

How Ethical Leadership Influence Employees' Innovative Work Behavior: A Perspective of Intrinsic Motivation

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Abstract Drawing on the cognitive evaluation theory, we proposed a homologous multilevel model to explore how ethical leadership influenced employees' innovative work behavior through the mediation of intrinsic motivation at both group and individual level. With questionnaires rated by 302 employees from 34 work units of two companies in the mainland of China, we conducted multilevel analysis to examine our hypotheses. The results showed that individual innovative work behavior was positively related to both individual perception of ethical leadership and group ethical leadership, while individual intrinsic motivation mediated the two relationships. Moreover, group intrinsic motivation mediated the relationship between group ethical leadership and innovative work behavior. The theoretical and practical implications were further discussed.

Keywords Ethical leadership · Innovative work behavior · Intrinsic motivation · Multilevel analysis

Abbreviation

CET Cognitive evaluation theory

Introduction

Due to the increasing importance attached to corporate social responsibilities and business ethics, leaders are more than ever required to behave ethically. Consequently, ethical leadership has been the interest of both academicians and practitioners in the past decade (e.g., Walumbwa and Schaubroeck 2009; Kalshoven et al. 2011). In the extant literature, many scholars have theoretically and empirically investigated its effect on employees' work attitudes and behavior, and found that ethical leadership was an effective predictor of job satisfaction, organization commitment, moral identity, voice behavior, and organizational citizenship behavior (see Brown et al. 2005; Brown and Treviño 2006).

Generally, the prior researches focused on the moral aspect of ethical leadership and linked ethical leadership to the followers' ethical conducts (such as OCB, ethical identity, ethical decision making) and unethical conducts (such as counterproductive behavior, deviant behavior). For example, Mayer et al. (2009) found that individual perceptions of ethical leadership was positively related to their reduced organizational deviance and increased citizenship behaviors, and Walumbwa and Schaubroeck (2009) proved that ethical leadership enhanced the followers' voice behavior. However, less attention has been paid to the effect of ethical leadership on employees' task-related performance, especially innovative work behavior that calls for more creativity and contributes much to organization innovation, effectiveness, development, and survival (Amabile et al. 1996; Tushman and Nelson 1990; Ireland and Hitt 2005). In the process of generating, promoting and implementing the new ideas, processes or procedures, individual will face so many risks, difficulties, conflicts, and even ethical dilemmas, this indicates that

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ethical leadership that emphasized morality, social responsibility, autonomy, and people orientation (Brown and Treviño 2006) can be a potential predictor of innovative work behavior. Therefore, we intended to explore whether and how ethical leadership influences employee's innovative work behavior and the underlying mechanism.

Moreover, the vast majority of the existing ethical leadership literature often described the influence of ethical leadership on the consequential outcomes as a process of social learning or social exchange (e.g., Brown and Treviño 2006; Brown et al. 2005). As an exception, Piccolo et al. (2010) explored how ethical leadership facilitated employees' job performance from the perspective of intrinsic motivation as ethical leadership could enhance the followers' intrinsic motivation through structuring the objective and subjective job characteristics, it sheds light on the motivational aspect of ethical leadership and its potential impact on the followers' intrinsic motivation. Following them, we aimed to investigate the effect of ethical leadership on employees' innovative work behavior through the mediation of intrinsic motivation. Accordingly, we relied on cognitive evaluation theory (CET) to explain the psychological mechanism between ethical leadership and innovative work behavior, the tenet of which was that external factors could enhance intrinsic motivation through increasing autonomy and competence.

In the extant researches, ethical leadership and intrinsic motivation were mainly identified as constructs at individual level. However, with the development of multilevel technique, scholars shift their attention to the multilevel construct exploration and examination. Concerning ethical leadership, more and more scholars proposed that leadership was more than individual perception in the sense that it could be the group process that referred to the collective belief about the leaders' traits and behaviors and recommended to examine the impacts of leadership at multiple levels (e.g., Walumbwa et al. 2011; Walumbwa and Schaubroeck 2009). Similarly, intrinsic motivation can also be aggregated to the group level to indicate the group's collective belief that the whole group works for the group task rather than the extrinsic rewards. Thus, we proposed a homologous multilevel model in which we conceptualized ethical leadership as both the individual perception at the individual level and the group process at the group level to examine their different effects on the followers' innovative work behavior, and we also operationalized intrinsic motivation as individual intrinsic motivation and group intrinsic motivation to correspond with the conceptualization of ethical leadership. Then, we could better capture the pathways that link individual and group-level ethical leadership to innovative work behavior from the intrinsic motivation perspective.

In sum, we propose a homologous multilevel model and attempt to contribute to the extant ethical leadership literature in several ways: (1) we highlighted the motivational aspect of ethical leadership and explored how ethical leadership motivated followers to innovate; (2) as we conceptualized ethical leadership as both individual perception of ethical leadership and group ethical leadership process in our multilevel model, we could better grip the different effects of ethical leadership at different levels on employees' innovative work behavior; (3) we relied on CET to explain the process how ethical leadership influences employees' innovative work behavior through the mediation of intrinsic motivation; and (4) with the theorization of the individual level and group-level intrinsic motivation, we target to better understand the different pathways that ethical leadership at different levels relate to employees' innovative work behavior. The research model is shown in Fig. 1.

Literature Review and Hypotheses

Literature Review

Ethical Leadership

According to Brown et al. (2005), ethical leadership was defined as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision making." This definition reflects both dimensions of ethical leader as a moral person characterized by the traits, such as honesty, integrity, altruism, trustworthiness, collective motivation, and justice (see Brown et al. 2005; Brown and Treviño 2006), and as a moral manager who is expected to influence their followers' attitudes and behavior through ethical leadership behavior (Treviño and Brown 2004).

