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and Daan van Knippenberg

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| ABSTRACT AND KEYWORDS | |
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The Role of Transformational Leadership in Enhancing Team Reflexivity

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ABSTRACT

Team reflexivity, or the extent to which teams reflect upon and modify their functioning, has been identified as a key factor in the effectiveness of work teams. As yet, however, little is known about the factors that play a role in enhancing team reflexivity, and it is thus important to develop theorizing around the determinants of reflexivity. From an applied perspective, leadership is a very relevant factor.

The current study is a first step in the development of such a theory, and addresses this important gap in our understanding of team reflexivity by focusing on the role of leader behavior. We examined the extent to which transformational leadership influences team reflexivity and, in turn, team performance in a field study conducted among 32 intact work teams from nine organizations. Team members rated reflexivity and leadership, while external managers rated team performance. We hypothesized and tested a mediational model proposing that transformational leadership is related to the adoption of a shared vision by the team. This in turn relates to team reflexivity, which leads to higher team performance. Results support this model.

KEYWORDS: Transformational leadership, Shared vision, Team reflexivity,

Team performance, Team learning

The role of transformational leadership in enhancing team reflexivity

Teams have become the basic organizing structure for accomplishing work in many firms, especially for the increasing numbers of organizations operating in dynamic and complex environments (e.g., Edmondson, 1999). A growing number of teams in the workplace perform intellectual and cognitive tasks (Cooke, Salas, Cannon-Bowers, & Stout, 2000; Hinsz, Tindale, & Vollrath, 1997; Salas, Dickinson, Converse, & Tannenbaum, 1992), with information processing as a central aspect of their work, making it important to identify factors that influence effectiveness of those teams. Recently, reflexivity (a concept related to team learning) has been identified as a key factor in the effectiveness of work teams (e.g., Schippers, 2004; Schippers, Den Hartog, Koopman, & Wienk, 2003; Schippers, Den Hartog, & Koopman, 2007; Schippers, Edmondson, & West, 2006; West, 2000).

At the same time, scholars have noted that individuals and teams rarely reflect spontaneously; rather, teams tend to behave in habitual ways, even when presented with evidence that this behavior might be dysfunctional (Gersick & Hackman, 1990; Schippers et al., 2006). However, research and theory regarding the determinants and outcomes of reflexivity is still scarce. Therefore, given the importance of reflexivity for the effective functioning of teams, it is crucial to understand what factors motivate teams to become more reflexive, and to develop theory about the determinants of reflexivity. In the present study, we focused on a factor that may be of particular importance in this respect: team leadership (Hirst, Mann, Bain, Pirola-Merlo, & Richter, 2004; Somech, 2006). More specifically, we examined how leadership may motivate group members to become more reflexive, and tested the hypothesis that transformational leadership is positively related to team reflexivity and team performance, and that this relationship is mediated by a shared vision within the team. We expect that transformational leadership will enhance a common goal and shared vision in

the team. Having the shared frame of reference inherent in such a shared team vision will enhance teams' ability to collectively reflect on team objectives and the used strategies to reach them and, in turn, this should enhance team effectiveness.

Transformational leadership and team reflexivity

At the team level, reflexivity is defined as “the extent to which group members overtly reflect on, and communicate about the group’s objectives, strategies (decision-making) and processes (communication), and adapt these to current or anticipated circumstances” (West, 2000; p. 296). Research has found reflexivity to be positively related to subjective as well as objective measures of team performance in several countries, including the UK (Carter & West, 1998), Australia (Hirst et al., 2004), China (Tjosvold, Tang, & West, 2004), Israel (Somech, 2006), and the Netherlands (Schippers, 2004; Schippers et al., 2003). For example, in a study among nineteen BBC production teams, Carter and West (1998) found that reflexivity predicted team effectiveness. A study among three-person experimental groups showed that teams in the reflexivity condition, performed better than teams in the control condition (Gurtner, Tschan, Semmer, & Nägele, 2007), and a field study among 59 work teams found that team reflexivity mediated the (moderated) relationship between diversity and team performance, commitment, and satisfaction (Schippers et al., 2003).

