Leader traits, transformational leadership and leader effectiveness: A mediation study from the Czech Republic*

*Jakub Prochazka, Martin Vaculik, Petr Smutny, Stanislav Jezek***

This study explores the mediation effect of transformational leadership in the relationship between leaders' personality characteristics and effectiveness. Data from 210 students in a managerial role, and from 3,766 students in a subordinate role, were obtained during a four-month-long Management Simulation Game and analysed using multilevel structural equation modelling. Transformational leadership mediated the effect of leaders' agreeableness and conscientiousness on group performance, perceived leader effectiveness, and leadership emergence. Extraversion, openness to experience and neuroticism were not linked to transformational leadership or any indicator of leader effectiveness. Intelligence predicted neither transformational leadership, nor group performance and leadership emergence. Along with other studies, this study emphasizes conscientiousness as the personality characteristic that influences leadership and leaders' effectiveness in various cultures and situations. Agreeableness may be an important leader trait in specific conditions and its influence may be moderated by context. The results must be interpreted with the knowledge that they were obtained in a simulation game environment on a sample of students.

Keywords: Transformational leadership, leader effectiveness, personality, intelligence, mediation
JEL codes – M12, M16, D91

1. Introduction

Companies invest money in management recruitment and selection, and in the development of their current managers because managers influence business results. During personnel selection, companies often focus on assessing candidates' stable traits (e.g., personality traits) because these are not easily malleable

* Received: 26.07.2015, accepted: 11.08.2017, 2 revisions

** Jakub Prochazka, Ph.D. (corresponding author), assistant professor, Masaryk University, Faculty of Economics and Administration, Department of Corporate Economy and Faculty of Social Studies, Department of Psychology, Brno, Czech Republic, Email: jak.prochazka@mail.muni.cz. Main research interests: leadership, work attitudes, managerial ethics, prosocial behaviour.
Martin Vaculik, assoc. prof., Masaryk University, Faculty of Social Studies, Department of Psychology, Brno, Czech Republic, Email: vaculik@fss.muni.cz. Main research interests: leadership, managerial competencies, assessment centre, work attitudes.
Petr Smutny, Ph.D., assistant professor, Masaryk University, Faculty of Economics and Administration, Department of Corporate Economy, Brno, Czech Republic, Email: psmutny@econ.muni.cz. Main research interests: managerial simulation games, leadership, managerial competencies, teaching of management.
Stanislav Jezek, Ph.D., assistant professor, Masaryk University, Institute for Research on Children, Youth and Family, Masaryk University, Brno, Czech Republic, Email: jezek@fss.muni.cz. Main research interests: autonomy, statistics and data analysis, psychodiagnostics, adolescence.

and can limit managers' work. On the other hand, managerial development concentrates on developable characteristics (e.g., skills or leadership styles) that can be easily shaped and can consequently increase a manager's positive effect on business results (Rupp/Snyder/Gibbons/Thornton 2006). Many research studies describe in detail the influence of various stable traits on effectiveness, but focus to a lesser degree on the mechanism that gives rise to this influence (Zaccaro 2007). Theoretical models (DeRue/Nahrgang/Wellman/Humphrey 2011; Zaccaro 2007) and research findings (e.g. Judge/Bono/Ilies/Gerhardt 2002) indicate that some leader traits affect leader effectiveness through managerial/leader skills and behaviour, i.e. through developable characteristics. This indicates that the negative effect of some stable traits could be compensated for via focused managerial development. This study tests a model of leadership effectiveness that connects the most frequently studied stable traits and developable leader behaviour as presented in the dominant theory of transformational leadership. The main goal was to understand the extent to which the influence of leader traits on leader effectiveness can be explained by leadership style. The results are applicable in managerial selection and development in organizations and in establishing criteria for personnel selection. This is one of the first studies to integrate a trait and behavioural paradigm in leadership research, the first to explore the mediation effects of transformational leadership and leader effectiveness measured through multiple, clearly isolated criteria, and the first to be conducted with a sample of respondents from Eastern Europe.

DeRue et al. (2011) show that the majority of the research that examines leader traits and leader behaviours employs traits and behaviours as independent predictors of leader effectiveness. They propose an alternative integrated model of leader effectiveness in which leader behaviours are seen as mediators of the relationship between leader traits and leader effectiveness. The authors theoretically support the model by perceiving leader behaviours as being more proximal to the outcomes of leadership than traits, and they partially support it through the meta-analysis of 59 studies. Although DeRue et al. recommend testing the mediation model using various criteria of leader effectiveness, their meta-analysis examined the model using only one complex leader effectiveness indicator. In our study, we follow the proposed model of DeRue et al. (2011) with the aim of testing the effect of leader traits on leader effectiveness through mediation by leader behaviours. We respond to the call by DeRue et al. to test the mediation model using various criteria of leader effectiveness (i.e. performance and leadership perception criteria according to Dinh & Lord 2012).

In their meta-analysis, DeRue et al. (2011) included studies that were conducted primarily in America (e.g. Judge/Bono 2000) and later in Western Europe (e.g. de Vries 2008), and in developed Asian countries (e.g. Ng/Ang/Chan 2008). They did not include any research from Eastern Europe, because there is a lack of studies from this region. However, it can be assumed that the relationship be-

tween leader traits, behaviours and effectiveness may be influenced by cultural differences and that the results may vary across regions (Bass 1997). For example, according to House and Javidan (2004), beliefs, convictions and assumptions about a good leader based on culturally endorsed implicit leadership theories may moderate the influence of leader attributes and behaviours on leader acceptance and leader effectiveness. If a personality characteristic is considered in some cultures to be a desirable leadership characteristic, then its influence on the leader's acceptance and leadership effectiveness would be stronger. The differences in implicit leadership theories between the American, Asian, Western European and Eastern European regions have been found repeatedly (Bauer 2015; House/Hanges/Javidan/Dorfman/Gupta 2004; Lang/Szabo/Catana/Konecná/Skálová 2013). Therefore, to be able to generalize the results of the leadership research, it is important to collect data from various cultures and combine the results of multiple studies. Our research from the Czech Republic complements the prevailing Western and Asia studies.

2. Review of theoretical perspectives

2.1 Indicators of leader effectiveness

Leader effectiveness refers to the effectiveness of an individual in a leadership role or/and in a leadership position. It is a construct that can be viewed from various perspectives and may be measured by various indicators. Someone considers leaders to be effective if the group they lead performs well, fulfils its goals and has good results (e.g. Elenkov, 2002; Riggio/Riggio/ Salinas/Cole 2003). The indicator that is connected to this view on leader effectiveness is called group performance. Someone considers leaders to be effective if other people evaluate them as an effective leader. The effectiveness of the leaders may be evaluated e.g. by their superiors (e.g. Lim/Ployhart 2004), subordinates (e.g. Judge/Piccolo 2004) or by external evaluators (e.g. Jung/Berson 2003). Research studies term this view on leader effectiveness as perceived leader effectiveness. The third important view connects effectiveness of the leaders with their in-role performance. According to this view, leaders are effective if they emerge as real leaders and if they are considered to be leaders by people who should be their followers (e.g. Balthazard/Waldman/Warren 2009). The indicator that is connected to the leaders' in-role performance is called leadership emergence.

Perceived leader effectiveness and leadership emergence are subjective indicators of leader effectiveness. They may be biased, e.g. due to prejudice,the quality of the relationship between the leader and the evaluators (see e.g. Eagly/Karaou/Makhijany 1995), the halo effect, central tendency or by social desirability (Bass/Avolio 1989). On the other hand, group performance is an objective indicator. However, factors other than the leader may influence the performance of the group. Even groups with ineffective leaders can achieve excellent results due

to luck, a change in external conditions or because of the qualities and activity of one of the group members.

All of the above-mentioned indicators may provide distorted information about real leader effectiveness. Feng Jing and Avery (2008) consider the use of only one type of effectiveness indicator as inadequate and insufficient. Yukl (2008) agrees and recommends using a combination of various effectiveness indicators in leadership research. As stated by Analoui, Ahmed and Kakabadse (2010), the combination of more indicators helps to avoid erroneous generalizations. That is why in our study we distinguish between group performance, perceived leader effectiveness and leadership emergence.

