AUTHENTIC LEADERSHIP, CREATIVITY, AND INNOVATION: A MULTILEVEL PERSPECTIVE

Keywords: Authentic leadership, creativity, innovation, hierarchical linear modeling

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This study proposes and empirically tests a multilevel model of cross-level interactions between authentic leadership and innovativeness at the team level, and perception of support for innovation and creativity at the individual level. We use data from 23 team leaders and 289 team members. The hierarchical linear modeling analysis showed that whereas perceived team leaders' authentic leadership directly influences team members' individual creativity and team innovativeness, the effect of self-ascribed team leaders' authentic leadership was not significant. In addition to that, the relationship between team leaders' authenticity and creativity is mediated by perception of support for innovation.

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1 INTRODUCTION

Innovative performance of a company is quite often dependent upon the leadership. Several conceptualizations and empirical studies demonstrate the effect of leadership on creativity and innovativeness (e.g. Scott & Bruce, 1994; Oldham & Cummings, 1996; Mumford & Licuanan, 2004; Oke, Munshi, & Walumbwa, 2009; Carmeli, Gelbard, & Gefen, 2010). We focus on authentic leadership, a recently emerging research field (George, 2003; Luthans & Avolio, 2003; Gardner, Avolio, Luthans, May, & Walumbwa, 2005; Walumbwa, Wang, Wang, Schaubroeck, & Avolio, 2010), and the influence it has on innovativeness.

Authentic leadership focuses on positive achievements rather than emphasizing flaws (Peterson & Luthans, 2003; Jensen & Luthans, 2006), and promotes employee trust, which results in higher emotional safety and unconventional idea proposition (Avolio, Gardner, Walumbwa, Luthans, & May, 2004). Since authentic leaders are tolerant to ambiguity and open to experience and change, this leadership style should be suitable for stimulating creativity and innovativeness. This study is the first to our knowledge to empirically test the impact authentic leadership has on innovativeness.

Additionally, there is very little multilevel research on the determinants of innovation, including leadership (Crossan & Apaydin, 2010). Published work has been primarily leader-focused and based on individual differences (Yammarino, Dionne, Schriesheim, & Dansereau, 2008). Yet leaders enhance employees' innovative behaviors and modifying attitudes that are beneficial to innovative activities (Oke et al., 2009). To deepen the understanding of how to stimulate creativity and innovativeness, it is crucial to use a multilevel approach to examine if the contextual effect of leadership impacts creativity at the individual level and innovativeness at the team level.

Authentic leadership research points out a dilemma whether authentic leaders are genuinely authentic if they perceive themselves to be, or if they are perceived as such by others (e.g. Cooper, Scandura, & Schriesheim, 2005; Harvey, Martinko, & Gardner, 2006; Toor & Ofori, 2008; Ladkin & Taylor, 2010). Even if the answer to this question may be rather difficult to find, researchers should be aware of different perceptions concerning authenticity and employ them in their research. This is why we measure authentic leadership both from the perspective of team leaders themselves and from the perspective of the leaders' followers - team members.

The goal of this study is to develop a multilevel model to explain how authentic leadership influences creativity at the individual level and innovativeness at the team level. In addition, in line with Gumusluoglu and Ilsev's (2009) proposal, we examine how the cross-level relationship among leadership and creativity could be mediated by perception of support for innovation. We define authentic leadership as a construct consistent of three dimensions (self-awareness, self-regulation, and positive modeling), and empirically assess different effects of both self-ascribed and perceived authentic leadership. This approach is theoretically important because it provides a comprehensive contextual insight in the antecedents of creativity and innovativeness. Furthermore, it helps in building a case of authentic leadership being a suitable leadership style for promoting employee creativity and innovativeness.