Based on the previous researches, we argue that ethical leadership behavior (Zhu et al. 2004) involves: (1) the leaders' moral beliefs, values (Kanungo and Mendonca 1996), and visions reflected in their conduct, especially their decision making; (2) clear performance standards and relative rewards or punishment that help reinforce ethics in the organization (Treviño et al. 2003); (3) the general two-way communication characterized by trust, openness, and sincerity about ethical standards (e.g., De Hoogh and Den Hartog 2008), reward system (Brown et al. 2005), as well as role expectations (Brown and Treviño 2006); (4) people orientation (Treviño et al. 2003; Resick et al. 2006) and loving behavior in the organization, including respect for the followers' human nature (Zhu et al. 2004), dignity

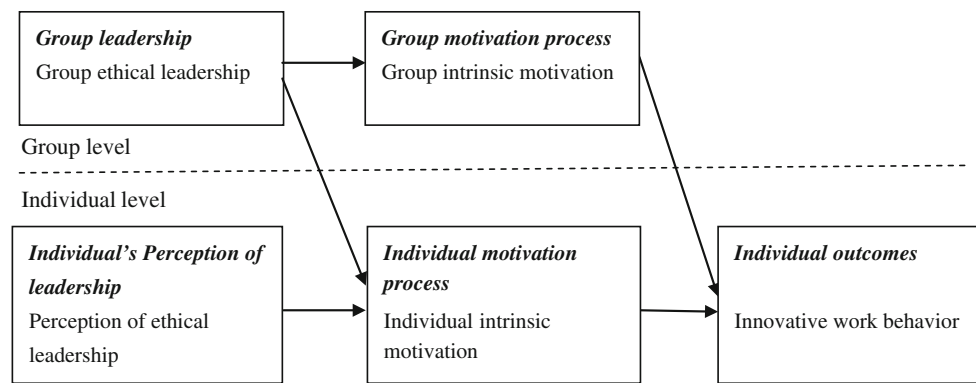


Fig. 1 Hypothesis model

(Brown et al. 2005), and all kinds of support for their development (Mayer et al. 2009; Treviño et al. 2003); and (5) refining the objective job characteristics of their followers by increasing the job significance and autonomy (Piccolo et al. 2010).

To extend the extant conceptualization that identified ethical leadership as individual perceptions and echo the claim that leadership ought to be considered as a group process (Liao and Rupp 2005; Naumann and Bennett 2000), we distinguished and integrated the individual and group-level ethical leadership. As a result, we theorized ethical leadership as perception of ethical leadership at the individual level and group ethical leadership at the group level to investigate their different influences on individual innovative work behavior and the different mechanisms underlying the relationships. Perception of ethical leadership refers to the traits and leadership behaviors experienced and perceived by an individual employee in the group and it is a type of “discretionary stimulus” varied between employees (Liao and Chuang 2007). While group ethical leadership is defined as the overall pattern of leadership behaviors the ethical leaders display to the entire work unit and group members hold collective belief about their ethical leadership style, which can be viewed as a type of “ambient stimulus” that pervades the work unit (Liao and Chuang 2007). In the following section, we propose that perception of ethical leadership affects innovative work behavior through the mediation of individual intrinsic motivation, while group ethical leadership influence individual innovative work behavior via the mediation of both individual intrinsic motivation and group intrinsic motivation.

In the existing literature, more attention has been paid to the moral aspect of ethical leadership whereas limited efforts have been made to study and test the motivational aspect of ethical leadership. When investigating the relationship between ethical leadership followers’ work attitudes and behaviors with job characteristics model (JCM, Hackman and Oldham 1976), Piccolo et al. (2010)

acknowledged that ethical leaders could shape individual intrinsic motivation through structuring the objective and subjective characteristics of the work, which in turn leads to the improvement of job performance. Ethical leadership can change not only the way individual perceive their work but also their belief and views about the work context (for review, see Brown and Treviño 2006) via their personal traits and ethical leadership behavior, so that their followers are more likely to be motivated to exert extra effort and more innovation in work. Therefore, we sought to investigate the motivational aspect of ethical leadership and its effect on the individual innovative work behavior.

Innovative Work Behavior

Innovative work behavior was defined by De Jong (2006) as “individuals’ behaviors directed toward the initiation and intentional introduction of new and useful ideas, processes, products, or procedure within a work role, group or organization (p. 19).” It’s a complex work behavior consisting of generation, promotion, and application of new ideas intended in the work role, group or organization, which aims at improving organizational performance (Janssen 2000, 2005). The three stages of innovative work behavior occur sequentially in a complete process (Scott and Bruce 1994) and at each stage individuals can be engaged in any one or combination of these different behaviors at any one time. When one comes up with new ideas about the extant work-related problems, he needs to find support to implement the ideas via idea promotion and he is also expected to realize novel ideas by applying them in their work role, group or the total organization to complete the whole work innovation process (Van der Vegt and Janssen 2003). Generally, innovative work behavior encompasses thinking of problems in existing working methods, unfulfilled needs of people, or indications that trends may be changing (De Jong and Den Hartog 2007),

proposing new solutions, sharing knowledge with others, and dealing the problem with new ways (e.g., Woodman et al. 1993). Different from creativity is that it involves more than idea generation that mainly constitutes creativity and is a combination of generation, promotion, and application of new ideas. Therefore, more and more business companies attempt to enhance the employees' innovative work behavior to survive and develop in the increasingly turbulent and complicated environment. Previous studies have examined the role of group or organizational climate and leadership (Oldham and Cummings 1996) in predicting innovative work behavior within organizational context and it was demonstrated that organizational climate and leadership perceived as supportive, psychological empowering, and full of smooth communication (James et al. 2008; Martins and Terblanche 2003) were positively related to innovative work behavior. In line with the research, we intended to test whether ethical leadership at individual and group-level impacts on employees' innovative work behavior by different mechanisms.

Intrinsic Motivation

Scott and Bruce (1994) pointed out that research about innovative work behavior is essentially the study of what motivates individual innovative behavior and motivation lies at the heart of innovative work behavior. Some scholars have proved the mediating role of intrinsic motivation in the relationship between leadership and innovation, creativity and innovative work behavior. To explore the motivational aspect of ethical leadership and the mechanisms that links it to employees' innovative work behavior, we identified intrinsic motivation as the mediator. According to Ryan and Deci (2000), intrinsic motivation refers to the doing of an activity for the interest in and enjoyment of the work itself (Amabile et al. 1994; Gagne and Deci 2005), rather than for some separable consequence such as rewards or recognition (Amabile 1993). Intrinsic motivation often arises from the individual's positive reaction to the task itself, such as interest, involvement, curiosity, satisfaction, or positive challenge (Amabile et al. 1996), which serves as a type of reward of the work.