2.2 The Big Five traits, intelligence, and gender as predictors of leader effectiveness

The selection of leader traits for our study is based on the model proposed by DeRue et al. (2011) and includes the Big Five traits and intelligence. These attributes are among the most frequently studied stable determinants of leadership and represent two fundamental trait categories: traits related to task competence, and traits related to attributes (DeRue et al. 2011). The Big Five traits or "OCEAN" are five stable personality characteristics (openness to experience, conscientiousness, extraversion, agreeableness and neuroticism) that are part of one of the most cited and established personality theories (for a detailed definition see e.g. Costa/McRae 2008). Intelligence has several definitions. The intelligence which should be connected to leader effectiveness is a stable (Deary et al. 2000) and inherited (Bouchard, 1998) characteristic that is often called general mental ability (GMA), general cognitive ability or fluid intelligence. It is the information processing and reasoning ability that enables us to acquire, retain, organize and conceptualize information (Furnham/Dissou/Sloan/Chamorro-Premuzic 2007).

A relationship between the Big Five traits and leader effectiveness (Judge et al. 2002; Neubert/Taggar 2004; Ng et al. 2008), and between intelligence and leader effectiveness (Foti/Hauenstein 2007; Judge/Colbert/Ilies 2004; Ng et al. 2008) has repeatedly been found. However, the relationship tended to be rather weak, and in many research studies the predictors of effective leadership varied. Among the above-mentioned studies, conscientiousness was observed to be the most consistent and one of the strongest predictors of leader effectiveness measured by group performance. Extraversion has repeatedly been shown to be an important predictor of perceived leadership effectiveness (DeRue et al. 2011; Judge et al. 2002).

Besides the Big Five traits, gender belongs among the most frequently studied trait determinants of leadership. In the model by DeRue et al. (2011), gender represents demographic traits. However, gender has been shown to be the worst

predictor of leader effectiveness in comparison to other factors (DeRue et al. 2011). There is only a very small difference in leadership style between men and women (Eagly/Johannesen-Schmidt/van Engen 2003) and insignificant gender difference in leader effectiveness (Eagly/Karau/Makhijani 1995). That is why we did not include gender in the model of effective leadership which we tested in this study.

2.3 Transformational leadership as a predictor of leader effectiveness

The leader behaviour we aim to examine in our model is transformational leadership, which represents desirable leader behaviour across situations and covers task-oriented leader behaviours, relation-oriented behaviours, change-oriented behaviours, and non-passive behaviours (DeRue et al. 2011). This approach, which emphasizes the internal motivation of subordinates (Bass 1997), includes four typical leader behaviours: idealized influence (or charisma), inspirational motivation, intellectual stimulation and individualized consideration (for a detailed definition see e.g. Bass 1999 or Judge/Piccolo 2004). Transformational leadership predicts objectively measured group performance (Ling/Lubatkin/Simsek/Veiga 2008; Resick/Whitman/Weingarden/Hiller 2009) and perceived leader effectiveness as evaluated by superiors (Avolio/Bass 2004; Lim/Ployhart 2004), subordinates (Bycio, Hackett/Allen 1995; Judge/Piccolo 2004), external evaluators (Bass/Avolio, Jung/Berson 2003; Lim/Ployhart 2004), and by the leaders themselves (Howell/Hall-Merenda 1999; Ling et al. 2008) in various cultures and situations. Therefore, we assume that transformational leadership is positively related to all of the indicators of leader effectiveness which we examined in our study.

2.4 Transformational leadership as a mediator in the relationship between traits and effectiveness

Leaders who score higher on extraversion, openness to experience, agreeableness, and conscientiousness, but lower on neuroticism, employ a more transformational style of leadership (Avolio/Bass 2004; Bono/Judge 2004; Lim/Ployhart 2004; Zopiatis/Constanti 2012). We assume that this connection between traits and transformational leadership explains the relationship between traits and leader effectiveness.

Agreeableness may be associated with the presence and quality of transformational leadership. Agreeable leaders are generally more responsive to people (Hřebíčková/Urbánek 2001), including their followers. We assume that agreeable leaders pay attention to their followers' needs and consider the needs and qualities of their team members more than less agreeable leaders. This behaviour is part of the individualized consideration dimension of transformational leadership that is connected to leader effectiveness (see above). The agreeable leaders

also display more interest, respect and trust toward followers (Graziano/Jensen-Campbell/Hair 1996), which is typical for the idealized influence dimension of transformational leadership.

Conscientious leaders display planned rather than spontaneous behaviour. They work hard to achieve goals and are responsible, self-disciplined and earnest (Hřebíčková/Urbánek 2001). They keep deadlines and promises, which is why they may be strong in the dimension of transformational leadership termed idealized influence. They lead by example and we assume that they have a clear vision of future success more often than less conscientious leaders. That is why conscientious leaders should display more inspirational motivation, one of the transformational leadership behaviours.

Leaders who are high in neuroticism are pessimistic and unstable (Hřebíčková/Urbánek 2001). Pessimism reduces the degree to which they can inspire followers, and instability may lead to inconsistent behaviour and thus to lower idealized influence. That is why more neurotic leaders tend to be less transformational and less effective. Extroverts are more active, energetic, and optimistic than introverts (Hřebíčková/Urbánek 2001), and they might inspire their followers through this behaviour. Leaders' activity and positive energy can therefore also stimulate their followers more frequently and intensely. Therefore, extroverts tend to exhibit more inspirational motivation and intellectual stimulation than introverts, which is why they can be more transformational and more effective leaders.

Leaders who are open to new experiences are open to new solutions and procedures. They are curious and willing to learn new things (Hřebíčková/Urbánek 2001). Challenging the status quo, searching for and trying new solutions is associated with transformational leadership, especially with its intellectual stimulation dimension (Kirkpatrick/Locke 1991). Thanks to their self-development, open leaders can also be more skilled and experienced in the area of their expertise. That is why they might be perceived as more charismatic (i.e. displaying idealized influence) and effective.

Intelligent leaders can inspire their followers through intellectual stimulation. They might also display more idealized influence because of their ability to understand and solve problems and because of their knowledge of their job (see Schmidt/Hunter 2004). Unlike the Big Five traits, intelligence can be connected to leader effectiveness not only through transformational leadership, but also directly. Intelligence is one of the best predictors of performance across various jobs and positions (Schmidt/Hunter 2004). The ability to solve problems makes leaders not only charismatic, but it can also help them to make good decisions, find new effective solutions and gain competitive advantage for their teams. These teams can be successful not only because of the leadership behaviour of their leaders, but also because of their leaders' direct influence on the problem.

We assume that the relationships between personality characteristics and leader effectiveness mediated by transformational leadership exist regardless of the employed indicator of leader effectiveness. The above-mentioned personality characteristics help leaders to be more transformational. Transformational behaviour influences leadership emergence because transformational behaviour can be seen by followers as prototypical leadership behaviour (see e.g. Bass/Avolio 1989), and because it helps to create the leader-follower relationship (Wang/Law/Hackett/Wang/Chen 2005). Transformational leadership also strengthens group performance and its perception because transformational leaders encourage their followers, give them direction and a positive example (by inspirational motivation), involve them, engage them and stimulate them to find new effective solutions (by intellectual stimulation), develop them, utilize their qualities and support their individual motivation (by individualized consideration). Transformational leaders also reinforce performance because followers want to invest effort in their charismatic leader (thanks to idealized influence) (see e.g. Bass 1997; Lim/Ployhart 2004; Resick/Whitman/Weingarden/Hiller 2009).

