

# Promoting information sharing within teams through leadership style and body orientation

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## **ABSTRACT**

This research investigates the relationship between body oriented non-verbal behaviors and transformational and transactional leadership style and how these leadership styles predict the level of team information sharing. To this end, we used a combination of both video based observations as well as surveys from leaders and followers. The sample for this research consisted of 20 leaders and 210 followers, who were filmed during regular held staff meeting at a big large public-sector organization. It was found that , leaders that were rated effective by experts seem to lean forward more than leader with a low effectiveness rating by experts. In addition four of the five dimensions of transformational leadership style predicted the level of team information sharing. Subsequently, the construct; contingent reward, which is one of the two dimensions of transactional leadership showed a positive significant relationship with the level of team information sharing. Lastly, none of the non-verbal behaviors had any association with the dimensions of leadership styles. These results show that further research into this topic is needed the level of information sharing within teams is important for organizations. Future research could focus itself on creating an experimental setting around the variables and relationships proposed in this research. If this experimental setting leads to a significant outcome as well, this could have big practical implications for future management training as information sharing is an important part of gaining a competitive advantage.

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## **Keywords**

Nonverbal behavior, leadership effectiveness, information sharing, body lean movement.

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# 1. INTRODUCTION

“Nonverbal behavior is a hot topic in the popular management press”(Bonaccio et al, 2016). Although many articles already opted the importance of non-verbal behavior in communicating a message, the amount of research on this topic is still limited. Subsequently, there has been research on several parts of non-verbal behavior, however, these studies rarely contain an organizational context. Also, there appears to be a lack of cohesion in the field. “The extant literature is scattered across several fields, most notably communication, gender studies, cross-cultural studies, social psychology, anthropology, and criminology” (Bonaccio et al., 2016, p.2). Thus, it is evident that the scarcity of management or organizational research regarding nonverbal behavior as well as the field being so disjointed is hindering further research (Harrigan, Rosenthal, & Scherer., 2005). This lack of research is quite remarkable looking at the importance of nonverbal leadership and nonverbal behavior in general. Furthermore, information sharing in teams is another important topic within the world of business. Research supports the idea that efficient knowledge sharing can play big parts in gaining a competitive advantage (Almahamid, Awwad, & McAdams, 2010; Renzl, 2008). An important part in this is the body orientation. The body movement is very visible and different body movements (e.g. leaning back/forward and having an open/closed body posture) are found to be able to convey a clear message to followers.

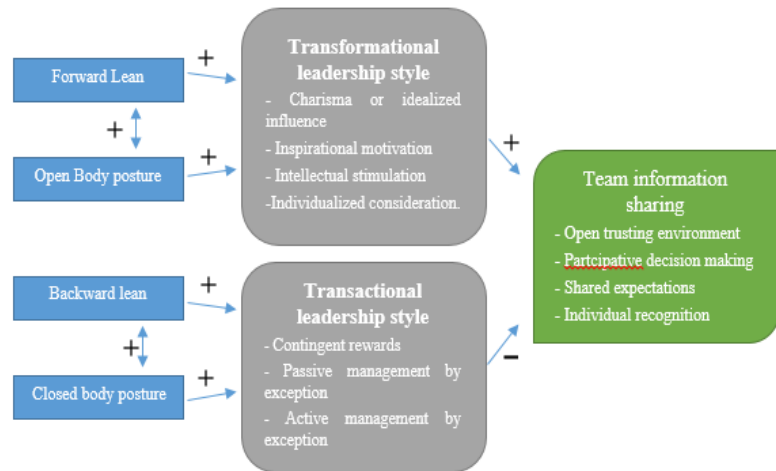
My research question therefore is: **“To what extent do body posture and body lean movement of leaders during regularly held supervisor-led staff-meetings affect the style of leadership and the level of team information sharing?”**.

To answer this questions a theoretical framework will be worked out as a basis for the research and to get a better insight in the proposed relationships. In the method section the research design, sample, coding procedure and data collection will be discussed as well as the implications and limitations of the research. Finally in the results and discussion section the findings will be analyzed and discussed to see if they match the hypothesis.

# 2. THEORETICAL FRAMEWORK

In the following section a theoretical framework will be provided for each of the variables creating a better understanding of these different variables, it’s factors and the hypothesized relationship between them. First a description of the hypothesized relationships between the variables (figure 1) will be given. In this figure the proposed relationships between the different variables is displayed. In addition the minus or plus signs shows the if the relationship is negative or positive.

In the following sections of our theoretical framework the variables and their proposed relations as described above will be discussed.



