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Behavioral interactions between leaders and followers

The effectiveness of transactional and transformational leadership behavior through the lens of lag sequential analysis

Master Thesis
MSc. in Business Administration
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Abstract

Leadership research scholars have called to spend more attention on the topic of followership in the leadership equation. This study included the role of followers, while also contributing to conventional leadership research. The effectiveness of transformational and transactional leadership was studied based on dominance complementarity theory and value congruence theory. The followers were included by analyzing behavioral interactions between followers and their leader instead of relying on survey data. Team meetings were filmed and the behaviors from the leaders and the followers were minutely coded based on a codebook containing 17 mutually exclusive behaviors. The sample size consisted of 75 teams (75 leaders and 917 followers). Survey data provided the team effectiveness ratings, data for the control variables and in order to control for obtrusiveness of the cameras. The data showed that transformational leadership had a significant positive correlation with team effectiveness, while transactional leadership did not. We conducted the interaction pattern analyses based on lag sequential data. These outcomes could not support dominance complementarity or value congruence. The findings showed that teams were more effective when the leaders responded with a transformational behavior to both transactional *and* transformational behavior by the follower. Responding with a transactional behavior did not lead to higher levels of team effectiveness. Further implications of these outcomes are explained in the discussion section of this paper.

Keywords: Value congruence, Dominance complementarity, Follower-leader interactions, behavioral interactions, Followership, Effectiveness, Transformational leadership, Transactional leadership, Lag sequential analysis

1. Introduction

Effective leadership has long been one of the topics garnering the most interest in business research. Scholars have called for more objective measures of research for the relationship between leadership behavior and output variables such as team performance and team effectiveness (Bass & Avolio, 1993). Fairhurst and Uhl-Bien (2012) have advocated for more objective measurement instruments in leadership research (i.e. studying the reciprocal and sequential flow of social interaction instead of the mere perception of leadership). They claim that it is no longer necessary to rely on survey research as the only measurement method due to the current availability and strength of more objective methods. In line with the above-mentioned arguments, this research sets out to use coded behavior data based off video-recorded meetings, in combination with questionnaires, to examine more objective and thorough measurements.

Compared to merely using questionnaires, the video-based measurement method has two major advantages. Firstly, the outcomes will be a much better representation of the actual behaviors of the participants since perceptions of behavior do not necessarily correspond with actual behaviors (Cantor & Mischel, 1977; Lord, 1985). Secondly, not only the leader's behavior will be coded, but also all of the followers' behaviors as well. This will give a more complete and vivid representation of actual behavior repertoires shown in meetings, with minimal room for subjectivity and bias. Due to the fact that the follower behaviors are also incorporated in this study, the importance of followership in the leadership equation (Shamir, 2007; Uhl-Bien et al., 2014) is recognized and honored.

Due to the comprehensive nature of the coding process for the behaviors of both the leader and the followers, it provides the opportunity to make use of lag sequential

analysis to accurately examine how different behavioral patterns will lead to different outcomes (Lehmann-Willenbrock, Meinecke, Rowold & Kauffeld, 2015). Studying behavioral patterns and interactions between leaders and followers is a more valid research method since real life exchanges between leaders and followers are based on interaction between the two parties.

During the last couple of decades a single construct has dominated the leadership research landscape to some extent, this construct is transformational leadership. Transformational leadership was initially seen as a counter construct to the then popular transactional leadership style (Bass, 1985). Even though some voices have been raised against the mass adoption of transformational leadership as being the most effective form of leadership (Van Knippenberg & Sitkin, 2013), it is nearly impossible to ignore the overwhelming evidence in favor of transformational leadership being a highly effective style of leader behavior (DeRue, Nahrgang, Wellman, & Humphrey, 2011; Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996).

A related construct that has gained increasing support over the last couple of years is followership (Uhl-Bien, Riggio, Lowe & Carsten, 2014). Followership research is still in its infancy and researchers are still undecided on a fully comprehensive definition (Hollander, 1992; Uhl-Bien, Riggio, Lowe & Carsten, 2014; Meindl, 1990). The main differentiating factor of followership is that a group's leader is not the sole actor responsible for group performance, but the followers and their behavior also has a significant influence on group outcomes and performance (Uhl-Bien, Riggio, Lowe & Carsten, 2014). The vast majority of research on these topics have made use of subjective measures such as questionnaires (Bass & Avolio, 1995), which can only indicate perceptions of leader or follower behavioral dynamics instead of the actual

behavior. This study will counter these pitfalls by making use of objective, video-analysis based results.

This study will inquire to what extent various leadership behaviors (transformational and transactional) will influence team effectiveness when shown in response to both transactional and transformational follower behaviors. Two opposing schools of thought can be used to explain why different reactions can lead to effective outcomes (Kristof-Brown, Zimmerman & Johnson, 2005). Much less is known about these behavioral interactions than about the direct effects of the different leadership styles. The first theory is dominance complementarity theory (Tiedens, Unzueta & Young, 2007; Grijalva & Harms, 2014). Dominance complementarity theory claims that teams will be less effective if the leader and the followers show too much of the same behavior. Quite often the leader and the followers need to show behavior that is opposite of one another, as is the case in the dominance complementarity model of Grijalva and Harms (2014). The second theory is based on supplementary or congruence between the leader and the followers (Brown & Treviño, 2009; Newcombe & Ashkanasy, 2002). This is known as the congruence effect. Based on this school of thought, groups will be effective if both the leader and the followers show similar behavioral repertoires. Some researchers claim that both theories are valid and that they are needed in different cycles of team development (Kivlighan, 1997). This paper examines whether team effectiveness ensues when groups show complementary or supplementary behavioral repertoires vis-à-vis their leaders.

Because not much is known about effective team dynamics, this paper sets out to answer the question: To what extent do differing dynamics of transactional and transformational behavior between leaders and followers lead to different levels of team effectiveness? Using these classic behavioral archetypes as input for lag

sequential analysis is a new research venue and it has the prospect to provide new results, which could enhance our knowledge of how leader responses to follower behavior can enhance team effectiveness. The outcomes could also be of practical value since it could provide a clearer understanding of how leaders should interact with their followers to maximize their collective effectiveness.

2. Theory and hypotheses

This study will focus on behavioral interactions between leaders and followers, but the direct effects of the two most widely accepted leadership styles –transformational and transactional- will also be analyzed. In order to accurately reflect the team dynamics, a lag sequential analysis approach will be used. This approach ensures that the behaviors of both the leader and the followers are taken into consideration when examining the effectiveness of a team. This chapter will first explain the two leadership styles. After which the role of followers in the will be elaborated upon. The three final paragraphs of this chapter will further explain the importance of behavioral dynamics and interactions in the leadership equation.

2.1 Transformational leadership behavior

The leadership style gathering the most interest in current leadership literature is transformational leadership. It was first introduced in 1978 by Burns to archetype political leaders and its popularity took off after Bass introduced this concept to organizational management theory and developed a survey to measure transformational behavior in 1985. Transformational leadership is aimed at inspiring and motivating employees (Bass & Avolio, 1995). Transformational leadership is characterized by four factors; idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Avolio, Bass & Young, 1999). Even though many studies have shown transformational leadership to be a highly effective leadership style (Judge & Piccolo, 2004; DeRue, Nahrgang, Wellman, & Humphrey, 2011), some have started to question whether that conclusion is valid (Van Knippenberg & Sitkin, 2013). Van Knippenberg and Sitkin (2013) found four problems with transformational leadership in current research based on a

thorough literature review. The first problem is that there is no clear and universally agreed upon definition of what transformational leadership actually is. Several dimensions have been included in transformational leadership, but it is not clear why those dimensions have been chosen and how they combine to form transformational leadership (Yukl, 1999). Secondly, current transformational leadership literature is unable to specify how each of the dimensions of transformational leadership can separately influence outcomes, thus making it difficult to know whether a dimension of transformational leadership is actually contributing. Thirdly, in the current definition and conceptualization of transformational leadership, it is not always clear whether transformational leadership is responsible for the positive outcomes or whether positive outcomes are labelled to be transformational leadership, i.e. cause and effect are not clear. The fourth problem Van Knippenberg and Sitkin (2013) found was that the most used measurement tools for transformational leadership are not valid since they don't effectively cover the concept of transformational leadership. The most commonly used tool to measure transformational leadership is the Multifactor Leadership Questionnaire (MLQ) (Bass, 1985; Bass & Avolio, 1995). The big disadvantage of the MLQ is its subjective nature since merely perceptions of behaviors are being evaluated (Lowe et al., 1996; Lord & Alliger, 1985; Lord, Foti, & DeVader, 1984). According to Van Knippenberg and Sitkin (2013) the popularity of transformational leadership can partly be explained due to the fact that it was initially positioned at the opposite end of the spectrum of transactional leadership (Burns, 1978) which was depicted as being a dull and out dated style of leadership. However, it is impossible to ignore the sheer volume of studies which show that transformational leadership does indeed have a positive effect on performance (Judge & Piccolo, 2004; DeRue, Nahrgang, Wellman, & Humphrey, 2011; Lowe, Kroeck, &

Sivasubramaniam, 1996).