As we know, the only research study on personality traits, transformational leadership and leader effectiveness was conducted by Cavazotte et al. (2012) on 134 managers and 325 subordinates from a large Brazilian company in the energy sector. From the stable characteristics they examined the Big Five personality traits, intelligence, emotional intelligence, gender and managerial experience. As the mediator, they chose transformational leadership, which represented leadership behaviour. Their analyses showed that conscientiousness, intelligence, and the length of managerial experience positively predicted transformational leadership, and transformational leadership was a strong predictor of leader effectiveness (termed managerial performance). The analysis supported the mediation role of transformational leadership. However, there are some facts that indicate that the study by Cavazotte et al. (2012) needs a follow-up study which would use slightly different methods and a different sample.

a) Only 32% of the managers and 18% of the subordinates participated in the study by Cavazotte et al. (2012) Therefore, there was significant self-selection, which could have affected the results, leading to a biased sample (e.g. Holt 1997).

b) The authors used only one compounded indicator of leader effectiveness, called *managerial performance.* One part of this indicator is defined as "...evaluations of superiors regarding the degree to which the managers demonstrated behaviour congruent with company strategies" (Cavazotte et al. 2012, p. 446). Manifestations of a leader's behaviour therefore appeared in the model at both the mediator and the leadership outcome level. The observed relationship may not be the result of the real relationship between constructs, but it can be caused

by the fact that a mediating variable and the outcome variable might partly represent the same construct.

c) As mentioned, Cavazotte et al. (2012) used a single compounded indicator of leader effectiveness. The indicator termed *managerial performance* encompasses a degree of attaining objective performance goals, evaluation by superiors, and evaluation by followers. However, as we already mentioned, it is important to measure real performance and leadership and performance perception to be sure that the relationship exists, regardless of the type of effectiveness indicator (Dinh/Lord 2012).

d) The research (Cavazotte et al. 2012) was conducted on a sample of employees from a large Latin American company. De Rue et al. (2011) noted that "traits manifest into the expected set of behaviours only when the situation makes the need for that trait behaviour salient" (p. 19), and Bass (1997) pointed out possible differences in the effects of transformational leadership on leadership outcomes in various countries and various types of organizations. The context of a large energy company is different from the context of a start-up (e.g. more hierarchical structure, higher wages, unions) or a student organization (e.g. more heterogeneous teams, more experienced leaders). The context of South America is different from the context of the North America, Asia or Eastern Europe. For example, in comparison to Latin America, Eastern Europe is characterized by higher assertiveness (House et al. 2004). In terms of Big Five traits, people in Eastern Europe seem to be more extroverted, less conscientious, less open to experience and score lower in neuroticism than people in South America (Schmitt/Allik/McCrae/Benet-Martínez 2007). We do not assume that these factors dampen the proposed relationships between personality traits, transformational leadership and leader effectiveness. However, we cannot generalize the relationship that was found only by one study and in one context. To generalize their study results, even Cavazotte et al. (2012) considered it necessary to arrive at comparable results using a different sample and a different context.

Due to the above-mentioned facts, we followed on from the study by Cavazzote et al. (2012) using slightly different methods and a different sample. The effectiveness of a leader is measured using three different indicators, whereas the evaluation of objective performance is not combined with the evaluation of subordinates into one indicator and none of the indicators includes leader behaviours. We carried out our research in a standardized environment where we were able to ensure a high response rate and we conducted the study in the Czech Republic, which represents a different cultural environment to Brazil.

We tested the following hypothesis:

H: Transformational leadership mediates the effect of leader traits on group performance, perceived leader effectiveness, and leadership emergence.

3. Method

3.1 Participants

210 students (we call them managers because they had a managerial role during the game) led teams of approximately 20 class mates (4,193 students together in all teams; we call them subordinates) within a four-month-long Management Simulation Game. Before the end of the simulation game, 185 out of 210 managers had completed an intelligence test and 184 had completed personality questionnaires. Before the end of the simulation game, 3,821 from 4,193 subordinates (91.13 % response rate) assessed the leadership style and leadership effectiveness of their manager. We excluded answers from 55 out of 3,821 respondents. These respondents either answered that they had not attended the seminars to meet their manager or they filled in the questionnaire in less than four minutes. According to the pretest, at least four minutes were needed to read and answer all the questions. Therefore, the final number of subordinates in the sample was 3,766, and each of the 210 managers was evaluated by 17.93 subordinates on average. All of the managers (average age = 21.57; SD = 1.80) and subordinates (average age = 21.27; SD = 1.44; based on 2 432 valid answers) were students of business faculties in the Czech Republic and therefore the teams were of a similar age and had members with similar experience. The managers were mostly male (74.3 %).

One important issue when researching a student sample is external validity. According to Lang, Szabo, Catana, Konečná and Skálová (2013), leadership expectations and prototypes of good and bad leadership behaviours are culturally bound, and we can observe similar cross-cultural differences among both students and managers. They (Lang et al. 2013) observed the same differences between German and Czech students in charismatic and participative leadership as did House et al. (2004) between German and Czech middle managers in the GLOBE study. Although managers generally preferred participative leadership more than the students did, this difference between managers and students was smaller when they compared managers and business students (Lang et al. 2013). Students in our sample were business students. They were adults; they experienced real teamwork and solved real problems during the Management Simulation Game (see below). Therefore, our sample consisted of people of a productive age who had leadership expectations that are comparable to managers and who received realistic long-term leadership experience during the game. That is why we consider our sample to be relevant for leadership research.

3.2 Procedure

The Management Simulation Game is a four-month-long simulation of a car market. The teams of students represented the management of car manufacturers (i.e. companies) that sold their products in a computer-simulated market. Each

game company was led by a manager who was elected from among company members shortly after the start of the game. At the beginning of the game, the lecturer chose one owner of each company. The owner was in the role of the largest shareholder and his/her result in the Management Game was based on the market value of the company at the end of the game. The owner was not able to manage the company directly. He/she only appointed and dismissed the manager. The owner chose the members of the selection committee to prepare the tender for the position of manager. Of the other students, everyone could become a manager. Tenders were prepared individually by each selection committee and varied across teams. Typically, it included CVs, the introduction of a leadership vision by each candidate, interview and/or model situation. Therefore, the selection methods were similar to selection methods in real companies (Schmidt/Hunter 1998). The tender was attended by the owner and all the team members. Team members expressed their preference for candidates by voting. However, as with a real business, it was the owner who made the final decision about the future manager.

At the start of the game, the position of all the companies in one market was identical. Over the course of the game, the players had a number of options to influence the performance of their businesses. Over seven rounds, they decided on the number of cars produced in each round, optimized production costs, invested in research, determined the basic equipment of the car, created marketing documentation, created financial statements, made analyses of financial markets, and acted on loans with banks. The managers had great powers that could be delegated to subordinates. However, the managers had the final word, for example, when deciding on corporate strategy, organizational structure, and the distribution of work during lay-offs and recruitment. The managers and their subordinates were rewarded with game money during the game, which was later translated into the course grade at the end of the semester. The amount of money for rewards was based on the company's results. The managers had the decisive say in the distribution of rewards within the teams (for more information about the game see Smutny/Prochazka/Vaculik 2013).

The Management Simulation Game is suitable for research because a) it allows for the comparison of similar teams, b) it allows for the reduction in the impact of external variables affecting research in real businesses (team size, history, individual experience of team members), c) it allows access to data on the performance of individual companies and generates high returns when collecting data using questionnaires (Smutny et al., 2013). For these reasons, we consider research using Management Simulation Games as an appropriate addition to the research by Cavazotte et al. (2012) carried out on a large Brazilian energy company.

The Management Simulation Game was designed to simulate the conditions of a real company. A large team of people has long been working to meet the common goal of maximizing the profit of a company. In order to achieve their goals, they had to co-operate and cope with internal (e.g. conflicts, deadlines, agreements and promises) as well as external factors (e.g. decisions of competitors on the oligopolistic market, political and economic factors simulated by lecturers). The selection of the manager and his powers were modelled according to real-world enterprises. However, when interpreting the results, it has to be taken into account that it was just a simulation, and that the participants were not real employees but students.

We collected data for the research over eleven semesters (10 – 28 teams played each semester). The questionnaires for subordinates were part of the information system in which the students worked during the simulation game. We asked them to fill in the questionnaires by email before the end of game. We informed them that the data would be used for research purposes and we rewarded them with a small amount of game money for completing the questionnaires.

We asked the leaders to attend a voluntary meeting with a psychologist and fill in the personality questionnaire and the intelligence test. We informed them that we wanted to use their data for research purposes and we offered them a personal summary report. We obtained data on the group performance of all 210 teams from the database of the Management Simulation Game after the game ended.