**Figure 2.1 Graphical representation of the different variables and their hypothesized relationships**

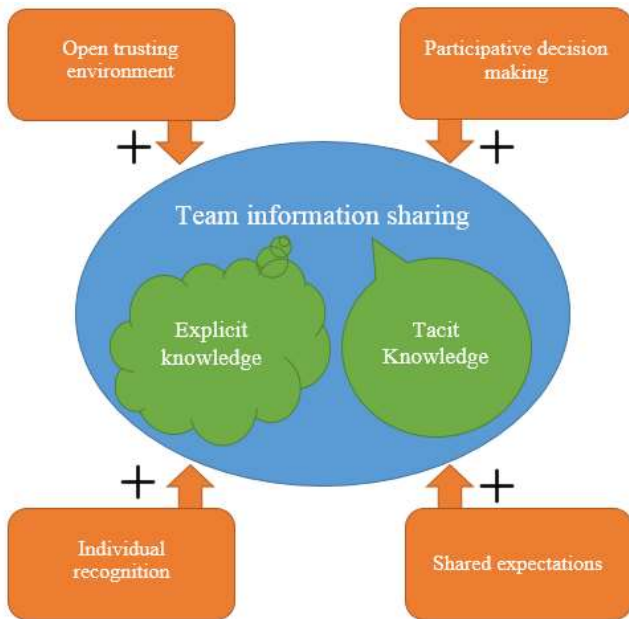
## 2.1.1 Defining team information sharing

According to Ketvirtis (2011) team information sharing is knowledge management. This is the way of retaining, creating and sharing knowledge within an organization. In addition Information sharing is the sharing of tacit and explicit knowledge so new knowledge can be created (Van den Hooff & De Ridder, 2004). The two main aspects of information sharing are thus tacit knowledge and explicit knowledge. Important to know is that information is never completely tacit or explicit it should be viewed on a spectrum as stated by Botha et al (2008). Tacit knowledge is more difficult as it is more initiative and experience based knowledge, also referred to as know how (Brown & Duguid 1998). Explicit information (e.g. e-mail, datasets, documents) are easier to decode as they are less personal. For management it is therefore important to get their followers to share the important tacit knowledge, as it contains valuable information and experience and make sure the explicit knowledge is correctly stored and decoded.

Furthermore Dent (2001) argues in his article that information is exponential. This means that if two persons both hold information and decide to share that information that together those pieces of information can equal more than two. Also, information can be shared on different levels (individual, within teams, across organizations).

## 2.1.2 Environment for and aspects of team information sharing

According to Ketvirtis (2011), there are 4 aspects that are promoting information sharing: 1) Open trusting environment 2) Participative decision making 3) Shared expectations 4) individual recognition. This is also displayed in figure 2.2.



**Figure 2.2: The 2 dimensions of information sharing and the 4 aspects enhancing team information sharing (adapted from Ketvirtis, 2011)**

### 2.1.3 Team information sharing and leadership styles

The four aspects promoting information sharing described in figure 2.2 share similarities with the four dimensions of transformational leadership style (Judge & Piccolo, 2004): charisma, inspirational motivation, intellectual stimulation, and individualized consideration. Charisma refers to “the degree to which the leader behaves in admirable ways that cause followers to identify with the leader. Charismatic leaders display conviction, take stands, and appeal to followers on an emotional level” (Judge & Piccolo, 2004). Thus, part of the Charisma dimension is to create trust amongst your followers by making sure they identify with you, this corresponds with the “open trust environment” dimension of team knowledge sharing. Inspirational motivation includes vision sharing, which corresponds with the shared expectation dimension that stimulates information sharing. Finally, individualized consideration links to individual recognition. Looking at the high number of similarities between the dimensions that are argued to promote team information sharing and the dimensions of the transformational leadership style, a positive relationship between the two is very likely. Furthermore, Bass (1985) stated that even though transformational and transactional leadership are not ends of a spectrum (Burns, 1987) but rather two different aspects.

Hence the following two hypotheses can be derived:

H1: A transformational leadership style is positively related to a higher level of team information sharing during regular held organizational staff-meetings

Transformational and transactional leadership and their relations to non-verbal behavior will be further discussed in the following section:

## 2.2 Leadership styles

### 2.2.1 Transactional versus transformational leadership style

For this thesis I want to investigate the link between leadership style and NVB and the level of team information sharing. Two leadership styles that are already frequently researched and validated are the Transactional (Weber, 1947) and transformational leadership (Burns, 1973) style. The importance of effective leadership style has already been investigated extensively in a number of studies; Glisson and Dureck (1988) for example found that higher levels of positive leadership were associated with higher levels of organizational commitment in health service organizations. Additionally, Mesu (2013) researched the impact of transformational and transactional leadership on small and medium enterprises managers and found that in these SME’s transformational leadership had a positive effect on organizational citizenship of the badly or average performing employees, whereas transactional leadership and actively correction seemed to have the opposite effect on low performing personnel, even demotivating them further. Different leadership styles are required in different work environments, however an effective leader should have both a transactional and a transformational leadership style Bass (1985). Both the transformational as the transactional leadership style theories know four dimensions, for transformational leadership we already discussed them in the previous section (subsection 2.1.3). The four dimensions of transactional leadership style are; contingent rewards, passive management by exception, active management by exception and laissez fair. In their meta-analysis of transformational and transactional leadership Judge and Piccolo (2004) discussed these four dimensions. However, they argue that Laissez fair is a separate leadership style which can be described as non-leadership. Laissez fair managers are absent when needed and hesitant in their decision making. Because of this, most of decision making is with the team itself. Laissez fair is also not part of our data set and will therefore not be included in the results (see methods; 3.1.4). However, Laissez fair is certainly an interested leadership style and is expected to have a relation with backward leaning and closed body posture (e.g. crossed arms). This will be further discussed in the discussion section. Contingent reward is the first of the three dimensions of transactional leadership and is about the constructive transaction or exchange with followers (Judge & Piccolo, 2004). The manager sets certain targets, expectations or goals and establishes the rewards or punishments for not meeting these expectations. The two dimensions regarding management by exception are about how the leader takes action based on the leader-follower transactions discussed for contingent reward. Howell and Avolio (1993) described the difference in management by (MBE) passive and active. They argue that timing is the difference between active and passive MBE. Active MBE refers to pro-active leaders that try to correct problems