Keeping the above-mentioned points of critique in mind, it is necessary to seek which factors other than merely transformational leadership could be of importance in the leadership equation. The interaction patterns between the leader and the follower might be able to explain team effectiveness better than only the direct influence of transformational leadership shown by the leader (Zijlstra, Waller & Phillips, 2012). Transformational leadership behavior theory leads to the following hypothesis:

Hypothesis 1. Higher levels of transformational behavior by the leader are positively related to team effectiveness.

2.2 Transactional leadership behavior

Whenever transformational leadership is mentioned, transactional leadership is sure to also be mentioned. This is because transformational leadership was initially introduced as an opposite to transactional leadership (Burns, 1978). Where the goal of transformational leadership is to inspire and motivate followers, transactional leadership has a much simpler goal. Transactional leaders ensure that their followers reach their goals by providing them with rewards or with penalties, this is achieved by actively monitoring and controlling followers (Bass, 1985). The key concept behind transactional leadership is the exchange relationship between leader and followers, since they both provide each other with value (Yukl, 1981). In order for effective transactional leadership to take place, the leader needs to be able to read the changing needs of their followers and they need to be able to respond accordingly (Kellerman, 1984). The exchanges between leaders and followers can range from low-order exchanges such as pay, goods and rights (Graen, Liden & Hoel, 1982) to high-order

exchanges such as an interpersonal bond between leader and follower (Landy, 1985; Kuhnert & Lewis, 1987). Support for the theory that transactional leadership and transformational leadership are at opposite ends of a spectrum (Burns, 1978) is now seen as outdated. The current thinking is that performance will increase if a leader exhibits transformational leadership in addition to transactional leadership, this is known as the augmentation effect (Bass & Avolio, 1994). Transactional leadership is generally split into two categories. The first is contingent reward, this means that the leader sets performance goals, clarifies expectations and gives recognition upon goal attainment (Bass, 1985; Avolio, Bass & Jung, 1999). Active management-by-exception is when the leader monitors his subordinates, focuses on errors and deviations from standards and immediately corrects or criticizes his subordinates if needed (Bass, 1985; Avolio et al., 1999). Transactional leadership has been found to negatively impact performance predictors when not balancing it out with transformational leadership (Howell & Avolio, 1993).

An integral aspect of transactional leadership is task monitoring (Bass, 1990; Hoogeboom & Wilderom, 2015). The importance of task monitoring to effective leadership has been well documented (Judge & Piccolo, 2004; Lowe et al., 1996; Podsakoff, Bommer, Podsakoff & MacKenzie, 2006). Task monitoring is used to ensure that follower progress keeps on schedule. In order to do this the leader actively checks how followers work and how they plan (Bono & Jundge, 2004). However, such a high level of active controlling by the leader also has shown to have adverse effects on team performance and motivation (Howell & Avolio, 1993; Deci & Ryan, 2000; Sosik & Dionne, 1997).

Transactional leadership behavior theory leads to the following hypothesis:

Hypothesis 2. Higher levels of transactional behavior by the leader are positively related to team effectiveness.

2.3 Followership

Since the behaviors shown by followers are an integral aspect of this study, this section will take a closer look at followership and its various implications. The body of work regarding followership has been growing rapidly in the last couple of years (e.g., Hollander, 1992; Uhl-Bien, Riggio, Lowe & Carsten, 2014; Meindl, 1990). This is partly due to the realization of the importance that followership plays in leadership theory (Hollander, 1992; Meindl, 1990) and due to calls by prominent scholars to embrace followership in leadership theory (Meindl, 1995; Carsten, Uhl-Bien, West, Patera & McGregor, 2010). In order to get more insight in both leadership and followership Van Vugt, Hogan & Kaiser (2008) conducted a literature review on the psychological and evolutionary background of followership. Based on their findings they conclude that leadership cannot be viewed separately from followership (Fairhurst & Uhl-Bien, 2012). One of the most important conclusions by Van Vugt, et al., (2008) is that the current business setting for leaders and followers is different from their setting from an evolutionary perspective, i.e. leader characteristics valued by companies today are not the same as the characteristics which would generally be associated with leaders in ancestral situations. This could be an underlying reason for dissatisfaction by followers towards a leader (Van et al., 2008).

The process of leadership can only be fully understood if the role of followers has also been taken into account (Uhl-Bien et al. 2014). Followership approaches are characterized by the fact that more emphasis is being put on the role of the follower in the leadership process than would have been the case in classical leadership studies

(Uhl-Bien et al. 2014). Those studies typically tend to look at leader characteristics or they exclusively look at leadership behavior, without taking interactions into effect. Instead of only looking at which leadership behaviors would be beneficial for team effectiveness, followership emphasizes that different behaviors by followers also have significant influences on the team effectiveness (Chou, 2012; Oc & Bashshur, 2013). Leadership does not constantly have to be top-down according to followership scholars, since followers can also show leadership behavior (Hollander, 1992). Followership also helps to explain why a leader can be effective in some groups but not in others, as it depends on the co-construction of leadership with the followers in the different groups (Uhl-Bien et al. 2014). In addition, Shamir (2007) calls for a more balanced approach to leadership research where the role of the follower is equal to the role of the leader in the leadership process. This means taking a closer look at which behaviors from both leaders *and* followers will influence team effectiveness. Even though both have an influence on work outcomes, they can be achieved differently. This is due to the hierarchical differences between leaders and followers (Van Gils, Van Quaquebeke & Van Knippenberg, 2009).

In an extensive review of prior leadership and followership literature Uhl-Bien et al. (2014) followership research can be divided into three approaches. These approaches are leader-centric, follower-centric and relational. The leader-centric approach views followers as merely following orders from the leader (Kelley, 1988). Followers hardly have any influence on group performance according to this view and they are viewed mainly as a tool through which the leader produces outcomes (Shamir, 2007). According to the follower-centric approach, leaders can only be seen as a leader if they have followers. Making followers an indispensable aspect of leadership (Uhl-Bien et al. 2014). According to the relational approach, leadership is formed by the

interactions between leaders and followers (Hollander, 1992). The relational approach is currently the dominant thinking in leadership theory since the influence of followers on leadership has become widely accepted (Shamir, 2012; Uhl-Bien et al. 2014). However, few scholars have empirically researched the relational approach (Fairhurst & Uhl-Bien, 2012). This study uses the relational approach as its foundation since it uses the interactions between the leader and followers as the independent variable influencing outcomes.

In line with the relational approach, a second segmentation can be made between followership theories, the so-called role-based view and constructionist view (Uhl-Bien et al. 2014). The difference between these two is slightly more straightforward. According to role-based theories, there is a fixed leader in a group. This is based on the hierarchical distinctions between employees, some being assigned the role of manager where others are subordinates. The constructionist view is slightly more organic in the sense that hierarchical leaders might not necessarily be the employees whom lead the group. Some followers might have a larger influence on proceedings than the formal leader. This study conforms to the role-based approach since the formal managers are also considered to be the leader.

2.4 Behavioral dynamics

This study focusses on behavioral dynamics, while using the transformational and transactional leadership as a starting point and subsequently introducing team dynamics. Both transformational leadership and transactional leadership have been repeatedly found to contribute to various performance outcomes (Judge & Piccolo, 2004; DeRue, Nahrgang, Wellman, & Humphrey, 2011; Lowe, Kroeck, & Sivasubramaniam, 1996). However, it is still not clear exactly how these two

leadership styles contribute to performance based on behavioral interactions (Yukl, 1999; Van Knippenberg & Sitkin, 2013). Lehmann-Willenbrock, Meinecke, Rowold and Kauffeld (2015) believe that social dynamics might be a key aspect of how transformational leadership increases performance (Chi & Huang, 2014; Wang, Oh, Courtright & Colbert, 2011). This aligns with followership theory since both social dynamics theory and followership theory consider the outcomes to be a direct result of the interactions between leader and follower (Shamir, 2012; Uhl-Bien et al. 2014). This study will focus on two opposite types of leader-follower interactions, these two types are complementarity and congruence. Complementarity occurs when the leader and the actor show contrasting characteristics to one another (Muchinsky & Monahan, 1987, Kristof-Brown, Zimmerman & Johnson, 2005). On the opposite end of the spectrum lies congruence, which means that the leader and the followers show similar characteristics (Hoffman, Bynum, Piccolo & Sutton, 2011; Brown & Treviño, 2009; Newcombe & Ashkanasy, 2002). These two concepts will be explained in more detail in the following sections.