3.3 Measures

All personality characteristics were measured at the group (i.e. manager) level as the self-assessment of each leader. We measured the Big Five traits of managers with the Czech version of the NEO-FFI scale (Hřebíčková/Urbánek 2001). Each trait was assessed by 12 items with which the participant has to express agreement/disagreement on a seven-point scale. To measure intelligence, we employed Raven's Advanced Progressive Matrices (Raven/Court/Raven 1991), a unidimensional non-verbal measure of fluid intelligence that includes a number of difficult tasks allowing for differentiation among people with above-average ability. The test consists of 36 tasks, and one point is given for each correct response.

The most commonly used measure of transformational leadership, the MLQ (Antonakis/Avolio/Sivasubramaniam 2003; Rowold/Heinitz 2007), does not have a validated Czech translation. We therefore developed an original Czech measure, the items of which we tailored for the Management Simulation Game based on the theory of transformational leadership. The measure was constructed as a unidimensional scale because the individual MLQ scales highly correlate with each other (Avolio/Bass 2004) and the foreign translations of the MLQ and other questionnaires that assess transformational leadership did not often support

the same five-factor structure of transformational leadership, as shown in MLQ (e.g. Carless/Wearing/Mann 2000; Singh/Krishnan 2007). Bycio et al. (1995) concluded that a simpler model with a single factor of transformational leadership was well warranted. Cavazzotte et al. (2012) took a similar view in their research with a single scale of transformational leadership.

Our measure of transformational leadership consisted of 12 items with a three-point descending response scale (accurate / partially accurate / not accurate; sample item: *"She/He emphasized the meaning of the work we did."*). Based on the multilevel confirmatory factor analysis (CFI = .93; RMSEA = .04), the single-factor model meets the criteria recommended by Marsch and Hau (1996) and has characteristics similar to Singh and Krishnan's (2007) Indian scale of transformational leadership. The questionnaire is internally consistent (Cronbach's α = .93). On an individual (i.e. follower) level, we measured how each subordinate perceived the transformational leadership of his/her manager.

We assessed leader effectiveness using the following three indicators: group performance, perceived leader effectiveness and leadership emergence. Group performance is an objective "performance criterion" (Dinh/Lord 2012) that demonstrates the success of a particular team. Perceived leader effectiveness and leadership emergence represent "leadership perception criteria" (Dinh/Lord 2012). We measured perceived leader effectiveness and leadership emergence on an individual level. To assess leadership emergence, we used five questions with a three-point scale which the subordinates responded to in order to evaluate how the manager, their former classmate, emerged as a true leader during the Management Simulation Game (sample item: *"Throughout the game, she/he was a true leader of the team."*). To assess perceived leader effectiveness, the subordinates answered two questions concerning the assessment of the effect of the manager on the company's effectiveness based on: 1. the efficiency of the outcome and 2. process efficiency (sample item: *"She/He successfully led our team through the Management Game."*). Both sets of questions showed internal consistency (leadership emergence: Cronbach's α = .88, perceived leader effectiveness: Cronbach's α = .77).

We measured group performance on a group level as the profitability of each company under the leadership of the manager during the entire course of the simulation game. The variable group performance was determined by the accumulated profits of the business throughout the game, divided by the average cumulative gain on the market. It thus reflected the percentage of the average profits achieved in the market.

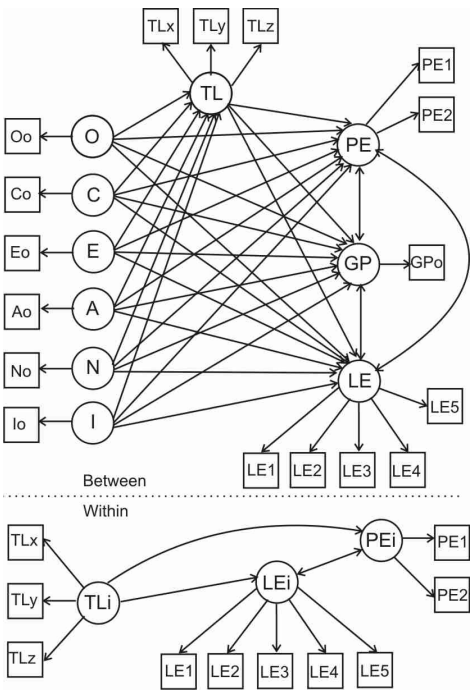
4. Results

To test the hypotheses we estimated a multilevel structural equation model (SEM) using Mplus 6.1 (Muthén/Muthén 1998-2011). The conceptual model that we tested is displayed in Figure 1.

4.1 Structural model

On the individual level (i.e. individual perception of the leader), the model contained the path from transformational leadership to perceived leader effectiveness and leadership emergence. Group-level relationships between personality predictors and three indicators of leader effectiveness (i.e. group performance, perceived leadership effectiveness and leadership emergence) were modelled as partially mediated by transformational leadership. The correlations among personality factors were fixed to zero because the OCEAN model assumes non-existing or very small relationships between the personality characteristics (Hřebíčková/Urbánek 2001). The correlations between leader effectiveness indicators remained open, because the perception of the leader may be influenced by the results and vice versa.

Figure 1: Conceptual mediation model of personality, transformational leadership and leader effectiveness



4.2 Measurement model

The personality characteristics (i.e. OCEAN + intelligence) were represented in the models by single-indicator latent variables, where the residual variance of the indicators was fixed to $s^2(1-r_{tt})$ (Kline 2011). We used the appropriate standardization sample values of reliability estimates listed in the manual of Raven's APM (Raven et al. 1991) and in the study of internal consistency of the Czech NEO-FFI (Hřebíčková/Čermák 1996).

Transformational leadership, the predictor on the individual level and the mediating variable on the group level, was represented by three parcels of four items each (TLx, TLy, TLz). The transformational leadership scale used is unidimensional, which, according to Little, Cunningham, Shahar and Widaman (2002), allows the parcels to be used to simplify the measurement part of the model. We used the minimum number of parcels that ensured that the latent construct would be identified. The items were selected randomly for parcels, in line with the recommendation by Little et al. (2002). Their internal consistencies, means, and SDs were comparable. In addition, their intercorrelations were of the same magnitude, corresponding to their internal consistency—supporting the unidimensionality assumption.

Group performance was modelled as a single-indicator latent variable with a test-retest reliability estimated at .80. The other two outcome variables, leadership emergence and perceived leader effectiveness, were modelled as regular latent variables with 2 and 5 indicators (scale items). All correlations between the items constituting these two scales were high (above .70).

The descriptive statistics and factor loadings of all observed variables are in Table 1. Table 2 contains the correlations between latent variables at the group level (obtained from the model without regression paths and with open correlations between all latent variables).

Table 1: Descriptive statistics of observed variables

	M	*SD*	GL load.	IL load.	ICC
No: Neuroticism	15.14	8.23	.999	NA	NA
Eo: Extraversion	37.81	5.98	.999	NA	NA
Oo: Openness to experience	29.00	6.30	.998	NA	NA
Ao: Agreeableness	28.85	6.41	.998	NA	NA
Co: Conscientiousness	34.84	7.22	.999	NA	NA
Io: Intelligence	28.94	3.95	1.00	NA	NA
GPo: Group performance	1.06	.59	.883	NA	NA
TLx: Transf. leadership, parc. 1	1.40	.20	.988	.772	.18
TLy: Transf. leadership, parc. 2	1.30	.22	.875	.735	.16

Table 1: Descriptive statistics of observed variables (continued)

	M	*SD*	GL load.	IL load.	ICC
TLz: Transf. leadership, parc. 3	1.40	.25	.974	.751	.26
PE1: Perceived leader effect. 1	1.34	.42	.996	.709	.30
PE2: Perceived leader effect. 2	1.51	.38	.989	.668	.31
LE1: Leadership emergence 1	1.14	.31	.927	.616	.14
LE2: Leadership emergence 2	1.34	.33	.963	.748	.17
LE3: Leadership emergence 3	1.56	.35	.962	.780	.25
LE4: Leadership emergence 4	1.41	.35	.984	.743	.22
LE5: Leadership emergence 5	1.23	.43	.940	.707	.27

Note. Means and standard deviations are at group level; GL load = standardized factor loading at group level; IL load = standardized factor loading at individual level; ICC = Interclass correlations.