2 THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1 Authentic leadership: perceptions and dimensions

Authenticity in leadership describes leaders with great capacity to effectively process information about themselves (their values, beliefs, goals, and feelings), an ability to adjust their behavior in leadership in accordance with their own self, a clear personal identity, and an ability to harmonize their preferences with the demands of society (Chan, Hannah, & Gardner, 2005). To be authentic means to be natural, original, and not a copy (Shamir & Eilam, 2005). Authenticity includes possessing personal experiences (values, thoughts, feelings, beliefs) as well as acting in accordance with one's own real self (Gardner et al., 2005).

Many researchers assume that authenticity and consequently authentic leadership do not involve others' perception of a leader, but only an individual's own actions in accordance with an individual's true nature (Shamir & Eilam, 2005; George, Sims, McLean, & Mayer, 2007; George, 2007). Thus, authenticity must be self-ascribed. Sparrowe (2005) opposes this and exposes the need to assess a leader's authenticity from multiple sources. Goffee and Jones (2005), and Harvey et al. (2006) also insist that authenticity must be attributed to an individual by others. The leaders cannot asses themselves to be authentic, but can be described as such only by the people in contact with them. Defined as such, authenticity is only perceived by others. Therefore, two perspectives exist about perception of authentic leadership.

Since the leader – follower relation is one of the main elements of the authentic leadership construct (Gardner et al., 2005), it is essential to collect information about a leader's authenticity both from leaders as well as from followers. It is necessary to distinguish between own perception of the leaders' characteristics and the perception of the leaders' characteristics by their followers (Cooper et al., 2005). In line with the conceptual model of authentic leadership (Gardner et al., 2005), these characteristics can be grouped in three authentic leadership dimensions; self-awareness, self-regulation, and positive modeling.

2.2 Team leaders' authenticity, perception of support for innovation, and creativity

During the process of self-awareness, the authentic leaders observe and analyze their own mental state through introspection. They learn about and accept their fundamental values, feelings, identity, and motives or goals (Avolio & Gardner, 2005). Higher levels of team leader's self-confidence (Barron & Harrington, 1981), which is built through the process of self-awareness, and consequent independency (Patterson, 1999), perceived by team members, will result in employees' increased creative behaviors.

The process of personal identification of employees with the leader, called positive modeling, is also affected by the leader's self-regulation (Gardner et al., 2005). Authentic leaders spread common cognitive behavioral patterns through all members of an organization. During the process of positive modeling, authentic leaders build positive psychological capital in the employees (Avolio et al., 2004; Gardner & Schermerhorn, 2004; Avolio & Gardner, 2005; Gardner et al., 2005). By leading with example, the self-aware authentic leaders increase follower levels of creativity (Ilies, Morgeson, & Nahrgang, 2005).

Authentic leaders raise the levels of positive psychological capabilities of their followers. They improve the followers' positive psychological capital; their self-esteem (Kernis, 2003; Luthans & Avolio, 2003; Gardner & Schermerhorn, 2004), hope (Avolio et al., 2004; Clapp-Smith, Vogelgesang, & Avey, 2009), trust (Ilies et al., 2005; Clapp-Smith et al., 2009), resiliency (Gardner & Schermerhorn, 2004), and optimism (Avolio et al., 2004; Avolio & Gardner, 2005). More hopeful, optimistic and confident employees would try new things more often and not be afraid of a possible failure or rejection. Even more so, they are resilient and overcome obstacles easily. Positive emotions enable flexible and creative thinking (Avolio et al., 2004), which is very much based on experimentation and potential failure.

H1a: Self-ascribed authentic leadership is positively related to individual creativity.
H1b: Perceived authentic leadership is positively related to individual creativity.

Relational transparency (clarity of relations) of authentic leaders includes presentation of an individual's true interior. Such leaders demonstrate openness and self-disclosure (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). Such behavior encourages trust through the leader – follower relationship, in which information is shared and true thoughts, and feelings, are expressed while minimizing expressions of inappropriate feelings (Kernis, 2003). Followers perceive the leaders to be supportive of their novel, different ideas. The perception of support for creativity and innovation is established.