In consistence with the conceptualization of ethical leadership at the individual and group level, we also theorized individual intrinsic motivation and group intrinsic motivation correspondingly. Individual intrinsic motivation indicates the degree to which one perform specific task for the sake of the work itself, while group intrinsic motivation defines the collective belief, perception, and experience that the group members work for the internal interest, challenge, and satisfaction of the job regardless of the external rewards. The two constructs identified the

multilevel intrinsic motivation and mediated the relationships between multilevel ethical leadership and innovative work behavior.

Following the prevalent view (e.g., Deci 1975, 1976; Deci and Porac 1978; Deci and Ryan 1985; Deci et al. 1975), we drew on CET (Deci and Ryan 1985) to explain how ethical leadership at different level affects innovative work behavior through intrinsic motivation at different levels. CET deals with how external factors affect intrinsic motivation, which claimed that the influence occurs to the extent that the external factors influenced the perceptions of competence and autonomy. The theory also suggested that the psychological needs for autonomy and competence were what exactly underlay intrinsic motivation. Competence refers to the knowledge that the individual has the skills necessary to successfully perform the task in a specific context (Ryan and Deci 2000), while autonomy reflects one's power in making decisions about work methods, procedures, pace, and effort (Spreitzer 1995; Spreitzer et al. 1997). The CET model (Deci and Ryan 1985) also indicates that individuals develop intrinsic motivations following the causal sequence: "autonomy support-changes in perceived competence changes in intrinsic motivation." Thus, external factors can facilitate intrinsic motivation directly via the increased perception of competence or indirectly by providing autonomy.

Hypotheses

Ethical Leadership and Innovative Work Behavior

In regard of the definition of ethical leadership and the generation of innovative work behavior, we assume that ethical leadership is positively related to innovative work behavior. At the individual level, when ethical leaders always emphasize the impact of the work on others, the group, the organization, and even the whole society and embed the meaning in the job (Brown and Treviño 2006; De Hoogh and Den Hartog 2008), the followers will perceive more job significance in the work and are more willing to take pains in generating new ideas to contribute to the organizational goals. As ethical leaders are considered to exhibit traits such as honesty, integrity, altruism (Gardner et al. 2005), commitment to the organization (De Hoogh and Den Hartog 2008), individuals are more likely to feel psychologically safe to speak up their new ideas that challenge the status quo and are more committed to share their knowledge with their coworkers (Janssen 2000, 2003). On the contrary, when the followers regard their leaders as unethical who act from self-interests and are far from the standardized principles, they may choose to refrain from proposing ideas that may contradict the

leaders or promoting their ideas in the group. Moreover, ethical leaders also distinguish themselves by advocating two-way open communication in the group as they always listen sincerely to their subordinates with patience and encourage them to express their opinions and concerns, which in turn will stimulate the followers to come up with novel ideas to improve the present work procedures, ways, and processes (Martins and Terblanche 2003). The people-oriented ethical leaders are expected to respect the human rights, dignity, nature, and talents of their followers (Ciulla 2004) by providing them with opportunities to learn the work-related knowledge and skills, placing them in the appropriate position that can best fit them (Zhu et al. 2004) and encouraging them to channel their aptitudes into job performance, as a result, the employees will be equipped with the knowledge, skills, and abilities to innovative and are more likely to exert innovative behavior in the work. In addition, the followers of ethical leaders are offered with higher levels of autonomy and influence over decision making in work (Brown et al. 2005; De Hoogh and Den Hartog 2008; Oke et al. 2009), such as the freedom, independence, and discretion to schedule work, thereby, they will have more control in task (Piccolo et al. 2010) and less constraints in their work that may prevent their from proposing, promoting, and implementing new ideas. Le Pine and Van Dyne (1998) found that job autonomy increased employees' behavior of expressing constructive challenges to improve work processes. Therefore, we expect that the individual perception of ethical leadership positively relate to employees' innovative work behavior.

While at the group level, ethical leadership encompassed different connotations and predicts employees' innovative work behavior differently from individual perception of ethical leadership. Treviño et al. (2003) noted that collective ethical leadership focuses the concern for the collective good of the group, the long-term goal of the organization and the interests of multi stakeholders, individuals are more likely to put the interests of the group ahead of their own (Bass and Steidlmeier 1999; Gini 1997; Kanungo and Mendonca 1996) and be inspired to involve in innovation to realize the collective goals. When the members hold the belief that their leaders are people orientation that respect their humanity, value their talents and foster their growth, they are more willing to cultivate, exercise, and leverage their knowledge and ability to innovate in their work. As they believe that their ethical leaders do care about their best interests and want to see them perform well and reach their potential (Brown et al. 2005), then they will perform more innovative work behavior (e.g., Mayer et al. 2009). Ethical leadership at the group level can also be a relational construct that enhances the interaction in the group and between the members, as the whole group members share the view that their leaders

are ethical, they will have the collective perception that they are free to communicate with each other, participate in the decision making and free of the fear that their views or proposition may harm their status, position or so, then the psychologically safe environment will lead the employees be more engaged in coming up with, sharing and applying their novel ideas (Walumbwa and Schaubroeck 2009). So we propose that:

H1 Individual perception of ethical leadership is positively related to innovative work behavior.

H2 Group ethical leadership is positively related to employees' innovative work behavior.