Table 2: Correlation matrix of all latent variables (at group level, N = 210)

	N	E	O	A	C	I	TL	PE	LE
N: Neuroticism									
E: Extraversion	-.19**								
O: Openness to experience	.21**	.04							
A: Agreeableness	-.12	.17*	.09						
C: Conscientiousness	-.17*	.25*	.01	-.03					
I: Intelligence	-.13*	-.04	-.08	.02	-.09				
TL: Transf. Leadership	-.07	.05	-.06	.27**	.18*	.11			
PE: Perceived leader effect.	-.12	.04	-.02	.20*	.18*	.00	.83**		
LE: Leadership emergence	-.08	.03	-.09	.16	.18*	.09	.97**	.82**	
GP: Group performance	-.04	.01	-.08	.23**	.12	-.05	.45**	.76**	.40**

Note. *$p < .05$; **$p < .01$.

4.3 Results of the structural equation model

The model was estimated with a maximum likelihood robust estimation (MLR). The number of missing values was fairly low (the lowest covariance coverage was .87). There were two patterns of missing values because 25 managers (11.9 %) did not fill out the self-report part of the study measuring the predictors, and 1 manager completed only the Raven's APM (i.e. GMA test) but not the NEO-FFI questionnaire. Based on Little's test, this cannot be considered MCAR ($\chi^2(23) = 47.08$, $p = .002$). A missing value analysis using SPSS 21 revealed that the managers who did not answer the personality questionnaires and the Raven's APM received nearly one standard deviation lower ratings from their subordinates on the transformational leadership, leadership emergence and leadership effectiveness scales. Notably, there was no such difference in the group performance. Because the MLR estimation in MPLUS does not fully

compensate for non-MCAR missing values, we also estimated the model using a listwise deletion, but the substantial results did not differ.

The results of multilevel CFA ($\chi^2(128) = 730.406$; CFI = .966; TLI = .951; RMSEA = .035) indicated a very good fit (according to Hu/Bentler 1999). The fit of the model was lowered mainly because of the conceptual proximity of transformational leadership, perceived leader effectiveness and leadership emergence. Separately, the individual items and parcels loaded well on the latent factor without significant covariances between residuals. As part of the whole mediation model, some item/parcel residuals had a tendency to correlate with the residuals of the items/parcels that loaded on a different factor. Leadership emergence was particularly strongly linked to transformational leadership (see Table 2) – it seems that respondents were not able to differentiate between behaviour (i.e. transformational leadership behaviour) and its outcome (i.e. the perception of the leader as a good leader). At the individual level, the model explained 59% of variance in perceived leader effectiveness and 71% in leadership emergence. At the group level, the model explained 15% of variance in transformational leadership, 25% of variance in group performance, 72% of variance in perceived leader effectiveness and 96% of variance in leadership emergence.

The standardized parameters of the measurement model are shown in Table 1. Raw-metrics and standardized structural parameters of the model are listed in Table 3. The direct associations between transformational leadership and the indicators of leader effectiveness were strong on both individual and group levels. From the personality characteristics, only agreeableness and conscientiousness seemed to affect transformational leadership. To test the hypothesis that transformational leadership mediates the relationship between leader's personality and his/her effectiveness, we analysed the indirect effect of agreeableness and conscientiousness on group performance, perceived leader effectiveness and leadership emergence through transformational leadership. As can be seen from Table 4, transformational leadership mediated significantly all six relationships between two personality predictors and three leadership outcomes.

Neuroticism, extraversion, openness to experience, and intelligence did not predict transformational leadership. Therefore, their indirect effect on leader effectiveness indicators through transformational leadership could not have been observed either (see e.g. Rucker/Preacher/Tormala/Petty 2011). Thus we found only partial support for our hypothesis.

It is worth noting that in the model there was a significant negative direct path from intelligence to perceived leader effectiveness.

Table 3: Structural parameters for the four endogenous variables in the model

	Transf. leadership			Perc. led. effectiveness			Leadership emergence			Group performance		
Within (Individual level)	*Est.*	*S.E.*	St. est.	*Est.*	*S.E.*	St. est.	*Est.*	*S.E.*	St. est.	*Est.*	*S.E.*	St. est.
On: Transform. leadership				1.047**	.037	.767	1.209**	.040	.841			
With: Perc. leader effectiveness							.039**	.004	.534			
Between (group level)												
On: Transform. leadership				1.832***	.114	.865	1.482***	.088	1.013	1.118***	.240	.413
On: Neuroticism	.001	.002	.038	-.005	.002	-.091	-.001	.001	-.026	.001	.006	.008
On: Extraversion	-.001	.003	-.021	-.001	.003	-.020	.000	.001	-.008	-.004	.006	-.044
On: Openness	-.003	.003	-.086	.003	.003	.050	-.001	.002	-.011	-.006	.007	-.076
On: Agreeableness	.009***	.002	.284	-.003	.004	-.043	-.005**	.002	-.115	.011	.008	.138
On: Conscientiousness	.006*	.002	.211	0.00	.003	-.003	.000	.001	-.01	.003	.006	.043
On: Intelligence	.006	.004	.126	-.011*	.005	-.104	-.002	.002	-.027	-.014	.010	-.105
With: Perc. leader effectiveness							.000	.002	.003	.082***	.014	.817
With: Leadership emergence										-.004	.005	-.173

Note. *p < .05; **p < .01; ***p < .001

Table 4: Test of indirect effects on the three outcomes

	Perc. led. effectiveness			Leadership emergence			Group performance		
	Est.	*S.E.*	St. est.	*Est.*	*S.E.*	St. est.	*Est.*	*S.E.*	St. est.
Agreeableness → TL → Outcome	.016***	.004	.246	.013***	.004	.288	.010**	.003	.117
Conscientiousness → TL → Outcome	.010*	.004	.183	.008*	.004	.214	.006*	.003	.087

Note. *p < .05; **p < .01; ***p < .001

4.4 Comparison of alternative models

We compared the main model described above (M1, multilevel, with both direct and indirect paths from personality characteristics to effectiveness indicators) with two more restricted models that were nested in M1. The first alternative model was a model with full mediation (M2, multilevel, without direct paths from personality characteristics to effectiveness indicators). The second alternative model was a model without mediation (M3, multilevel, without paths from personality characteristics to transformational leadership). As can be seen from Table 5, all three models had comparable fit indices. According to Satorra-Bentler's scaled chi-square difference test (Bryant/Satorra 2012), M1 did explain the data slightly better than both the alternative models (Sattora-Bentler Scaled $\Delta\chi^2_{(M1\text{-}M2)} = 53.821$, $\Delta df_{(M1\text{-}M2)} = 18$; $p < .001$; Sattora-Bentler Scaled $\Delta\chi^2_{(M1\text{-}M3)} = 18.992$, $\Delta df_{(M1\text{-}M3)} = 6$; $p < .01$). However, this difference is fairly small, reflecting the small magnitude of the direct and indirect effect that personality variables had on outcomes, especially in contrast to the associations among the outcomes and the mediator.

Table 5: Model fit summary

Model	χ^2	df	p	CFI	RMSEA
M0: Null model	17737.967	181	< .001		
M1: Partial mediation	730.406	128	< .001	.966	.035
M2: Full mediation (indirect paths only)	766.843	146	< .001	.965	.034
M3: Without mediation (direct paths only)	746.971	134	< .001	.965	.035

5. Discussion

Our findings support the integrative model of leader effectiveness, in which transformational leadership mediates the relationship between some leader characteristics and leader effectiveness. When checking for the influence of the other Big Five traits and intelligence, agreeableness and conscientiousness are shown to be the most important leader personality traits because of their connection to leader effectiveness indicators. According to the results, transformational leadership mediates the effect of leaders' agreeableness and conscientiousness on group performance, perceived leader effectiveness, and leadership emergence. We found no support for the direct or indirect influence of the other three Big Five traits on any criteria of leader effectiveness. We found a small negative direct effect of intelligence on perceived leader effectiveness. This effect emerged in the model with transformational leadership and was not observable when we correlated intelligence and perceived leadership effectiveness separately.