The perception of support for innovation measures how employees perceive support of innovation by leadership. Therefore, by the very definition, it should be directly affected by leadership style. Through the process of relational transparency within the authentic leaders' self-regulation, the leaders' true self becomes evident to the employees (Gardner et al., 2005), enabling them to estimate the degree to which the leaders show support for innovation. This is a construct that indirectly explains how employees see the innovative culture within a team or a company (Gumusluoglu & Ilsev, 2009).

The workplace climate is a key factor for stimulating (or inhibiting) creativity (Scott & Bruce, 1994). An organizational climate that supports the creative work processes needs to be established. To achieve this, the processes and resources need to be allocated and designed in such a way they could support creative performance (Scott & Bruce, 1994).The way team members perceive the extent to which creativity is encouraged within the team influences a number of creative behaviors. Team members are not afraid to experiment and suggest novel, unusual ideas.

Team leaders can affect creative behavior and creative performance of team members by influencing the followers' perceptions of a climate supportive for creativity and innovation (Gumusluoglu & Ilsev, 2009). The leaders are the ones that make a work environment that encourages creativity (Amabile, Schatzel, Moneta, & Kramer, 2004). Through honest and transparent relations with co-workers, internal characteristics of authentic leaders that are supposed to stimulate employees' creativity and innovativeness can be perceived by others. This is so if leaders not only possess these traits, but if they are not concealed from the employees. A climate that stimulates creative and innovative behaviors is established within the team. This is particularly true if an authentic leader exhibits high levels of self-regulation, an important dimension of authentic leadership. We propose a mediating construct on the relationship between both self-ascribed and perceived team leaders' authenticity and creativity.

H2a: Perception of support for innovation mediates the relationship between self-ascribed authentic leadership and individual creativity.
H2b: Perception of support for innovation mediates the relationship between perceived authentic leadership and individual creativity.

2.3 Team leaders' authenticity and team innovativeness

There is a widespread agreement that a delegative-participative leadership fosters creative and innovative performance (Mumford, Scott, Gaddis, & Strange, 2002). Since one of important characteristics of authentic leadership is empowerment of followers, it can also be classified as one of the delegative-participative leadership styles (Yammarino et al., 2008). Thus, authentic leadership raises the degree of subordinates' perceived situational control (Krause, 2004). Higher situational control decreases the degree to which the changes induced by innovation are perceived as threatening, thus improving innovativeness. Since team members find leaders as behavioral role models who are not afraid to take risks, experiment, and try to implement new ideas, they are also eager to try to successfully put their own ideas to use. Furthermore, as team members' perceived situational control increases, they are more likely to produce innovative results from their creative ideas.

Balanced processing, an integral part of a leader's self-regulation, means comparing with others in a way independent from ego based defense mechanisms (Gardner, Fischer, & Hunt, 2009). It is about objective assessment of all relevant information before making a decision (Walumbwa et al., 2008). Thus, authentic leaders are tolerant to ambiguity and open to experience and change, which are the characteristics Damanpour (1991) and Patterson (1999) stress as crucial for leadership that stimulates innovative results from the employees.

Authentic leaders promote employee trust and respect that are important for employees to feel free to propose unconventional ideas and introduce conflicting opinions without fear of the consequences (Avolio et al., 2004). The leaders provide constructive criticism and feedback in a fair, respectful, informative and developmental manner (Zhou & George, 2001). This way, team members' creative ideas are more likely to result in innovative suggestions that have a practical value.

Authentic leadership affects intrinsic motivation (Ilies et al., 2005). Employees take the initiative for their own development, as they realize they can achieve more than they previously thought. In that, it is not about transformation of the followers to the desires of the leader, but a more engaged own positive development of the follower because of the leader's example. The followers act in the direction of positive thinking, building self-confidence and creating hope on their own. Anyone can become authentic by proactively investing in one's own development (George, 2007). Such proactive behaviors of the leaders were proven to stimulate innovative behaviors of employees (Seibert, Kraimer, & Crant, 2001).