before they happen thus being anticipative, whereas passive MBE is more reactive and takes corrective measures after the problem arises.

H2: A transactional leadership style is negatively related to team information sharing during regular held organizational staff-meetings

### 2.2.2 Leadership style and NVB

According to Birdwhistell (1970) it is estimated that between 63 and 95 percent of all communication happens non-verbally. Nonverbal can be distinguished as everything other than speech content. Nonverbal behavior can be either vocal and non-vocal. Tone of voice and the speed which one is speaking with are matters of vocal behaviors. Non vocal forms are movement of the body, hands, eye gaze and posture. But also, appearance, walking style and other physical attributes.

Both vocal and non-vocal forms of nonverbal leadership behavior are important for conveying a spoken message or announcement as they can contradict or strengthen this message. Thus, nonverbal behavior becomes especially important when conveying messages, this of course is a big part of leadership. Leadership can be described as; “influencing or controlling the behavior of others in order to reach a shared goal” (Northouse, 2007; Stogdill, 1950). It is even opted that – for leadership - nonverbal behavior might be equally or even more important than the verbal behavior. The lack of actual field research on non-verbal leadership is shocking as it is an important part of leadership. Van Kleef (2014), for example, explains the functionality of non-verbal behavior in being able to understand emotional displays and use them as important providers of information. According to Darioli & Mast (2014) Non-verbal behavior is important for two aspect of leadership: emerging leadership and perception of leadership. Perception of leadership focusses on leadership in a hierarchical setting and will therefore be the most important for studying the collected field data from organizational meetings.

## 2.3 Body Lean movement

### 2.3.1 Body lean movement and leadership style

A study on the effects of body lean movement and body posture that comes from McGinley, LeFevre and McGinley (1975), states that body movement is positively linked to attentiveness (forward leaning) and boredom(backward leaning) , while testing this in a number of experiments, they found that when subjects where bored they were more likely to lean backwards and turn their head from the communicator. While on the other hand attentiveness was shown when the subjects where leaning more forward and putting their feet more backwards. On the topic of body lean movement we find agreement amongst McGinley, LeFevre and McGinley (1975) and Mehrabian (1972), who also state that a forward body lean correlates with a higher level of interest/attentiveness. In addition Mehrabian (1971) also researched the impact of immediacy on someone’s non-verbal displays and found that liking or disliking someone is related to body lean movement as well. He writes: “*People are drawn*

*towards persons and things they like, they value highly, and prefer. They avoid or move away from things they dislike, evaluate negatively or dislike”* (Mehrabian, 1971, p.1). Later on Richmond, McCroskey and Johnson (2003) developed a scale to measure nonverbal immediacy called: the Nonverbal Immediacy Scale (NIS). Furthermore, Mehrabian (1972) argues that leaning back could mean two things. It could mean that the person is relaxed (this is also related to the side wards lean of agreement as described before). Also it could mean that the person does not agree with the communicator and therefore wants to be as far away as possible from him/her. Thus, as backward leaning is related to not agreeing with someone this has similarities with the transactional way of management, which is more focused on employees mistakes and correcting these mistakes. This gives us reason to believe that more backward leaning is related to a more transactional leadership style. On the other hand, leaning forward and thereby coming across as interested and attentive is hypothesized to relate more to a transformational leadership style.

Hence the following hypothesis can be derived:

H3: Leaders who exhibit more open body posture also exhibit more forward leaning during regular held organizational staff-meetings

H4: Closed body posture and Backward leaning are positively related within regular held organizational staff-meetings

H5: More forward leaning of the manager is positively related to a more transformational leadership style during regular held organizational staff-meetings

H6: More backward leaning is negatively related to a more transformational leadership style during regular held organizational staff-meetings.

## 2.4 Body posture

### 2.4.1 Body posture and leadership style

According to Mehrabian (1978) relaxation and tension play a big part in one’s body posture and how this posture is perceived by the receiver. A body posture that is relaxed can be viewed as calm and being in control, although, too much relaxation of the body posture can come across as disrespectful. Cordially, this also holds for tensions, a body posture with low to moderate tension (more open) is viewed as less negative then a body posture with high tension (more constricted).

Furthermore, According to Carney et al (2010) having an open and expansive body posture results in a higher level of power, testosterone, risk taking and feeling more in control as opposed to closed body postures. Furthermore power traits are strongly related to enhanced cognitive functions greater willingness to engage into action and take more risk.