The converging evidence that reflexivity feeds into team performance suggests that organizations may improve team performance by fostering team reflexivity. This gives rise to the question how team reflexivity may be stimulated, and an obvious route would be through team leadership. Team leaders carry the responsibility for the day-to-day functioning of the team and should be especially well-positioned to influence team processes like reflexivity. Gersick and Hackman (1990) suggested that a team leader might help the team to develop meta-routines, which prompt members to initiate re-evaluation of first-level routines regularly and timely, and thus become more reflexive. Indeed, collective information processing and

team meta-cognition (i.e., reflexivity) are mentioned as important mediators between leadership processes and team effectiveness by Zaccaro, Rittman, and Marks (2001).

First evidence for the role of team leadership in engendering team reflexivity may be found in studies by Hirst et al. (2004), who found that facilitative leader behaviors were positively related to team reflexivity, which in turn affected customer ratings of team performance, and by Somech (2006), who found that both directive and participative leadership moderated the relationship between functional heterogeneity and team reflexivity, and that team reflexivity, in turn, influenced innovation in a sample of health care teams. However, the notion that leaders may engender rethinking or reflexivity by fostering a shared vision, is found in theories of transformational leadership in particular.

Transformational leadership is a style of leadership that transforms followers by stimulating them to go beyond self-interest through altering their morale, values, and ideals, and motivating them to perform above expectations (Bass, 1985; Yukl, 1999). Since its introduction, transformational leadership has been strongly emphasized in the management literature (Bass, 1985; Bass & Avolio, 1990; Burns, 1978; House, 1996; Sashkin, 1988; Yukl, 1998), and it is often suggested, but hardly ever tested, that transformational leadership is related to a shared vision and learning among followers. Our central argument therefore is that transformational leaders engender a shared vision among team members and that this shared vision in turn affects reflexivity. The inspirational, charismatic, and intellectual stimulation aspects of transformational leadership seem especially important for team reflexivity. For instance, through intellectual stimulation, transformational leaders encourage followers to consider new points of view and question old assumptions (Bass, 1985). Leaders stimulating “rethinking” in a way stimulate their team to be reflexive, instead of asking them to adopt the leaders vision without question (cf. Tourish & Pinnington, 2002).

Transformational leaders articulate a vision that describes a better future and is congruent with the values of followers. The leader's personal example serves as a model of the kind of behavior required to attain the vision. The importance of a shared vision as a motivating force is found in both the team literature (e.g., West, 2000) and the leadership literature (Jung & Sosik, 2002; West, 2000). Where the team literature focuses on the sharedness of the team vision, which is held to be important for the achievement of a long-term orientation and longer-term goals of the team (cf. Guzzo & Dickson, 1996), the leadership literature addresses leaders' capacity to develop and communicate a vision, which is attractive and motivating for followers, and which they collaboratively will try to attain (e.g., Bass, 1985).

We argue that having a shared, overarching goal or vision of the future ensures a shared frame of reference for team members, which makes it easier for teams to reflect effectively on their functioning. If teams have a clear team goal (i.e., a shared vision), they will be better able to reflect, because they will have more of an idea if they are on track in reaching the goal (cf. Locke & Latham, 1990). For instance, when the team goal is to invent a new device that will help people to connect various devices in a wireless manner (Bluetooth), the goal is clear. The goal will aid the team in reflecting if they are on the right track and adapt if necessary. A transformational leader will aid this process by regularly discussing the goal with the team (i.e., enhancing a shared vision) and thus stimulate reflexivity in an indirect way.

Thus, here we test whether transformational leadership (i.e., charisma/inspiration and intellectual stimulation) is positively related to reflexivity and performance through its relationship with a shared vision. In other words, we test whether leaders who engender shared norms, aspirations, and ideals, and show team members how to look at problems from

new angles, will stimulate the formation of a shared vision within teams and, subsequently, increase reflexivity within teams.

Hypothesis 1. Transformational leadership is positively related to team reflexivity.

Hypothesis 2. A shared vision mediates the relationship between transformational leadership and team reflexivity.

Besides the proposed relationship with team process, many researchers argue that a link between transformational leadership and team performance should exist (Yukl, 1998), and several studies have tested this link. For instance, Lim and Ployhart (2004) examined the impact of transformational leadership on team performance in combat teams and found a positive relationship. Another study found that transformational leadership positively affected group potency, and in turn group effectiveness (Sosik, Avolio, & Kahai, 1997). Furthermore, a study among 47 intact teams found that transformational leadership was related to group effectiveness, through the effect on group cohesion, empowerment and collective efficacy (Jung & Sosik, 2002).

