one's mind, both reliance and disclosure are of crucial importance. Gillespie (2012) made a questionnaire designed to measure not only these two categories, but was also designed for use on both levels of trust (e.g. trust in leader and between team members). Team members must indicate, on a 10 items questionnaire with a 7-point Likert scale, how much they agree on the statements presented, varying from 'strongly disagree' to 'strongly agree'. Both reliance and disclosure are measured on 5 different items. Examples of the reliance-based items are: 'I rely on my leader's/team member's task related skills and abilities', 'I depend on my leader/team member to handle important issues on my behalf' and 'I rely on my leader/team member to represent my work accurately to others'. Examples of the disclosure-based items are: 'I share my personal feelings with my leader/team member', 'I confide in my leader/team member about personal issues that are affecting my work' and 'I share my personal beliefs with my leader/team member'.

The reliability of the individual items were evaluated by the use of Cronbach α . The scale for trust in the leader ($\alpha = .849$) and trust between team members ($\alpha = .894$) was reliable and checked for reasonable assumptions of normality (see table 4.2 for the values per team of the mean, standard deviation, skewness and kurtosis)

4.5.4 Dependent variable: Team Reflexivity

Since not much research has been done in the field of team reflexivity there are not many existing and reliable ways for measuring team reflexivity. West (1996) stands at the origin of measuring team reflexivity, but Schippers et al. (2007) developed that questionnaire for team reflexivity further. It is this questionnaire that we used in this study. Whereas the initial questionnaire from 2007 consists of 23 items divided into two categories, i.e. Evaluate / learning and discussing processes, the website of Schippers and West (reflexivitynetwork.com) provides us with an abridged version of this questionnaire which has been used in this study. The category evaluation / learning consists of 7 items and the discussing processes of a category of 4 items. All are measured on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Examples of items are: 'We regularly discuss whether the team is working effectively', 'The methods used by the team to get the job done are often discussed', and 'We evaluate the results of our actions'.

The reliability of the individual items were evaluated by the use of Cronbach α . The scale for team reflexivity ($\alpha = .905$) was reliable and checked for reasonable assumptions of normality (see table 4.2 for the values per team of the mean, standard deviation, skewness and kurtosis)

4.5.5 Additional control constructs

In order to explain a possible effect on team reflexivity through mediation two additional control constructs have been measured. The first construct is empowerment and the second is social loafing. The main reason for taking these constructs into consideration is to try to explain that when trust would have no effect on reflexivity, there may be other variables besides leadership that may influence trust and in turn or directly team reflexivity. Empowerment is defined as a motivational construct manifested in four cognitions: meaning, competence, self determination and impact. Together, these four cognitions reflect an active, rather than a passive orientation to a work role (Spreitzer, 1995). We have included this control construct because when the leader of team gives more control and responsibilities to team members, they themselves feel more responsible for better outputs. This responsibility might affect team reflexivity. In her research Spreitzer (1995) used a questionnaire of 12 items on 5-point Likert scale from 'strongly disagree' to 'strongly agree'. Examples of items are: 'The work I do is very important to me', 'I am confident about my ability to do my job' and 'I have considerable opportunity for independence and freedom in how I do my job'.

Another control construct is social loafing. It is the tendency for individual effort to decrease when people work in groups rather than individually (Latane, Williams and Harkins, 1979). The reason for this control construct is that when a team member decreases his/her effort in spite of the other team members this probably also effects the effort this team member will put in reflecting his/her work. George (1992) developed a questionnaire to measure this construct with 10 items on a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. 4 Of these items were used for this research based on a working paper by Schippers (2012). Examples of items are: 'Puts forth less effort on the job when other people are around to do the work' and 'Puts forth less effort than other members of his or her work group'.

The reliability of the individual items were evaluated by the use of Cronbach α . The scale for empowerment ($\alpha = .837$) and social loafing ($\alpha = .816$) was reliable and checked for reasonable assumptions of normality (see table 4.2 for the values per team of the mean, standard deviation, skewness and kurtosis)

Table 4.2 *summary of the values per team*¹

	Items	Mean	Std. Deviation	Skewness	Kurtosis
Style of the leader	16	78,00	17,315	.024	-.565
Trust in the leader	10	5.2769	.54935	-.761	1.920
Trust between members	10	4.9102	.63132	-.259	.667
Team Reflexivity	11	3.2114	.34776	.740	.645
Empowerment	12	3.8116	.31832	-.078	-.139
Social Loafing	4	1.8136	.49734	.491	.225

4.6 Implications of the methodology

Given the reliability and validation of the constructs, the data are more than useful to test on other (engineering) project teams. Statistically, the collected data could be used to predict (significant) results and generalize the data for all engineering project teams in the Netherlands. However, the collected data of this study can only be used for descriptive statistics and not for inferential statistics, based on Schwab, Abrahamson, Starbuck and Fidler (2011). They state: “Only with genuinely random samples does statistical theory afford researchers a basis for drawing probability inferences about population parameters”. This study did not make use of genuine random samples, but engaged the entire population of the engineering company to collect the data. Nevertheless, the methodology can be used for testing a second genuine random sample of project teams in order to test the probability inferences of the population.

¹ See Appendix C for visualization of all descriptive statistics

5. ANALYSIS AND RESULTS

5.1 General statistics

This research tried to reach every project team within the company. Because of intense and personal contact with all teams almost every questionnaire was completely filled in. The response rate for the teams is very high. Out of 58 project teams, almost 80 percent (N = 45) participated. Teams ranged from three to twelve members (mean = 3.84; Std deviation = 1.566) with a total of 20 percent female and 80 percent male. Only 11,1 percent of the leaders is female and the average age of the leaders is 43,5 years. For better results we examined outliers in the data, but only found two outliers in the style of the leader score which did not affect the results substantially.²

5.2 Testing the hypotheses

5.2.1 Correlations

In order to test the hypotheses we start by looking at the correlations of the constructs. First we have to measure whether there are correlations between the independent variable (leadership style) and the two mediators (trust in the leader and trust between team members). We subsequently measured the correlations between the mediators and the dependent variable (team reflexivity). Finally, we also took into consideration the extra constructs empowerment and social loafing as an possible effect on team reflexivity.

Table 5.1 Means, Standard Deviations and Correlations³

	Descriptive			Pearson's correlation coefficient						
	Mean	Std. Dev.	N	1	2	3	4	5	6	
Style of the leader (IV)	78,00	17,315	45	1						
Trust in the leader (M)	5.2769	.54935	45	-,088 ¹	1					
Trust between team members (M)	4.9102	.63132	45	-,159 ¹	,715³	1				
Team reflexivity (DV)	3.2114	.34776	45	-,111 ¹	<u>,475²</u>	<u>,426²</u>	1			
Empowerment	3.8116	.31832	45	,092 ¹	<u>,381²</u>	<u>,341²</u>	,616³	1		
Social loafing	1.8136	.49734	45	-,148 ¹	-,294 ¹	-,153 ¹	-,322 ²	-,153 ¹	1	

Effect sizes following Cohen (1988): 1=small, 2=medium, 3=large

A correlation coefficient of a score > .550 can indicate possible multicollinearity. We regressed the highest correlated variable (Trust in the leader) against the other variables in this study and calculated the variance inflation levels and tolerance levels. There was no significant multicollinearity detected between the variables. Acceptable are scores for tolerance >.10 and VIF <10 (Hair et al., 1998).

² / ³ See Appendix C for visualization of all descriptive statistics

Table 5.1 shows that there are small (positive or negative) correlations of the style of the leader, our independent variable, with any of the other constructs. Besides social loafing, we expected only positive relations and with much higher coefficients. Nevertheless, the outcome could mean several things. One of the explanations could be that we did not measure exactly what we wanted to measure. Therefore, we performed a factor analysis on all 16 questions measuring the leader's style, but unfortunately that did not provide any expected outcome. Another answer to the little correlation could be that we did not have enough cases, that there is a difference which is addressed by the effect sizes. Rule of thumb usually dictates that the bigger the sample, the more likely an effect will be judged statistically large (Ellis, 2010). The reason that we will not relate to statistical significance is the fact that this study only provides descriptive statistics instead of inferential statistics. Ellis (2010) also states that despite the fact that correlations statistically can be small, it can practically be seen as large: a classic difference between rigor and relevance. Therefore we used Cohen's (1988) effect size benchmarks in order to rate a correlation in three classes (small, medium and large). This classification is shown in table 5.2.

Table 5.2 *Cohen's effect size benchmarks*

Test	Relevant	Effect size classes		
		Small	Medium	Large
Correlation	r	.10	.30	.50
Bivariate regression	r ²	.01	.09	.25
Multiple regression	R ²	.02	.13	.26

Source: Ellis (2010)

A third clarification can be a measurement instrument error. Because this is likely the case we can try to measure it again using a different kind of measurement tool (e.g. different questions measuring the leader's style), or we can look at the items in the questionnaire and search for possible problems. In Chapter 6 we will elaborate on this latter mentioned possible explanation. Despite the small relations between leadership style and the other constructs, we can see that there are some other constructs that did correlate with each other. We have found a large correlation between trust in the leader and trust between team members ($r = .715$), as well as a large correlation between team reflexivity and empowerment ($r = .616$). Five medium correlations were found between the two mediators of trust, empowerment, social loafing and team reflexivity.⁴

⁴ See Appendix C for visualization of all descriptive statistics

5.2.2 Regression analysis

The second step in testing the hypothesis is to perform a multiple regression analysis. For the same reasons as mentioned in the previous paragraph, we will not use the term statistical significant, but we will refer to Cohen's (1988) effect size benchmarks when we address the regression outcomes. Despite the outcome on the correlation analysis, we used Baron and Kenny's (1986) steps for mediation to test whether trust is a mediator between leadership style and team reflexivity. In order to test this we first have find a large relation between the dependent variable (team reflexivity) and the independent variable (leadership style) as well as a large relation between the dependent variable (team reflexivity) and the mediators (trust). Table 5.3 show the outcome of this multiple regression analysis.