H3a: Self-ascribed team leaders' authentic leadership is positively related to team innovativeness.
H3b: Perceived team leaders' authentic leadership is positively related to team innovativeness.

3 METHODS

3.1 Sample and Procedures

Empirical data were collected from 23 team leaders and 289 of their followers, in a Slovenian manufacturing company employing 445 people, in April 2009. A translation-back translation procedure was used to translate the questionnaire from English to Slovenian and back to English. We use data collection approach proposed by Walumbwa et al. (2010) and gather data from both team leaders and their followers. This enables comparisons of findings and more accurate results. Authentic leadership scores as perceived by the employees were averaged across followers to get a single score for each team leader.

TABLE 1

Demographics of Survey Respondents

	Leaders	Team members
Number of respondents	N=23	N=289
Age		
Up to 25 years	6.8%	7.2%
26-35 years	37.7%	31.1%
36-45 years	34.9%	30.6%
46-55 years	19.9%	24.5%
Over 56 years	00.7%	6.6%
Gender		
Male	64.9%	72.2%
Female	35.1%	28.8%
Work tenure		
Up to 5 years	9.6%	12.3%
6-15 years	37.0%	38.9%
16-25 years	34.9%	28.8%
26-35 years	17.8%	18.6%
Over 36 years	0.7%	1.4%

3.2. Measures

In order to avoid problems with common method bias, we used following approaches. First, data were collected by two separate questionnaires: one for team members and the other for their team leaders. Second, after the data collection, we conducted Harman's one-factor test to address the common method variance issue. If common method variance was a serious problem in the study, we would expect a single factor to emerge from a factor analysis or one general factor to account for most of the covariance in the independent and dependent variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The results of the factor analysis demonstrated that no general factor was apparent in the unrotated factor structure, with the first factor accounting for only 27.1% of the variance.

Third, the items used in our study are part of a large-scale questionnaire; the respondents would therefore likely not have been able to guess the purpose of the study and force their answers to be consistent. Fourth, we reverse-coded some items in the questionnaire. The questionnaires included team and employee identification codes so that data from the leaders and the employees could be matched and grouped for analysis. All respondents were guaranteed confidentiality.

Team leaders' authentic leadership construct is measured with a questionnaire we have developed and adapted from previously used research instruments based on the literature review. The measurement instrument we have developed is similar to the Authentic Leadership Questionnaire (ALQ), validated by Walumbwa et al. (2008), in one mutual dimension (self-awareness). Next dimension, self-regulation, basically covers their two dimensions, balanced processing and internalized moral perspective. However, based on the literature review, positive modeling was added as an integral part of authentic leadership.

Since we follow the basic model of authentic leadership (Gardner et al., 2005), an important characteristic of authentic leaders is the development of their employees in order for them to become authentic followers (Avolio & Gardner, 2005). In addition to relational transparency dimension (covered by ALQ), it also includes the process of personal identification with the leader and improvement of the employees' positive psychological states (Gardner & Schermerhorn, 2004; Avolio & Gardner, 2005). This process is called positive modeling (Gardner et al., 2005). We conceptualize three dimensions of authentic leadership: self-awareness, self-regulation, and positive modeling. We test for content and discriminant validity, as well as reliability of measurement variables and constructs. The results indicate all parts of the questionnaire are valid and reliable.

A set of 13 items was used for measuring each ***self-ascribed*** and ***perceived authentic leadership***. A 5-point Likert-type scale ranging from 1 = "strongly disagree" to 5 = "strongly agree" was used (this is true for all the measures in this study). Authentic leadership ratings by the subordinates belonging to the same team leader were aggregated at the team level by averaging to get a single score for each team leader.

Team innovativeness construct was measured with a scale developed by Lovelace, Shapiro, and Weingart (2001). The ***perception of support for innovation*** construct was measured by 12 items adapted from Scott and Bruce (1994). Follower ***creativity*** at the individual level was measured by a research instrument developed by Zhou and George (2001).