It is important to note that, although we do expect a relationship between transformational leadership and team performance, other variables that are not measured in the current study, such as motivation, group cohesion, and collective efficacy, also likely influence team performance (e.g., Jung & Sosik, 2002; Sosik et al., 1997; West, 2000). We thus expect reflexivity (and a shared vision) to partially mediate between transformational leadership and team performance. This line of thinking also assumes that reflexivity mediates between a shared vision on the one hand, and team performance on the other hand. Thus:

Hypothesis 3. A shared vision and reflexivity both partially and sequentially mediate the relationship between transformational leadership and team performance.

The research model is depicted in Figure 1.

INSERT FIGURE 1 ABOUT HERE

Method

Participants and procedure

Thirty-two teams from nine different organizations participated in this study. The teams included management teams, service teams, production teams, teams in government service, and facilitating teams. The teams came from companies in the IT, insurance and banking sector, government, and chemical industry. Following Hackman (1987), we considered teams as composed of individuals who both see themselves and are seen by others as an interdependent social entity. Furthermore, teams are embedded in a larger organization, and the team's performance affects others, for instance suppliers or customers. Only teams that met these criteria were considered for participation. In most cases team members were assigned to the teams when they were first formed; teams did not select members themselves. We purposely sought teams with different, but relatively knowledge-intensive tasks to include in the study. Teams with very routine jobs were not considered for inclusion in the study, as reflexivity is likely to be far less relevant for such teams. The team tasks of the participating teams differed widely, from administrative or production work (production teams) to leading a company (management teams).

Teams were recruited by phone. For all teams, questionnaire packages were mailed to the team leaders who had agreed to participate in the study. These team leaders then handed the questionnaires to their team members, and ensured that these questionnaires were completed in private. A cover letter described the purpose of the study and guaranteed the respondents confidentiality. Instructions for completion of the questionnaire were given on the first page. All teams had an appointed team leader, which enabled the researchers to ensure that all team members were referring to the same team leader when filling out the

questionnaire. All individual team members sent the questionnaires directly to the researchers. Feedback sessions with the teams were held to explain the results.

The response rate was 95%. Two questionnaires were incomplete and thus excluded from further analyses. The remaining respondents ($N = 238$) were from 32 teams ranging in size from 4 to 14 members with an average of 7.56 persons per team and at least two respondents per team. In most teams, all team members returned the questionnaire. Of these respondents, 68% were male. The mean age of respondents was 38 years ($SD = 9.28$).

Measures

Transformational leadership. Transformational leadership was measured using six items based on the previous literature (Avolio, Bass, & Jung, 1999; Bass & Avolio, 1990; Den Hartog, Van Muijen, & Koopman, 1997; Lowe, Kroeck, & Sivasubramaniam, 1996; Podsakoff, Mackenzie, Moorman, & Fetter, 1990). Because we had access to the teams on the condition that the survey would be as short as possible, we were unable to measure transformational leadership with a lengthy questionnaire. The items in the scale were formulated to measure a combination of intellectual stimulation, inspirational motivation, and charisma, which we argue are the key elements of transformational leadership in this context (Waldman, Siegel, & Javidan, 2006). Other studies have used similar short measures to tap such forms of leadership (De Cremer & van Knippenberg, 2002; De Hoogh, Den Hartog, & Koopman, 2005; Jung & Sosik, 2002; Waldman et al., 2006). The items were: “The team leader serves as a role model for me”, “The team leader makes me aware of strongly held values, ideals, and aspirations which are shared in common”, “I have complete confidence in him/her.”, “In my mind, he/she is a symbol of success and accomplishment”, “Shows us how to look at problems from new angles”, “Stimulates me to back up my opinions with good reasoning”, (1 = strongly disagree, 5 = strongly agree), $\alpha = .85$.