Table 5.3 *Multiple Regression Analysis I*

Dependent Variable:	Model 1			Model 2			Model 3			Model 4		
	Unstd.		Std.	Unstd.		Std.	Unstd.		Std.	Unstd.		Std.
Team reflexivity	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta
Control variables												
Empowerment	.626	.134	.573	.636	.130	.582	.560	.137	.512	.573	.136	.524
Social Loafing	-.156	.084	-.223	-.176	.083	-.251	-.139	.084	-.199	-.159	.082	-.228
Team size	-.005	.027	-.024	-.011	.026	-.049	-.009	.026	-.041	-.007	.026	-.031
Independent variable												
Leadership style				-.004	.002	-.208	-.004	.002	-.175	-.003	.002	-.168
Mediators												
Trust in the leader							.128	.081	.203			
Trust between team members										.100	.069	.181
R ²	.43^a			.47^a			.50^a			.50^a		
Adjusted R ²	.39			.42			.44			.43		
Δ Adjusted R ²	-			.04			.03			.03		

Effect sizes following Cohen (1988): 1=small, 2=medium, **3=large** (N = 45)

When we analyze the results from the first regression analysis we can see that the beta of the control variables 'empowerment' is very high ($\beta = .573$) indicating a very positive relation on team reflexivity. The beta of 'social loafing' show a fair negative relation on team reflexivity ($\beta = -.223$). This negative relation is a good thing, because it tells us that fewer social loafing leads to higher team reflexivity. Which of course is a good thing. Overall we can say that these control variables together (including the negligible variable team size) provide a very large effect on team reflexivity if we look at the adjusted R² of .39.

If we look at the second hierarchical model of the regression analysis we can see that the independent variable 'leadership style' has a negative relation to team reflexivity ($\beta = -.208$), indicating the opposite hypothesized relation where a more people-oriented leadership style would lead to more team reflexivity. The regression also show a very small increase of the adjusted R^2 (.04), indicating a very small accumulated effect to team reflexivity. Looking at the correlation analysis and the bivariate regression in appendix C, we expected this low effect.

Adding the mediators of trust in the regression analysis (model 3 and 4), we see a fair relation on team reflexivity ('Trust in the leader'; $\beta = .203$ and 'Trust between team members'; $\beta = .181$). But we can also see a decreasing relation on all the other variables by adding the mediators in the analysis. Even the adjusted R^2 show a very small accumulated effect of .03. This indicate that 'trust in the leader' and 'trust between team members' has little relation on 'team reflexivity'.

The second step in the mediation analysis is to find the large relation between the mediators (trust) and independent variable (leadership style). Table 5.4 show the outcome of this multiple regression analysis.

Table 5.4 *Multiple Regression Analysis II*

Mediators:	Trust in the leader						Trust between team members					
	Model A			Model B			Model C			Model D		
	Unstd. B	Std. SE	Std. Beta	Unstd. B	Std. SE	Std. Beta	Unstd. B	Std. SE	Std. Beta	Unstd. B	Std. SE	Std. Beta
Control variables												
Empowerment	.581	.249	.337	.593	.249	.344	.615	.299	.310	.635	.294	.320
Social Loafing	-.261	.157	-.236	-.285	.158	-.258	-.124	.188	-.098	-.162	.187	-.128
Team size	-.007	.050	-.019	-.014	.050	-.039	-.030	.060	-.074	-.041	.059	-.101
Independent variable												
Leadership style				-.005	.005	-.163				-.008	.005	-.221
R^2	<u>.20²</u>			.23³			<u>.13²</u>			<u>.18²</u>		
Adjusted R^2	.14			.15			.07			.10		
Δ Adjusted R^2	-			.03						.05		

Effect sizes following Cohen (1988): 1=small, 2=medium, 3=large (N = 45)

Table 5.4 shows a good relation between 'trust in the leader' and the control variables. The relation between 'Trust between team members' and the control variables show a smaller relation. More important is the negative relation between mediators of trust and leadership ($\beta = -.163$ and $\beta = -.221$). As well as the first regression analysis, there is a very small increase of the adjusted R^2 (.03 – .05), indicating a very small accumulated effect to 'leadership style'.

5.2.3 Hypothesis testing

This research tried to answer the question whether person-oriented leadership style effects team reflexivity through trust in the leader and trust between team members. Because this study only uses descriptive statistics, instead of inferential statistics, the outcome cannot be translated into statistical significance scores. And because this study uses a small population, we have used the benchmarks of effect sizes following Cohen (1988) in order to test the hypotheses.

Hypothesis 1: Leaders with a higher person-oriented leadership style, will likely lead to a higher trust in the leader and a higher trust between team members.

Because 'leadership style' not only show a negative relation on both forms of trust (e.g. 'trust in the leader' and 'trust between team members') in bivariate regression as well as in the multiple regression analysis, there is no reason to accept this hypothesis. However, to reject the hypothesis means to reject all former theories claiming a relation between different kinds of person-oriented leadership styles and trust. This we cannot do. Therefore we will only not-accept this hypothesis.

Hypothesis 2: More trust in the leader and more trust between team members, will likely lead to a higher team reflexivity.

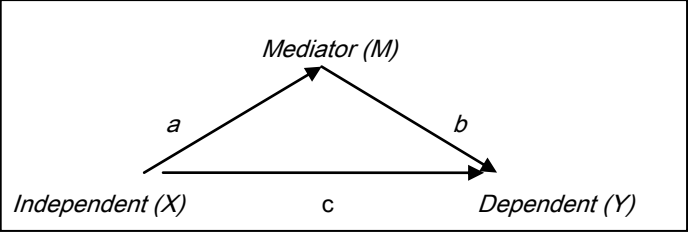
'Trust in the leader' en 'trust between team members' both seem to have a small relation on team reflexivity as shown in the multiple regression analysis. However, in the bivariate regression analysis the scores for 'trust in the leader' ($r^2=.23$) and 'trust between team members' ($r^2=.18$) were above medium range to large. Therefore we will accept the second hypothesis.

Hypothesis 3: More trust in the leader and more trust between team members, will likely mediates the relation between person-oriented leadership and team reflexivity.

As shown in the multiple regression analysis, adding both variables of trust into the analysis, this does not provide us with medium or large effects. According to Zhao, Lynch and Chen (2010) in their decision tree for establishing types of mediation and non-mediation, there can only be different kinds of mediators when at least $a \times b$ is large and/or c is large (see figure 5.1). Path $a \times b$ is tested in the multiple regression analysis shown in table 5.3. Path c is tested in the multiple regression analysis shown in table 5.4. In their model they claim that when there are no large effects, like there are no large effects in this study, that it means that the theoretical framework is wrong. Of course, there is something wrong, but to state that the theoretical framework itself is wrong is exaggerated. In the last chapter we will describe why we do not reject the theoretical framework. Because the effects of the

mediators trust are negative and of such small proportion there is no reason to accept this hypothesis. Because there could be other explanations we will not-accept this hypothesis.

Figure 5.1 Mediation effects



Source: Zhao et al. (2010)

6. DISCUSSION

6.1 Implications for academic researchers

Despite the fact that the 'general' person-oriented leadership style has little effect on the constructs trust and team reflexivity, the results of this research show other benefits to the theory of team reflexivity. We not only provide more empirical results proving trust to be of great importance on team reflexivity, also the division of the construct trust into two segments (e.g. trust in leader and trust between team members) show a more profound element of team reflexivity.

Furthermore, this research shows that constructs, such as empowerment and social loafing, also provide more explanation of the influences and theory on team reflexivity. It is interesting to see that team reflexivity has great potential for future research because there will probably be more constructs influencing team reflexivity. The importance of team reflexivity as stated in this research only increases.

6.2 Implications for practitioners

As mentioned, organizations can benefit from team reflexivity. Not only for team performance or team efficiency, but also for innovation, changes and risky projects. This study therefore provides a stronger basis for understanding the importance of this concept and provides managers with empirical results to understand how to enhance team reflexivity in their organization, like creating trust, embedding empowerment and eliminating social loafing. Although this study does not give a handout on how trust in the leader and/or between team members can be enhanced, knowing that this trust has an positive effect on team reflexivity can probably create a kind of awareness which hopefully results in more team reflexivity.