In another experiment they found that also agreement and disagreement could be linked to non-verbal behavior. Disagreement was found to be linking to a more vigilant posture with head erect, arms folded over each other and one leg crossing

over the other. On the other hand when subjects were agreeing with a communicator they showed a more relaxing body posture by leaning to the side and having their arms on the table. These non-verbal behaviors are of significant importance for managers as they can read the room better in terms of attentiveness and agreement.

Hence, the following hypothesis can be derived:

H7: A open body posture is positively related to a more transformational leadership style during regular held organizational staff-meetings

H8: A closed body posture is negatively related to a more transformational leadership style during regular held organizational staff-meetings

### 3. METHODOLOGY

#### 3.1.1 Research design

The research design of this research is a cross-sectional one, meaning that for this research there were two different data collection methods: 1) video observation of randomly selected staff meetings and 2) expert and follower ratings obtained from surveys. By using a combination of both observations of behavior and surveys the predictor variables of this research will be body lean movement and body posture. The mediating variable is leadership style and the outcome variable is level of information sharing. All the subjects and managers were aware of the fact that they were being filmed and gave their consent before the start of the research. Furthermore, all videos consist of two-three different angles of the manager as well as its team. To counter the chance of reactivity the followers had to rate their manager on the question to what extent they found the managers behavior during the meeting representative from 1 (not representative) to 7 (highly representative) which lead to a mean score of 5.5 (SD 1.31) meaning the reactivity is low because the mean is between "somewhat the same" and "the same".

#### 3.1.2 Sample

The sample for the research consisted of 20 videos of randomly selected regularly held staff meetings. Of these 20 videos the first 30 minutes were coded. To control for coding bias the coding started at the same time as when the actual meeting started, so not from the start of each video. The sample of leaders consisted of 17 males and 3 females. The average age of the leaders was 51.55 years with a minimum of 34 and a maximum of 64 (SD: 8.54). The job tenure of the leaders at this public-sector organization was 23.38 with a minimum of half a year and a maximum of 46 years (SD: 17.47).

Furthermore the total amount of followers for these 20 leaders was: 192, meaning there were 18 respondents that filled in either less than 50% of the questions or had no variety in their answers. 49.43 was the average age of these followers with the youngest person being 25 years old, the oldest 62 years (SD: 10.02 years

). 22 people did not fill in their age. Furthermore the average job tenure amongst the followers was 24.88 years (SD = 3.65) with 0.2 years as the minimum and 48 years as the maximum amount of years worked at the company. For the job tenure 17 people did not fill in this question. Lastly, the sample consisted of 138 males and 60 females (12 respondents did not answer this question).

#### 3.1.3 Measures

**Team information sharing.** The level of team information sharing was asked in four different items in the questionnaire to both the leaders and followers. The answers to these four questions varied from 1: "completely agree" till 7 "completely disagree". These questions were based on the research of Bunderson and Boumgarden (2007). The mean of these four items was taken to get one score for the level of team information sharing for both the leaders and the followers. The Cronbach's Alpha was: 0.89 for followers and for the leaders: 0.93. The correlation between the leaders perception of team information sharing as to the followers perception was significant, ( $r(18) = 0.59, p < 0.01$ ), meaning there was high agreement amongst the leaders and the followers on this topic. Hence, the leaders score of the level of team information sharing will be used in this research

**Transactional and transformation leadership style.** For transformational leadership style there were five dimensions all with four different items. For transactional leadership style there were two of the four dimensions discussed in section 2.2.1 were measured in the questionnaire. These constructs were measured by the 28 (four items per dimensions and seven dimensions) items that are part of the MLQ-5X-Short package (Bass & Avolio, 1995). The transformational part contained five dimensions; idealized influence attributed (IA), idealized influence behavior (IB), inspirational motivation (IM), intellectual stimulation (IS) and finally individual consideration (IC). All of these dimensions contained four items ranging from 1 "strongly disagree" till 7 "strongly agree". After the collection of the data and inserting this data into SPSS an average score was measured out of the four items for the dimensions of both transactional and transformational leadership. For transformational the Cronbach alpha's of the five dimensions are respectively; .84 (IA), .82 (IB), .86 (IM), .88 (IS) and .87 (IC). Next, there were two dimensions in the survey measuring transactional leadership, these were contingent reward and management by exception active. For these dimensions of transactional leadership the following Cronbach's alpha's were found: 0.87 (CR) and 0.82 (MBEA).

#### 3.1.4 Coding

The coding of the video's happened in a time span of six weeks in which two coders independently coded the same behaviors for the same video's using specialized coding software called Noldus Observer XT (Noldus et al., 2000) and a detailed coding manual.