3 RESULTS

3.1 Descriptive statistics, validity and reliability

Previous studies have found support for combining authentic leadership dimensions into one common core construct (e.g. Walumbwa et al., 2010). Individual dimensions do not add any significant incremental validity beyond the common core higher factor (Walumbwa et al., 2008). Furthermore, as written by Walumbwa et al. (2010), there are many conceptual similarities among the four factors and they each represent one aspect of a leader's authenticity. All the dimensions of authentic leadership are self-regulatory processes that are managed through individuals' internal standards and evaluations of their own behavior

(Gardner et al., 2005). The latent higher order construct of authentic leadership can help explain the conceptual and empirical overlap among the dimensions (Walumbwa et al., 2010).

For validation of the measurement instruments, we applied confirmatory factor analysis (CFA) using LISREL 8.80 software package. Convergent validity and unidimensionality were examined by the loading paths of all items, which are statistically significant if they exceed 0.50. In the iterative process of purifying the scales several items were excluded from the further analysis. In the final version of the model, 48 of 63 items were used to measure five constructs (perception of support for innovation and creativity at the individual level, and self-ascribed and perceived authentic leadership and team innovativeness at the team level).

Table 2 provides descriptive statistics of all variables analyzed in this study, including the means, standard deviations, and inter-correlations. The inter-item reliability coefficients (Cronbach's alpha) are reported on the diagonal of the correlation matrix.

TABLE 2

Descriptive Statistics and Correlations for Individual- and Team-Level Variables

		N	M	SD	1	2	3	4	5
1	Perception of support for innovation	289	15.32	5.12	0.922				
2	Team members' creativity	289	28.21	7.98	0.30**	0.762			
3	Team innovativeness	23	27.45	1.99	0.41**	0.28**	0.706		
4	Self-ascribed authentic leadership	23	64.39	2.44	0.22**	0.17	0.19	0.909	
5	Perceived authentic leadership	23	61.82	3.08	0.01	0.26**	0.36**	0.87**	0.904

Notes. Values on the diagonal are inter-item reliability levels (Cronbach's alpha). *p<0.05, **p<0.01

Since we have adapted the ALQ (Walumbwa et al., 2008) to measure authentic leadership dimensions, and changed some items based on literature review (Avolio et al., 2004; Gardner et al., 2005), we tested the questionnaire for reliability. A composite reliability index (CRI) and average variance extracted (AVE) were calculated in order to test the composite (construct) reliability. The values of CRI as well as AVE are presented in Table 3 for all constructs of the research model. The values exceed the thresholds (0.50 for AVE and 0.70 for CRI), meaning the measuring instrument proposed is both valid and reliable.

TABLE 3

Construct reliability

Aggregates of variables	Number of items (final)	CRI	AVE
Self-ascribed team leaders' authentic leadership	15	0.85	0.65
Perceived team leaders' authentic leadership	15	0.86	0.66
Team innovativeness	7	0.75	0.56
Team members' creativity	7	0.80	0.61
Perception of support for innovation	4	0.78	0.59

3.2 Multilevel analysis results

The dataset consisted of two hierarchically nested levels: 289 employees (level-1) nested within 23 teams which all had one team leader (level-2). Each of the 289 employees provided data on their own creativity and perception of support for innovation. These data constituted the lower-level (level-1) unit of analysis in this study. The second-level data included team innovativeness and authentic leadership scores for each of the 23 team leaders. Data regarding authentic leadership were gathered from two sources: from the leaders (self-ascribed authenticity) and their followers (perceived authenticity).

We used Hierarchical Linear Modeling (HLM 6.0,Raudenbush & Bryk, 2002) to test the following aspects of our multilevel model: 1) the existence of a multilevel structure, 2) the cross-level effect of authentic leadership on individual creativity, and 3) the mediating effects of perception of support for innovation on the relationship between both self-ascribed and perceived authentic leadership and individual creativity.