The Mediation of Individual Intrinsic Motivation

In a previous research, the role of individual intrinsic motivation as a mechanism linking contextual factors and creativity has been acknowledged (Amabile et al. 1996), we also examine the mediating role of individual intrinsic motivation between ethical leadership and innovative work behavior relying on CET. According to CET, the meaning and impact of the job will increase the original interest of the work, while the experience of competence and autonomy are the primary drivers of intrinsic motivation (Deci and Ryan 1985; Spreitzer et al. 1997), and both facilitate individual intrinsic motivation (Deci et al. 1999). Based on the argument and the definition of ethical leadership, we contend that both individual perception of ethical leadership and group ethical leadership can invoke individual intrinsic motivation. Concerning the individual perception of ethical leadership, as ethical leaders often give meaning to the work, embed moral standards in the job and highlight the impact of the tasks on the accomplishment of the organizational goals (Zhu et al. 2004; Piccolo et al. 2010), their followers tend to sense their work more meaningful, significant, and challenging, which in turn greatly increases their intrinsic motivation (Amabile et al. 1996). Second, when the followers of ethical leaders are provided with the chance to develop their abilities to accomplish their tasks as well as to channel their potential (Zhu et al. 2004), it is probable that they will perceive more self-efficacy and competence, which manifests their heightened intrinsic motivation. Third, the high levels of autonomy (Piccolo et al. 2010), influence, and control in the work provided by ethical leaders will significantly heighten the employees' intrinsic motivation (Deci and Ryan 2000) due to their leveled self-determination (Spreitzer et al. 1997). Jung and Sosik's (2002) study also supported the view as individuals who are empowered will exert more intrinsic motivation.

Similarly, group ethical leadership can also predict individual intrinsic motivation, but we suppose that group

ethical leadership intrinsically motivates individuals differently, as group ethical leadership greatly shape the way the individuals collectively interpret the job, their coworkers, the group, and the work context. The group members' common belief about their ethical leaders will strengthen their understanding about the social impact and social influence of their job, and they are more likely to recognize their work and experience more interest in their work. Group ethical leadership also changes individual view about their relations with their coworkers, the integrity, trustworthy and altruism traits of the ethical leadership may greatly improve the interpersonal relationships in the group, where one are more dedicated to helping others, more committed to cooperate and more free to exchange their views, thus they can be better engrossed in their job without considering the interpersonal risks (Dutton 2003) and opportunism (Peters and Karren 2009) and in consequence have higher intrinsic motivation. When ethical leaders develop the group perception that they are all treated with fairness and concerns, empowered with autonomy and provided with chance to exert their talents, the members will be greatly intrinsically motivation for the autonomy and competence they experience in the supportive group climate.

In term of individual innovative work behavior, intrinsic motivation has long been considered as a key element for employees' innovation (Woodman et al. 1993). Jung et al. (2003) pointed out that employees' interest in their tasks always enabled them to search for new and better ways of doing things. When they perceive the work itself to be more valuable, rewarding, and motivating, they are more likely to exercise creativity in their work (Fuller et al. 2006), and experience less stress or role overload (Bolino and Turnley 2005). Intrinsically motivated employees are also more likely to translate their motivation into high levels of effort, which then leads to higher job performance, particularly on "tasks requiring creativity, cognitive flexibility, and conceptual understanding" (Kehr 2004). Moreover, employees who perceive more intrinsic motivation often exhibit more persistence in face of obstacles (Deci and Ryan 2000; Grant 2008; Parker et al. 2006), they are considered to be better at concentrating on their task (see Deci and Ryan 2000), leveraging their existing knowledge (Parker et al. 1997), and searching for alternative methods of solving problems or non-traditional approaches, so that they will conduct more innovative work behavior. Therefore, we suggest that intrinsic motivation plays a mediating role between ethical leadership and innovative work behavior. So the following hypotheses are proposed:

H3 Individual intrinsic motivation mediates the relationship between individual perception of ethical leadership and innovative work behavior.

H4 Individual intrinsic motivation mediates the relationship between group ethical leadership and employees' innovative work behavior.

The Mediation of Group Intrinsic Motivation

To capture the pathway of the effect of group ethical leadership on the individual innovative work behavior beyond individual intrinsic motivation, we also proposed the mediation of group intrinsic motivation between them. As group intrinsic motivation is defined as the collective belief, orientation, and view that members work for the interest from the work itself rather than the extrinsic rewards in this study, we assume that group ethical leadership may enhance group intrinsic motivation for three reasons. First, group ethical leadership greatly change the group members' view about the objective and subjective characteristics of the work by incorporating job impact and autonomy in the work; thereby, the whole group will share the agreement that their work is of great social impact and contributes much to the organizational goal and they are more likely to dedicate to and be interested in the work. Second, the group ethical leadership that shapes the whole group with high moral standards, integrity, altruism, and honesty will foster positive expectations among followers, enhancing levels of trust, helping behaviors, and willingness to cooperate for the good of the organization (Avolio et al. 2004). So the employees may become more concentrated on the group task and cooperation for the completion of the group objectives (Kanungo and Conger 1993) setting aside the interpersonal risks and competition for external rewards. Third, the group ethical leadership set the tune of people orientation for the group, wherein every individual is respected for his human nature and provided the chance to develop and utilize their talent to realize their own and the organization's targets, the followers are more likely to hold the common view that the work itself is more compelling and rewarding and are more stimulated to work for the interest of the work.

Group intrinsic motivation can be identified as a collective cognition that facilitates individual innovative work behavior and mediates the relationship between group ethical leadership and innovative work behavior beyond the individual intrinsic motivation. When there is a congruence about the group intrinsic motivation, individuals are all encouraged to generate new ways to solve the present or impending problems, challenge of existing knowledge and established presumptions (Carmeli and Gittell 2009) and apply their ideas in their work as the improvement of the work and innovation are more valued than the external rewards, such as salary, position, and promotion, in the group. Group intrinsic motivation also provides conditions for the individuals to share and

promote their new ideas in the group, as everyone is motivated to appreciate the interest and challenge of the work, they are more open and eager to accept new ideas and the highly intrinsic motivation orientation in the group also reduce their fear of the potential detriments to their reputation and status when they propose their ideas and challenge others' views (Jung et al. 2003; Zhou and Shalley 2003). Moreover, the group intrinsic motivation also stimulates the individual to learn and acquire work-related knowledge, skills, and abilities that are necessary for them to perform and innovate in the work. As a result, it is more likely that the employees in the group with higher collective intrinsic motivation will exhibit more innovative work behavior in form of idea generation and application. To summarize, we expect that group intrinsic motivation mediates the relationship between group ethical leadership and innovative work behavior, and develop the following proposition:

H5 Group intrinsic motivation mediates the relationship between group ethical leadership and employees' innovative work behavior.