6.3 Limitations and future research directions

As described in paragraph 5.2.3 Zhao et al. (2010) stated that because there is no significant (or large) relation for mediation, the theoretical framework would be wrong. We do not agree with the authors because we would have to reject other theories as well. For this reason we only not-accepted hypotheses one and three. Another possible explanation is that we investigated the wrong population. However, there is not a single argument why this population should not fit the required specifications for measuring the construct. The population is a representation of the Netherlands because it works in 5 different regions of the Netherlands, which makes possible differences in culture negligible. It consists of many project teams similar to the prescribed teams and all have an appointed leader. The most plausible answer is that the questionnaire did not measure what it should have measured. In a

last effort to explain this plausibility we found two articles that (could) give a possible explanation for that. Fiedler (1978) himself stated that even though the LPC questionnaire is an internally consistent measurement and is transsituational in nature, even after more than 25 years there are still some questions about the interpretation of the LPC score from the respondents. Rice (1978) goes further in questioning the LPC measurement. He discovered some stability problems like changes in instructions and different response formats. Truth be told that even though none of the test subjects encountered any problem in understanding the instruction of the LPC questionnaire, two leaders did ask to clarify the instructions. Perhaps more leaders encountered problems, but did not ask for further clarifications, which might have led to wrong (given) answers. Nevertheless, both researchers still believe in the usefulness of this measurement. For future research, it is good to comprehend this problem by rethinking how to clarify the instructions. Personal contact with the leaders to clarify the instructions might eliminate the measurement problem of the leadership style.

Despite what Schwab et al. (2011) state in their article about samples and the generalization to a population, the population used for this study might be used as a sample of a bigger population. The reason for this is that the population used in this study, an engineering company in the Netherlands, have not many specific differences from other engineering companies in the Netherlands. Of course there will always be company cultural differences, but that would also be the case in many other studies who generalize the measured sample to a bigger population.

Furthermore, instead of measuring a general leadership style, it is recommended to study all different person and task-oriented leadership styles and compare them with each other. That not only makes it possible to identify the best leadership style for team reflexivity, but it might also find the more generalized portrait of person versus task-oriented leadership style. Other limitations might be the low amount of women in leading positions. The latter element may not only apply in relation to team reflexivity, but may also have effect to a more general extent, i.e. in relation towards gaining trust. A final recommendation is to explore project teams during their projects. That way it is possible to see if there are differences in team reflexivity during the project by periodically measure the team reflexivity, as well as the level of trust and team performance.

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Appendix A Questionnaire leader

Beste (opdracht)leider,

Onderstaande enquête is specifiek gericht op u als leider van het projectteam. Het invullen van deze enquête zal u ongeveer 5-10 minuten van uw tijd kosten. Voordat u de enquête invult is het goed te weten dat er geen foute antwoorden gegeven kunnen worden en dat alle gegevens vertrouwelijk behandeld worden. Wilt u vragen met een sterretje (*) omcirkelen wat bij u van toepassing is?

Bij voorbaat dank voor uw medewerking.

Geef aan in hoeverre u het eens bent met de onderstaande stellingen in relatie tot uw projectteam.*

	Helemaal mee oneens			Helemaal mee eens	
1. We bespreken de verschillende wijzen waarop we ons doel kunnen bereiken.	1	2	3	4	5
2. We gaan na wat we kunnen leren van reeds voltooide acties.	1	2	3	4	5
3. Tijdens het uitvoeren van de taak staan we stil bij de vraag of we op de goede weg zijn.	1	2	3	4	5
4. We gaan na of onze acties datgene hebben opgeleverd wat we er op voorhand van verwachtten.	1	2	3	4	5
5. In dit team wordt het resultaat van acties geëvalueerd.	1	2	3	4	5
6. Als dingen niet lopen zoals gepland, gaan we na wat we hieraan kunnen doen.	1	2	3	4	5
7. Na het afronden van bepaalde werkzaamheden worden zaken geëvalueerd.	1	2	3	4	5
8. Het team heroverweegt vaak zijn doelstellingen.	1	2	3	4	5
9. De werkmethoden die het team gebruikt stellen we vaak ter discussie.	1	2	3	4	5
10. We bespreken regelmatig of we als team effectief samenwerken.	1	2	3	4	5
11. Het team heroverweegt vaak de manier waarop het werk wordt aangepakt.	1	2	3	4	5

Denk aan de persoon met wie u het minst goed **kan samenwerken**. Dat kan iemand zijn met wie u momenteel samenwerkt of iemand met wie u in het verleden heeft samengewerkt.

Het hoeft niet degene te zijn die je het minste mag, maar moet de persoon zijn met wie je de meeste moeite had de opdracht/taak te klaren. Beschrijf hoe deze persoon op u overkomt.*

Onprettig	1	2	3	4	5	6	7	8	Prettig
Onvriendelijk	1	2	3	4	5	6	7	8	Vriendelijk
Afhoudend	1	2	3	4	5	6	7	8	Oppakkend
Tegenwerkend	1	2	3	4	5	6	7	8	Hulpvaardig
Pessimistisch	1	2	3	4	5	6	7	8	Optimistisch
Gespannen	1	2	3	4	5	6	7	8	Ontspannen

Afstandelijk	1	2	3	4	5	6	7	8	Hecht
Koud	1	2	3	4	5	6	7	8	Warm
Dwarsbomend	1	2	3	4	5	6	7	8	Coöperatief
Vijandig	1	2	3	4	5	6	7	8	Behulpzaam
Saai	1	2	3	4	5	6	7	8	Interessant
Verdeeld	1	2	3	4	5	6	7	8	Harmonieus
Twijfelend	1	2	3	4	5	6	7	8	Zelfverzekerd
Inefficiënt	1	2	3	4	5	6	7	8	Efficiënt
Somber	1	2	3	4	5	6	7	8	Vrolijk
Gesloten	1	2	3	4	5	6	7	8	Open

Hoe beoordeelt u de teamprestatie op de volgende onderdelen?*					Heel laag				Heel hoog
1.	Tijd (planning)	1	2	3	4	5			
2.	Kosten (budget)	1	2	3	4	5			
3.	Met welk cijfer heeft de klant u (tussentijds) geëvalueerd					Nog niet bekend			
4.	Welk cijfer geeft u de overall prestatie van uw team. 1 = laag – 10 = hoog								

Algemene vragen

1.	Functie							
2.	Leeftijd							
3.	Geslacht*	Man			Vrouw			
4.	Tot welke afdeling behoort u?*	Afdeling Rail		Afdeling Stations		Anders, nl:		
5.	Tot welke van de onderstaande afdelingsteams behoort u?*							
	<i>Regio Rotterdam</i>	<i>Regio Amsterdam</i>		<i>Regio Eindhoven</i>		<i>Regio Zwolle</i>		
	<i>Projectmanagement (Stations)</i>	<i>Consultancy</i>		<i>Expert Center</i>		Anders, nl:		
	<i>Projectmanagement (Rail)</i>	<i>Techniek</i>		<i>Netwerkstudies</i>				
6.	Aantal kernteamleden (inclusief uzelf) <i>Nb. Met kernteam worden de teamleden bedoeld die de basis van het projectteam vormen. (Niet medewerkers die af en toe werkzaamheden voor het project uitvoeren).</i>							
7.	Overlegfrequentie*	Wekelijks	Om de week	Maandelijks	Om de maand	1 x per kwartaal	Anders	
8.	In welke projectfase bevindt u zich?*	Initiatief	Definitie	Ontwerp	Voorbereiding	Realisatie	Nazorg	

Hartelijk dank voor uw tijd.

Appendix B Questionnaire team member

Best teamlid,

Onderstaande enquête is specifiek gericht op u als teamlid van het projectteam. Het invullen van deze enquête zal u ongeveer 5-10 minuten van uw tijd kosten. Voordat u de enquête invult is het goed te weten dat er geen foute antwoorden gegeven kunnen worden en dat alle gegevens vertrouwelijk behandeld worden. Wilt u vragen met een sterretje (*) omcirkelen wat bij u van toepassing is?

Bij voorbaat dank voor uw medewerking.

Geef aan in hoeverre u het eens bent met de onderstaande stellingen in relatie tot uw **projectteam**.*

	Helemaal mee oneens			Helemaal mee eens	
1. We bespreken de verschillende wijzen waarop we ons doel kunnen bereiken.	1	2	3	4	5
2. We gaan na wat we kunnen leren van reeds voltooide acties.	1	2	3	4	5
3. Tijdens het uitvoeren van de taak staan we stil bij de vraag of we op de goede weg zijn.	1	2	3	4	5
4. We gaan na of onze acties datgene hebben opgeleverd wat we er op voorhand van verwachtten.	1	2	3	4	5
5. In dit team wordt het resultaat van acties geëvalueerd.	1	2	3	4	5
6. Als dingen niet lopen zoals gepland, gaan we na wat we hieraan kunnen doen.	1	2	3	4	5
7. Na het afronden van bepaalde werkzaamheden worden zaken geëvalueerd.	1	2	3	4	5
8. Het team heroverweegt vaak zijn doelstellingen.	1	2	3	4	5
9. De werkmethoden die het team gebruikt stellen we vaak ter discussie.	1	2	3	4	5
10. We bespreken regelmatig of we als team effectief samenwerken.	1	2	3	4	5
11. Het team heroverweegt vaak de manier waarop het werk wordt aangepakt.	1	2	3	4	5

De volgende vragen hebben betrekking op **uzelf**. Geef aan in hoeverre u het eens bent met de onderstaande stellingen.*

	Helemaal mee oneens			Helemaal mee eens	
1. Het werk wat ik doe is erg belangrijk voor mij.	1	2	3	4	5
2. Mijn taken hebben persoonlijk veel betekenis voor mij.	1	2	3	4	5
3. Mijn werk betekent veel voor mij.	1	2	3	4	5