The two non-verbal behaviors that were coded at the same time were: body lean movement (forward and backward leaning) and body posture (expensive body posture, closed body posture). The coding of these behaviors was based on coding schemes developed by Mehrabian (1968) and Dael, Mortillaro and

Scherer (2012). To reduce coding bias both coders first agreed on a coding scheme and the different behaviors. After the first round of coding individually the coders sat together and discussed their disagreements to increase the level of agreement and the kappa. Of the 20 video's that were coded the level of agreement before discussing was 59% where this was 92% after discussing. Furthermore, there was an increase in Kappa as well. First the Kappa was: 0.52 and afterwards it was 0.91. Reliability of the data as well as the Kappa have thus increased by using two coders and discussing the observed behavior (inter-coder reliability). With the coding the frequency was deducted as well as the duration of each non-verbal behavior. Thus ten variables were used in SPSS to analyze the data of the non-verbal behaviors obtained during the coding process.

#### 4. RESULTS

Firstly, the hypothesis and the relationship between leadership style and level of information sharing will be discussed, followed by a discussion of the non-verbal behaviors and how these link

**Table 1: Means of the key variables regarding leadership style and information sharing**

Nl = 20   Nf = 210	Mean
Leader Info share	5,61
Follower Info share	5,29
Follower ratings IA	5,41
Follower ratings IB	5,35
Follower ratings IM	5,31
Follower ratings IS	5,23
Follower ratings IC	5,09
Follower ratings CG	5,23
Follower ratings MBEA	5,05

to leadership style. In table 1 the mean scores for information sharing (both follower and leader) and the dimensions of transformational and transactional leadership. What is noticeable about these outcomes is that all the mean scores are between 5: "somewhat agree" and 6: "agree".

This is remarkable as transformational and transactional leadership are often seen as two very different leadership styles they now all have an average score of at least 5. To reduce same source bias the correlation between scores of leaders and followers for information sharing was investigated. A correlation was found between the two;  $r(18) = 0.59$ ,  $p < 0.01$ , thus the leader ratings of information sharing will be used to reduce same source bias. when looking at the association between information sharing and leadership style (see table 2) as it turned out that information sharing as the relationship between the level of information sharing correlates with of the five dimensions of transformational leadership. Next, the outcome of hypothesis 2; transactional leadership has a negative relationship with information sharing. Hypothesis 2 should be rejected as the relationship between information sharing and the two dimensions of transactional leadership was positive and not negative. In table 2 the partial regressions between the seven dimensions of the two leadership styles as to information sharing is given with age as a constant. For transformational leadership style we see that idealized influence attributed, idealized influence behavior, intellectual stimulation and finally individual consideration all have a positive significant relationship with transformational leadership (see table 2) Next we see that the constants; age and gender, explain 13% of the variance in the level of information sharing. This, while the five aspects of transformational leadership explain 48.2% of the variance in the level of team information sharing. For transactional leadership we used the same constants, which explain 13% of the variation in the level of team information sharing. Contingent reward and management by exception active explained 31.8% of the variance. Between these two variables contingent rewards seems to be clearly the better predictor of the two as contingent reward alone explains 31% of the variance in the level of team information sharing and management by exception active just 14.9% (R square change of 1.9% with the constants age and gender). Contingent Reward, thus has a positive significant relationship with the level of team information sharing and it explains 18% of the variance in the level of team information sharing. Next, we will look at the relation between our two non-verbal behaviors; body lean movement and body orientation as to leadership style. First, some descriptives about the NVB will be given.

**Table 2: Regression analysis between transformational and transactional leadership and the level of team information sharing**

Variable	Transformational					Transactional			
	IA	IB	IM	IS	IC	CR	MBEA		
Sigma	.004*	.007*	.24	.009*	.006*	0.01*	0.13		
	*= $p < 0.05$ (1-tailed)					*= $p < 0.05$ (1-tailed)			
Model	R	R Square	R Square Change			Model	R	R Square	R Square Change
1	.36	.13	.13			1	.36	.13	.13
2	.70	.48	.35			2	.56	.32	.19
1. Predictors (constant): age, gender					1. Predictors: (Constant), Gender, Age				
2. Predictors (constant): age, gender, IA, IB, IS, IC, IM					2. Predictors: (Constant), Gender, Age, CR,				

Table 3 displays the duration and the frequency of the nonverbal behaviors that were observed and coded during the regular held staff meetings.

**Table 3: Mean duration and frequency of nonverbal behavior**

Displayed behaviors	Duration	Frequency
Expensive body posture	1090.52	9.8
Constricted body posture	723.73	9.7
No leaning	568.77	10.9
Leaning forwards	680.51	12
Leaning backwards	564.86	8.2

From this table it is clear that in the sample of 20 leaders expansive posture and leaning forwards occurred more often than leaning backwards, no leaning and a constricted body posture (See results table 3). The behavior displayed for the longest period of time is expensive body posture whereas the NVB that was the most frequent was leaning forwards. Leaning backward was the least occurring behavior both in frequency as well as duration. In table 4 the correlation between leaning forward and an open body posture is displayed, as well as a the correlation between backward leaning and constricted body posture. As it turns out there is a significant relationship between all the four behaviors meaning that the data support H5 and H6.