5.1 Interpretations of the results and implications for practice

Our results complement the results of the research by Cavazotte et al. (2012). Both studies emphasize the importance of conscientiousness as a stable leader trait. Cavazotte et al. (2012) found conscientiousness to be the only Big Five trait that influenced leader effectiveness through transformational leadership. In our study, conscientiousness was the second best predictor of the three different criteria of leader effectiveness and it also related to leader effectiveness through transformational leadership. The results from both studies indicate that the effect of conscientiousness on leader effectiveness through transformational leadership may be an effect that is valid across cultures and environments. We can conclude that goal-oriented, self-disciplined, planning, responsible, and earnest leaders tend to possess more transformational leadership and thus are perceived as better and more effective leaders.

The strongest predictor of leader effectiveness in our research was agreeableness. In the research by Cavazotte et al. (2012), however, its influence on leader effectiveness was shown to be insignificant. This may be attributed to the cultural differences between the samples. Although the average agreeableness in Brazil is similar to the Czech Republic, Brazilian managers (like US managers) prefer a more participative (which is close to intellectual stimulation) and charismatic leadership style than Eastern European managers (House et al. 2004). This may lead to the greater involvement of subordinates in Brazil thanks to the more frequent intellectual stimulation behaviour of Brazil managers, which is culturally determined and independent from managers' agreeableness. That is why there may be less space for the effect of agreeableness than in the Czech Republic. However, the difference in samples in both studies was not only cultural. Our participants were students taking part in the Management Simulation Game. The student leaders had less formal authority than leaders in a real Brazilian company because they were classmates of their followers. Trust, responsiveness and an interest in subordinates may play more important roles in environments where leaders have little formal authority. The classmates might be more sensitive to the agreeableness of their leaders and, therefore, the agreeableness of their leaders may affect their perception of transformational leadership more strongly compared to subordinates in a more formal environment. That is why agreeableness may influence leader effectiveness through transformational leadership only in some contexts.

The most surprising finding of our study is that the relationship between extraversion and transformational leadership was not observed. In a meta-analysis (Bono/Judge 2004; DeRue et al. 2011), extraversion was the strongest predictor of transformational leadership. When interpreting this result, the differences between the Multifactor Leadership Questionnaire (MLQ) and the method employed in our research study have to be taken into account. Transformational

leadership is, in the majority of research studies, assessed by subordinates using MLQ. The evaluators are asked to judge individual items that reflect the frequency of leaders' behaviours. Extroverts tend to engage in more interactions and are more talkative and assertive. It is therefore possible that they are more positively evaluated in terms of transformational leadership due to a number of behaviours they exhibit rather than due to the quality of these behaviours. Consequently, extroverts might be perceived as more transformational leaders than introverts. However, the quantity of transformational expressions alone does not have to affect group performance. The MLQ uses a five-point response scale in which participants indicate the frequency of behaviours to be assessed. We used only a three-point response scale where participants expressed whether the leader exhibited the described behaviour. Our scale does not evaluate the degree of transformational leadership through the frequency of transformational behaviours, but it is based on an assessment of whether the specific transformational behaviour is typical or not for each individual leader. For this reason, our scale might be less susceptible to overestimating the transformational leadership of extroverts. Our findings indicate that extraversion might be a less important leader trait than was originally believed.

Unlike Cavazotte et al. (2012), our research failed to find a positive relationship between intelligence and leader effectiveness. Surprisingly, we found a non-hypothesized weak negative direct path from intelligence to perceived leader effectiveness when the effect of transformational leadership, leadership emergence and group performance was controlled. This effect might be caused only by chance or it might indicate a possible small suppression effect of transformational leadership on the relationship between leader's intelligence and their effectiveness as perceived by followers. However, we did not have sufficient test power to find this possible small suppression effect.

This insignificant effect of intelligence on group performance may be attributed to the characteristics of our research sample, which had a relatively small variability in intelligence scores compared to other observed variables. The results of Raven's APM show that all of the managers achieved above-average scores in intelligence. One might wonder whether the college students selected for the position of CEO by their peers were, in terms of intelligence, too homogeneous to allow for intelligence to be a significant predictor of group performance.

That we did not observe a relationship between neuroticism, openness to experience, and transformational leadership and leader effectiveness is not very surprising. Although those relationships have a sound theoretical grounding, previous studies illustrated that they are rather low, inconsistent or non-existent (Bono/Judge 2004; DeRue et al. 2011). Similarly to agreeableness, those relationships might be affected by the particular situation in which they are observed.

The application of our findings can be seen particularly in the selection and development of managers and individuals in leadership positions. In terms of leader selection, one should focus on agreeableness and conscientiousness because they best predict future leader effectiveness. The effect of leaders' low agreeableness and conscientiousness on effectiveness can be compensated for by transformational leadership training (see e.g. Mason/Griffin/Parker 2014).

5.2 Advantages, limitations and recommendations for future research

There are several advantages to our research, i.e., the design, levels of analysis, sample size and number of variables underlying leader effectiveness. The Management Simulation Game created uniform conditions and provided an opportunity to examine similar teams with only a small influence from external variables. The 210 managers were assessed by an average of nearly twenty followers. The evaluation was therefore much more valid than in the case of an assessment being performed by only one or a few evaluators (see e.g. Conway/Huffcutt 1997). Moreover, we differentiated the relationships on the individual and group levels. The lack of multi-level studies is considered to be one of the weaknesses of the existing research on transformational leadership (Braun/Peus/Weisweiler/Frey 2013).

We also combined multiple predictors of leader effectiveness. This approach offers a more complex perspective on understanding the relationship between personality, leadership and effectiveness. We were able to show that the relationships we discovered were not only caused by the selection of a specific indicator. Another advantage of the study is the Czech sample, which differs from the typical American / Western European samples. As we described, there is a need for studies from different countries in order to generalize the results obtained from typical Western samples.

There are also several limitations to our study. The main limitations are related to the student sample, the environment of the simulation game, the limited number of predictors in the model, the leader-centric approach and the correlation design. Although mentioned as an advantage, the Management Simulation Game was also a limitation in our study because it only simulated the environment of a real company. The game lasted only one semester, followers were not rewarded with real money and they were classmates of their leaders in other courses. The student respondents had limited previous work experience so they could not compare their leader with previous leaders as much as employees in organizations could. However, short-term contracts and non-financially motivated and inexperienced followers are also present in a lot of real organizations (e.g. NGOs, internships). Graduates often have low paid positions and do their jobs mainly because of experience and development (see e.g. Matthews, 2017 for the situation in the U.S. or Cezova, 2014 for Czech Republic). Moreover, our

results can be interpreted in the context of another research study conducted in a real enterprise (Cavazotte et al. 2012) that showed some similar results. Nevertheless, our results need to be interpreted with the knowledge that there were students in the sample and that the Management Simulation Game was a part of their curriculum. Some relationships might be different in simulation game with students than in real business. Only a replication in a real company could give an answer if they really are.

Because of the design and sample size, we were able to include in our analysis only the key factors of the integrated model of leader effectiveness. Other personality traits (e.g. emotional intelligence, Hur/van den Berg/Wilderom 2011), other types of leader behaviours (e.g. communication style; de Vries/Bakker-Pieper/Oostenveld 2010) or leader competencies (Abraham/Karns/Shaw/Mena 2001) may play a role in predicting leader effectiveness. The proposed integrated model is leader-centric and based on the theory of transformational leadership. In addition to the situational factors, it does not take into consideration specific follower-level factors that influence the individual follower performance and perception (e.g. emotions; Liang/Chi 2013), or that moderate or mediate the influence of leader behaviours on leadership outcomes (e.g. pride in being a follower of the leader; Chan/Mak 2014). Furthermore, combinations of traits beyond just personality (Zaccaro/Kemp/Bader 2004), the interaction of traits (e.g. interaction of leader's dominance and warmth; Prochazka/Vaculik/Smutny 2014) or the inclusion of some processes (e.g. organizational learning; Zagorsek/Dimovski/Skerlavaj 2009) would bring more complexity into the model.