	Helemaal mee oneens					Helemaal mee eens				
4. Ik ben er zeker van dat ik mijn werk goed kan doen.	1	2	3	4	5					
5. Ik ben zelfverzekerd over mijn vaardigheden om mijn werk te doen.	1	2	3	4	5					
6. Ik beschik over de vaardigheden die nodig zijn voor mijn werk.	1	2	3	4	5					
7. Ik kan in grote mate zelf bepalen hoe ik mijn werk doe.	1	2	3	4	5					
8. Ik kan zelf beslissen over wat ik doe tijdens mijn werk.	1	2	3	4	5					
9. Ik heb veel mogelijkheden om onafhankelijk en in vrijheid te doen wat ik wil in mijn werk.	1	2	3	4	5					
10. Mijn impact op wat er gebeurt in het team is groot.	1	2	3	4	5					
11. Ik heb veel controle over wat er gebeurt in mijn team.	1	2	3	4	5					
12. Ik heb in belangrijke mate invloed op wat er gebeurt in mijn team.	1	2	3	4	5					
13. Ik schuif mijn verantwoordelijkheden af op mijn teamleden.	1	2	3	4	5					
14. Ik span mij minder in voor het werk dan mijn teamgenoten.	1	2	3	4	5					
15. Ik laat mijn andere teamgenoten liever het werk doen als dat mogelijk is.	1	2	3	4	5					
16. Als we samen aan een opdracht aan het werken zijn, verricht ik minder werk dan mijn teamgenoten.	1	2	3	4	5					

Het eerste deel van de onderstaande vragen heeft betrekking op uw leider en het tweede deel op uw teamleden.

Geef aan in hoeverre u het eens bent de volgende stellingen ten aanzien van uw **LEIDER**.

	Helemaal mee oneens							Helemaal mee eens							
1. Ik heb vertrouwen in de taak gerelateerde vaardigheden en capaciteiten van mijn leider	1	2	3	4	5	6	7								
2. Ik kan er op rekenen dat mijn leider een belangrijke kwestie namens mij goed behandelt	1	2	3	4	5	6	7								
3. Ik heb vertrouwen dat mijn werk juist vertegenwoordigd wordt bij anderen door mijn leider	1	2	3	4	5	6	7								
4. Ik kan er op rekenen dat mijn leider achter mij staat in moeilijke situaties	1	2	3	4	5	6	7								
5. Ik heb vertrouwen in het werk gerelateerde oordeel van mijn leider	1	2	3	4	5	6	7								
6. Ik deel persoonlijke gevoelens met mijn leider	1	2	3	4	5	6	7								
7. Ik bespreek werk gerelateerde problemen of moeilijkheden met mijn leider, welke mogelijk tegen mij gebruikt kunnen worden	1	2	3	4	5	6	7								
8. Ik vertrouw persoonlijke kwesties, die invloed hebben op mijn werk, toe aan mijn leider	1	2	3	4	5	6	7								

9.	Ik vertel mijn leider hoe ik echt denk over het werk, zelfs de negatieve zaken en frustraties	1	2	3	4	5	6	7
10.	Ik deel persoonlijke overtuigingen met mijn leider	1	2	3	4	5	6	7

Geef aan in hoeverre u het eens bent met de volgende stellingen ten aanzien van uw **TEAMLEDEN**.

		Helemaal mee oneens					Helemaal mee eens	
1.	Ik heb vertrouwen in de taak gerelateerde vaardigheden en capaciteiten van mijn teamleden	1	2	3	4	5	6	7
2.	Ik kan er op rekenen dat mijn teamleden een belangrijke kwestie namens mij goed behandelden	1	2	3	4	5	6	7
3.	Ik heb vertrouwen dat mijn werk juist vertegenwoordigd wordt bij anderen door mijn teamleden	1	2	3	4	5	6	7
4.	Ik kan er op rekenen dat mijn teamleden achter mij staat in moeilijke situaties	1	2	3	4	5	6	7
5.	Ik heb vertrouwen in het werk gerelateerde oordeel van mijn teamleden	1	2	3	4	5	6	7
6.	Ik deel persoonlijke gevoelens met mijn teamleden	1	2	3	4	5	6	7
7.	Ik bespreek werk gerelateerde problemen of moeilijkheden met mijn teamleden, welke mogelijk tegen mij gebruikt kunnen worden	1	2	3	4	5	6	7
8.	Ik vertrouw persoonlijke kwesties, die invloed hebben op mijn werk, toe aan mijn teamleden	1	2	3	4	5	6	7
9.	Ik vertel mijn teamleden hoe ik echt denk over het werk, zelfs de negatieve zaken en frustraties	1	2	3	4	5	6	7
10.	Ik deel persoonlijke overtuigingen met mijn teamleden	1	2	3	4	5	6	7

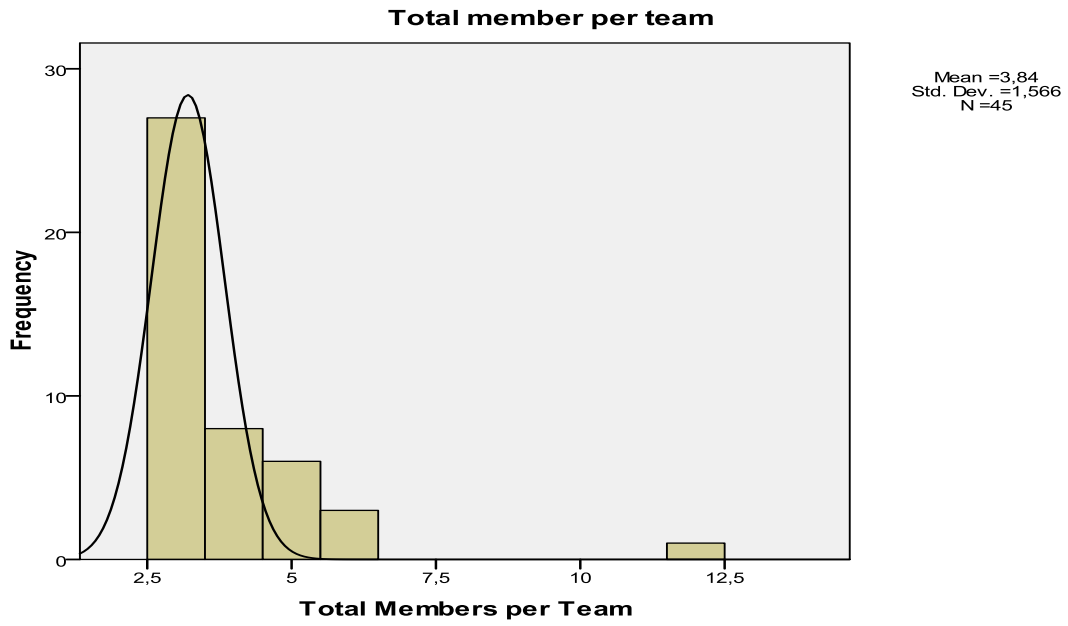
Algemene vragen

5.	Functie			
6.	Leeftijd			
7.	Geslacht*	Man		Vrouw
8.	Tot welke afdeling behoort u?*	Afdeling Rail	Afdeling Stations	Anders, nl:
5.	Tot welke van de onderstaande afdelingsteams behoort u?*			
	<i>Regio Rotterdam</i>	<i>Regio Amsterdam</i>	<i>Regio Eindhoven</i>	<i>Regio Zwolle</i>
	<i>Projectmanagement (Stations)</i>	<i>Consultancy</i>	<i>Expert Center</i>	Ander, nl:
	<i>Projectmanagement (Rail)</i>	<i>Techniek</i>	<i>Netwerkstudies</i>	

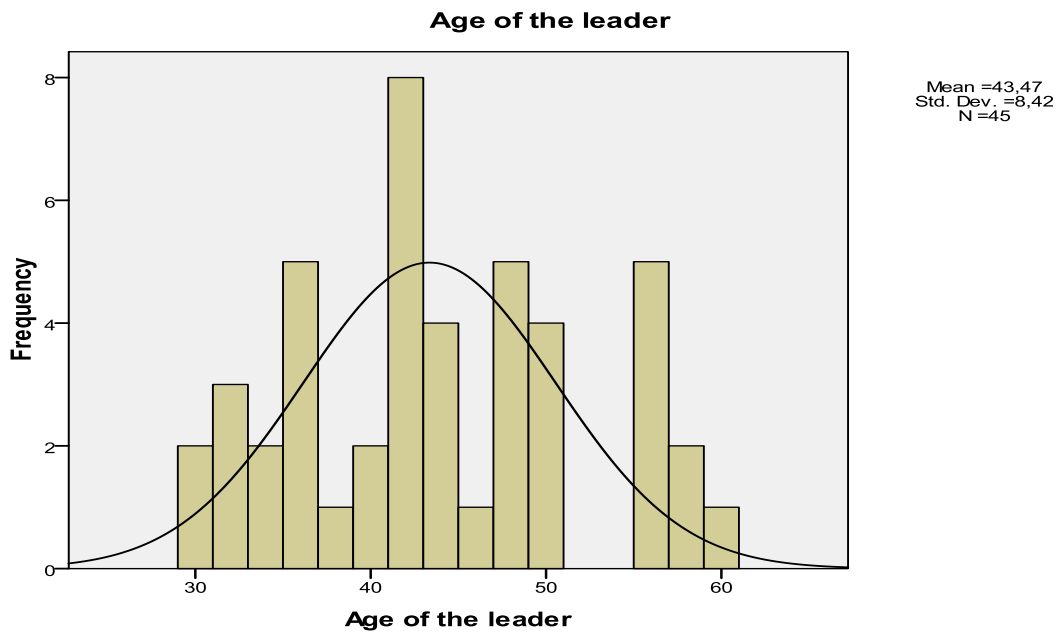
Hartelijk dank voor uw tijd.