Shared vision. Shared vision was measured with five items, developed in the context of this research and in line with previous literature (e.g., Burningham & West, 1995; Senge, 1990; c.f., Tindale & Kameda, 2000). The items were: “This team has a clear vision of what it wants to achieve”, “The vision provides team members with clear directions with respect to the work that has to be done”, “Team members agree on the team’s vision”, “The vision provides team members with clear directions with respect to the work that has to be done”, and “This team has a clear vision of what it wants to achieve” (1 = strongly disagree, 5 = strongly agree), $\alpha = .92$.

Reflexivity. Reflexivity was measured by six items from the reflexivity measure of Schippers et al. (2007) that are in part based on the scale developed by Swift and West (1998). Examples of items are: “We regularly discuss whether the team is working effectively”, “The methods used by the team to get the job done are often discussed”, and “We regularly reflect on the way in which we communicate”, $\alpha = .86$.

Performance. In order to avoid potential common source bias, external managers or supervisors (who were *not* team members) were asked to rate the performance of the 32 teams on a scale from one to ten (1 = very bad to 10 = very good). We asked team members and team leaders to identify such a manager who had detailed knowledge about their team performance. In all teams, team members and the leader agreed on a manager that could best rate their team performance. The researchers checked this with the proposed managers, before asking them to rate the teams’ overall performance. This relatively simple measure was used because some managers had to rate up to six teams. It is important to note here that these *external managers* rating team performance were not the same as the *team leaders* that were evaluated on transformational leadership by the team members.

Confirmatory factor analysis of the measurement model

In order to assess whether the scales measured separate constructs, and assess discriminant validity, we conducted confirmatory factor analyses using maximum likelihood techniques within LISREL VIII. Specifically, we tested the measurement model by comparing the fit of the unidimensional model to the hypothesized three-factor structure (i.e., transformational leadership, shared vision, and reflexivity as separate constructs). For the unidimensional model, $\chi^2(119, N = 225) = 815.14, p < .001, AGFI = .49, RMSEA = .21$; for the three-factor structure $\chi^2(116, N = 225) = 158.51, p < .001, AGFI = .89, RMSEA = .04$. The significant improvement in fit of the three-factor solution over the unidimensional model, $\chi^2_{diff} = 656.63, df = 3, p < .001$, offers support for the discriminant validity of the scales.

Another test of discriminant validity (recommended by Fornell and Larcker, 1981; see also Netemeyer, Johnston, and Burton, 1990), is to test whether the variance extracted estimates of the scales exceed the square of the correlation between the three constructs. If this is the case, evidence of discriminant validity exists. The variance extracted estimates are .50 for transformational leadership, .73 for shared vision and .41 for reflexivity. All exceed the square of the correlations between the constructs (ϕ 's are .10, .11, and .29 respectively), which offers further support for the discriminant validity between the three constructs (see Table I).

INSERT TABLE 1 ABOUT HERE

Results

Data aggregation

The variables in this study are expected to operate at the team level of analysis, and our hypotheses identified the group as the unit of analysis. ICC values reported in Table I supported this claim. James (1982) reports a median ICC(1) of .12 for the organizational

literature. The ICC(1) values for the variables in this study are all higher than .12. In the table, we also report the ICC(2) values. However, since the ICC(2) value also depends on team size, with higher values of ICC(2) as team size increases (Bliese, 2000), we chose to depend mainly on the outcomes of ICC(1) in deciding whether or not to aggregate the individual-level scores. To further assess within-team agreement, we calculated the $r_{wg(j)}$ (James, Demaree, & Wolf, 1984, 1993). A value of .70 or above is suggested as “good” with respect to within-group interrater agreement (James et al., 1993). $R_{wg(j)}$ averaged .81 for transformational leadership, .74 for vision, and .79 for reflexivity, all well above .70 and suggesting that aggregating to the team level is justified.

The team level correlations between all variables are presented in Table II. As expected, significant positive correlations are found for transformational leadership and team performance, as well as shared vision and team reflexivity.

INSERT TABLE 2 ABOUT HERE

Hypotheses testing

Hypotheses 1 through 3 predicted direct and mediating relationships. We tested these relationships through series of regression analyses. These relationships are described below. We ran all analyses with and without team size and kind of team as control variables. Doing so did not change our results significantly, and thus, for reasons of power, the results of the analyses without control variables are reported. Organization was not used as a control variable, because for five of the nine organizations, only one team per organization participated in the study.