We collected all the data at the same moment at the end of the management simulation game. Therefore, we were able to find evidence about the relationships between the variables and not about the causality. The conclusions about the causality are based only on the theory. Other research with panel design would be needed to make the conclusions about causality and to reduce the potential influence of common-method bias. When interpreting our results, it is also necessary to take into account the extremely strong relationship between transformational leadership and leadership emergence on the group level. The respondents hardly distinguished between leadership behaviour (i.e. transformational leadership) and its consequences (i.e. leadership emergence). The strong relationship between transformational leadership and the perception of the leader may also be caused by a third variable such as the positive or negative affect of the leader (see e.g. Brown/Keeping 2005).

A comparison of our study with other studies suggests that the influence of agreeableness on leader effectiveness may be related to culture. However, our sample was homogeneous in terms of culture and it did not allow us to make clear conclusions about the influence of culture. This issue has not yet been explored, and it would therefore be useful to take into account culture as a modera-

tor of the relations we examined in future studies. These studies would need to have comparable international samples.

The inability to find a significant relationship between extraversion and transformational leadership is in itself an interesting result of our study. This finding may be ascribed to the methods used, which measure transformational leadership based not on the frequency of behaviours but on the presence/absence of transformational behaviours. We deem it important to pay attention to the components of transformational leadership that have a positive influence on leadership outcomes, on the frequency of behaviours and on the quality of transformational leadership. This might suggest the need to develop a new method for measuring transformational leadership because the current methods do not differentiate between its quality and frequency.

Acknowledgements

This article is part of the research "Effective leadership: An integrative approach". The research was funded by the Czech Science Foundation (P403/12/0249).

We would like to thank Dr. Michaela Porubanova-Norquist, Prof. Tom Scotto, Dr. Jan Stejskal and Dr. Jan Serek for their help in reviewing the manuscript.

References

Abraham, S.E/Karns, L.A/Shaw, K./Mena, M.A. (2001): Managerial competencies and the managerial performance appraisal process, in: Journal of Management Development, 20, 10, 842-852.

Antonakis, J/Avolio, B.J./Sivasubramaniam, N. (2003): Context and leadership: an examination of the nine-factor full-range leadership theory using the Multifactor Leadership Questionnaire, in: Leadership Quarterly, 14, 3, 261-295.

Avolio, B.J./Bass, B.M. (2004): Multifactor leadership questionnaire.Redwood City: Mind Garden.

Bass, B.M. (1997): Does the transactional-transformational leadership paradigm transcend organizational and national boundaries?, in: American Psychologist, 52, 2, 130-139.

Bass, B.M. (1999): Two decades of research and development in transformational leadership, in: European Journal of Work and Organizational Psychology, 8, 1, 9-32.

Bass, B. M., & Avolio, B. J. (1989). Potential biases in leadership measures: How prototypes, leniency, and general satisfaction relate to ratings and rankings of transformational and transactional leadership constructs. Educational and Psychological Measurement, 49(3), 509-527.

Bass, B.M/Avolio, B.J/Jung, D.I./Berson, Y. (2003): Predicting unit performance by assessing transformational and transactional leadership, in: Journal of Applied Psychology, 88, 2, 207-218.

Bauer, D. (2015): Successful leadership behaviours in Slovak organizations' environment - an introduction to Slovak implicit leadership theories based on GLOBE study findings, in: Journal for East European Management Studies, 20, 1, 9-35.

Bono, J.E./Judge, T.A. (2004): Personality and transformational and transactional leadership: A meta-analysis, in: Journal of Applied Psychology, 89, 5, 901-910.

Bouchard, T.J. (1998): Genetic and environmental influences on adult intelligence and special mental abilities, in: Human Biology, 70, 257–279.

Braun, S./Peus, C./Weisweiler, S./Frey, D. (2013): Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust, in: Leadership Quarterly, 24, 1, 270-283.

Brown, D.J./Keeping, L.M. (2005): Elaborating the construct of transformational leadership: The role of affect, in: Leadership Quarterly, 16, 2, 245-272.

Bryant, F.B./Satorra, A. (2012): Principles and practice of scaled difference chi-square testing, in: Structural Equation Modeling: A Multidisciplinary Journal, 19, 3, 372-398.

Bycio, P./Hackett, R.D./Allen, J.S. (1995): Further assessments of Bass's (1985) conceptualization of transactional and transformational leadership, in: Journal of Applied Psychology, 80, 4, 468-478.

Carless, S.A./Wearing, A.J./Mann, L. (2000): A short measure of transformational leadership, in: Journal of Business and Psychology, 14, 3, 389-405.

Cavazotte, F./Moreno, V./Hickmann, M. (2012): Effects of leader intelligence, personality and emotional intelligence on transformational leadership and managerial performance, in: Leadership Quarterly, 23, 3, 443-455.

Cezova, V. (2014): Vysokoškoláci slevují ze svých platů. Po roce ale čekají růst [Graduates discount on their salaries. But after one year they are expecting growth.], available online: http://www.denik.cz/ekonomika/vysokoskolaci-slevuji-ze-svych-platu-po-roce-ale-cekaji-rust-20140409-ob56.html

Conway, J.M./Huffcutt, A.I. (1997): Psychometric properties of multisource performance ratings: A meta-analysis of subordinate, supervisor, peer and self-rating, in: Human Performance, 10, 4, 331-360.

Costa, P.T./McCrae, R.R. (2008): The revised neo personality inventory (NEO-PI-R), in: The SAGE Handbook of Personality Theory and Assessment, 2, 179-198.

Chan, S.C.H./Mak, W.M. (2014): Transformational leadership, pride in being a follower of the leader and organizational commitment, in: Leadership & Organization Development Journal, 35, 8, 674-690.

de Vries, R.E. (2008): What are we measuring? Convergence of leadership with interpersonal and non-interpersonal personality, in: Leadership, 4, 4, 403-417.

de Vries, R.E/Bakker-Pieper, A./Oostenveld, W. (2010): Leadership = communication? The relations of leaders' communication styles with leadership styles, knowledge sharing and leadership outcomes, in: Journal of Business and Psychology, 25, 3, 367-380.

Deary, I.J./Whalley, L.J./Lemmon, H./Crawford, J.R./Starr, J.M. (2000): The stability of individual differences in mental ability from childhood to old age: Follow-up of the 1932 Scottish mental survey, in: Intelligence, 28, 49–55.

DeRue, D.S./Nahrgang, J.D./Wellman, N./Humphrey, S.E. (2011): Trait and behavioral theories of leadership: An integration and meta-analytic test of their relative validity, in: Personnel Psychology, 64, 1, 7-52.

Dinh, J.E./Lord, R.G. (2012): Implications of dispositional and process views of traits for individual difference research in leadership, in: Leadership Quarterly, 23, 4, 651-669.

Eagly, A.H/Johannesen-Schmidt, M.C./van Engen, M.L. (2003): Transformational, transactional, and Laissez-Faire leadership styles: A meta-analysis comparing women and men, in: Psychological Bulletin, 129, 4, 569-591.

Eagly, A.H/Karau, S.J./Makhijani, M.G. (1995): Gender and the effectiveness of leaders: A meta-analysis, in: Psychological Bulletin, 117, 1, 125-145.

Foti, R.J./Hauenstein, N.M.A. (2007): Pattern and variable approaches in leadership emergence and effectiveness, in: Journal of Applied Psychology, 92, 2, 347-355.

Furnham, A. /Dissou, G. /Sloan, P. /Chamorro-Premuzic, T. (2007): Personality and intelligence in business people: A study of two personality and two intelligence measures, in: Journal of Business and Psychology, 22, 1, 99-109.

Graziano, W.G/Jensen-Campbell, L.A./Hair, E.C. (1996): Perceiving interpersonal conflict and reacting to it: The case for agreeableness, in: Journal of Personality and Social Psychology, 70, 4, 820-835.

Holt, D. (1997): Missing data and nonresponse, in: Keeves, J.P. (ed.): Educational Research Methodology and Measurement: An International Handbook. Cambridge: Cambridge University Press.

House, R.J./Hanges, P.J./Javidan, M/Dorfman, P.W./Gupta, V. (eds.) (2004): Culture, leadership, and organizations: The GLOBE study of 62 societies.Thousand Oaks: Sage.

