How Manager-Employee Narcissism Congruence Undermines Environment Management System (EMS) Adoption and Overall Innovation Performance in China?

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Abstract. Despite surging debates among academics and practitioners to unwrap micro-antecedents to employee disengagement in green initiatives, current research offers limited empirical frameworks that explain factors influencing employee engagement or disengagement in environmental management systems (EMS) for sustainable development and innovation. Intellectuals believe that certain institutional pressures impact adoption of EMS and overall performance. Although theoretically unexplored, researchers argue that narcissism, as one of normative influence, disrupts employee socio-ecological preferences. The purpose of this paper was to test whether manager-employee narcissism congruence elicit indirect effects on overall performance through negative perception of employee EMS adoption. Using structure equation modelling (SEM), data were analysed from 882 participants (442 unique manager-employee pairs) from diverse sectors in China. Results suggest that manager-employee narcissism had negative impact on EMS adoption preferences, which in turn, reduced perceived overall innovation performance. The findings offer critical insight on how narcissist managers could be detrimental for China’s sustainable future. Practical implications are discussed for experts and academics.

Introduction

Since 2009, the adoption of environmental management system (EMS) has gained momentum as organizations aim to address market competitiveness, product innovation and market reputation [1][2][3]. Literature suggest that firms are motivated by either internal or external pressures or both as it can improve firm effectiveness in internal areas (e.g., awareness of managerial; firm competencies; awareness; resource efficiency; eco-performance; and regulatory compliance), as well as, external areas including EMS registrations to enhance corporate reputation [4][5][6][7][8][9]. Based on work built on institutional theory, Daddi and his colleagues [3] identify three typologies of pressures (motivation) for adopting EMS: coercive pressures occur due to firm’s dependence on others for critical resources; normative pressures refer to influences of learning, training, development and employee movement across firms; and mimetic pressures occur when firms imitate other successful organization, either due to lack of knowledge or during times of uncertainty. Yet, little empirical knowledge is available about the underlying mechanism that link micro-level factors (pressures/motivators) to employee perception of EMS adoption and outcomes. Of existing work in environmental research, few scholars have attempted to examine pressures, environmental strategies and outcomes either separately or at least two aspects simultaneously, but scholars believe that most interdisciplinary studies fail to offer a holistic picture [10][11][12][13]. Another issue is that some environmental researchers [14][15] believe that lacks of specific (e.g., EMAS) (rather than general environmental concepts) have offered vague and imprecise cognitive frameworks. Thus, scholars
such as, Testa et al. [3] and Daddi et al. [3] have called for developing integrated framework that explain the precise underlying mechanism of what specific pressures influence EMS adoption and outcomes [3].

As an intervening concept, some scholars believe that growing narcissism among employees, a normative pressure, can be a potential threat to environmental adoption initiatives [16][17]. Narcissists usually excel and prefer work environments that offer short-term rather than long-term initiatives, e.g., stakeholder-centered or sustainable projects [18][19][20]. If narcissism of leaders shape follower’s attitudes towards an array of ethical issues [21][22], it is equally possible that narcissist managers or supervisors can influence employee perception of EMS initiatives, too [23][24][25][18]. Despite such assertions, there is no published study that examines narcissism congruence as a possible antecedent to employee perception of EMS adoption and eco-innovation outcomes, simultaneously. In parallel, Chinese organizations are also actively adopting EMAS regulations through mergers, acquisition and joint-venture, but scholars fear that if past errors are not rectified in time through active employee engagement and sustainable business practices, the quest for eco-friendly China may become a dream [26]. Survey reports indicate that China currently suffers from lack of management talent that can steer environmental initiatives, low engagement (6%), lack of innovation [27], [28], and narcissism [29][30], a potential threat to environment and resources [23][21][24]. Yet, little is known about the potential impact of manager’s narcissism on employee perception of environmental ethics, and its corresponding effects on overall innovation outcomes [31][21].

The purpose of the current study is to explore possible relationship of manager-employee narcissism congruence (normative pressures), employee perception of EMS (adoption), and overall innovation performance (outcomes). The paper structure is as follows. First, we discuss the theoretical foundations of this study, which is followed by development of hypotheses predicated on past literature. Second, we explain the methodology including sampling approach, instruments and data analysis techniques. Third, analyses of results and findings are offered, and finally implications for environmental management are explained for theory, practice, and future researches are discussed.

Literature Review and Hypothesis Development

Narcissism, Value Congruence and Environmental Preferences

Narcissism is defined as a personality trait that is defined as a grandiose, still a weak sense of oneself and prerogative alongside obsession with social success and need for self-appraisal. Though narcissists are devoid of empathy and face difficulty in forming relationships, they tend to display strong desire for social contacts to fulfil their need for attention, where such motives can even lead them to unethical conduct [23], [22].