Method

Sample and Procedure

We collected data under a research program that aimed to investigate the ethical leadership in business companies from two subsidiaries of two multi-national companies in Mainland China, one is a Sino-French automobile manufacturing joint venture (Company A) and the other is a private enterprise in telecommunication services industry (Company B). As the two companies have large scale, we can better study the ethical leadership in developed business entities. Though located in the same city, the two companies do not have business contact, nor do their employees. As this survey intended to investigate the innovative work behavior among all the employees, we chose the work units from both the administrative departments (e.g., human resource management department, the manufacture department) and R&D centers in the two companies, which strengthened the explaining power and generalizability of our findings. Following George (1990), we defined that employees shared the membership of a work group when they reported to the same supervisor. Before distributing the questionnaires, we contacted the human resource managers in the two companies and got the permission of investigation, then, the human resource managers helped us to telephone the leaders of departments in two companies to know about their willingness to participate the investigation and requested them to report the

number of groups in their departments who would like to complete the questionnaire. After the affirmation, we delivered each leader unsealed envelopes with questionnaires for the participants in their work unit as well as a cover letter that explains the purpose of the study and provides assurance of confidentiality. They were also required to explain when their followers were doing the pencil-and-paper survey. The employees were asked to assess their perception of ethical leadership, intrinsic motivation, and innovative work behavior and handed in the questionnaires in sealed envelopes to their leaders after completion. Finally, the work-unit leaders returned the questionnaires to the researchers.

Initially, we sent 400 employee questionnaires to the 40 work units that were voluntary to participate (on average 10 employee questionnaires per unit), 260 questionnaires were sent to 26 groups in company A and 140 questionnaires were sent to 14 groups in company B. After the delivery-return process, we collected 216 questionnaires from 22 groups in company A and 86 questionnaires from 12 groups in company B. That means, we finally got 302 valid employee questionnaires from 34 groups, which suggested a total response rate of 75.5%. Of the 302 employees and 34 groups in the dataset, 200 employees were from 16 groups in R&D centers, and others were from the administrative departments. Among the employees, 63.9% were men and 85% of them possessed higher education. The average age of employees was 31.7 years (SD 7.32) and their average organizational tenure was 7.32 (SD 7.69).

Measurement

The survey was conducted with Chinese version instrument translated from the English version. To ensure the reliability and validity of the scales, two professional translators were asked to complete the "translate-back translate" procedure with the guidance of the "double blinded principle" (Brislin 1980), and then, one supervisor and four employees were invited to review the initial Chinese survey and give constructive advice on modification (Aryee and Chen 2006). All variables in the survey were measured with 5-point Likert-scale and the scores ranged from: (1) "strongly disagree" to (5) "strongly agree."

Perception of Ethical Leadership

We adapted five items from Brown et al.'s (2005) instrument to measure the employee's perception of ethical leadership. The sample item was: "(my leader) sets an example of how to do things the right way in terms of ethics," the reliability for the scale was 0.823.

Individual Intrinsic Motivation

We used the three items scale from Zhang and Bartol (2010) to measure the employee's intrinsic motivation. The sample item was: "I enjoy finding solutions to complex problems," the reliability for the scale was 0.716.

Innovative Working Behavior

We adapted three items from Scott and Bruce (1994) to evaluate the employees' innovative work behavior. The sample item was: "I search out new technologies, process, techniques, and or new product ideas," the reliability for the scale was 0.886.

We aggregated the perception of ethical leadership and individual intrinsic motivation at individual level to group ethical leadership and group intrinsic motivation at group level, so the measurement of group ethical leadership and group intrinsic motivation were the same with those at individual level.

Control Variables

As previous research found that the employees' gender and age have certain influence on employee's innovative work behavior programs (Jung et al. 2003; Mumford et al. 2002), we identified them as the control variables at individual level. The male was coded as 0 and female was coded as 1, age was coded by Arabic number. While the job setting was considered to be a reasonable factor that affects the group outcomes (Hofmann et al. 2003) and it was controlled at the group level. To measure effect of job setting at the group level, we dummy coded the job setting, with the job setting of the administrative department coded as 0 while that of R&D center coded as 1.

Data Aggregate

Because group ethical leadership and group intrinsic motivation refer to shared perception among group members about their ethical leadership and the intrinsic motivation in their group, respectively, we aggregated individual's perceptions of ethical leadership and individual intrinsic motivation to form the measure of group ethical leadership and group intrinsic motivation at group level (e.g., Edmondson 1999). To examine the justification of the aggregation, we calculated within-group agreement (r_{wg} ; James et al. 1984), intraclass correlations (ICC1), and the reliability of the means (ICC2; Bliese 2000). In this study, the r_{wg} were 0.714 for group ethical leadership and 0.785 for intrinsic motivation, both of which were above the critical value of 0.70 and suggested as good with respect to within-group agreement (James et al. 1993). For

group ethical leadership the ICC1 value was 0.204 and ICC2 value was 0.897 ($p < 0.001$), while for group intrinsic motivation the ICC1 value was 0.180 and ICC2 value was 0.882 ($p < 0.01$). All indicated that the group effect was significant ($p < 0.01$). Taken together, the results indicated that it was statistically appropriate to conceptualize and analyze group ethical leadership and group intrinsic motivation at the group level.

Analytic Strategy

The multilevel hypotheses were examined with the hierarchical linear modeling (HLM; Bryk and Raudenbush 1992) and the multilevel mediation analysis procedure followed Zhang et al.'s (2009) recommendations. We employed full maximum likelihood to estimate the parameters, the variables at level 1 were applied the method "group-mean centering and adding the group mean at level 2," and the variables at level 2 were grand-mean centered. According to Zhang et al. (2009), the mediation of individual intrinsic motivation on the relationship between perception of ethical leadership and innovative work behavior was classified in the low-level mediation (1-1-1 model), that on the relationship between group ethical leadership and innovative work behavior was identified as the cross-level mediation-lower mediator (2-1-1 model), while the mediating role of group intrinsic motivation on the relationship between group ethical leadership and innovative work behavior was considered as the cross-level mediation-higher mediator (2-2-1 model). All the mediation analyses were conducted with the recommendations of Baron and Kenny (1986), following the four conditions: (a) independent variable must be related to dependent variable, (b) independent variable must be related to the mediator, (c) mediator must be related to the dependent variable, and (d) when independent variable and the mediator are included, the direct relationship between independent variable and the dependent variable should become less significant (partial mediation) or non-significant (full mediation).

