

Transformational Leadership, Work Satisfaction and Group Performance: Mediation Analysis

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Abstract: This study investigated whether followers' work satisfaction mediates the relationship between a transformational leadership style and group performance. An evaluation of 32 CEOs by 500 subordinates took place after three months of intensive cooperation within a managerial simulation game. All of the respondents were college students. The followers assessed their work satisfaction using three questions from the Job Diagnostic Survey. Each CEO was evaluated by an average of 15 followers in terms of his/her transformational leadership style using the Czech Leadership Questionnaire. Group performance was assessed based on the final profits of the 32 game companies. Multi-level regression was performed to test the hypothesis. Individual transformational leadership perception related weakly to individual work satisfaction. Group transformational leadership related to group performance partially through group work satisfaction. The mediation effect was strong but significant only at a 10% level because of the limited number of teams (clusters). The advantage of the study was the assessment of the leaders by a large number of followers and the multi-level data analysis. The study is unique because the standardized design of the managerial simulation game enabled an objective and comparable appraisal of the group performance. Contributions to transformational leadership theory, research, and practices are discussed.

Keywords: transformational leadership, work satisfaction, group performance, leadership effectiveness

1. Introduction

Transformational leadership is currently the most widely researched leadership concept (Braun et al, 2013). It has been at the forefront since the late 1970s, when Burns (1978, in Sashkin 2004) described it as an approach whereby the leader stimulates his followers and acts upon their increasing demands. The main tools of a transformational leader are a) idealized behaviour (charisma), b) inspirational motivation, c) intellectual stimulation and d) individualized consideration (Bass 1997; Howell & Avolio 1993; Judge & Piccolo 2004; Prochazka & Vaculik 2015). Transformational leadership is considered to be one of the most important predictors of a leader's effectiveness because it has been shown to affect the objectively measured group performance (Ling et al, 2008; Resick et al, 2009) and the perceived effectiveness of a leader as assessed by subordinates (Avolio & Bass 2004; Lim & Ployhart 2004), by superiors (Bycio, Hackett & Allen 1995; Judge & Piccolo 2004) and by external evaluators (Bass et al, 2003; Lim & Ployhart 2004).

In recent years, transformational leadership has been criticised, and Van Knippenberg and Sitkin (2013) have even predicted the decline of transformational leadership. Several new value-based theories of leadership have emerged (Dinh et al, 2014) which some people believe could replace transformational leadership (Van Knippenberg 2015). However, none of these theories explains the significant amount of variance in leadership outcomes above and beyond transformational leadership, and transformational leadership enables a better prediction of job performance than any of those other theories (Hoch et al, 2016).

Rather than replacing transformational leadership with another theory, it might be more useful to focus on the weaknesses of the theory of transformational leadership and try to strengthen the theory. One of the criticisms of transformational leadership is that the causal model for transformational leadership is underdeveloped with only a rudimentary mediation model (Van Knippenberg & Sitkin 2013). The most widespread causal model explaining the effect of transformational leadership is the model by Shamir, House and Arthur (1993), which, despite containing several mediators, does not have sufficient empirical support (Van Knippenberg & Sitkin 2013). In their review, Van Knippenberg and Sitkin (2013) named 11 known mediators of the relationship between transformational leadership and its outcomes. This is a relatively small number in the context of a large number of more or less distal variables that are related to transformational leadership. Moreover, work attitude including job/work satisfaction did not appear amongst the aforementioned mediators. This is surprising because satisfaction is a known outcome of transformational leadership (e.g. Fernandes & Awamleh 2004;

Ghanbari & Eskandari 2014; Medley & Larochelle 1995) and at the same time is a predictor of job performance (e.g. Harrison, Newman & Roth 2006; Riketta 2008).

This study focuses on filling the gaps in the research into mediators of transformational leadership, specifically into work satisfaction as a variable which could explain the relationship between the transformational leader and the performance of his/her team.