2.5 Complementarity

The first concept to view behavioral dynamics by is complementarity, this is when two subjects show behaviors or characteristics that complement each other. A good metaphor to grasp the concept is a football team; a team with strong defenders and strong attackers will be more effective than a team with eleven attacking players. Research has found that interpersonal complementarity between two parties leads to more satisfying and harmonious relationships (Tiedens et al., 2007; Grijvalva & Harms, 2014). In order to obtain high interpersonal complementarity, two conditions need to be fulfilled. Firstly, actors need to have similar levels of affiliation and,

secondly, they need contrasting levels of dominance; e.g. you need people to give orders and people who follow up on the orders (Grijvalva & Harms, 2014). Dominant leaders are more effective if their followers are more passive, but they become less effective when their followers we showing higher dominance levels and more proactivity (Dryer & Horowitz, 1997, Grant, Gino & Hofmann, 2011). This was because dominant leaders would feel threatened by their followers if the followers were also showing dominant behavior. This lead to the leaders being less open for feedback in order to assert their dominance, which leads to demotivation among the followers. Had the leaders been less dominant, they would have accepted the feedback from their followers which would lead to higher levels of relationship satisfaction and team effectiveness (Grant et al, 2011).

Tiedens, Unzueta & Young (2007) have shown that dominance complementarity leads to effective working relationships in a task-orientated relationship. Transformational leadership tends to show high levels of relation-orientated behavior (Bass, 1997) and transactional leadership has much in common with task-orientated behavior (Bass, 1990). Task-orientated leaders put more emphasis on the tasks and goals that the team needs to accomplish. The task-orientated leadership style has more dominant traits, thus submissive followers would lead to higher levels of complementarity. Relations-orientated leaders emphasize the satisfaction and motivation of their team members, they expect that followers will show more initiative when they are motivated and satisfied. This paves the way for followers of a relations-orientated leader to be more pro-active and to show more dominant traits. If followership theory is introduced to the above it can be inferred that followers with a high sense of task-orientation will require a leader that scores low on dominance in order to be complementary. This is necessary since the followers will already be goal

orientated and if the leader tries to be dominant, it could lead to follower demotivation (Grant et al, 2011). If the followers have a low sense of task-orientation, the leader will need to show more dominant traits in order the have the highest level of complementarity. Followers showing high levels of relations-orientated behavior will require a leader with dominant traits. And finally, a follower with low levels of relations-orientated behavior will require a leader that shows low levels of dominance.

Dominance complementarity theory leads to the following hypotheses:

Hypothesis 3a. Teams in which leaders more frequently respond with transactional behavior to follower transformational behavior are more effective.

Hypothesis 3b. Teams in which leaders more frequently respond with transformational behavior to follower transactional behavior are more effective.

2.6 Congruence

Literature related to congruence between leaders and followers have mainly focused on value congruence (Jung & Avolio, 2000; Brown & Treviño, 2009; Hoffman et al., 2011) and not necessarily of behavioral congruence. However, a magnitude of research has found that values carried by an employee are a strong predictor of his behavior (Meglino & Ravlin, 1998; Schwartz, 1992; Fein, Vasiliu & Tziner, 2011; Verplanken & Holland, 2002; Sagiv, Sverdik & Schwartz, 2011; Tziner, Kaufman, Vasiliu & Tordera, 2011 Ros, Schwartz & Surkiss, 1999). It has been found that charismatic leaders are better able to achieve value congruence between them and their followers compared to other leaders (Brown and Treviño, 2009; Krishnan, 2002, Avolio & Bass; 1995). People tend to stick to their values and convictions (Spokane,

1985), which makes it highly challenging to achieve value congruence. This is because people have built up their values and convictions over several years, which makes it less likely for an external party to alter their values. Leaders who are able to inspire their followers are more capable of influencing the values of their followers (House, 1996; Bass, 1985).

It has been argued that a high level of value congruence between leaders and followers will lead to higher levels of performance by followers (Klein & House, 1995). Similar outcomes have been found by Jung and Avolio (2000). In their research on value congruence and performance they differentiated between transformational and transactional leadership. They found that transformational leaders had a direct and indirect effect on employee performance, this relationship was mediated by leader-follower value congruence. Almost the same level of support was found for transactional leaders, leader-follower congruence still mediated the relationship between transactional leadership and performance, however only indirect effects were found (Jung & Avolio, 2000). This indicates that leader-follower congruence has an impact on team effectives in both transactional and transformational leadership styles.

Congruence theory leads to the following hypotheses:

Hypothesis 4a. Teams in which leaders more frequently respond with transformational behavior to follower transformational behavior are more effective.

Hypothesis 4b. Teams in which leaders more frequently respond with transactional behavior to follower transactional behavior are more effective.

3. Methods

This study has a cross-sectional design, with two different data sources. Firstly, a survey was used to measure transformational and transactional styles of team effectiveness as assessed by the leaders and their followers. Secondly, by filming staff meetings we were able to accurately and reliably encode the behavior of both the leaders and the followers during the duration of a meeting, this provided the observational data that we then clustered into the common behavioral styles. Common source bias is reduced by the use of multiple different methods and sources (Podsakoff et al., 2003).

3.1 Participants and procedures

Both observational and survey data were collected from 75 teams, amounting to 75 leaders and 917 followers; the groups varied in size (4 to 22 followers). Leaders and followers were filmed during regular staff meetings within three divisions of one large public-sector organization which operates throughout the Netherlands. The leaders' demographics were: 69.3% male, average age of 50.3 (S.D. = 8.1) and average job tenure of 22.9 years (S.D. = 13.7). 37.3% received a Master degree, 2.7% received a Bachelor degree and 40.0% graduated from a University of Applied Sciences. 14.7% were educated on a lower level. The followers' demographics were: 59.1% male, average age of 48.9 (S.D. 10.4) and average job tenure of 23.8 years (S.D. = 13.6). Followers were predominantly educated on MBO level (42.6%) and HBO level (27.9%), while others obtained a university degree: bachelor (1.3%), master (13.1%) or PhD (1.5%). 4.8% were educated at a lower level than the aforementioned levels.

Participating leaders were randomly selected. They were contacted by telephone by one of the researchers in order to give them information about the video-observation method and the survey request. In addition, the leaders were invited to an information meeting that they could attend on a voluntary basis.

In order to video-code the leaders' and followers' behaviors, regular staff meetings were recorded. The regular staff meeting was selected for various reasons. Leadership is particularly visible in everyday work-activities and through talk-in-interaction, such as during regular meetings (Allen, Yoerger, Lehmann-Willenbroch, & Jones, 2015; Larsson & Lundholm, 2007; Uhl-Bien, 2006; Vine et al., 2008). The influence processes can be observed particularly well during team interaction (Fairhurst, 2007; Svennig, 2008; Larsson & Lundholm, 2013). Earlier studies using similar approaches to the study of leader behavior mainly relied on recorded weekly or monthly meetings (Lehmann-Willenbrock & Allen, 2014; Svennig, 2008; Vine et al., 2008).

Surveys. Directly after the taped staff meetings both leaders and followers were required to fill out a survey. By numbering the questionnaires it was possible to match the questionnaire outcomes to the behaviors observed in the videotaped meetings. The survey in question was the MLQ-5X-short (Bass & Avolio, 1995).

Video-observations. Three cameras were positioned at fixed places in order to film the meeting, this ensured enough visibility to accurately encode the behaviors of the leader and the followers. There were no video-technicians present during the staff meetings in order to minimize obtrusiveness. Past studies have shown that videotaping meetings is significantly less obtrusive than conventional methods where an assessor gathers data from a meeting (Smith, McPhail & Pickens, 1975). Three

items were included in the survey to check whether the attendees of the meetings were influenced in any way by the cameras. The responses were scored on a seven point Likert scale ranging from 1 (totally different) to 7 (not different at all). The first item was to what degree the meeting was representative of their previously held, non-videotaped meetings (mean = 5.51, S.D. = 1.42). The second item was whether their own behavior was different during the videotaped meeting in comparison with similar, non-videotaped meetings (mean = 5.91, S.D. =1.10). The third and final item was whether the behavior of the leader was representative of his or her normal behavior (as perceived by the followers: mean = 5.69, S.D. = 1.22). The Cronbach's alpha of this construct was 0.815. Based on the survey items it can be concluded that the videotaped meetings were highly representative for their actual meetings. In addition, feedback from participating leaders and followers indicated that they quickly forgot about the camera (i.e. it became a natural part of the surroundings). In order to minimize the obtrusiveness of the filming procedure, the video cameras were placed before the leaders and followers entered and the meetings were held at their regular meeting rooms. Due to all the precautions taken by the researchers and the response from the leaders and followers, the coded behaviors were seen as representative.