Appendix C Visualization of descriptive statistics

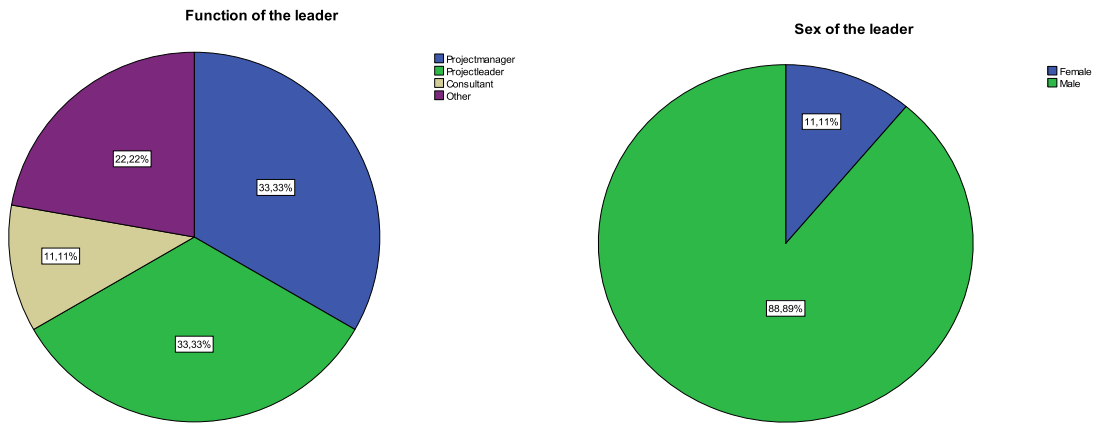
Team sizes



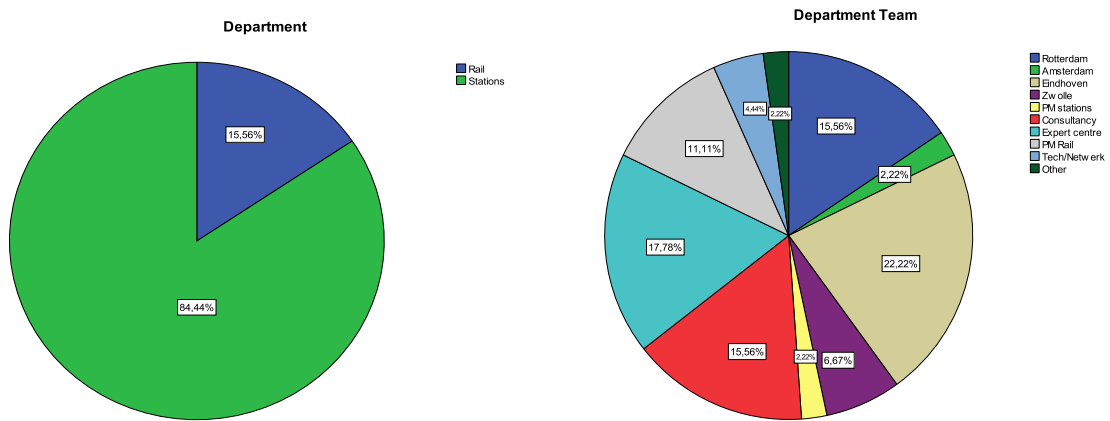
Age of the leaders



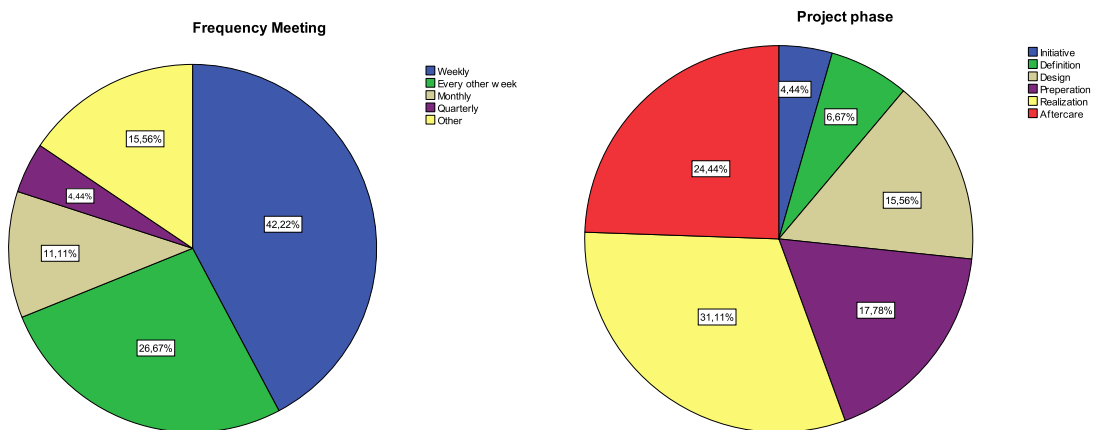
Function and sex of the leaders



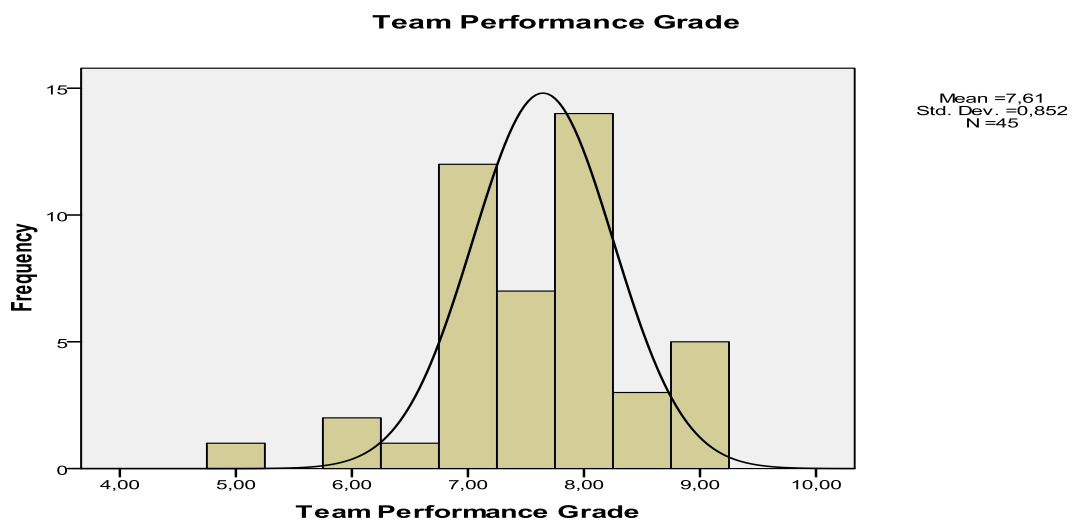
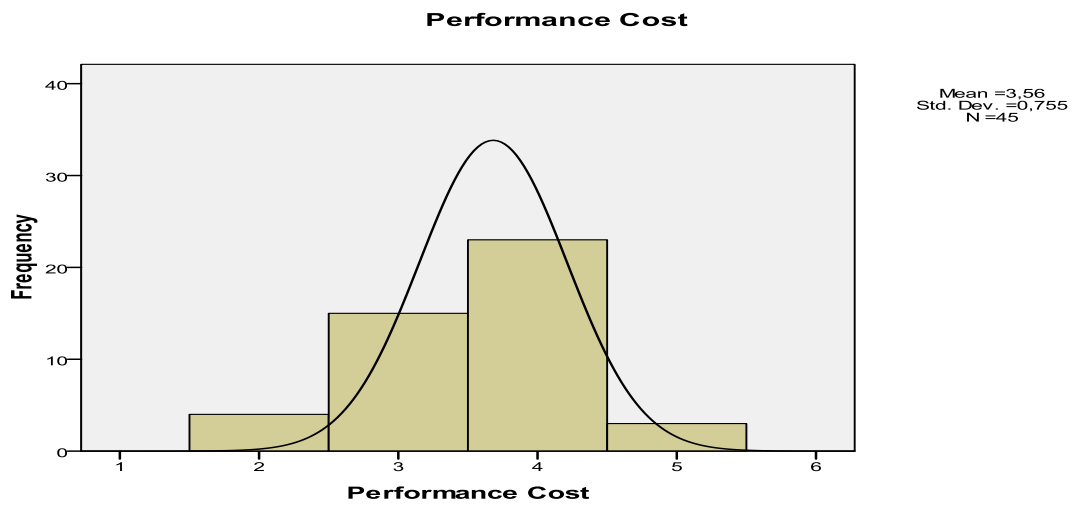
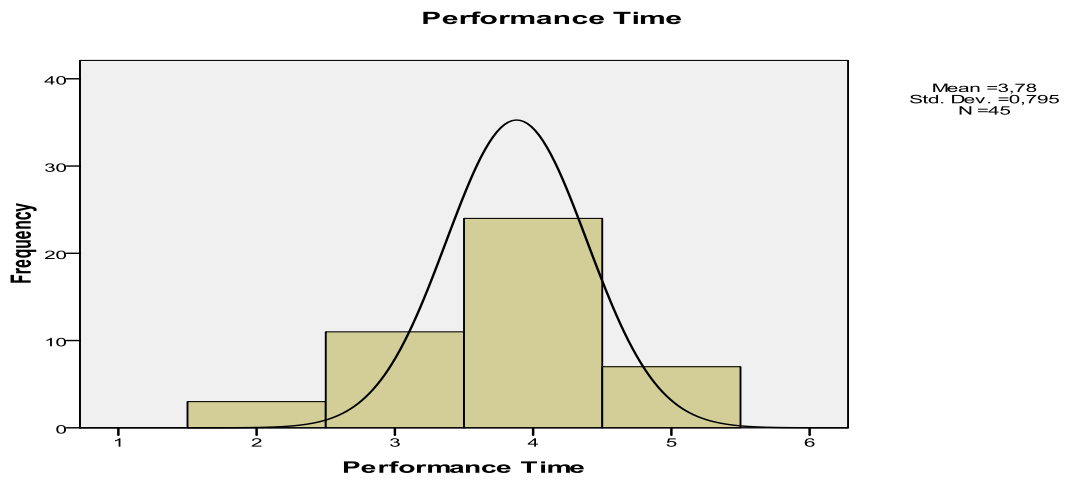
Department en department team of the leader