Several studies have jointly examined transformational leadership, followers' work satisfaction and performance indicators. However, in these studies, satisfaction and performance were usually examined as independent final leadership outcomes (Bono & Judge 2003; Braun et al. 2013; Fernandes & Awamleh 2004; Rowold, Borgmann & Bormann 2014). The studies did not monitor the mediation effect and failed to take into account the causal relationship between satisfaction and performance (Riketta 2008). The only study thus far which has looked at satisfaction as a mediator in the relationship between transformational leadership and performance was carried out by Liang et al (2011) on a sample of 266 employees from 43 electronic companies. According to their analysis, transformational leadership strongly predicted satisfaction and performance, and satisfaction strongly predicted performance and mediated the relationship between transformational leadership and performance. Unfortunately, this research had several limitations, due to which it failed to provide sufficiently strong support for the mediation hypothesis. The authors conducted the research by sending out a set of questionnaires to a heterogeneous group of followers. All of the data thus came from a common source, which could lead to a distortion and overestimation of the strength of the relationships which were discovered (e.g. Dionne et al, 2002). The followers' performance was assessed using self-reports, which could result in self-report bias (Donaldson & Grant-Vallone 2002); in addition, it did not reflect the influence of the leader on the group as a whole, but only on one subordinate. In each case the transformational approach of the leader was appraised by only one of many subordinates, which could result in a low reliability of the assessment (Conway & Huffcutt 1997). Furthermore, the study did not distinguish between the influence of transformational leadership on the individual and group level, which is a problem of many studies on transformational leadership (Braun et al. 2013). Furthermore, the satisfaction questionnaire had a low internal consistency; it is therefore questionable whether all of the items in it measured the same construct.

In this study we aim to improve and expand upon the conclusions reached by Liang et al. (2011) by carrying out differently designed research which will not be restricted by the aforementioned limitations.

Awamleh, Evans and Mahate (2005) stated that more attention should be focused on research into the relationship between leadership styles and performance in which the evaluators of leadership style do not evaluate leadership outcomes as well. That is why we will assess the group performance on the basis of objective performance indicators. In their meta-analysis, Conway and Huffcutt (1997) demonstrated that in order to achieve sufficient reliability for the evaluation of each leader by followers, 6 or, even better, 10 followers are required. For this reason, we will collect data on the leader from the majority of his/her subordinates. One weakness of the research into transformational leadership to date has been the lack of studies differentiating between the impact of transformational leadership on individual followers and on the group as a whole (Braun et al, 2013). In most cases, the leader has a number of followers, who may perceive the leader differently and on whom the leader may have a different influence. Selecting the dyad of one leader – one follower and averaging the individual level of the variables (e.g. satisfaction and leader perception) may lead to a distortion of the results. That is why our analyses will take into account the multi-level structure of the data and differentiate between individual and team effects.

Our research is based on the assumption that employees led by a transformational leader are more satisfied at work. The figure of the leader (superior) is an important facet within the construct of job satisfaction (Spector 1997; Stojanović Aleksić, Babić & Erić 2012; Stojanović Aleksić, Šapić & Erić 2010), and transformational leaders are viewed positively by their followers, which is reflected in greater trust in the leader (Ismail et al, 2010; Schwepker & Good 2010) or in a higher perception of the leader's legitimacy (Molero & Morales 1994). Employees who are more satisfied give a better overall performance because of the energizing and facilitative effect of this positive influence (Riketta 2008).

Therefore, we believe that transformational leadership improves group performance and that this effect is mediated by overall work satisfaction among followers.

Hypothesis: The relationship between group perceptions of leaders' transformational leadership and group performance is mediated by group work satisfaction.

2. Method

2.1 Sample

The leaders in our sample were 32 CEOs of companies in a managerial simulation game, which was played by business students at two Czech universities. The CEOs were selected by their peers at the beginning of the game. The average age of the CEOs was 21.58 ($SD = 1.74$). Most of the leaders were men (71%).