After the videos were recorded, they were systematically and meticulously analyzed by two independent coders, on the basis of a pre-developed codebook, using specialized video-observation software from Noldus Information Technologies 'The Observer XT' (Noldus, 1991; Noldus, Trienes, Hendriksen, Jansen, & Jansen, 2000; Spiers, 2004). The coders all had backgrounds in Business Administration, Psychology or Communication Studies and were trained on how to use the software and codebook before the actual coding of the videos took place. The codebook harbors a thorough behavioral encoding scheme with a pre-defined set of behaviors.

The University of Twente developed the coding scheme throughout many years, during which it has been continuously tested and refined (Hoogeboom & Wilderom, 2014; Van der Weide, 2007). After all of the videos were coded (using a 2 seconds time interval for agreement), the coders arrived at an IRR of 97.6% (Kappa = 0.98).

3.2 Measures

Team effectiveness. Team effectiveness was measured with a four-item scale developed by Gibson, Cooper and Conger (2009). The responses were scored on a seven point Likert scale ranging from 1 (totally disagree) to 7 (totally agree). The Cronbach's alpha of this construct was 0.841. To control for interrater variance the ICC1 and ICC 2 were calculated (LeBreton & Senter, 2008). The ICC1 was 0.569 ($p<0.01$) and the ICC2 was 0.841 ($p<0.01$). The R_{WG} was calculated in order to examine the homogeneity between followers in a team (James, Demaree & Wolf, 1984). The average R_{WG} was 0.78. Aggregation of the data in a target construct is justified when ICC1 values exceed or are equal to 0.05 and ICC2 exceed 0.70 (Bliese, 2000; LeBreton & Senter, 2008) and when R_{WG} exceeds the widely accepted cut-off score of 0.70 (Lance, Butts & Michels, 2006). Due to the achieved ICC and R_{WG} scores, we are comfortable with aggregating the data to team level.

Transformational and transactional behavior. In order to measure transformational and transactional behavior the data from the coded video observations were used. More specifically, the following behaviors were regarded as transformational behavior: Agreeing, Positive feedback, Individualized consideration, Humor, Personally informing, and Intellectual Stimulation. These behaviors were selected based on the outcomes and recommendations of other scholars (e.g., Antonakis,

Avolio, & Sivasubramaniam, 2003; Lowe, Kroeck, & Sivasubramaniam, 1996; To, Tse, & Ashkanasy, 2015; Wang & Howell, 2010; Yukl, 1999). The following behaviors were regarded as transactional behavior; Providing negative feedback, Directing / Correcting, Verifying, Informing, Structuring the conversation, and Directing / Delegating. These behaviors were selected based on the outcomes and recommendations of other scholars (e.g., Judge & Piccolo, 2004; Lowe et al., 1996; Podsakoff, Bommer, Podsakoff & MacKenzie, 2006).

Interaction sequences. Since this research sets out to examine congruence theory and dominance complementarity theory, interactions between the leader and followers needs to be taken into account. A Lag Sequential Analysis was used to analyze the interactions between the leader and the followers. Lag Sequential Analysis can be used to analyze complex interactive sequences of behavior (Faraone & Dorfman, 1987; Bakeman & Quera 1995) and has been successfully deployed by scholars for this type of research (e.g. Zijlstra et al., 2012; Lehmann-Willenbrock & Allen, 2014; Lehmann-Willenbrock, Allen & Kauffeld, 2013). Four distinct sequences were created; (1) Follower TLS behavior (Lag 0) – Leader TAL behavior (Lag 1), (2) Follower TLS behavior (Lag 0) – Leader TLS behavior (Lag 1), (3) Follower TAL behavior (Lag 0) – Leader TAL behavior (Lag 1), and (4) Follower TAL behavior (Lag 0) – Leader TLS behavior (Lag 1). These sequences allowed us to test hypotheses 3a, 3b, 4a, and 4b.

Control variables. Three control variables were taken into account, since they have been shown to have influence on team effectiveness. They are age (Joshi & Roh, 2009; Kang, Yang & Rowley, 2006; Kirkman, Tesluk & Rosen, 2001), gender

(Dobbins & Platz, 1986, Eagly & Johnson, 1990) and tenure in the department (Virany, Tushman & Romanelli, 1992; Cannella & Rowe, 1995).

3.3 Data analysis

SPSS was used to run the statistical test for this research. In order to test hypotheses 1 and 2, a correlation analysis was run (after controlling for age, gender and tenure in the department) to see whether more transactional and/or transformation behavior conducted by the leader during the meetings had a positive influence on team effectiveness. Since the transactional behavior by the leader data were not normally distributed, a log transformation was used to prepare the data (Field, 2014).

The dataset for the Lag Sequential Analysis was created by converting the raw output from the Observer XT into the desired behavioral interaction sequences with Microsoft Excel. The analysis was run in SPSS by conducting a linear regression on the behavioral interaction sequences. Since the behavioral interaction sequence data were not normally distributed, a square root transformation was applied (Field, 2014).

4. Results

4.1 Correlations

Table 1 shows the results used to assess the correlation between team effectiveness and the duration of transactional and transformational behavior shown by the leaders and the followers in their meetings. This takes the total duration of the behavioral category as a percentage of the total behavior of the leader or follower into account, thus we cannot say anything about interactions.

	1.	**2.**	**3.**	**4.**	**5.**
1. Team Effectiveness	1.000				
2. L.TAL	-.097	1.000			
3. F.TAL	-.045	.134	1.000		
4. L.TLS	.279*	-.207	-.043	1.000	
5. F.TLS	-.006	-.045	-.104	.322*	1.000

Control variables: Gender, Age, and Employment years in Department;
**p<.05, two tailed; df= 57*

Table 1: Correlations between team effectiveness and leader and follower behavior

Hypothesis 1. Hypothesis 1 proposes that higher levels of transformational behavior by the leader are positively related to team effectiveness. As can be seen in table 1, Transformational behavior by the leader has a significant positive correlation with team effectiveness. This indicates that the leaders of effective teams were more likely to show transformational behavior when compared to the leaders of less effective teams. Based on these findings, hypothesis 1 cannot be rejected.

Hypothesis 2. Hypothesis 2 proposes that higher levels of transactional behavior by the leader are positively related to team effectiveness. Based on the outcomes of the test for hypothesis 1, it is to be expected that there will not be support for this hypothesis. As can be seen in table 1, there is a very weak negative correlation between leader transactional behavior and team effectiveness. However, this outcome

is not significant. This indicates that we cannot conclude that leaders of more effective teams are more likely to show transactional leadership behavior when compared to leaders of less effective teams. Hypothesis 2 can be rejected based on these findings.

4.2 Interactions

In order to test hypotheses 3 and 4, it is necessary to take the interactions of leaders and followers into account. Four different interaction sequences were created to test the hypothesized interaction outcomes. Tables 2, 3 and 4 show the outcomes for the two first interaction sequences; Follower TLS behavior (Lag 0) – Leader TAL behavior (Lag 1) and Follower TLS behavior (Lag 0) – Leader TLS behavior (Lag 1). This model shows when LAG 0 (indicating follower behavior) was a transformational behavior along with the leaders response, which could be either transactional or transformational. If the leader did not respond with a transactional or transformational behavior, the data were removed prior to testing.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.431	.186	.143	.77551
2	.526	.277	.212	.74376

Table 2: Model summary F.TLS-L.TLS & F.TLS-L.TAL

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.950	3	2.650	4.406	.007
	Residual	34.882	58	.601		
	Total	42.832	61			
2	Regression	11.854	5	2.371	4.286	.002
	Residual	30.978	56	.553		
	Total	42.832	61			

Table 3: ANOVA F.TLS-L.TLS & F.TLS-L.TAL

Table 2 indicates that the model has a moderate strength correlation (R=.526) and that 27.7% of the variation in team effectiveness can be explained by the variables in the model (R^2=.277). Based on table 3, the model is significant at a p<.005 level.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.888	1.639		5.422	.000
	Gender	-1.867	.523	-.463	-3.572	.001
	Age	-.014	.027	-.072	-.530	.598
	EmploymentYears Department	-.007	.018	-.052	-.388	.699
2	(Constant)	8.717	1.574		5.540	.000
	Gender	-1.939	.506	-.480	-3.831	.000
	Age	-.023	.027	-.116	-.873	.386
	EmploymentYears Department	-.003	.017	-.022	-.171	.865
	F.TLS-L.TLS	.032	.013	.296	2.431	.018
	F.TLS-L.TAL	.003	.015	.023	.185	.854

Dependent Variable: Team Effectiveness

Table 4: Coefficients F.TLS-L.TLS & F.TLS-L.TAL

Hypothesis 3a. Hypothesis 3a proposes that teams in which leaders more frequently respond with transactional behavior to follower transformational behavior are more effective. This falls into dominance complementarity school of thought. Based on table 4, this hypothesis has to be rejected since it is not significant (the p value is .854).