Results

Descriptive Statistics

The means, standard deviations, and correlations at individual level and group level are shown in Table 1. At individual level, innovative work behavior was positively associated with perception of ethical leadership ($r = 0.286$, $p < 0.01$) and individual intrinsic motivation ($r = 0.525$, $p < 0.01$), the intrinsic motivation was positively associated with perception of ethical leadership ($r = 0.243$,

Table 1 Means, standard deviations, and correlations at individual level and group level

Variable	Mean	SD	1	2	3	4	5
<i>Individual level</i>							
Gender	1.290	0.457	1				
Age	31.72	6.791	0.114*	1			
Perception of ethical leadership	3.442	0.788	-0.040	-0.112	1 (0.823)		
Individual intrinsic motivation	3.665	0.663	-0.045	-0.071	0.243**	1 (0.716)	
Innovative work behavior	3.835	0.701	-0.063	0.005	0.286**	0.525**	1 (0.886)
<i>Group level</i>							
Job setting (dummy)	0.471	0.506	1				
Group ethical leadership	3.476	0.395	0.014	1			
Group intrinsic motivation	3.670	0.330	-0.005	0.275	1		

Note $N_{\text{individual}} = 302$, $N_{\text{team}} = 34$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The reliability (Cronbach's alpha) of construct is in the parentheses

$p < 0.01$). At the group level, group intrinsic motivation was not significantly associated with group ethical leadership ($r = 0.275$, *n.s.*).¹

Hypothesis Test

The results of the mediation of individual level, cross-level mediation-lower mediator, and cross-level mediation-higher mediator are showed in Tables 2, 3, and 4, respectively. As the results revealed in Table 2, after controlling the effect of gender and age, we found that employees' perception of ethical leadership was positively related to innovative work behavior in model 1 ($r = 0.236$, $p < 0.001$), so Hypothesis 1 was supported. Moreover, employee's perception of ethical leadership is positively related to individual's intrinsic motivation ($r = 0.211$, $p < 0.05$). When we added the individual intrinsic motivation (mediator) into the model 2, the effect of perception of ethical leadership on the employee's innovative work behavior decreased ($r = 0.153$, $p < 0.01$) while individual intrinsic motivation was positively related to innovative work behavior ($r = 0.484$, $p < 0.001$). According to Baron and Kenny's (1986) procedure, the partial mediation was supported, so Hypothesis 3 was supported.

Concerning the cross-level mediation-lower mediator, according to the results shown in Table 3, when we controlled the effect of job setting at the group level, the group ethical leadership was positively related to innovative work behavior in model 1 ($r = 0.406$, $p < 0.01$), which provided support for Hypothesis 2. We also found that group ethical

leadership was positively related to individual intrinsic motivation ($r = 0.330$, $p < 0.01$). After entering the individual intrinsic motivation, the relationship between group ethical leadership and innovative work behavior became insignificant ($r = 0.208$, *n.s.*), while individual intrinsic motivation was positively associated with employee's innovative work behavior ($r = 0.642$, $p < 0.001$), which indicated that full mediation was confirmed and Hypothesis 4 was supported.

Finally, we examined the mediation of group intrinsic motivation between the relationship of group ethical leadership and innovative work behavior in Table 4. When we regressed group ethical leadership on group intrinsic motivation, the results indicate that the relationship between group ethical leadership and group intrinsic motivation was marginally significant ($r = 0.230$, $p < 0.1$ ²). When we added group intrinsic motivation, the positive relationship between group ethical leadership and innovative work behavior decreased ($r = 0.235$, $p < 0.1$), while group intrinsic motivation was positively related to employees' innovative work behavior ($r = 0.512$, $p < 0.001$). It demonstrated the partial mediation of group intrinsic motivation and supported Hypothesis 5.

Indirect Effect

Following Farh et al. (2007), we applied Sobel test to calculate the indirect effect of the mediating effect in multilevel mediating model. As shown in Table 5, the indirect effect of 1-1-1 model was 0.102 ($p < 0.01$), the indirect effect of 2-1-1 model was 0.193 ($p < 0.05$), and that of 2-2-1 model was 0.118 ($p < 0.1$). The results showed that the indirect effects of mediators were

¹ The result revealed that Pearson correlation test of group ethical leadership and group intrinsic motivation was not significant ($r = 0.275$, $p = 0.115$). However, when we retest their relationship with the Spearman correlation test the result showed that group ethical leadership was positively correlated with group intrinsic motivation ($r = 0.361$, $p = 0.036$).

² Considering the sample at group level was relatively small, we adopted bootstrap method to regress group ethical leadership on group intrinsic motivation to calculate coefficient and significance.

Table 2 HLM predicting innovative work behavior: lower level mediation (1-1-1 model)

Variable	Null model	Model 1	Model 2
γ_{00}	3.849 (0.054)***	3.851 (0.050)***	3.845 (0.039)***
Gender		-0.108 (0.088)	-0.066 (0.078)
Age		0.003 (0.006)	0.006 (0.006)
Perception of ethical leadership		0.236 (0.062)***	0.153 (0.057)**
Individual intrinsic motivation			0.484 (0.059)***
Individual-level variance (σ^2)	0.447	0.407	0.320
Group-level variance (τ)	0.043	0.031	0.012
R^2		0.089	0.214
Deviance (<i>df</i>)	635.091 (33)	624.855 (24)	551.423 (19)

Note $N_{\text{individual}} = 302$, $N_{\text{team}} = 34$, ** $p < 0.01$, *** $p < 0.001$. The estimate of standard error (SE) is in the parentheses

Table 3 HLM predicting innovative work behavior: cross-level mediation-lower mediator (2-1-1 model)