500 subordinates (i.e. followers) evaluated their CEOs in terms of transformational leadership and perceived effectiveness. Each CEO was evaluated by an average of 15.63 subordinates. The subordinates were both full-time students at the aforementioned universities and employees of one of the 32 fictional companies within the management simulation game. They held various positions except for the position of CEO. The subordinates were mostly women (58%) and their average age was 21.34 ($SD = 1.53$).

2.2 Data collection

The managerial simulation game is a longitudinal market simulation. Teams of students represented the management of fictitious car-manufacturing companies which were selling their products on a computer-simulated market. The CEO and his/her followers were rewarded with fictitious money during the course of the game, and this was later translated into a course grade at the end of the semester. The CEO had the final say when deciding on corporate strategy, organizational structure, and the distribution of work, salaries and financial bonuses etc. He/she was able to delegate powers to his/her subordinates. The game lasted seven rounds. The teams had a number of options through which they could influence the performance of their businesses. In each round they decided on the number of cars to be produced, optimized production costs, invested in innovations, determined the features of the cars, created a marketing strategy, made up balance sheets and financial reports, invested in financial markets, and negotiated loans from banks (Smutny, Prochazka & Vaculik 2013). The managerial simulation game allowed us to compare similar teams and their performances; it reduced the impact of external variables and provided a high return rate during the data collection (Prochazka, Vaculik & Smutny 2014; Smutny, Prochazka & Vaculik 2013).

The starting conditions for all of the fictitious companies were the same. Their performance could thus be assessed on the basis of profits during the seven rounds of the game. Since the research was conducted in 3 different semesters from 2014 to 2015, the outcome of each company in the management simulation game was always compared with the results of the other companies which had participated in the same version of the game. The group performance was determined by the accumulated profits of the company throughout the game, and then divided by the average cumulative profit of all the companies in the same semester; it thus reflected the percentage of the average profits achieved in the game.

Schriesheim, Wu and Scandura (2009) criticized the Multifactor Leadership Questionnaire, the questionnaire most frequently used to measure transformational leadership, because it is not clear whether its items reflect the individual, group, or organizational level. That is why we used the Czech Leadership Questionnaire (CLQ; Prochazka, Vaculik & Smutny 2016), which, unlike the MLQ, has a validated Czech version and all of whose items are formulated consistently with regard to the individual/group level evaluation of leadership. Each of the items addresses the individual perception of the leader's behaviour towards the whole group.

Using the Czech Leadership Questionnaire, each follower evaluated the level of the transformational leadership of his/her leader. The questionnaire consists of 32 items divided by four into eight subscales which correspond to four components of the transformational leadership, three components of transactional leadership, and one component of the absence of leadership.

For the purposes of this study we only used 16 items relating to transformational leadership. The items from the four subscales of transformational leadership strongly correlate with each other and can be used as a single scale with high internal consistency (Prochazka, Vaculik & Smutny 2016).

We measured the followers' work satisfaction using the self-evaluation General Satisfaction Scale from the Job Diagnostic Survey by Hackman and Oldham (1974). We used the existing Czech translation (Vaculik et al, 2016). The subscale has three items and we used a seven-point scale as with the other questionnaires.

3. Results

All the scales used were internally consistent (see Cronbach's alphas in parentheses in Table 1). Table 1 also shows descriptive statistics for all of the variables.

Table 1: Descriptive statistics

	<i>M</i>	<i>SD</i>	<i>TL</i>	<i>Sat.</i>
Transformational leadership	5.23	0.61	(.92)	
Satisfaction	5.38	0.41	0.65	(.94)
Performance	1	0.29	0.32	0.67

We modelled the relationship between variables using multi-level regression analysis in Mplus 6.1 (Muthén & Muthén 2011) with an MLR estimator. We had 500 observations (i.e. followers) at the individual level and 32 clusters (i.e. leaders) at the group level. There were no missing data in the data matrix. The interclass correlation ($ICC_{TL} = .37$; $ICC_{Satisf.} = .11$) indicated that it was useful to employ the multi-level approach (Muthén 1997).