**Table 4: Correlations amongst the key non-verbal behaviors**

Variables	1	2	3	4
1. Forward Lean				
2. Open body posture	(+) .004			
3. Constricted body posture	(-) .005	(-) p<0.01		
4. Backward lean	(-) .006	(-) p<0.01	(+) p<0.01	

\*=P<0.01 level (2-tailed)

The following step is to see if the behaviors listed above are associated with the two leadership styles. After running a correlation and regression analysis with all of the variables regarding leadership style and the non-verbal behaviors there was not a single correlation found between the behaviors and the seven dimensions indicating that body orientation is not associated with a leadership style (all  $p > .05$ ). This means that hypothesis 5 until 8 can all be rejected as they are all foresee an association between body movement/body posture and transformational/transactional leadership. However, there are some other findings when looking at the directions of the correlations. Forward leaning is not related to the five dimensions of transformational leadership and only positively (not significant) related to the dimensions of transactional leadership. This is opposing hypothesis 5 until 8 and the theoretical framework. For exploratory purpose, an additional so-called extreme score analysis was conducted. Next, a new set of cases was selected with all the leaders that were leaning forward/had an open body posture for a longer period of time than average

which was 680 for leaning forwards and 1090 for open body posture. These “extra favorable” cases were used to see if there might be a relationship if the outcomes were not all so close to each other. Six leaders had a duration of forward leaning and open body posture above the average listed above but still there was not a significant correlation with any of the dimensions of transformational leadership. The same was done for backward leaning and constricted body posture, this lead to the same result. Finally, a one way ANOVA test was made in SPSS to see if there would be a difference in Non-verbal behaviors between the most and least transformational leaders based on the scores of the followers. Two groups of five were created. The five leaders who had the best transformational score (given by their followers), were placed in the first group and the five leaders with the lowest scores were put in the second group. Next these groups were compared for all the non-verbal behaviors on both duration and frequency using a one way ANOVA test. None of the results were significant. This same test with the same groups was then run with the variable: Leaders perception of team information sharing. This did lead to a significant outcome ( $F(4) = 5.640, p=0.045$ ). This means that there is a significant difference in the level of team information sharing between the leaders that are perceived by their followers as transformational leaders and the leaders that are perceived as not so transformational. This again supports the earlier found results of transformational leadership being positively associated with the level of team information sharing. After that no association was found amongst body orientation and the other variables of this research another one way ANOVA test was made with the same body orientation behaviors and the expert ratings of the leaders’ effectiveness. There was a significant difference between the two groups of the four most effective and four least effective leaders. ( $F(3) = 9.07, p<0.05$ ) for forward leaning.

## 5. DISCUSSION

In this section a summary will be given about the meaning of the different results that were found. Furthermore, the strengths and limitations of this research will be discussed as well as its practical implications and future directions for research will be given.

### 5.1.1 Theoretical implications

Firstly, there is the relationship between the leadership style and the level of information sharing. The results were very promising giving a significant relationship between the dimensions of both transformational and transactional leadership. In addition, when looking at the variance we see that transformational leadership and contingent reward explain a lot of the variance in leadership style. To be more precise, transformational leadership explains 35.1% more variance in the level of team information sharing than age and gender. This is an interesting finding as 1/3th of the variance in the level of team information sharing seems to be explained by the five dimensions of transformational leadership. To counter the fact that one of the variables would be responsible for the variance we put each variable in one by one to see if one of the dimensions would have a high R square change. Another



surprising statistic is that also Contingent reward, one of the dimensions of transactional leadership seems to correlate with team information sharing. This was unexpected as transformational and transactional leadership are often seen as two very diverse leadership styles. Management by exception active did not have a significant relation with the level of team information sharing. In addition, in the literature management by exception passive and Laissez fair were also named as two dimensions of transactional leadership. These two dimensions are probably negatively related to the level of team information sharing as they are more an absence of management. However, these dimensions were not included in the dataset eventually leading to transactional leadership seeming to have a positive effect on the level of team information sharing.

Overall the results were very interesting as they tell us a lot about links that were not yet researched often. Unfortunately, there was no indication of a link found between any of the body orientation variables and the leadership styles. However, a very surprising finding was made with the ANOVA test (one way) when looking at the expert ratings of leadership effectiveness. There turned out to be a significant difference in the amount of forward leaning between the four best rated leaders on effectiveness and the four leaders with the poorest effectiveness score. The effective leaders were leaning forward more than the ineffective leaders. This could entail that the forward leaning refers to listening and attentiveness (or personal consideration), which is picked up by the employees. This relation can be interesting to investigate further in future research.

On the other hand we see that all the other possible associations are negative. Because all the outcomes of our five variables are so close to each other in both their duration and frequency they all seem to correlate with each other, making it hard to make sensible conclusions based on these non-verbal behaviors.

### 5.1.2 *Practical implications*

The practicality of this research lies in its ability to apply it in the actual world of business and management training. As described before the importance of adequate knowledge sharing within teams and within organizations is substantial. Using video observations in combination with follower and expert ratings like these helps managers become aware of their behavior and what they need to improve on. Furthermore, as it turns out there is a significant relationship between four dimensions of transformational leadership and the level of team information sharing and also between one dimension of transactional leadership and the level of team information sharing. Knowing which dimensions are likely to cause an atmosphere in which information is more likely to be shared can be utmost useful for managers to gain a competitive advantage.