We hypothesized a main effect of transformational leadership on team reflexivity (Hypothesis 1) and sequential mediational effects: Transformational leadership is expected to result in a shared vision amongst followers and a shared vision is expected to be related to enhanced team

reflexivity (Hypothesis 2), which in turn is expected to lead to enhanced team performance (Hypothesis 3).

To examine the sequential mediating roles of a shared vision and reflexivity in the relationship between transformational leadership and performance, three steps were followed, in line with the suggestions of Baron and Kenny (1986). First, we should demonstrate that there is a relationship between the antecedent and the consequence. Regression analyses showed significant relationships (See Figure 2). As predicted by Hypothesis 1, a relationship between transformational leadership and team reflexivity was found ($\beta = .32, p < .01$), as well as a relationship between transformational leadership and team performance ($\beta = .32, p = .05$). Second, the relationship between the antecedent and the mediator should be significant, as well as the relationship between the mediator and the consequence. A relationship between transformational leadership and a shared vision was indeed found ($\beta = .43, p < .01$), as well as a relationship between a shared vision and reflexivity ($\beta = .58, p < .01$). Furthermore, the mediator shared vision was positively related to team reflexivity, and the mediator team reflexivity was positively related to team performance (see Figure 2).

Finally, the unique impact of the mediators (shared vision and reflexivity) should be demonstrated. In line with this, our hierarchical regression analyses revealed that the beta's of the simple main effects declined and became non-significant when shared vision was added to the equation (change in beta from .32 to .08), supporting Hypothesis 2. Moreover, the beta values also declined and became non-significant when reflexivity was added in the last step (change in beta from .32 to .19; See Figure 2), corroborating Hypothesis 3. When reflexivity was added to the equation, the relation between a shared vision and team performance became also non-significant (change in beta from .33 to .09). With respect to performance, we expected a partial mediational effect, as other variables besides the ones measured in the current study are also expected to

influence performance, and the remaining beta coefficient seems to point in that direction, although it is not significant after adding the mediators.¹

We then performed Sobel tests in order to assess whether the decrease in the beta's of the hypothesized mediational models is significant (Goodman, 1960). For the relation transformational leadership – shared vision – reflexivity, the z -value (one-tailed) was 2.15, $p < .05$. For the relation shared vision – reflexivity – team performance the z -value (one-tailed) was 1.62, $p < .05$.

It thus seems that transformational leadership is related to a shared vision among team members, which is in turn related to increased team reflexivity. This is ultimately related to enhanced performance as proposed in Hypothesis 3.

INSERT FIGURE 2 ABOUT HERE

Mediation can also be demonstrated by a procedure put forward by Preacher and Hayes (2004, 2007), involving bootstrapping (Shrout & Bolger, 2002). Bootstrapping is a nonparametric method for assigning measures of accuracy to statistical estimates (Efron & Tibishirani, 1998), whereby the standard errors are estimated using the available data. It is an alternative test to normal-theory tests of mediation (e.g., Shrout & Bolger, 2002), and has been used in former research to test for mediation (Brown, Cober, Kane, Levy, & Shalhoop, 2006), and moderated mediation (Giessner & van Knippenberg, in press). This procedure has been recommended for testing of indirect effects, especially with smaller sample sizes, because it has no assumptions regarding underlying sampling distributions (Shrout & Bolger, 2002). The formal test for mediation involves computing confidence intervals around the product term ($a*b$), and if zero falls out of this 95% confidence interval, the indirect effect is significant and mediation has occurred. Following recommendations, we resampled 1,000 times, and used the percentile method to create 95% intervals (Preacher & Hayes, 2007). This approach provided consistent results with the mediation analyses described

above. Specifically, zero fell outside the confidence interval around the indirect effects, ranging from .01 to .94. These results provide convergent evidence that, in line with our hypotheses, shared vision mediates between transformational leadership and reflexivity, and that shared vision and reflexivity mediate between transformational leadership and performance.