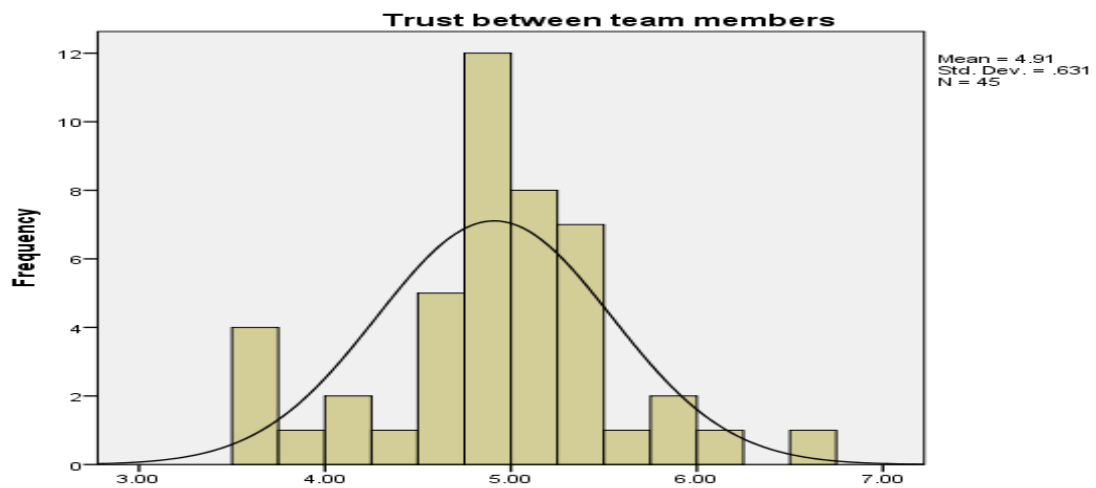
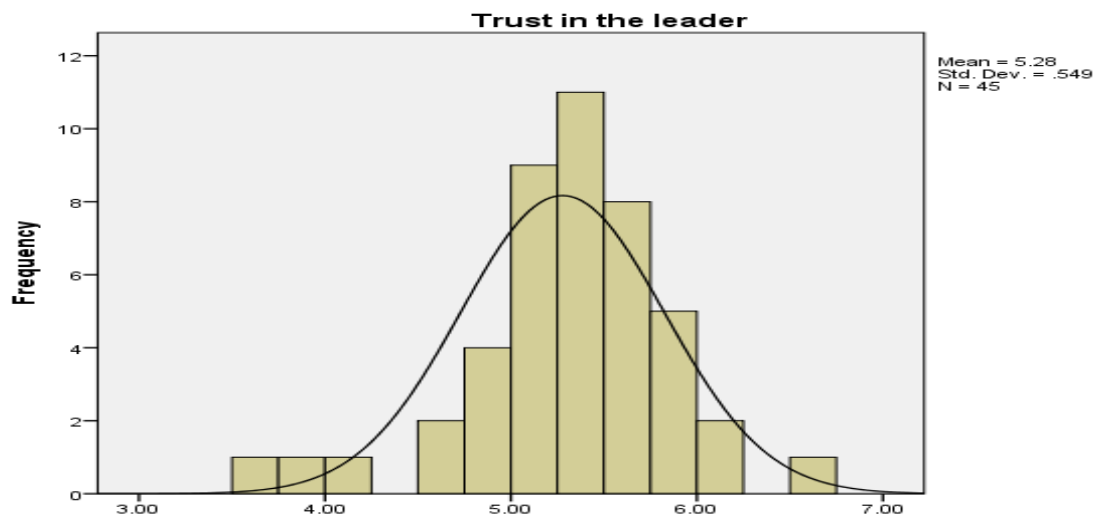
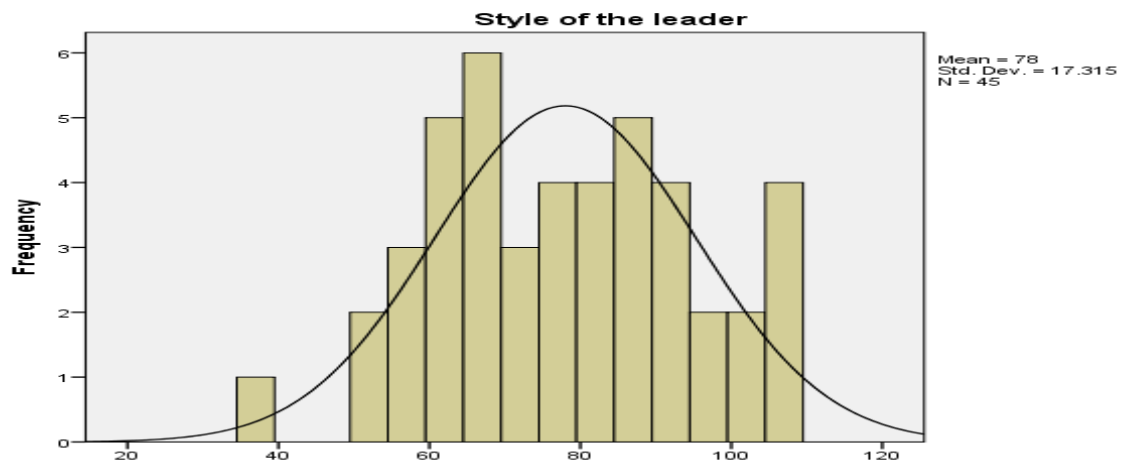
Frequency of the meetings and phase of the project