House, R.J./Javidan, M. (2004): Overview of GLOBE, in: House, R.J./Hanges, P.J./Javidan, M./Dorfman, P.W./Gupta W. (eds.): Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies, Thousand Oaks: Sage, 9-28.

Howell, J.M./Hall-Merenda, K.E. (1999): The ties that bind: The impact of leader-member exchange, transformational and transactional leadership, and distance on predicting follower performance, in: Journal of Applied Psychology, 84, 5, 680-694.

Hu, L.T./Bentler, P.M. (1999): Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives, in: Structural Equation Modeling: Multidisciplinary Journal, 6, 1, 1-55.

Hur, Y./van den Berg, P./Wilderom, C. (2011): Transformational leadership as a mediator between emotional intelligence and team outcomes, in: Leadership Quarterly, 22, 4, 591-603.

Hřebíčková, M./Urbánek, T. (2001): NEO pětifaktorový osobnostní inventář [NEO Five Factor Inventory].Praha: Hogrefe.

Hřebíčková, M./Čermák, I. (1996): Vnitřní konzistence české verze dotazníku NEO-FFI [Internal consistency of Czech version of NEO-FFI inventory], in: Československá psychologie, 40, 208-216.

Judge, T.A./Bono, J.E. (2000): Five-factor model of personality and transformational leadership, in: Journal of Applied Psychology, 85, 5, 751-765.

Judge, T.A/Bono, J.E/Ilies, R./Gerhardt, M.W. (2002): Personality and leadership: A qualitative and quantitative review, in: Journal of Applied Psychology, 87, 4, 765-780.

Judge, T.A./Colbert, A.E./Ilies, R. (2004): Intelligence and leadership: A quantitative review and test of theoretical propositions, in: Journal of Applied Psychology, 89, 3, 542-

Judge, T.A./Piccolo, R.F. (2004): Transformational and transactional leadership: A meta-analytic test of their relative validity, in: Journal of Applied Psychology, 89, 5, 755-

Kirkpatrick, S.A./Locke, E.A. (1991): Leadership: Do traits matter?, in: Academy of Management Executive, 5, 2, 48-60.

Kline, R.B. (2011): Principles and practice of structural equation modeling (3rd ed.): New York: Guilford Press.

Lang, R./Szabo, E./Catana, G.A./Konecná, Z./Skálová, P. (2013): Beyond participation? - Leadership ideals of future managers from Central and East European Countries, in: Journal for East European Management Studies, 18, 4, 482-511.

Liang, S.G./Chi, S.C.S. (2013): Transformational leadership and follower task performance: The role of susceptibility to positive emotions and follower positive emotions, in: Journal of Business and Psychology, 28, 1, 17-29.

Lim, B.C./Ployhart, R.E. (2004): Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts, in: Journal of Applied Psychology, 89, 4, 610-621.

Ling, Y./Lubatkin, M.H./Simsek, Z./Veiga, J.F. (2008): The impact of transformational CEOs on the performance of small- to medium-sized firms: Does organizational context matter?, in: Journal of Applied Psychology, 93, 4, 923-934.

Little, T.D./Cunningham, W.A./Shahar, G./Widaman, K.F. (2002): To parcel or not to parcel: Exploring the question, weighing the merits, in: Structural Equation Modeling, 9, 2, 151-173.

Marsh, H.W./Hau, K.T. (1996): Assessing goodness of fit: Is parsimony always desirable?, in: Journal of Experimental Education, 64, 4, 364-390.

Matthews, S. (2017): College Grads Stuck With Low Wages as U.S. Hiring Heats Up, available online: https://www.bloomberg.com/news/articles/2017-04-06/college-grads-stuck-with-low-wages-as-hiring-in-u-s-heats-up

Mason, C./Griffin, M./Parker, S. (2014): Transformational leadership development connecting psychological and behavioral change, in: Leadership & Organization Development Journal, 35, 3, 174-194.

Muthén, L.K./Muthén, B.O. (1998-2011): Mplus user's guide, Los Angeles, CA: Muthén & Muthén.

Neubert, M.J./Taggar, S. (2004): Pathways to informal leadership: The moderating role of gender on the relationship of individual differences and team member network centrality to informal leadership emergence, in: Leadership Quarterly, 15, 2, 175-194.

Ng, K.Y./Ang, S./Chan, K.Y. (2008): Personality and leader effectiveness: A moderated mediation model of leadership self-efficacy, job demands, and job autonomy, in: Journal of Applied Psychology, 93, 4, 733-743.

Prochazka, J./Vaculik, M./Smutny, P. (2014): Dominance as a moderator in the relationship between leader's warmth and effectiveness, in: Grozdanić, V. (ed): Proceedings of the 10th European Conference on Management Leadership and Governance ECMLG, Reading, UK: Academic Conferences Publishing International Limited, 270-277.

Raven, J.C./Court, J.H./Raven, J. (1991): Ravenove progresívne matice pre pokročilých [Raven's Advanced Progressive Matrices].Bratislava: Psychodiagnostika.

Resick, C.J./Whitman, D.S/Weingarden, S.A./Hiller, N.J. (2009): The bright-side and the dark-side of CEO personality: Examining core self-evaluations, narcissism, transformational leadership, and strategic influence, in: Journal of Applied Psychology, 94, 6, 1365-1381.

Riggio, R.E./Riggio, H.R./Salinas, C./Cole, E.J. (2003): The role of social and emotional communication skills in leader emergence and effectiveness, in: Group Dynamics: Theory, Research, and Practice, 7, 2, 83–103.

Rowold, J./Heinitz, K. (2007): Transformational and charismatic leadership: Assessing the convergent, divergent and criterion validity of the MLQ and the CKS, in: Leadership Quarterly, 18, 2, 121-133.

Rucker, D.D./Preacher, K. J./Tormala, Z. L./Petty, R. E. (2011): Mediation analysis in social psychology: Current practices and new recommendations, in: Social and Personality Psychology Compass, 5/6, 359-371.

Rupp, D.E./Snyder, L.A./Gibbons, A.M./Thornton, G.C. (2006): What should developmental assessment centers be developing?, in: Psychologist-Manager Journal, 9, 2, 75-98.

Schmidt, F.L./Hunter, J. (1998): The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. Psychological Bulletin, 124, 2, 262-274.

Schmidt, F.L./Hunter, J. (2004). General mental ability in the world of work: occupational attainment and job performance, in: Journal of Personality and Social Psychology, 86, 1, 162-173.

Schmitt, D.P./Allik, J./McCrae, R.R./Benet-Martínez, V. (2007): The geographic distribution of Big Five personality traits patterns and profiles of human self-description across 56 nations, in: Journal of cross-cultural psychology, 38, 2, 173-212.

Singh, N./Krishnan, V.R. (2007): Transformational leadership in India: Developing and validating a new scale using grounded theory approach, in: International Journal of Cross Cultural Management, 7, 2, 219-236.

Smutny, P./Prochazka, J./Vaculik, M. (2013): Learning effectiveness of management simulation game Manahra, in: Carvalho, C.V./Escudeiro, P. (eds.): Proceedings of The 7th European Conference on Games Based Learning, Porto: Academic Conference and Publishing International Limited, 512-520.

Wang, H./Law, K.S./Hackett, R.D./Wang, D./Chen, Z.X. (2005): Leader-member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behavior, in: Academy of Management Journal, 48, 3, 420-432.

Zaccaro, S.J. (2007): Trait-based perspectives of leadership, in: American Psychologist, 62, 1, 6-16.

Zaccaro, S.J./Kemp, C./Bader, P. (2004): Leader traits and attributes, in: Antonakis, J./Cianciolo, A.T./Sternberg, R.J. (eds.): The Nature of Leadership, Thousand Oaks, CA: Sage, 101-124.

Zagorsek, H./Dimovski, V./Skerlavaj, M. (2009): Transactional and transformational leadership impacts on organizational learning, in: Journal for East European Management Studies, 14, 2, 144-165.

Zopiatis, A./Constanti, P. (2012): Extraversion, openness and conscientiousness The route to transformational leadership in the hotel industry, in: Leadership & Organization Development Journal, 33, 1-2, 86-104.