The dimensions that are found to increase the level of team information sharing are: idealized influence attributed, idealized influence behavior, intellectual stimulation, individual consideration (transformational) and contingent reward (transactional). Most of these dimensions have something to do with the manager giving personal attention to the members of its team. High personal attention leads to higher commitment of the

team (Cohen & Bailey, 1997; Van der Weide & Wilderom, 2004), which could be the reason for an increased level of team information sharing. Knowing this, some practical implications could be to highlight these dimensions more in management training to make managers more aware of what kind behavior from them could yield positive effects. Thus, for example managers that have problems with the level of information that is being shared within their team could focus more on giving personal attention to their employees and set goals for them that link with the organizations goals and are communicated through the managers vision (individual consideration, contingent reward) instead of setting targets and actively correcting employees (management by exception active).

### 5.1.3 *Strengths, limitations and future research.*

The strengths of this research lie in the fact that different research methods were used. Both video based observations as well as surveys filled in by followers, leaders and experts. Furthermore bias was reduced by coding the video's with two separate coders and comparing the video's afterwards (inter-rater reliability). Lastly, to avoid same source bias in this study the survey rating of the level of team information sharing were used of the leaders instead of the followers. Even though bias is aimed to be reduced to a minimum because of the different methods of data collection and high inter-coder reliability, there are factors that have a negative influence on the reliability and validity of this research. One of which is the lack of research on the topic. There are no studies describing the direct relationship between nonverbal leadership behavior and team information sharing (Harrigan, Rosenthal, & Scherer. 2005).

The second and biggest limitation is that a causal relation between the variables cannot be proven with the used sources. For example; from the data it appears from the regression analysis there is a causal relationship between certain dimensions of transformational leadership style and the level of team information sharing. Because observational data will be used for doing research causality and correlation can only be speculated. This would be a possibility for a future research.

thirdly, there is no association found between the nonverbal behaviors and the leadership style. Not even with a test using the outliers or using a mediator test. This could entail that there were some flaws in the coding process, the sample size or in the coding scheme.

Lastly, the sample that was used in this research was relatively low (just 20 leaders). Therefore the reliability, even though the inter-rater reliability method was used, is marginal. This does not hold for the transformational and transactional leadership scores that were based on all the followers which was a much bigger sample.

Further research on this topic could focus on setting up an experiment where the relationship found in this research will be tested for causality. In such an experiment two groups could be trained with a different leadership style. One group of leaders are taught to be more transformational were the other group is taught to be more transactional. Before and after the training the leaders have to hold meetings and manage teams. These teams on their turn have to fill in surveys before and after the training to rate

their leaders' effectiveness, transformational leadership style (MLQ) and the level of team information sharing perceived by them. At the end of the experiment one would now if the training had any effect on the leadership style and if so, if this had any effect on the level of information sharing within the teams. Regarding the non-verbal behaviors. As described above one of the limitations of this research is that there were no results coming from the coding of body orientation of the leaders in relation with leadership style. This lack of result could be the result of a flaw in the coding scheme. In future research the coding scheme could be more improved and focus more on linking non-verbal behavior to the theory and take into account for example immediacy, body tension, attentiveness/boredom and how these are perceived by the followers. This way the coding scheme will be better linked to the theory and it will be more likely to find results.

Furthermore, the current research has limited generalizability because all the data comes from one big public-sector organization. As the average age and job tenure of this company are relatively high a certain company culture could be in place that might not be completely representative. In a future research next to a bigger sample, a bigger number of companies could be investigated. It would be interesting to look at the different cultural dimension (Hofstede, 1980) and taking these into account as well.

Lastly, in future research the dimensions management by exception passive and laissez fair should also be included in the survey and the thereafter following dataset to get a better image of the effect of transactional leadership on the level of team information sharing.

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## 7. REFERENCES

Almahamid, S., Awwad, A., & MacAdams, A. (2010). Effects of Organizational Agility and Knowledge Sharing on Competitive Advantage: An Empirical Study in Jordan. *International Journal Of Management*, 27(3).

Argote, L. (1999). *Organizational learning: Creating, retaining, and transferring knowledge*. Boston: *Kluwer Academic*.

Antonakis, J. Avolio, B. J. and Sivasubramaniam, N. (2003). "Context and leadership: An examination of the nine-factor Full-Range Leadership Theory using the Multifactor Leadership Questionnaire". *The Leadership Quarterly*. 14 (3), 261–295.

Bass, B. M., and Avolio, B. J. (1993). Transformational leadership: A response to critiques. In M. M. Chemers and R.

Ayman (Eds.), *Leadership theory and research: Perspectives and directions*. San Diego, CA: *Academic Press*, 49- 80

Birdwhistell, R. (1970). *Kinesics and Context: Essays on Body Motion Communication*. 5th ed. Pennsylvania: *Pennsylvania university Press*.

Bonaccio, S., O'Reilly, J., O'Sullivan, S. and Chiochio, F. (2017). *Nonverbal Behavior and Communication in the Workplace: A Review and an Agenda for Research*. Ottawa: *The Author(s)*, 1-5.