Hypothesis 4a. Hypothesis 4a proposes that teams in which leaders more frequently respond with transformational behavior to follower transformational behavior are more effective. This falls into the value congruence school of thought. Based on table 4, this hypothesis cannot be rejected since it is significant (the p value is .018). This would indicate that teams tend to be more effective if the leader responds with transformational behavior to followers showing transformational behavior.

Tables 5, 6 and 7 show the outcomes for the two final interaction sequences; Follower TAL behavior (Lag 0) – Leader TLS behavior (Lag 1) and Follower TAL behavior (Lag 0) – Leader TAL behavior (Lag 1). This model shows when LAG 0 (indicating follower behavior) was a transactional behavior along with the leaders response, which could be either transactional or transformational.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.431	.186	.143	.77551
2	.518	.268	.203	.74809

Table 5: Model Summary F.TAL-L.TLS & F.TAL-L.TAL

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.950	3	2.650	4.406	.007
	Residual	34.882	58	.601		
	Total	42.832	61			
2	Regression	11.492	5	2.298	4.107	.003
	Residual	31.340	56	.560		
	Total	42.832	61			

Table 6: ANOVA F.TAL-L.TLS & F.TAL-L.TAL

Table 5 indicates that the model has a moderate strength correlation (R=.518) and that 26.8% of the variation in team effectiveness can be explained by the variables in the model (R^2=.268). Based on table 6, the model is significant at a $p<.005$ level.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.888	1.639		5.422	.000
	Gender	-1.867	.523	-.463	-3.572	.001
	Age	-.014	.027	-.072	-.530	.598
	EmploymentYears Department	-.007	.018	-.052	-.388	.699
2	(Constant)	8.787	1.619		5.429	.000
	Gender	-1.847	.507	-.458	-3.641	.001
	Age	-.023	.027	-.113	-.848	.400
	EmploymentYears Department	-.002	.018	-.015	-.115	.909
	F.TAL_L.TLS	.045	.019	.277	2.399	.020
	F.TAL_L.TAL	-.013	.014	-.107	-.909	.367

Dependent Variable: Team Effectiveness

Table 7: Coefficients F.TAL-L.TLS & F.TAL-L.TAL

Hypothesis 3b. Hypothesis 3b proposes that teams in which leaders more frequently respond with transformational behavior to follower transactional behavior are more effective. This falls into dominance complementarity school of thought. Based on table 7, this hypothesis cannot be rejected since it is significant (.020). This would indicate that teams tend to be more effective if the leader responds with transformational behavior to followers showing transactional behavior.

Hypothesis 4b. Hypothesis 4b proposes that teams in which leaders more frequently respond with transactional behavior to follower transactional behavior are more effective. This falls into value congruence school of thought. Based on table 7, this hypothesis has to be rejected since it is not significant (.367).

4.3 Residual analysis

In order check for problems with linearity or homoscedasticity, we conducted an analysis of the residuals of the models (Field, 2014). The histogram and scatterplots of tables 2 to 4 can be found in appendix 2 and the histogram and scatterplots of

tables 5 to 7 can be found in appendix 2. Both histograms of the dependent variable, team effectiveness, show a relatively normal distribution. The scatterplots of the dependent and control variables for both models seem to fit to a normal distribution. There are a few small outliers. However, after testing these we found that they did not have an impact on the outcomes of the models. Based on this, we feel confident that there aren't any linearity or homoscedasticity problems with the data (Field, 2014).

5. Discussion

5.1 Discussion of the findings

This study examined the effectiveness of transformational and transactional leadership behavior by leaders on team effectiveness. This research set itself apart by using interaction sequences between the followers (initial behavior) and their leaders (reaction). The question we wanted to answer was whether transformational leadership behavior is the most effective leadership style, regardless of the behavior the followers are showing. Leadership research is dominated by transactional leadership. This current research aimed to challenge whether this is justified. With hypotheses 1 and 2, the effectiveness of both transactional and transformational leadership was tested without taking interactions into account. In line with current thinking, only hypothesis 1 was supported, indicating that transformational behavior by the leader has a positive correlation with team effectiveness. Hypothesis 2 was not supported, which indicates that teams with transactional leaders tend to be less effective. These outcomes were expected, since a large number of previous studies reported similar outcomes (e.g. DeRue et al., 2011; Judge & Piccolo, 2004; Lowe et al., 1996).

Due to the nature of the method of data collection, we were able to delve deeper into these outcomes (Fairhurst & Uhl-Bien, 2012; Lehmann-Willenbrock et al., 2013). Since we were able to code the exact behaviors of both the leaders and the followers, we were able to create interaction patterns based on transactional and transformational leadership behavior. We used dominance complementarity theory and value congruence theory in order to analyze the interaction patterns.

According to dominance complementarity theory a team would be more effective if the leader responds with behavior opposite of the follower. The outcomes of

hypothesis 3a and 3b could not support this theory. When a follower showed transactional behavior and the leader frequently responded with transformational behavior during a meeting, the group was indeed more effective. However, this did not hold true for the opposite. When a follower showed transformational behavior and the leader frequently responded with transactional behavior during a meeting, the group was not more effective. Similar results were found by hypothesis 4a and 4b. According to value congruence theory, if a response by the leader is similar to the initial behavior of the follower, the group would be more effective. Again the outcome was that a team is more effective only when a leader responds with a transformational behavior to a followers' transformational behavior. If a follower showed transactional behavior and the leader frequently responded with transactional behavior during a meeting, the group was not more effective. These outcomes seem to correspond with the current thinking in leadership research that transformational leadership is a more effective form of leadership when compared to transactional leadership, even regardless of the circumstances. It is important to note that these outcomes are only representative for this, highly bureaucratic, sector in the Netherlands. Outcomes might be different in other industries or in other working conditions.

An additional outcome we did not expect was that transformational behavior by the follower had a significant positive correlation with leader transformational behavior. This would indicate that transformational behavior by the followers reinforces the same behavior by the leader and vice versa. This phenomenon is known as 'behavioral contagion': "an event in which a recipient's behavior has changed to become 'more like' that of the actor or initiator. This change has occurred in a social interaction in which the actor has not communicated intent to evoke such a change"

(Wheeler, 1966, p. 179). Transactional behavior did not have this effect within the groups. A possible explanation could be that transformational behavior consists of more 'inviting' and 'cooperative' behaviors, this encourages a similar response from the other party.

5.2 Practical implications

These outcomes would imply that leaders should show transformational behavior, regardless of the behavior shown by their followers if they want to have more effective teams. Our outcomes have also indicated that if a leader shows transformational behavior, it will encourage the followers to also show higher levels of transformational behavior which will lead to a virtuous circle of effective team behavior. Even if the followers show transactional behavior, the leader should refrain from also showing transactional behavior, since transformational behavior will have favorable outcomes. Companies could also try to stimulate transformational behavior by all team members by providing training sessions or informative materials in order to demonstrate the benefits of transformational behavior above transactional behavior.

5.3 Strengths, limitations and future research

Strengths. The main strength of this research was the method of data collection. Due to meticulously coding the behaviors involved in 75 meetings, we were able the accurately portray behaviors of both followers and leaders during regular team meetings. This responded to the call of scholars to use more objective measures, instead of relying on survey data and interview data (Fairhurst & Uhl-Bien, 2012). The data and outcomes of this research are likely to be a better reflection of reality than the vast majority of previous leadership research. In addition, we were also able

to delve into behavioral interactions between leaders and followers. Only observational data can accurately reflect interactions. This allowed us to research whether transformational and transactional behaviors are more effective in a specific interaction pattern. In previous studies, congruence and complementarity research was theoretical or they used questionnaire data leading to the (subjective) behavioral tendencies of team members (e.g. Tiedens et al., 2007; Newcombe & Ashkanasy, 2002), meaning that they were not able to study the interactions directly. We were also able to gain more objective follower behavior data which meant that we could study the influence of followership in a much more objective way. Followership is often overlooked in leadership research, our research design allowed us to give follower behavior an equal footing to leader behavior. Due to the sample size of 75, the dataset is larger than other studies utilizing a similar design (Lehmann-Willenbrock et al., 2013; Zijlstra et al., 2012). This also contributes to this study's ability to portray accurate results.

Limitations and future research. While our behavioral and interaction data were gathered from the observational data, we were still reliant on subjective questionnaire data for the team effectiveness ratings, based on the perceptions of the group members. More objective, fact based team effectiveness ratings would be beneficial for this research design in order to compliment the objective nature of the behavioral data.

For answering hypothesis 1 and 2, we used correlations between the independent and dependent variables. This means that we cannot imply causality. Leaders showing transactional behavior might not lead to more effective teams, but, theoretically, it could mean that more effective teams make the leader show more transformational

behavior. It will be difficult to examine the question of causality since an experiment research design is required to imply causality.