Variable	Null model	Model 1	Model 2
γ_{00}	3.849 (0.054)***	3.851 (0.051)***	3.841 (0.043)***
Job setting (dummy)		0.009 (0.101)	-0.030 (0.084)
Group ethical leadership (L_2)		0.406 (0.125)**	0.208 (0.125)
Individual intrinsic motivation (L_1)			0.642 (0.158)**
Individual-level variance (σ^2)	0.447	0.445	0.441
Group-level variance (τ)	0.043	0.029	0.006
R^2		0.326	0.793
Deviance (<i>df</i>)	635.091 (33)	631.6156 (31)	621.612 (30)

Note $N_{\text{individual}} = 302$, $N_{\text{team}} = 34$, ** $p < 0.01$, *** $p < 0.001$. The estimate of SE is in the parentheses

Table 4 HLM predicting innovative work behavior: cross-level mediation-upper mediator (2-2-1 model)

Variable	Null model	Model 1	Model 2
γ_{00}	3.849 (0.054)***	3.851 (0.051)***	3.842 (0.041)***
Job setting (dummy)		0.009 (0.101)	-0.020 (0.079)
Group ethical leadership (L_2)		0.406 (0.125)**	0.235 (0.132) ⁺
Group intrinsic motivation (L_2)			0.512 (0.051)**
Individual-level variance (σ^2)	0.447	0.445	0.442
Group-level variance (τ)	0.043	0.029	0.007
R^2		0.326	0.759
Deviance (<i>df</i>)	635.091 (33)	631.6156 (31)	620.698 (29)

Note $N_{\text{individual}} = 302$, $N_{\text{team}} = 34$, ⁺ $p < 0.1$, ** $p < 0.01$, *** $p < 0.001$. The estimate of SE is in the parentheses

positively and significantly, which provided more evidence for Hypotheses 3–5.

Discussions

Relying on the CET, we explored how ethical leadership with the perception of ethical leadership at the individual level and group ethical leadership at the group level

influence the individual innovative work behavior via the mediation of intrinsic motivation which was conceptualized as the individual intrinsic motivation and group intrinsic motivation. The results revealed that both perception of ethical leadership and group ethical leadership were positively related to individual innovative work behavior, while individual intrinsic motivation partially mediated the relationship between perception of ethical leadership and innovative work behavior and fully

Table 5 Sobel test to estimate indirect effect

	r_a	r_b	s_a	s_b	ab	t	SE	p value
1-1-1 model	0.211	0.484	0.074	0.059	0.102	2.693	0.038	<0.01
2-1-1 model	0.330	0.642	0.115	0.158	0.193	2.344	0.090	<0.05
2-2-1 model	0.230	0.512	0.139	0.051	0.118	1.641	0.072	<0.1

mediated that of group ethical leadership and innovative work behavior. Furthermore, our study also provided support for the partial mediating role of group intrinsic motivation in the relationship of group ethical leadership and individual innovative work behavior.

As the results showed, both perception of ethical leadership at the individual level and group ethical leadership at the group level could significantly predict individual innovative work behavior. It consisted with Kalshoven et al.'s (2011) argument that ethical leadership was an effective antecedent of individual job performance, and confirmed that ethical leadership did significantly influence employees' attitudes and behavior in workplace (Zhu et al. 2004; Brown et al. 2005; De Hoogh and Den Hartog 2008; Mayer et al. 2009). The positive relationship between ethical leadership and individual innovative work behavior also suggested that when ethical leaders embedded their moral values in the work, emphasized the job impact on the organization and the society, encouraged open communication in the group, respected every employee with respect and dignity, stimulated them to unleash their potential and provide them with autonomy and the chance to voice (Brown and Treviño 2006), their followers are more likely to exert innovative work behavior, not only when they perceive that individually but also when it was shared as the collective belief. Moreover, the results also offered the evidence about the different effects of ethical leadership at the two levels on individual innovative work behavior. As the effect of group ethical leadership ($r = 0.406$) on individual innovative work behavior is larger than that of individual perception of ethical leadership ($r = 0.236$) on individual innovative work behavior, it echoed the claim that leadership was essentially a group process and it should be conceptualized and operationalized at the group level in the future. It may also be ascribed to our sample of Chinese workers who are labeled as collectivists and are more likely to identify themselves with their group membership and be affected by the collective beliefs, norms, and practices.

The results of our research also supported the mediating role of individual intrinsic motivation in the relationship between perception of ethical leadership and employees' innovative work behavior, as well as that between group ethical leadership and innovative work behavior. Many

extant researches have proved the role of intrinsic motivation in predicting and facilitating innovation and innovative behavior. Our work extended the literature in the sense that we explored and affirmed the motivational aspect of ethical leadership, unlike social exchange theory (Brown et al. 2005; Mayer et al. 2009) that identified the influence of ethical leadership as a process of social exchange, we focused on how ethical leadership could enhance the employees' innovative work behavior by leading them to find interest from the work and work for the sake of the work itself rather than the external rewards. The subordinates of ethical leaders are more likely to perceive job impact, autonomy, and competence in the work (Mayer et al. 2009; Piccolo et al. 2010) when they perceive individually or agree collectively that their leaders are ethical. Consequently, they will have higher levels of intrinsic motivation according to CET, which shed light on the view that moral, social responsibility, respect for human nature, concerns for individual, and open communication could be the source of intrinsic motivation (Spreitzer 1995). Then the intrinsically innovated individuals will display more innovative work behavior as they experience more excitement, energy, concentration (Amabile et al. 1996), commitment, and creativity (Gagne and Deci 2005) in the work. However, the mediation of individual intrinsic motivation in the relationship between perception of ethical leadership and innovative work behavior was only partially supported in this research, which suggested that apart from intrinsic motivation there may be other mechanisms that can explain the process.