Testing the existence of a multilevel structure. As suggested by Raudenbush and Bryk (2002), this study first tested the existence of a multilevel structure in the model we proposed. In the intercept-only model with creativity as the dependent variable, the ICC (intraclass correlation) at the team level (level-2) was .080, which indicates a high degree of association on creative behaviors between individuals within the same team. Employees from the same team in our study exhibit similarly creative characteristics within the team. Following Hayes' (2006) recommendation to use multilevel modeling in situations where intraclass correlations exceed 0.05, the ICC results of the intercept-only model justified our use of a multilevel analysis as an appropriate strategy for analyzing the cross-level effects of authentic leadership on creativity.

Testing cross-level mediation. To test our hypotheses, we developed a set of multilevel models based on the theoretical predictions using the incremental improvement procedure demonstrated by Hox (2010). In the construction of these models, all variables were grand-mean centered. The fixed effects with robust standard errors for all models are presented in Table 4. We started with the intercept-only model with team members' creativity as the dependent variable (Model 1).

To test the cross-level effects of authentic leadership, we added each self-ascribed and perceived authentic leadership to Model 1, separately (Models 2a and 2b, respectively). To test the hypotheses, we examined the coefficients of corresponding parameters estimated in the models. Perceived authentic leadership has a positive statistically significant effect on individual creativity (Model 2b: $\gamma = .26$, $SE = .01$, $p < .01$), confirming Hypothesis 1b, whereas the effect of self-ascribed authentic leadership is not significant (Model 2a: $\gamma = .17$, $SE = .01$). Thus, Hypothesis 1a could not be confirmed.

To test the effect of perception of support for innovation at the individual level, we added perception of support for innovation as a level-1 predictor of creativity (Model 3). The results of the analysis showed perception of support for innovation is positively related to team members' creativity ($\gamma = .30$, $SE = .02$, $p < .005$). Hypotheses 2a and 2b propose that perception of support for innovation would mediate the relationship between self-ascribed and perceived authentic leadership, and individual creativity. Full mediation would exist if the previously significant relationship between authentic leadership and individual creativity

would be reduced to non-significant levels when including mediator variable in the analysis. Partial mediation could be claimed if the relationship between authentic leadership and creativity remained significant but to a lesser degree.

The results in Model 4a indicate that the relationship between self-ascribed authentic leadership and individual creativity has been reduced in size (from $\gamma = .17$ to $\gamma = .11$ in Model 2a) after including perception of support for innovation as a mediator variable. As this relationship was even previously not significant, full mediation cannot be claimed. However, based on the reduction of the effect after including mediator variable, we can partially support Hypothesis 2a.

The results in Model 4b indicate that the relationship between perceived authentic leadership and individual creativity remained significant ($\gamma = .21$, $SE = .01$, $p < .01$), but to a lesser degree compared to the effect in Model 2b ($\gamma = .26$). Thus, Hypothesis 2b is partially supported. In addition, Sobel's (1982) test was conducted to further examine Hypotheses 2a and 2b. The results support both hypothesis for partial mediation (H2a: $z= 3.34$, $p<0.001$; H2b: $z= 3.97$, $p<0.001$).

TABLE 4

Multilevel Analysis Results for Creativity as the Dependent Variable

	Model 1	Model 2a	Model 2b	Model 3	Model 4a	Model 4b
Level 1						
Intercept	33.580** (0.08**)	33.454** (0.15**)	33.239** (0.14**)	32.343** (0.13**)	32.397** (0.16**)	33.254** (0.14**)
Perception of support for innovation				0.30** (0.02)	0.28** (0.02)	0.25* (0.01)
Level 2						
Self-ascribed authentic leadership		0.17 (0.01)			0.11 (0.01)	
Perceived authentic leadership			0.26* (0.01)			0.21* (0.01)
Within-group residual variance	0.22	0.22	0.23	0.15	0.15	0.24
Deviance	1553.36	1565.02	1562.886	1320.33	1351.12	1310.97

Notes. Entries are estimations of fixed effects with robust standard errors.
Estimations of the random variance components are in parentheses. For the intercepts, they represent the between-group variance in creativity. **p<0.05, *p<0.1.