While we had a large sample size, our outcomes may have issues regarding representativeness for private sector companies. This is because our research was conducted in a public organization. Public organizations tend to be far more bureaucratic and they could require different behavior repertoires from leaders in order to be effective (Lowe et al., 1996; Andersen, 2010); followers may also require different behavioral repertoires in the private sector when compared the public sector. However, Baarspul and Wilderom (2011) have shown that the effects are likely to be generic. Future research could seek to replicate our findings in a private sector organization. The highly bureaucratic nature of the organization where we conducted our research was ideal for our study due to their frequent and long team meetings, it could prove challenging to find similar opportunities in much less bureaucratic environments.

It would be interesting to look for gender differences in a future study, since our control variable for gender was significant.

In the research design we structured the interactions in the following way: *follower behavior (Lag0) – leader response (Lag1).* In addition, it would be valuable to study the following interaction patterns: *leader behavior* (Lag0) – *follower response* (Lag1).

In our study, we filmed structured team meetings. Some scholars claim that leadership behavior in between meetings and formal feedback moments are different and more important to the leadership equation (Morgeson, DeRue & Karam, 2009). Ideally, 'video-shadowing' results will be compared to the kind of filmed meetings we based our results on. It will be very challenging to reproduce this research design without using structured meetings.

6. Conclusion

This research contributed to both the leadership and the followership body of knowledge. Requests from scholars to put more emphasis on the influence of followers in the leadership equation was honored in this study as equal importance was given to follower behavior as to leader behavior. This study also responds to some of the criticizers of the mass adoption of survey measures of transformational leadership (Van Knippenberg & Sitkin, 2013) by comparing its effectiveness against transactional leadership by use of a highly objective research method.

Our research found that transformational leadership was more effective in all three the studied designs; (1) correlation with team effectiveness, (2) behavioral interactions based on dominance complementarity theory and (3) behavioral interactions based on value congruence theory. Not only was transformational leadership found to be more effective, our results showed that transactional behavior by the leader is not associated with effective teams.

This study also responded to recent calls to use objective measures instead of survey data, which tends to be highly subjective. Our results are based on the actual behaviors shown by the leaders and the followers which eliminates self-reporting bias and other limitations of survey based research.

Based on our results we can come to two major conclusions. Firstly, we can't find any evidence to support either value congruence theory or dominance complementarity theory in the follower – leader relationship based on the behavioral interactions. Secondly, when taking transformational leadership and transactional leadership into account, only transformational leadership is able to contribute to higher levels of team effectiveness. These findings seem to indicate that transformational leadership should

be the go-to leadership style, regardless of the behavior shown by the followers if the goal is to be an effective team.

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Appendix 1: Behavioral coding scheme

Category	Behavior		Definition	Examples
Self - Defending	1	Showing disinterest	Not showing any interest, not taking problems seriously, wanted to get rid problems and conflicts	Not actively listening, talking to others while somebody has the speaking term, looking away
	2	Defending one's own position	Protecting the own opinion or ideas, emphasizing the own importance	"We are going to do it my way." Blaming other people
	3	Providing negative feedback	Criticizing	"I don't like that…" "But we came to the agreement that…, and now…"
Steering	4	Disagreeing	Contradicting ideas, opposing team members	"That is not correct" "I do not agree with you"
	5	Agreeing	Saying that someone is right, liking an idea	"That is a good idea" "You are right"
	6a	Directing/ Correcting	Telling others what (not) to do	"I want that…" "In this school are the rules…"
	6b	Directing/ Delegating	Delegating / dividing tasks	"Kees, I want you to…" "Marrie , you take for your account…"
	6c	Directing/ Interrupting	Interrupt someone	Interrupting a team member
	7	Verifying	Getting back to previously made agreements/vision/norms	"We came to the agreement that…"
	8	Structuring the conversation	Giving structure by telling the agenda, start/ end time etc.	"The meeting will end at…" "We are going to have a break now"
	9	Informing	Giving factual information	"The final result is…"
	10a	Visioning/ Short Term	Giving a short term direction, own opinion	"I think that…" "In my opinion…"
	10b	Visioning/ Long Term	Giving a long term direction, vision, mission, long term strategy	"Our vision is…" "What do we want to achieve in the upcoming years?"
Supporting	11	Positive feedback	Rewarding, complimenting	"Well done"
	12	Intellectual stimulation	Asking for ideas, inviting people to think along or come up with own ideas, brainstorming	"What do you think is the best way to…?" "What is your opinion about…?"
	13	Individualized consideration	Rewarding, complimenting, encouraging, being friendly, showing empathy	"Good idea, thank you" "You did a great job" "Welcome" "How are you?"
	14	Humor	Making people laugh, saying something with a funny meaning	Laughing, making jokes
	15	Personally informing	Giving non-factual, but private information	"Last week, my wife…"
	16	Listening		
Independent	17	Null-Behavior	Working on own tasks without communicating with other team members	Working on own tasks, calling with a client