At first, we regressed group performance on transformational leadership and found a medium-strong but insignificant path between transformational leadership and performance at the group level (est. = .15, S.E. = .11, $p = .17$, stand. est. = .32). According to the traditional approach of Baron and Kenny (1986), the relationship between the predictor and the dependent variable is a condition for the existence of the mediation effect. However, later research showed that even if this relationship is not significant, mediation may occur (Rucker et al, 2011). We therefore created a second model to which we added followers' work satisfaction as a mediator of the relationship between transformational leadership and group performance.

As shown in Figure 1, the inclusion of work satisfaction weakened the direct path from transformational leadership to group performance (stand. est. = -.20) at the group level. The regression coefficient became negative and was still insignificant. Work satisfaction was predicted by transformational leadership at both the individual (stand. est. = .18) and group level (stand. est. = .65). Work satisfaction also predicted group performance very strongly (stand. est. = .80).

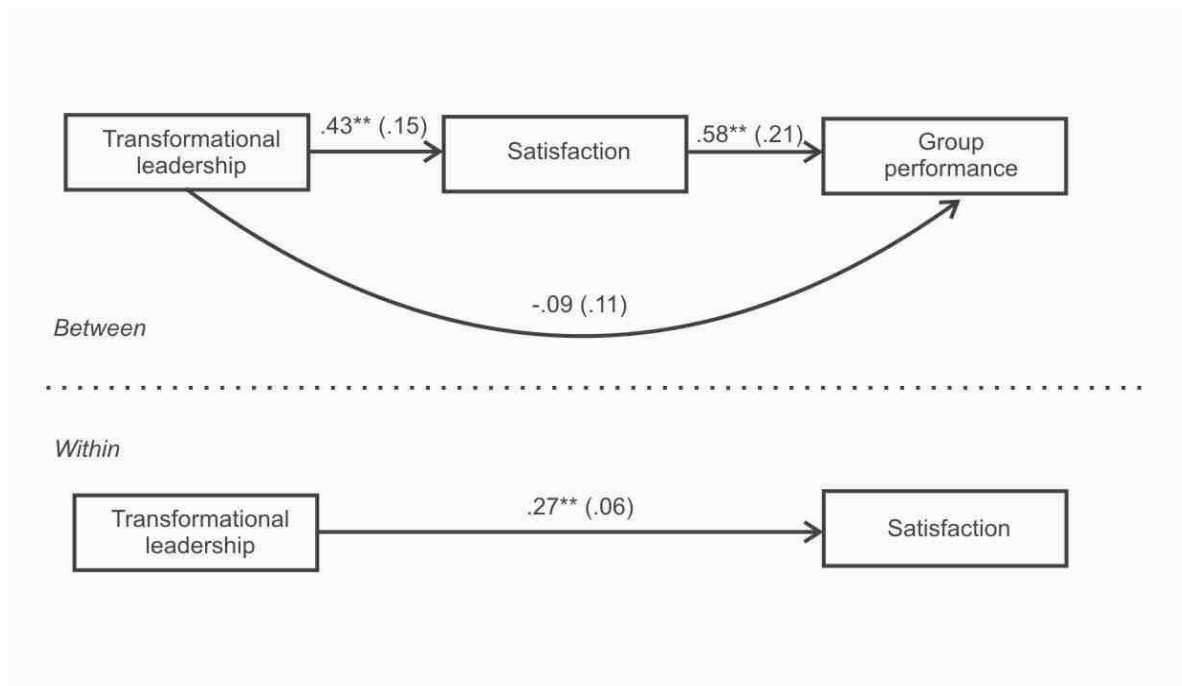


Figure 1: Mediation model

Note. ** $p < .01$; S.E. are in parentheses.

To test the mediation hypothesis, we analysed the indirect effects. According to the mediation analysis, work satisfaction was a strong mediator of the relationship between transformational leadership and group performance (est. = .25, S.E. = .14, $p = .09$, stand. est. = .52), but the mediation was only significant at a 10% level. Thus we found only weak support for the hypothesis that work satisfaction mediates the relationship between transformational leadership and group performance.