Botha A, Kourie D, and Snyman R, (2008). *Coping with Continuous Change in the Business Environment*, Knowledge Management and Knowledge Management Technology, *Chandice Publishing Ltd*.

Brown, J.S. and Duguid, P. (1998). *Organizing Knowledge*. California. *California Management Review*, 40 (5)

Burns, J. M. (1978). *Leadership*. 1st ed. New York: *Harper & Row*.

Cashdan, E. (1998). Smiles, speech, and body posture: How women and men display sociometric status and power. *Journal of Nonverbal Behavior*, 22(4), 209–229.

Carney, D., Cuddy, A. and Yap, A. (2010). Power posing: brief nonverbal displays affect neuroendocrine levels and risk tolerance.. 21st ed. *Psychological Science*.

Cohen, S. G., & Bailey, D. E. (1997). What Makes Teams Work: Group Effectiveness Research from the Shop Floor to the Executive Suite. *Journal of Management*, 23(3), 239-290.

Dael, N., Mortillaro, M., & Scherer, K. R. (2012). The Body Action and Posture coding system (BAP): Development and reliability. *Journal of Nonverbal Behavior*, 36

Darioly, A. and Schmid Mast, M. (2014). *The Role of Nonverbal Behavior in Leadership: An Integrative Review* Hannover: *TIB Hannover*, 2-6.

Dent, S. (2003). Organisation : Creating an Information-Sharing Culture. *Leader Values*, 2-4.

Hofstede, G. (1980), *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills CA: *Sage Publications*.

Glisson, C., and Durick, M. (1988) Predictors of job satisfaction and organizational commitment in human service organizations. *Administrative Science Quarterly* 33

Harrigan, Rosenthal and Scherer, (2005), *The New Handbook of Methods in Nonverbal Behavior Research*. *Oxford UP*

Hinds, P. J., Patterson, M. and Pfeffer, J. (2001). Bothered by abstraction: The effect of expertise on knowledge transfer and subsequent novice performance. *Journal of Applied Psychology*

Howell, J. M., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated business-unit performance. *Journal of Applied Psychology*, 78, 891–902.

Judge, T. and Piccolo, R. (2004). Transformational and Transactional Leadership: A Meta-Analytic Test of Their Relative Validity. 5th ed. Florida: *Journal of Applied Psychology*, 1-14.

- Ketvirtis, S. (2011). Knowledge Sharing: Leveraging Trust and Leadership to Increase Team Performance. *Northwestern*, 1-4.
- Knapp, M. L., Hall, J. A., & Horgan, T. G. (2014). Nonverbal communication in human interaction. Wadsworth: *Cengage Learning*.
- McGinley, H., LeFevre, R. and McGinley, P. (1975). The influence of a communicator's body position on opinion change in others
- Mehrabian, A. (1968). Relationship of attitude to seated posture, orientation, and distance. *Journal of Personality and Social Psychology*, 10.
- Mehrabian, A. (1971). Silent messages. Wadsworth: *Belmont*.
- Mehrabian, A. (1972), Nonverbal communication, *Aldine Transaction* (3).
- Mehrabian, A. (1978). Characteristic individual reactions to preferred and unpreferred environments. *Journal Of Personality*, 46(4), 717 - 731.
- Mesu, J. (2013). transformational and transactional leadership: does it work in small to medium-size enterprises? Enschede.
- Noldus, L. P., Trienes, R. J., Hendriksen, A. H., Jansen, H., & Jansen, R. G. (2000). The Observer Video-Pro: new software for the collection, management, and presentation of time-structured data from videotapes and digital media files. *Behavior Research Methods, Instruments, & Computers*, 32(1), 197-206.
- Renzl, B. (2008). Trust in management and knowledge sharing: The mediating effects of fear and knowledge documentation. *Omega*, 36(2), 206–220.
- Richmond, V. P., McCroskey, J. C., & Johnson, A. D. (2003). Development of the Nonverbal Immediacy Scale (NIS): Measures of self- and other-perceived nonverbal immediacy. *Communication Quarterly*, 51.
- Srivastava, A., Bartol, K. M. and Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*.
- Smith, R., McPhail, C., & Pickens, R. (1975). Reactivity to systematic observation with film. *Sociometry*, 536-550.
- Van den Hooff, B. and De Ridder, J. A. (2004) Knowledge sharing in context: The influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of Knowledge Management*, 8(6), 117-130.
- van der Weide, J. G., & Wilderom, C. P. M. (2004). Deromancing leadership: What are the behaviors of highly effective middle managers? *International Journal of Management Practice*, 1(1), 3-20.
- Wang, S. and Noe, R (2010), Knowledge sharing: A review and directions for future research
- Weber, M. (1947) *The Theory of Social and Economic Organization*. Translated by A. M. Henderson & Talcott Parsons. NY: *The Free Press*
- Wilderom, C. P., & Van Dun, D. H. (2014). Leader Values, Followers' Information Sharing, and Team Effectiveness: *Advancing Lean Team Culture.*, 1-4.