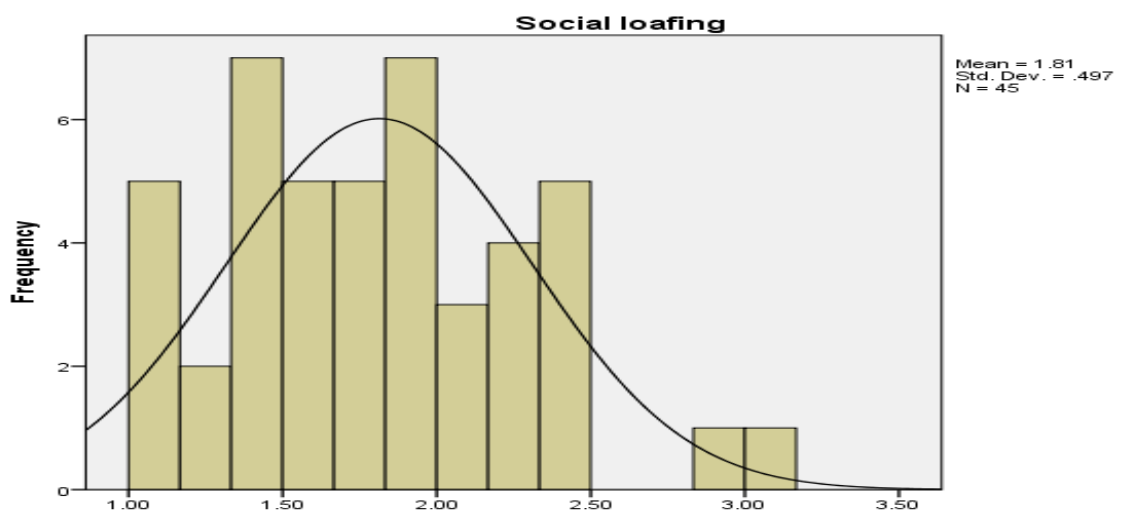
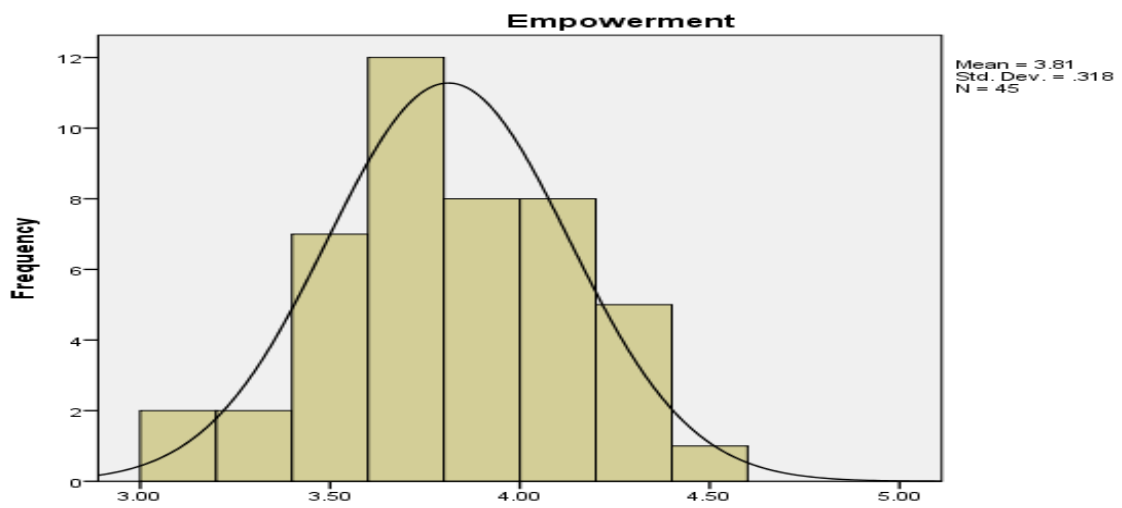
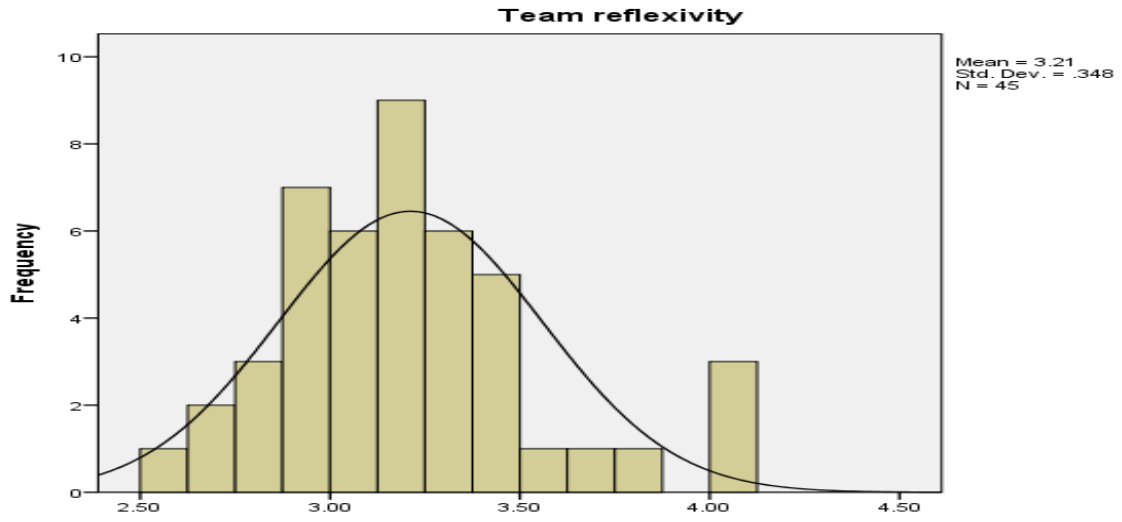