Testing team-level hypotheses. The results of team-level hypotheses are shown in Table 5. Hypotheses 3a and 3b proposed that self-ascribed and perceived team leaders' authentic leadership, respectively, would be positively related to team innovativeness. The results show self-ascribed authentic leadership does not have a significant relationship with team innovativeness (Model 1a, $\beta=0.19$), thus not providing support for Hypothesis 3a. On the other hand, perceived authentic leadership has a significantly positive relationship with team innovativeness (Model 1b, $\beta=0.36$, $p<0.05$), supporting Hypothesis 3b.

TABLE 5

Results of the regression analysis for team innovativeness

	Model 1a	Model 1b
Self-ascribed authentic leadership	0.19	
Perceived authentic leadership		0.36**
F		13.651
Df		22
R^2		0.394

Notes. **p<0.05, *p<0.1.

4 DISCUSSION AND IMPLICATIONS

Leaders not only serve as behavioral role models for innovative ideas, they also serve as important means for enhancing innovative behaviors and modifying attitudes that are beneficial to innovative activities (Oke et al., 2009). As the process of creativity and innovativeness at the team level occurs within a specific team that is characterized by distinct team leader's traits, individual creativity and innovativeness are inevitably influenced by these leadership characteristics. Authentic leadership, a very popular construct, is one of the leadership styles appropriate for fostering employee creativity. This is so because leaders' authentic behaviors result in employees' higher emotional safety and increased number of proposed unconventional ideas (Avolio et al., 2004). Therefore, examining the cross-level effects of authentic leadership at the team level on creativity and innovativeness at the individual level is highly relevant.

The goal of this study was to theorize and empirically test a multilevel model of 1) cross-level effects of team leaders' authentic leadership on employee creativity, 2) the mediating effects of perception of support for innovation on the relationship between team leaders' authentic leadership and individual creativity, and 3) the direct effect of authentic leadership on innovativeness at the team level. Specifically, we developed two sets of multilevel hypotheses to examine the degree to which both self-ascribed and perceived authentic leadership would influence individual creativity, both directly and through perception of support for innovation.

The major contribution of this study is investigation of a higher-level contextual influence on creativity and innovativeness. We showed the difference between affects of self-ascribed and perceived authentic leadership. Self-ascribed team leaders' authentic leadership was not found to influence either individual creativity or team innovativeness, whereas similar effects were found to be statistically significant for perceived authentic leadership.

Therefore, for leaders' authenticity to have an impact on individual creativity and team innovativeness, it is not sufficient for leaders to assess them as very much aware of their goals, emotions, values, and motives. Such awareness needs to be demonstrated to others in a way that followers perceive it as a characteristic that their leader is in possession of. Team leaders' authenticity has no significant effect, until it is clearly presented to others. Leaders must exhibit transparent relations with the employees and demonstrate high moral level, thus inspiring team members to follow their lead (Novicevic, Davis, Dorn, Buckley, & Brown, 2005). This way, team members would be willing to follow the lead and suggest novel ideas, which are also more likely to be put to successful use. Only then can authentic leaders stimulate creativity and innovativeness.

Another key finding of this study is related to the mediating effect of perception of support for innovation on the relationship between authentic leadership and individual creativity. We have demonstrated authentic leadership has important contextual effects on creativity and innovativeness, similar to other participative leadership styles. Perception of support for innovation plays an important role in stimulating individual creativity; employees, working in an innovation supporting team climate exhibit higher levels of creative behaviors. It is evident that it is not only crucial for the leaders to encourage team members' creativity directly, but also to establish a climate within the team that values experimentation and occasional flaws are tolerated.

Not only is leaders' support and guidance vital in promoting innovative efforts at the initial creative stage, as it contributes to effective interactions among group members, but equally important is their ability to create conditions for the subsequent implementation of innovation (Mumford & Licuanan, 2004). This was confirmed as perceived authentic leadership was found to have a positive effect on innovativeness at the team level. Translating creativity into innovation depends on several incentives, with a great role of leadership in this task.