Appendix 2: Residual analysis

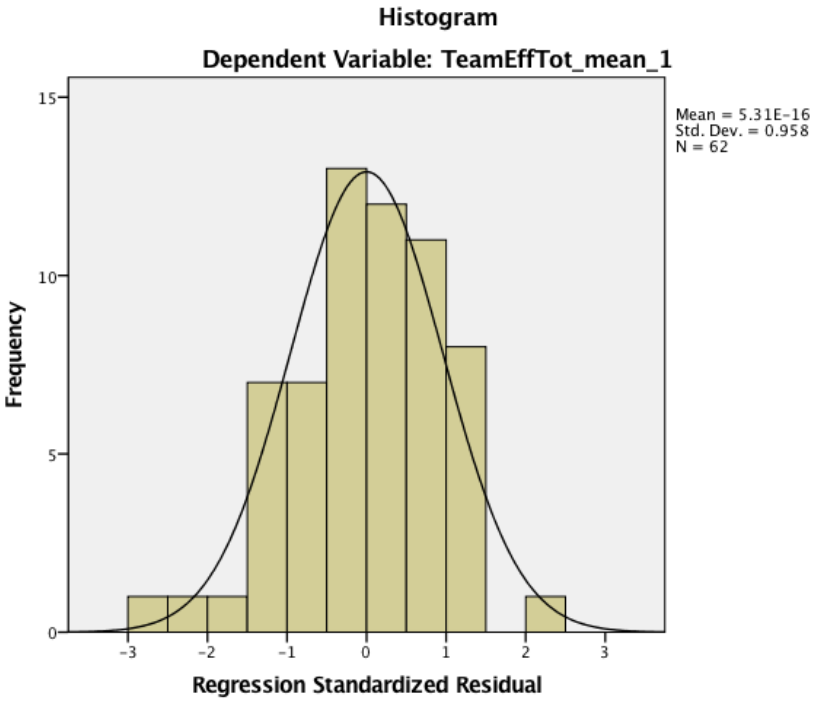

Figure 1: Histogram Team Effectiveness

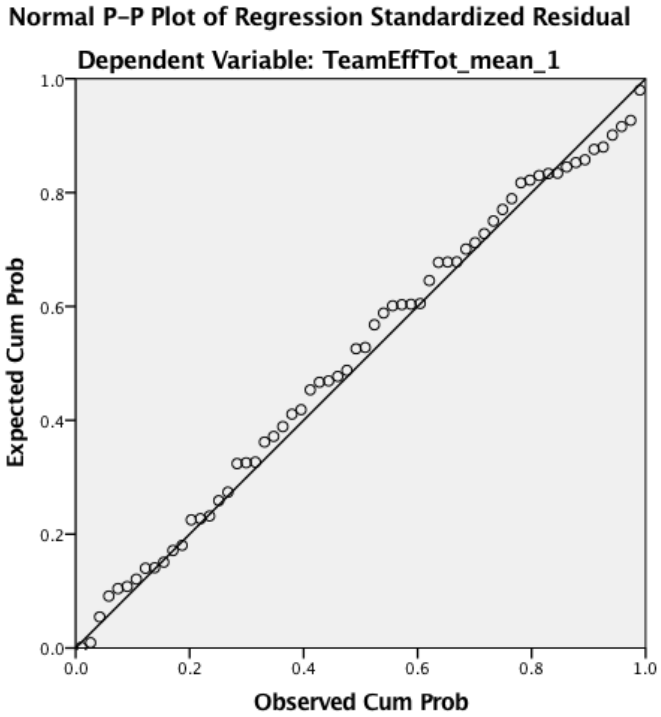

Figure 2: Normal P-P Plot of regression standardized residual Team Effectiveness

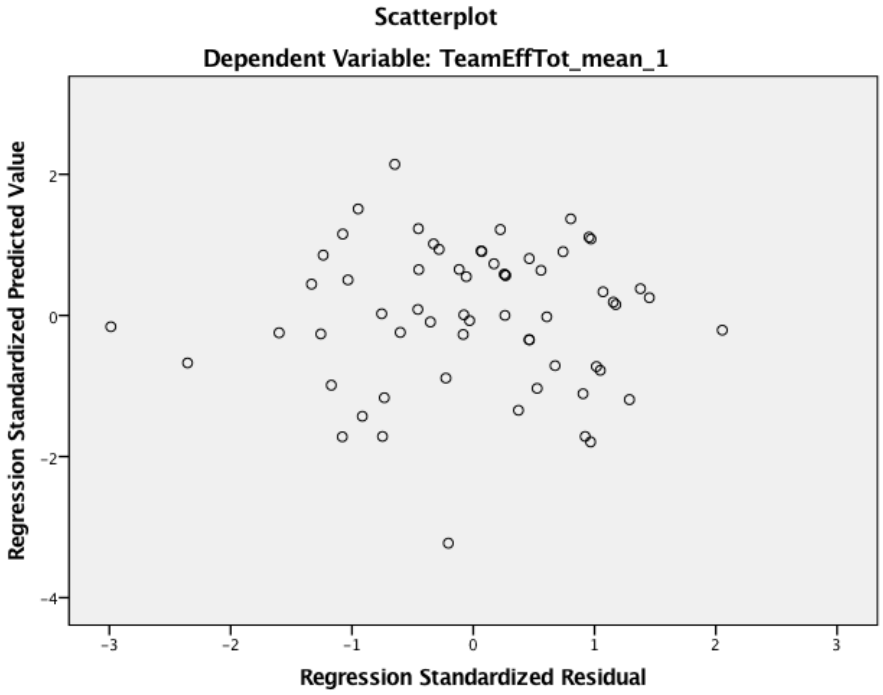

Figure 3: Scatterplot Team effectiveness

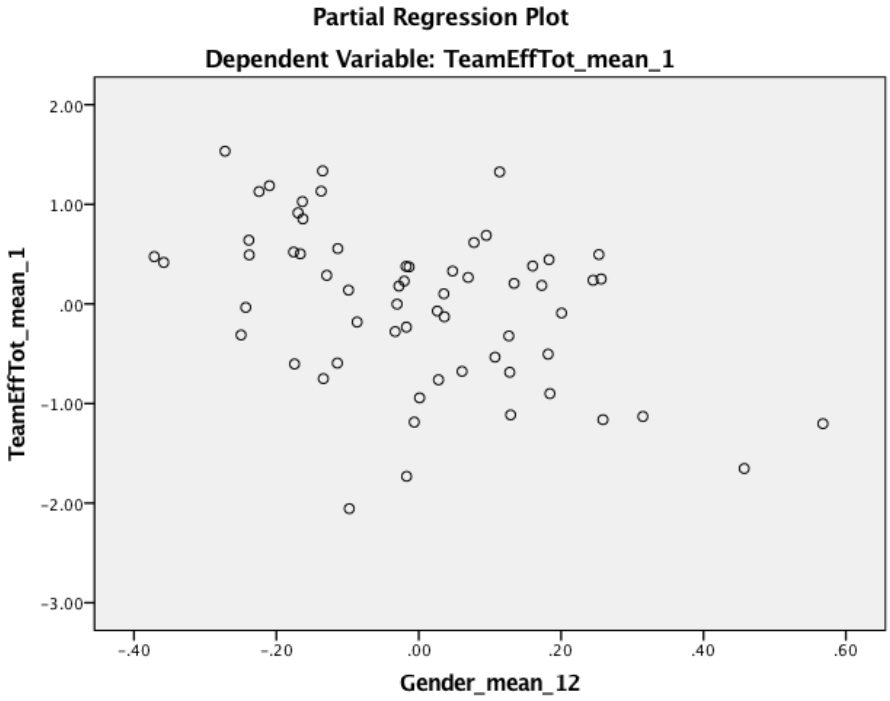

Figure 4: Scatterplot Gender

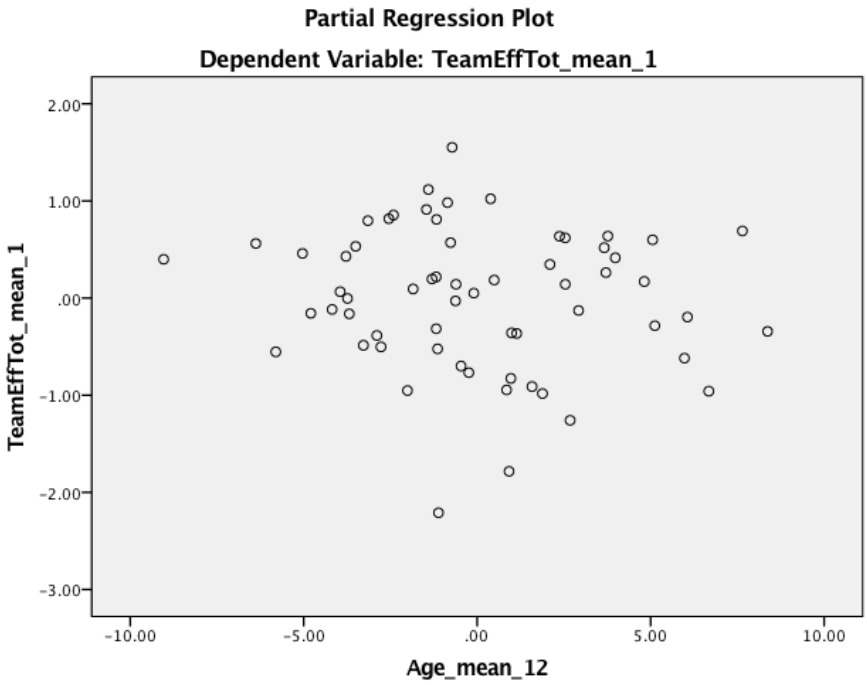