Performance score time, cost and overall performance



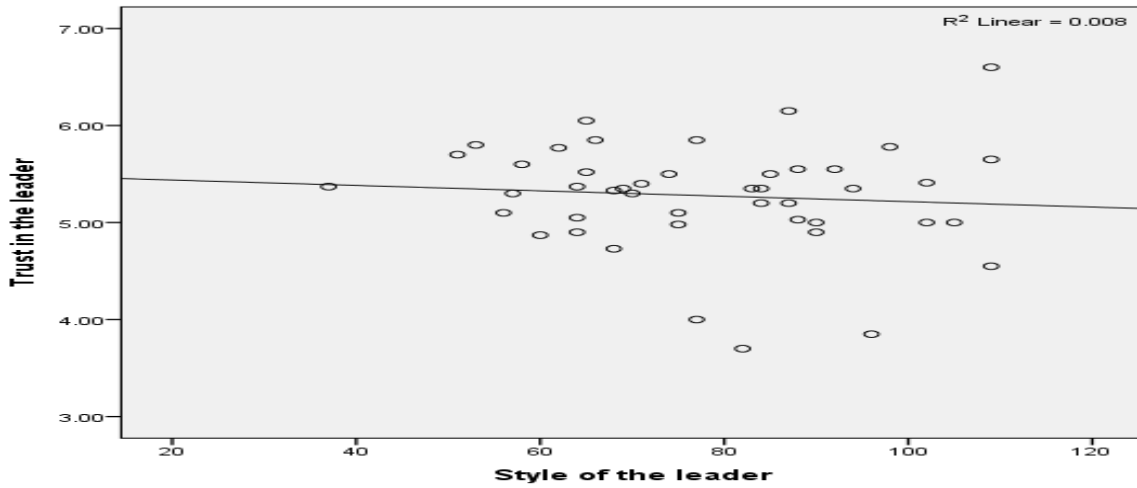
Distributions of the scales



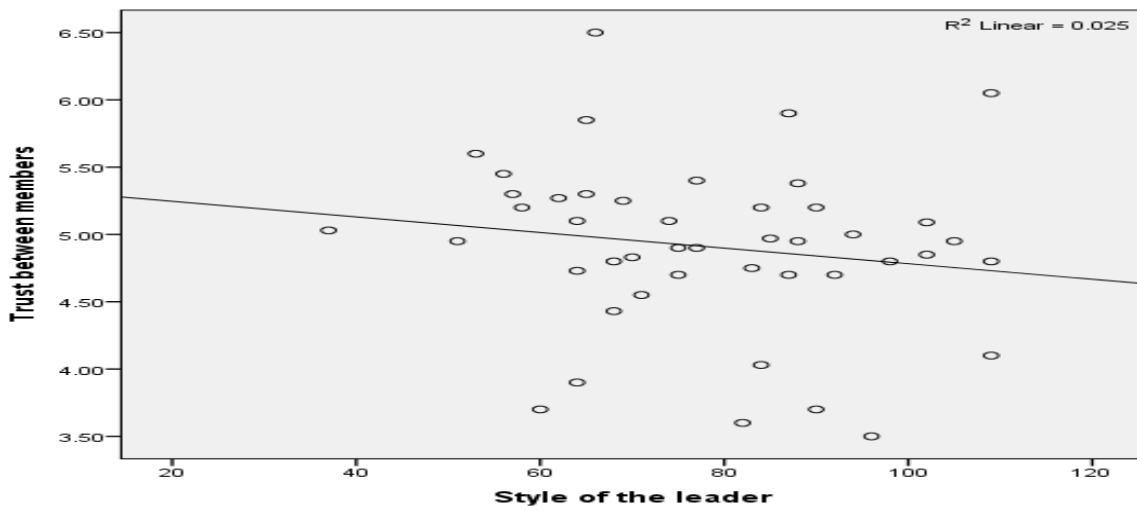


Correlation and regression scatter plots

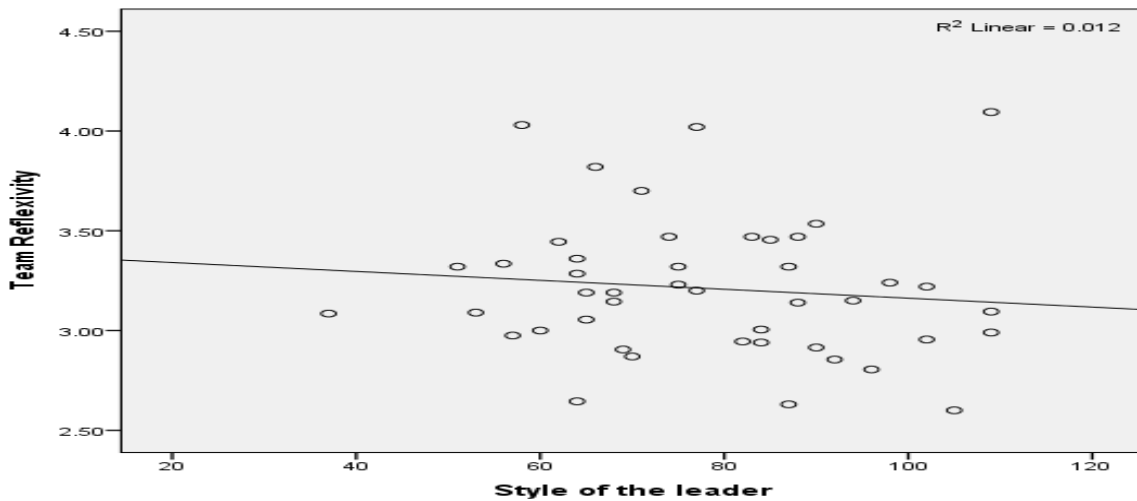
Leadership style vs Trust in the leader



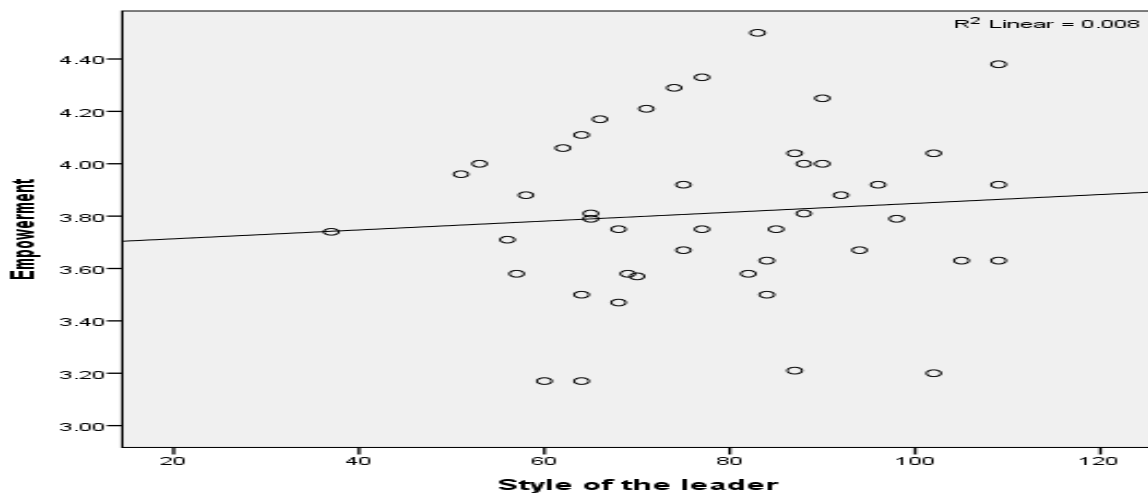
Leadership style vs Trust between team members



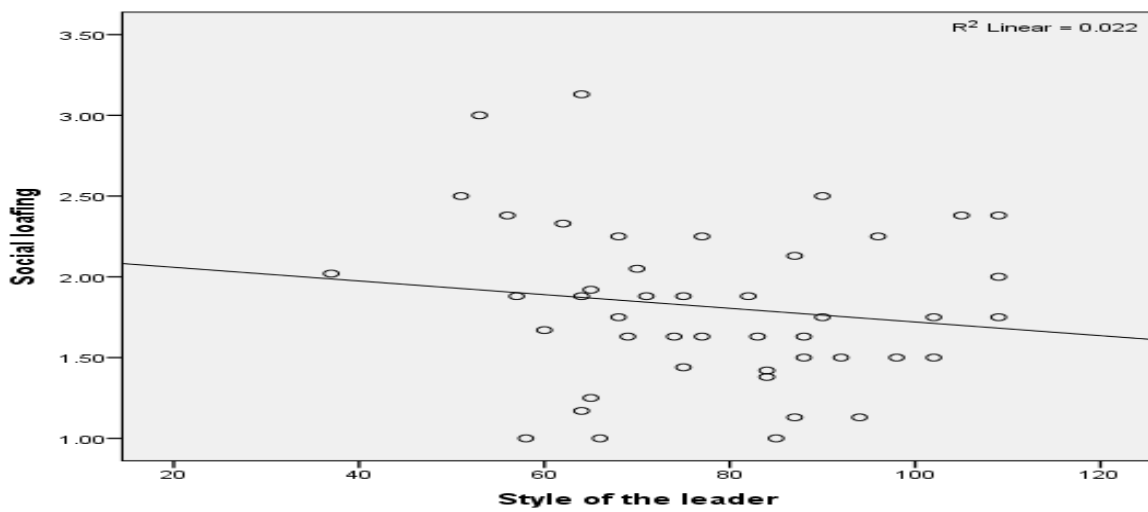
Leadership style vs Team reflexivity



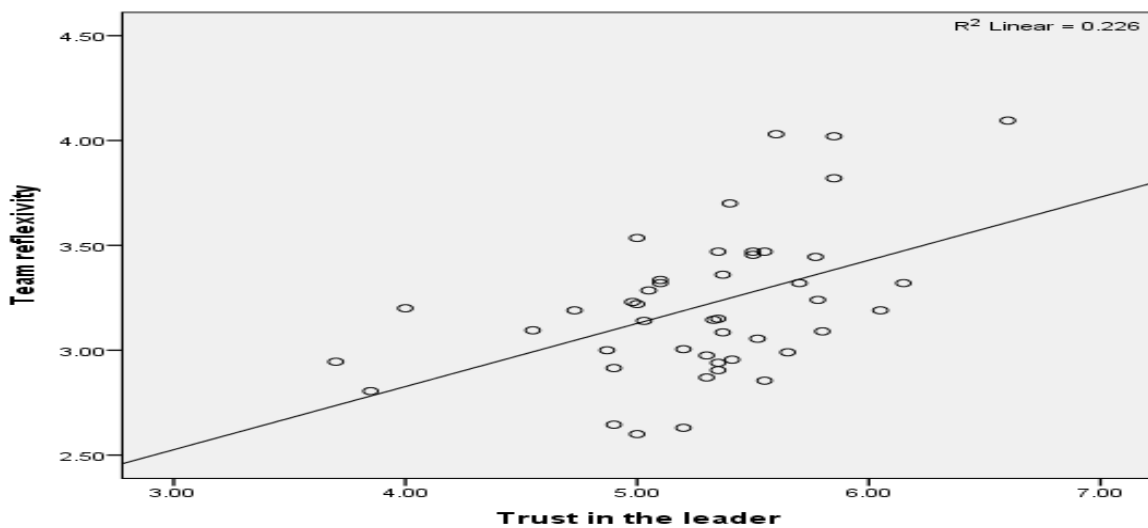
Leadership style vs Empowerment



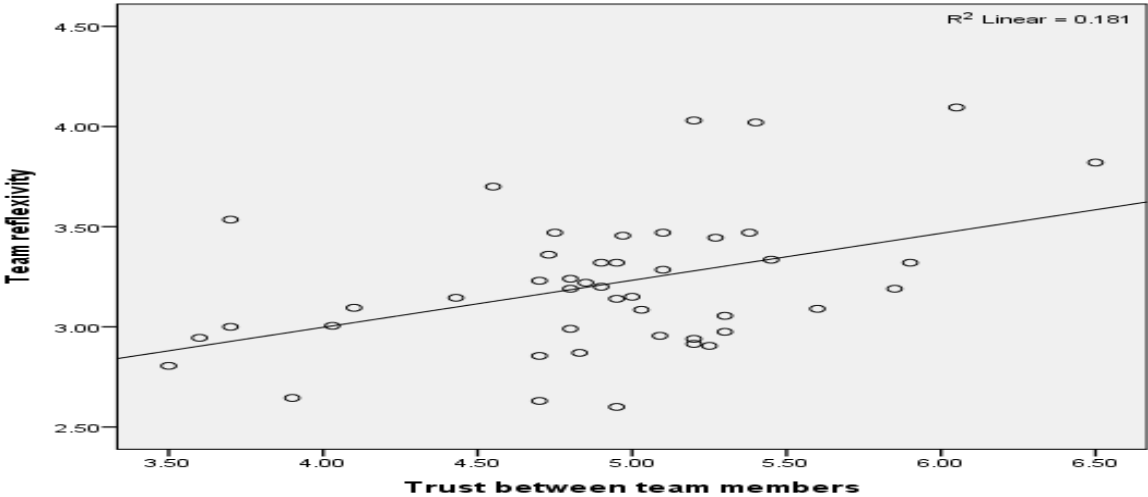
Leadership style vs Social loafing



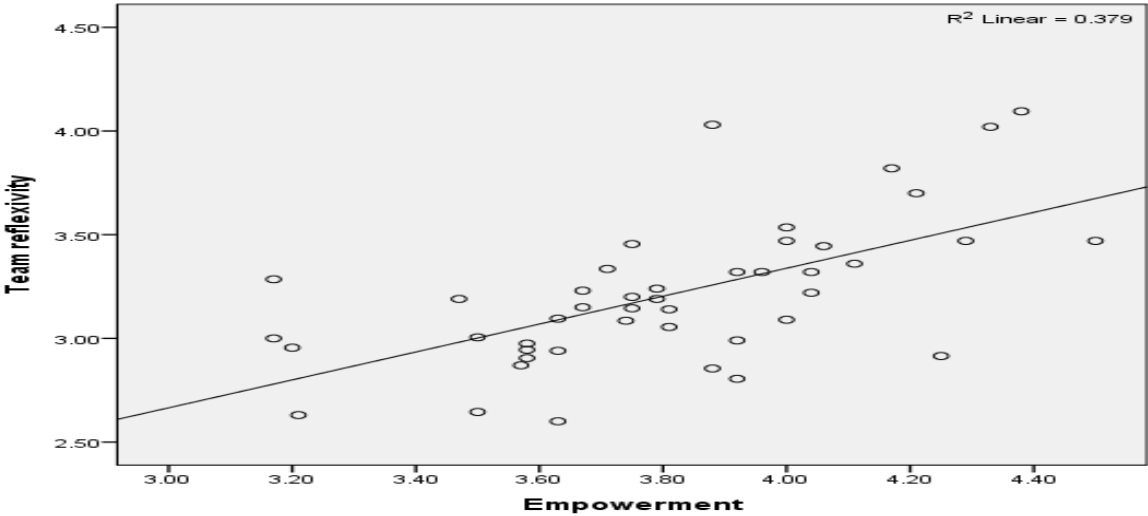
Trust in leader vs Team reflexivity



Trust between team members vs Team reflexivity



Empowerment vs Team reflexivity



Social loafing vs Team reflexivity