Discussion

Team reflexivity is seen as a key factor in team effectiveness, and a relevant question therefore is how reflexivity can be fostered by team leaders (Hirst et al., 2004; Somech, 2006; cf. Gersick & Hackman, 1990). The current study therefore focused on theorizing with respect to the determinants of reflexivity, and more specifically on the relation between transformational leadership and reflexivity through the establishment of a shared vision. Results supported our hypotheses. Positive relationships between team leaders' transformational leadership, a shared team vision, team reflexivity and team performance were found, as predicted. The predicted mediational model was also supported. We found that where team leaders were rated as more transformational, the teams also scored higher on a shared vision, and having this shared vision was positively related to team reflexivity. This was in turn positively related to team performance, as rated by an external manager. These results highlight the direct and the indirect relations between transformational team leadership, shared vision, reflexivity, and performance in work teams.

The current study showed that one way in which the team leader's behavior plays a role in enhancing reflexivity and performance is through engendering a shared vision within the team. The current research is the first to show that transformational leadership is important in stimulating team reflexivity and subsequent team performance. Moreover, the results from this study more specifically suggest that this effect might be mainly due to the transformational leader's role in creating a shared team vision. In our study, the impact of transformational

leadership (operationalized as a combination of intellectual stimulation, charisma, and inspirational motivation) on reflexivity was mediated by a shared vision. In teams with leaders who inspire confidence and awe and who stimulate their team members to rethink their objectives and working methods, team members report having a shared vision. In turn, this stronger shared outlook of team members is related to increased reflection on and communication about objectives, strategies, and processes within the team. Finally, in line with previous studies, we found that teams higher on reflexivity outperform those lower on reflexivity. As noted earlier, several theorists have advanced such propositions, but the available empirical body of knowledge on the role of team leaders as well as the process of reflexivity in teams is exceedingly small. Hence, an important contribution of the present research is that it provides empirical support for a compelling argument that is often advanced but hardly tested.

The current study has several strengths and limitations. An important strength of this research lies in the fact that it was done amongst several different teams from different kinds of organizations, which means that the findings can probably be generalized to several work settings. However, some limitations can be outlined as well. A first limitation lies in the cross-sectional nature of this study. This design does not allow for testing of directionality of the results. Although the mediational tests are consistent with a causal chain between transformational leadership, a shared vision, reflexivity, and team performance, according to Shrout and Bolger (2002; p. 439): “statistical mediation analyses based on non-experimental data provide suggestive rather than definitive evidence regarding causal processes.” In other words, reverse causality (e.g., performance increasing reflexivity) cannot be ruled out based on these data and the causal ordering should be tested. In order to test for directionality, longitudinal and experimental research will be necessary.

Secondly, the performance of teams could not be measured through more ‘objective’ measures, for instance, team output or customer satisfaction. This was due to the fact that the

teams in our sample had very different kinds of tasks and roles that could not easily be compared in terms of team output or customer satisfaction (e.g., not all teams had customers or produced tangible output). To minimize bias, we did ensure that the team was rated by an external (higher level) manager, who had detailed knowledge of the teams' performance, rather than by the team members themselves or even the internal team leader (whose behavior was rated by the team members). However, the measure we used was rather simple and future research should assess the relationships with more comprehensive measures of performance and, of course, for more teams as another limitation of our study is that the sample size at the team level is limited. Note, however, that the sample size in the current study is similar to many other team studies and based on a sizeable underlying set of individual ratings and responses.

Conclusions

Overall the results of this study suggest that transformational leadership can positively influence reflexivity through the formation of a shared vision and this in turn may influence team performance. The finding that reflexivity is positively related to team performance (in our and other studies) is interesting for practicing managers. However, according to West (1996, 2000), teams in organizations are generally not very reflexive. Organizational objectives and the organizational culture are considered as givens and often not subject to discussion (Allen, 1996).

Teams tend to behave in habitual ways, even when faced with evidence that this behavior might be dysfunctional in reaching team or organizational goals (Gersick & Hackman, 1990). There is an emphasis on action in most companies, which might explain why in most companies team do not take the time to reflect and learn from past activities (Schippers et al., 2006). Yet, our results suggest that enhancing team reflexivity may provide an important tool for improving team performance. Our research suggests that one way to do

so is to build a shared vision in the team, and that this shared vision can be built through transformational team leader behavior. However, other ways to more directly stimulate reflexivity in teams may also be relevant. For example, teams could be trained to be reflexive. Research is needed to assess how reflexivity of teams, besides through transformational behavior of a team leader, can be enhanced and how reflexivity can become more customary and built into teams' daily functioning rather than exceptional.