Theoretical contributions. This study contributes to existing research on authentic leadership, creativity, and innovativeness in the following aspects. First, we develop a multilevel theoretical model that examines the cross-level effects of authentic leadership on individual creativity and the mediating effects of perception of support for innovation on the relationship between team leaders' authentic leadership and individual creativity. The findings of this study provide further support to the conceptualization of creativity as a context-based phenomenon influenced by multilevel effects of their antecedents, such as leadership (Oke et al., 2009; Crossan & Apaydin, 2010).

Second, we also examine the effect of authentic leadership on team innovativeness. Our study advances previous research by empirically examining authentic leadership as an important antecedent to creativity and innovativeness for the first time. This contribution builds to the research by not only finding support for the direct effects of authentic leadership on team innovativeness, and for the cross-level effects of authentic leadership on creativity, but also by capturing the mediating effect of perception of support for innovation.

Practical implications. We demonstrated perceived authentic leadership has greater impact on individual creativity and on strengthening the positive relationship between creativity and on team innovativeness. This is why it is important that the leaders emphasize building on authentic relations with the employees so they will perceive the leaders to be more authentic. Through sincere, open and transparent relations within leading by example, the leader's true self will become apparent to the followers. In this way, they will assess the leader as more authentic, which will result in improved employees' creativity and innovativeness. This should, in accordance with numerous studies, positively affect team performance and the performance of the organization as a whole (e.g. Johannessen & Olsen, 2009; Liao & Rice, 2010).

5 CONCLUSION

The results of this study confirm the viability and importance in including authentic leadership in the theoretical development of creativity and innovativeness. We use a novel approach; unlike previous research on related topics that relied solely on one source of

information, we examined authentic leadership with empirical data gathered from both leaders and followers. This allowed us to compare the findings and empirically examine cross-level effects of authentic leadership (as perceived both by the leaders and by the followers), demonstrating a greater effect of perceived authenticity.

The first limitation is connected to non-inclusion of other contextual and control variables. Although this study did not confirm all the hypothesized cross-level and direct effects of authentic leadership on individual creativity and team innovativeness, it in no way suggests that such a relationship is independent from other contextual variables at the team and even organizational level. Actually, the high intra-class correlation (ICC) in modeling the effects on creativity implies that employees tend to exhibit creative behavior in similar fashions within the same team. As team innovativeness was assessed by team leaders, future research should include some more objective measures, such as number of patents or introduction of new products.

We also need to be aware of potential disadvantages and challenges to the connection between authentic leadership and creativity. Mumford et al. (2002) argue that to lead creative efforts within the team, leaders must possess substantial technical and professional expertise and creative skills, as well as the ability to process complex information. Moreover, they must have the motivation to exercise this ability. It is evident that positive psychological states play a great role in leaders being willing to not only proactively stimulate employees' creativity, but also foster innovativeness within their teams.

The results suggest that besides self-ascribed or perceived authentic leadership examined in this study, there may be other team variables that would contribute to the variation in creativity across different teams and the similarity of such behaviors within the same team. Future research should investigate additional contextual factors (such as other leadership characteristics, team climate, or even organizational culture) to further understand the contextual influences on individual creativity and innovativeness. Authentic leadership may not have the same effect as it was measured in this study, so it would be necessary to examine if similar results can be expected in all organizational settings, industries, and market conditions.

Therefore, to enhance the generalizability of our study, future research should be conducted to expand the scope of participating teams on different, diverse companies, companies from other countries and industries to control for effects of external factors. Thus it is imperative to further examine creativity and innovativeness not only from the perspective of an individual, or even from group perspective at the same level. In addition to that, further research is necessary to examine the contextual influence of authentic leadership on other organizational processes and results besides creativity and innovativeness. The benefits of this leadership style need to be fully explored in order to fully embrace it and understand its advantages as well as potential cautions.

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