Figure 5: Scatterplot Age

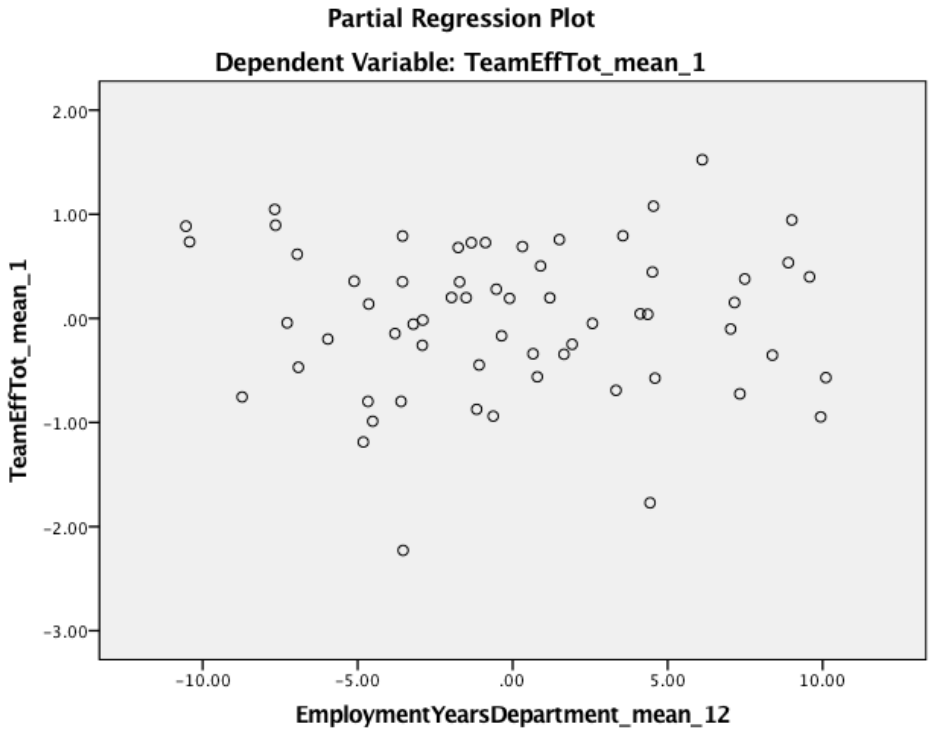

Figure 6: Scatterplot Tenure

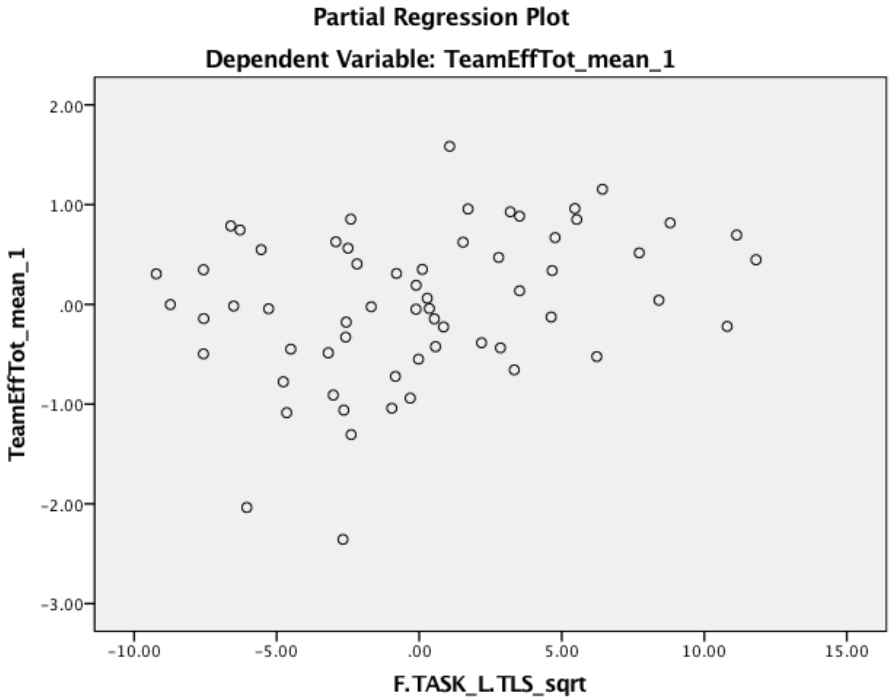

Figure 7: Scatterplot F:TAL – L:TLS

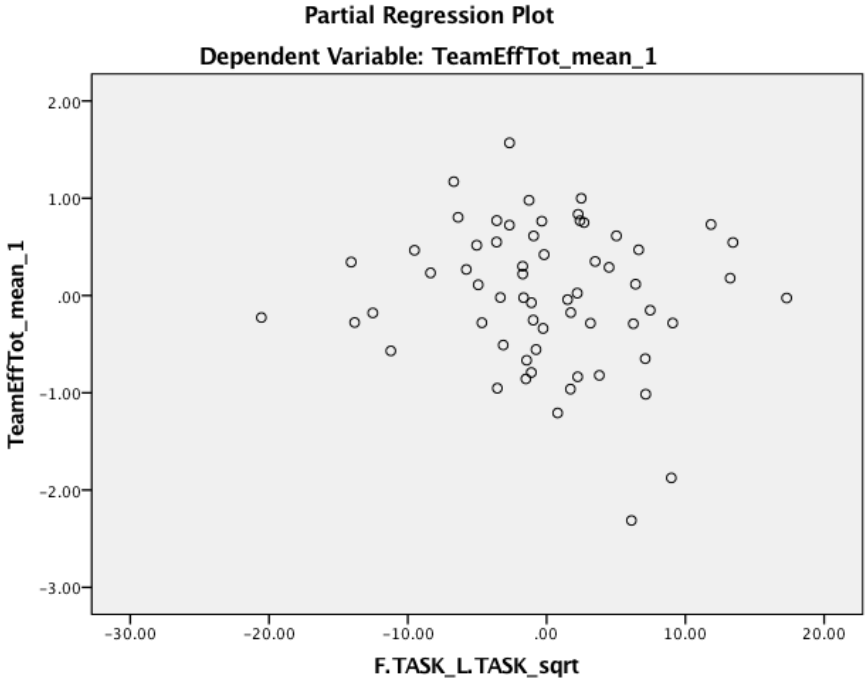

Figure 8: Scatterplot F:TAL-L:TAL

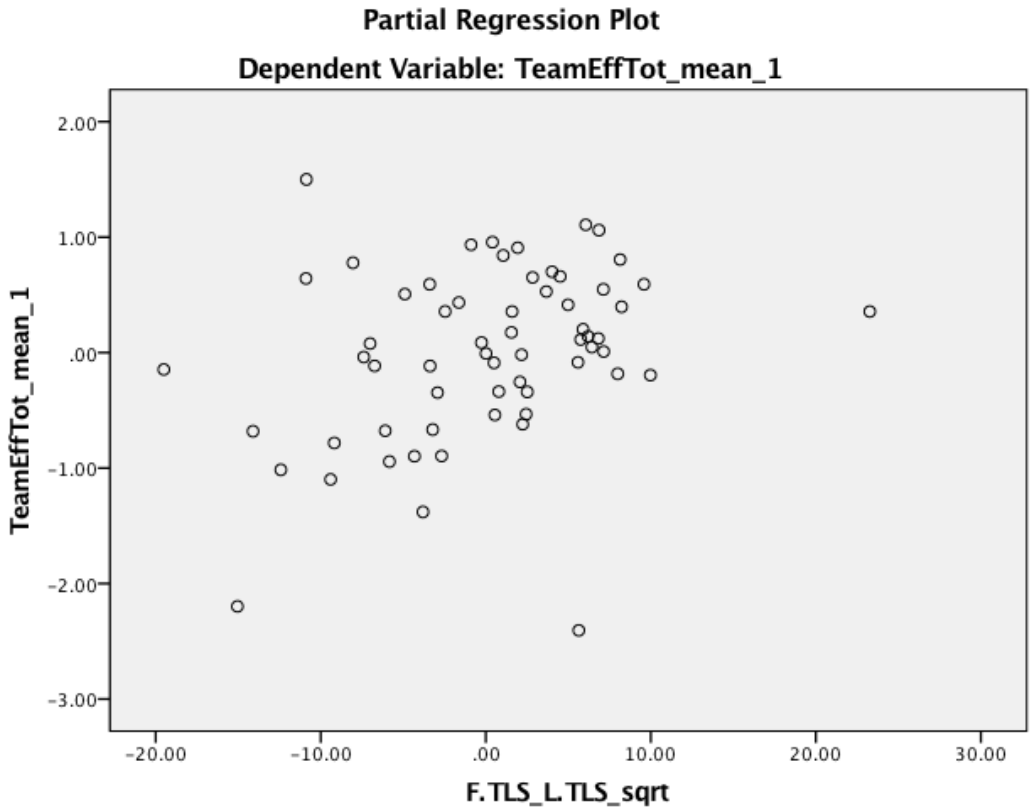

Figure 9: Scatterplot F:TLS – L:TLS

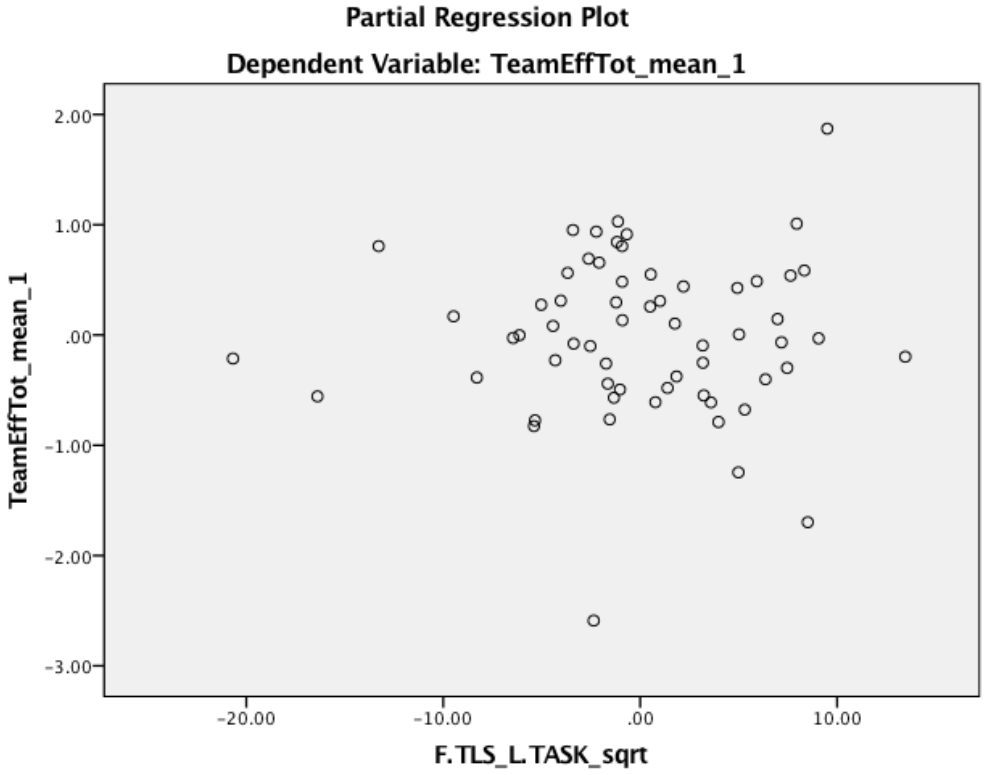

Figure 3: Scatterplot F:TLS – L:TAL