Notes

¹ One could argue that transformational leadership has an effect on team reflexivity, which in turn has an effect on a shared vision (cf. van Ginkel & van Knippenberg, 2005). We therefore tested whether transformational leadership affected team reflexivity, a shared vision and in turn, team performance. However, this relationship did not hold; when adding shared vision in the last step, the effect of reflexivity stayed significant, while the effect of a shared vision was not significant anymore.

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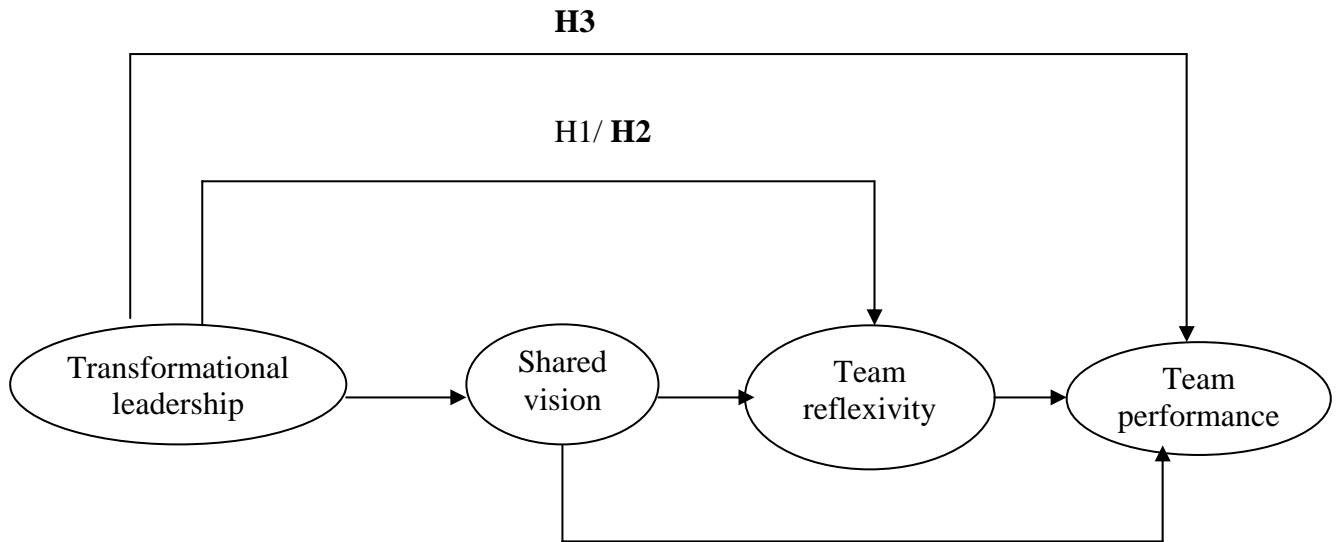


Figure 1. Hypothesized direct and indirect relationships in this study.

Note: Hypotheses in bold are the hypotheses including the mediator(s).

Table 1. Measurement properties

| Construct and indicators | Standardized loading | Reliability | Variance extracted estimate |
|--------------------------|----------------------|-------------|-----------------------------|
| 1 Transf. leadership | | | .50 |
| λ_{x1} | .81 | .65 | |
| λ_{x2} | .78 | .61 | |
| λ_{x3} | .65 | .42 | |
| λ_{x4} | .73 | .52 | |
| λ_{x5} | .60 | .36 | |
| λ_{x6} | .67 | .45 | |
| 2 Shared vision | | | .73 |
| λ_{x1} | .85 | .72 | |
| λ_{x2} | .87 | .76 | |
| λ_{x3} | .85 | .73 | |
| λ_{x4} | .88 | .77 | |
| λ_{x5} | .81 | .66 | |
| 3 Reflexivity | | | .41 |
| λ_{x1} | .58 | .34 | |
| λ_{x2} | .61 | .37 | |
| λ_{x3} | .53 | .28 | |
| λ_{x4} | .72 | .52 | |
| λ_{x5} | .65 | .43 | |
| λ_{x6} | .72 | .52 | |