4. Discussion

This study aims to find a link between transformational leadership, work satisfaction and group performance. It shows that work satisfaction and group performance are not two independent leadership outcomes. Work satisfaction was a strong mediator in the relationship between transformational leadership and group performance. This supports our assumption that teams which are led by transformational leaders give a better performance because, among other things, followers of transformational leaders are more satisfied with their work. Therefore, our study supports the conclusions of Liang et al (2011), who arrived at similar results with a sample of employees from electronic companies in Taiwan, using different methods of data collection.

One significant limitation to our conclusions is linked to the small number of clusters (i.e. leaders) in the multi-level analysis. We monitored the relationship between transformational leadership, satisfaction and group performance at the group level and, therefore, we did not have sufficient test power to find significant mediation at the 1% or 5% level of significance. Even when we found a very strong mediation effect, it was only significant at a 10% level of significance, which is related to the higher risk of a type I error. Therefore, there is a higher possibility that the mediation effect we discovered was just the result of chance. With multi-level research into transformational leadership it is difficult to acquire a sample which provides a more powerful test at the group level. If we want to use an objective indicator of group performance, we need to involve leaders of comparable groups operating in comparable companies and producing a comparable outcome. If each leader has to be evaluated by at least six followers (Conway & Huffcutt 1997), it is necessary to approach hundreds or thousands of possible respondents and attempt to ensure a high return rate. Our sample of 32 leaders and 500 followers is one of the largest samples which provides objective and comparable data about group performance.

Alongside a possible type I error, there is an alternative explanation for our results. The study had a correlational design and all of the data was collected at the same time at the end of the managerial simulation game. Therefore, our conclusions about causality are based mainly on theories and on previous research. It is possible that transformational leadership directly increases performance and the awareness of increased group performance subsequently increases the satisfaction of followers. Or it is possible that both group performance and work satisfaction are the results of a mediator which we did not observe in this study. However, the results of Ricketta's (2008) meta-analysis, carried out on 16 panel studies, would suggest otherwise, as they indicate that satisfaction is a predictor of performance and not vice versa.

Our research has several strengths which distinguish it from the majority of existing studies into transformational leadership. Each leader is evaluated by an average of more than 15 assessors, which ensures high reliability of the evaluation of the transformational leadership. Our study is one of the few which focuses on the multi-level structure of the data and differentiates between the individual and group effect. With regard to reporting on interclass correlations, the multi-level structure has an influence on the results of the analysis. We measured group performance as the objective performance of comparable teams, which is more reliable than the self-reported performance that is usual for leadership correlation studies. In order to obtain a sufficient number of comparable teams we used a standardized managerial simulation game, which gave a high return rate for data collection, made it possible to compare profits and limited the influence of intervening variables. At the same time, the simulation environment is a challenge for the ecological validity of our study. Students playing the managerial simulation game may have different motivations and different relationships with the leader than employees in organizations. Generalizing the conclusions beyond the managerial simulation game is possible only because the assumption that the managerial simulation game accurately mimics the real business environment. In the case of our research, the similarity of the simulation game to the business environment lies in the fact that it lasts a long time and provides the opportunity for improvement based on feedback from the market; it requires the coordination of large teams, interaction with the rival companies and a series of strategic decisions (2013). The quality of the work of individual team members affects their future, albeit in the form of final marks rather than financial rewards.

This study contributes to the understanding of the influence of transformational leadership on group performance. Its outputs expand our knowledge of the mechanism of how transformational leadership affects its outcomes and can be utilized in organizations. In the event of low group performance and employee dissatisfaction, the development of transformational leadership is a joint cure for both problems. The training of a transformational approach can help to increase satisfaction and then performance. Furthermore, low transformational leadership can be compensated for by other factors which increase work satisfaction and ensure the right level of group performance, even for teams with low transformational leaders.

Several recommendations for further research emerged from our study and its limitations. Future studies should allow for the clearer testing of causality thanks to a panel or experimental design. The sample should include more leaders so that more powerful analyses can be carried out. It should also be carried out in real organizations to improve the ecological validity of the conclusions concerning the mediation effect.

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