Furthermore, we also provided evidence for the partial mediation of group intrinsic motivation on the relationship between group ethical leadership and individual innovative work behavior, which was aligned with the earlier argument that group-level leadership could influence individual job attitudes and behaviors by shaping the group climate and the work context. As the construct of ethical leadership conceptualized at the group level, group ethical leadership impact innovative work behavior not only via individual intrinsic motivation but also through fostering the group intrinsic motivation. As group ethical leadership changes the nature of job in the group with more challenge, impact, and autonomy, sets tune for the group interpersonal relationship that is characterized by cooperation, psychological

safety, and trust, and contributes to the shared view that one is more appreciated by their talents and job performance rather than the external rewards, the employees are more likely to set up the group intrinsic motivation perception and cognition in the group, which in turn lead to the increased innovative work behavior. In addition, the Sobel test showed that individual intrinsic motivation did capture more effect between the relationship between group ethical leadership and innovative work behavior than that of group intrinsic motivation. It indicated that when individuals perform innovative work behavior, they are more likely to be influenced by their individual motivation than the shared group intrinsic motivation.

A few theoretical and methodological strengths increased our confidence in the results. First, we conceptualized ethical leadership at both individual and group level to better reflect the construct and its relationship with individual innovative work behavior, as well as the underlying mechanisms. Second, we set up multilevel model and implemented HLM to investigate how ethical leadership at the individual and group level were linked to innovative work behavior by examining the mediation of individual and group intrinsic motivation correspondingly. Third, our sample included two different large companies to avoid the self-selection bias. Finally, few extant studies have examined ethical leadership and their relationship with employee outcomes in China where ethics, responsibility, innovation are especially emphasized (Walumbwa et al. 2011). Thus, we also contributed to the literature by demonstrating the generalizability and external validity of ethical leadership and innovative work behavior, both of which were originally developed and mainly studied in the western culture and context.

Our study also provided some significant practical implications: First, as both perception of ethical leadership and group ethical leadership were demonstrated to facilitate the employees' innovative work behavior, it is recommended that managers should develop ethical leadership style by emphasizing morality in workplace, respecting their followers' nature and dignity, empowering and enriching the job significance to encourage their followers to come up with new ideas and put them into practice. When practicing ethical leadership in the group, they should not only pay attention to their influence on the individuals whose perception of their leadership may affect their job performance but also shape whole group's collective congruence of their ethical leadership style that predict the followers' performance beyond the individual perception. Second, we also found that ethical leadership was positively related to intrinsic motivation at both levels and it facilitated innovative work behavior through the mediation of intrinsic motivation. As individual perception of ethical leadership and group ethical leadership, it suggested that to enhance the

employees' innovative work behavior, on one hand, ethical leadership should dedicate more to leveling their followers' intrinsic motivation by shifting their attention from the external rewards to the interest, challenge, and the significance of the job. On the other hand, they can set tune for the whole group to establish group intrinsic motivation where group members are encouraged to focus on the interest of the task and teamwork instead of external rewards.

Limitations and Future Research

Some limitations of this study should be highlighted. First, though the statistical examinations (see Appendix) that the CMV in the study were not as serious as concerned, we still recommended that all the results should be explained with caution because of the potential CMV caused by the self-reported dataset. And, we suggested that future research should collect data of the antecedent and the dependent variables from different sources to diminish the CMV. Second, our cross-sectional design prevent us from seizing the authentic causal relationship between the variables and providing alternative explanations for the findings, so it was imperative to conduct longitudinal research to probe into the mechanism underlying the relationship proposed in this survey.

Our research also provides some implications for the future study in several aspects. First, we explored how ethical leadership may affect the individual innovative work behavior from the intrinsic motivation perspective, while future researches should go further by incorporating other mediating or even moderating variables, such as self-efficacy, internal locus of control, personality and so on. Second, owing to our sample selected in China, the external validity of our conclusions was restricted. Therefore, we hope that scholars can replicate this study in other countries with cultures or contexts different from China to examine and strengthen the validity and generalizability of this research. Third, with the emergence of the research of ethical leadership in China, considering China's social reality and the cultural particularistic, we advocate that more studies about ethical leadership that rooted in China should be conducted and Chinese culture characteristics should also be included in the research.

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Appendix

As the data in this research were all responded by the employees, we should also pay attention to the potential common method variance (CMV) that may interfere with the

relationship between the variables. Then, we conducted three tests to examine the potential CMV, namely “Harman’s single-factor test,” “controlling for the effects of an unmeasured latent methods factor,” and “marker variable.”

In “Harman’s single-factor test” that employed confirmatory factor analysis (CFA) to examine the potential CMV (Malhotra et al. 2006; Podsakoff et al. 2003), we combined the variables step by step, and compared the fitness among models to judge whether CMV existed at the individual level. The results showed that the three-factor model (perception of ethical leadership, individual intrinsic motivation, and individual innovative work behavior as three unique variables) had the best fitness (χ^2 86.48, *df* 41, CFI 0.969, GFI 0.949, RMR 0.05, RMSEA 0.061, AIC 136.48). It indicated CMV was not a serious problem and the three theoretical constructs were also statistically distinct.

For the “Controlling for the effects of an unmeasured latent methods factor,” we also used CFA to examine CMV. Based on the three-factor model, we added an extra latent variable named “CMV” (four-factor model) which loaded all items of the three theoretical constructs at individual level, at the same time, all items were still loaded in the three theoretical constructs, respectively. The results showed that the four-factor model was also a good fit (χ^2 86.484, *df* 41, χ^2/df 2.323, CFI 0.969, GFI 0.957, RMR 0.06, RMSEA 0.066, AIC 142.017); however, comparing three-factor model and four-factor model, the three-factor model had better fitness, which suggested that CMV was not serious.

The “marker variable” approach was also utilized to examine the CMV (Podsakoff et al. 2003; Lindell and Whitney 2001). Following Lindell and Whitney’s (2001) recommendations, we identified the traditionality of Chinese as the “marker variable,” and then, the values of r_s in the partial-correlation adjustment and their significance were calculated, the zero-order correlations of ethical leadership (independent variable) and innovative work behavior was 0.283 ($p < 0.001$), the zero-order correlations of intrinsic motivation (mediator) and innovative work behavior was 0.523 ($p < 0.001$). The results indicated that the theoretical relations were still positive and significant as the hypotheses assumed in spite of the consideration of the adjustment for potential CMV.

In sum, we argued that the results of “Harman’s single-factor test,” “Controlling for the effects of an unmeasured latent methods factor,” and “maker variable” showed that the CMV was not as serious as it was concerned despite of its possible inference in this research.

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