Table 2. Means, Standard Deviations, F-values, ICC-values, Aggregate Level Intercorrelations, and Cronbach's alphas's (N = 32 teams)

| Variable | <i>M</i> | <i>SD</i> | F _(59,392) | ICC(1) | ICC(2) | 1 | 2 | 3 | 4 |
|----------------------------|----------|-----------|-----------------------|--------|--------|------------|------------|------------|---|
| 1 Transf. leadership | 3.34 | .44 | 2.84** | .21 | .68 | .85 | | | |
| 2 Shared vision | 3.24 | .61 | 3.51** | .32 | .79 | .43** | .92 | | |
| 3 Reflexivity | 2.92 | .39 | 2.33** | .16 | .61 | .32* | .61** | .86 | |
| 4 Performance ^a | 7.03 | .97 | -- | -- | -- | .32* | .33* | .44** | - |

Note: * $p \leq .05$; ** $p \leq .01$; one-tailed; ^a Supervisor ratings of performance.

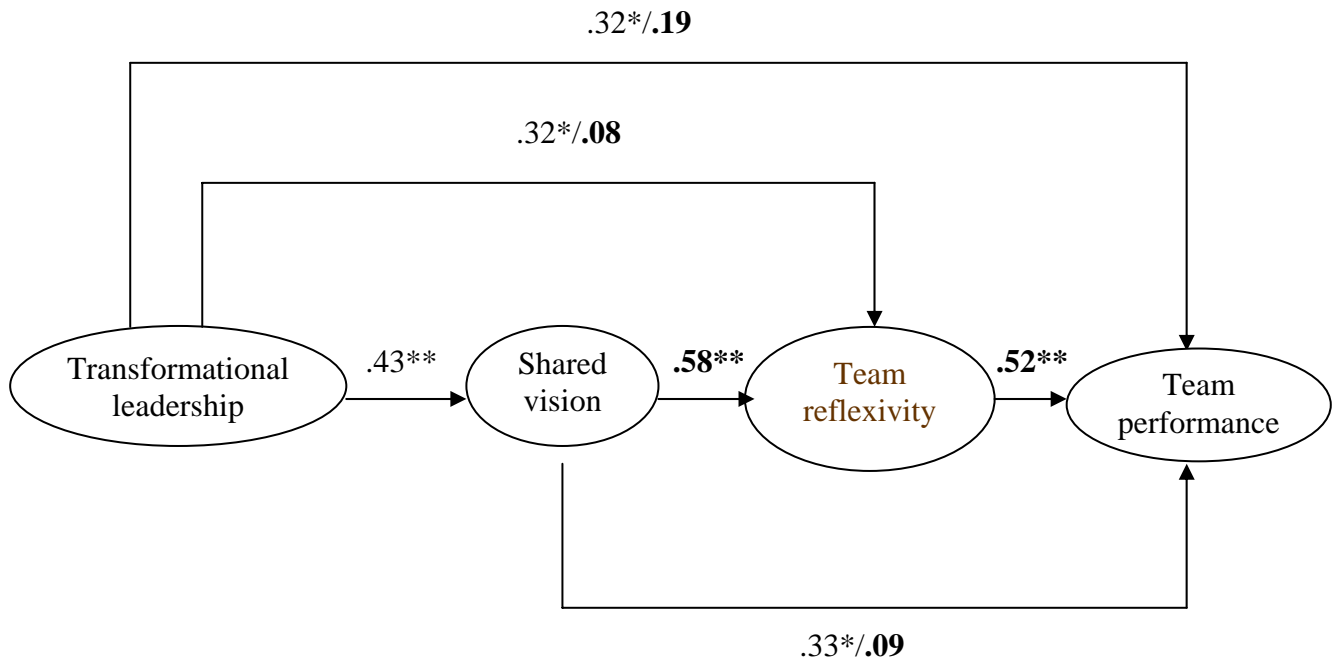


Figure 2. Main and mediating relationships of transformational leadership with supervisor-rated team performance ($N = 32$ teams)^a

^a Numbers above the arrows represent standardized coefficients (beta's). Beta's in bold are based on regression equations including the connecting mediator.

Note: * $p < .05$, ** $p < .01$, one-tailed tests

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