Manager-employee Narcissism Congruence and Environmental Preferences

The Murray’s need-press theory [32], an extension of person-organization fit (P-O) approach, provides the basis for the relationship between institutional theory’s pressures and manager-employee congruence hypothesis by explaining the complex interaction between a person’s needs and demands that shape attitudes and outcomes. Pace and Stern suggest that “congruence between personal needs and environmental press will be more predictive of one’s growth and change than any single aspect of either the person or the environment” [33; p. 27]. Preceding theoretical evidence suggest that leader-follower congruence can significantly influence student’s preferences and outcome, especially ethical attitudes and preferences [34], [35]. Employees possess mental prototypes of successful entities (e.g., individuals and organizations). If employees are subject to normative and mimetic pressures such as, imitating successful peers and leaders, it is probable that they might also be influenced by the personality of their managers [3]. Lounsbury et al. [36] support that trainer’s personality affects nearly every aspect of trainee’s decision-making and attitude. Bergman and Dally
found that supervisor’s narcissism incites materialism and reduces concern for environmental ethics among students, a view consistent with other authors [38]. Kilbourne and Pickett [39] support that narcissist are less concerned about the environment and thus, it is possible that employee mimicking manager’s personality may acquire narcissistic tendencies too, which may trigger unfavourable attitudes towards environmental management policies and systems. Prior meta-analytical studies identify many dark facets of narcissism including Machiavellianism and Psychopathy that often alter pro-social initiatives through corruption, disruptive, unethical work behaviours and poor performance [31]. Likewise, authors such as Williams, Barrett and Brabston [40] found that corporate malpractices increased with progression towards top positions in organizations. They further add that institutions are less conducive in developing future responsible leaders who can foresee eco-friendly investments as viable strategic choices. Substance abuse and egotism have also been reported in other studies among business graduates [16]. With opportunistic and short-term approach acquired at educational institutions, young narcissist employees attempt to align their personality traits with narcissist managers or leaders, which may negatively influence their attitude EMS that warrants investments in innovative eco-friendly strategies with long-term rewards. Thus, it is proposed that:

**H₁** Manager-employee narcissism congruence negatively relates to perceived benefits of EMS adoption in an organization.

### Environmental Management System and Overall Innovation Performance

Due to limited research on micro-level factors in the domain of corporate social responsibility (CSR) [41], much less attention has been devoted to establish consistent evidence on the relationship between EMS and overall performance innovation at micro-level of analysis, however, some studies suggest that eco-friendly product innovation (EMS) positively relates to overall innovation in ways such as, waste disposal policies and eco-lifecycle assessments [42]. For instance, although Frondel et al. [43] could not empirically link EMS to perceived overall innovation performance, but offered initial evidence for a relationship between strict sustainable EMS polices and overall innovation outcomes. In another study, Rennings et al. [44] examined the impact of different EMS aspects on environmental innovations and economic performance using 1277 environmental management and audit systems (EMAS) registered German firms. The study indicates positive effects of EMS and ISO 14001 on overall process innovation. In another cross-cultural study involving 79 countries, Lim and Prakash [45] found that EMSs positively relate to overall innovation performance, where the number of ISO14001 certificates increased with the number of registered patents (used as an innovation proxy). In another sample of Spanish companies, Camison [46] investigated the impact of coercive EMS regulations on innovation performance and found that adoption of EMS policies or auto-regulation pressures promotes overall innovation performance. Later, Forés and Camison [47] validated prior findings by suggesting that EMS knowledge creation and absorption capacity positively effects incremental and radical innovation. Although Daddi et al. [3] conceptualized pressures (e.g., coercive, normative and mimetic), EMS adoption and outcomes (e.g., innovation, competitiveness and market reputation) in a cross-cultural study, the authors called for examining under-researched pressures and a well-designed overall innovation performance instrument may enhance understanding of causal relationship between pressure, EMS adoption and outcomes. In the light of above argument, it is logical to assume that the negative impact of high manager-employee narcissism congruence may inversely effect perceived overall innovation performance due to positive relationship between EMS and overall innovation performance, though, such reasoning is taken as exploratory. Based on above, the following hypotheses can be formulated:

**H₂** Perception of EMS adoption benefits relate to perceived product innovation performance among employees.
Cognitive Process Map

Based on previous discussion, the authors have postulated a cognitive process map (as shown in Figure 1), which suggests that manager-employee narcissism congruence (pressures) will elicit negative perception of EMS (adoption) among employees, which in turn, will reduce overall innovation performance (outcomes). In practice, employees seek to align their values and personality with their superiors for succeeding in their respective organizations. Such process of cognitive alignment can have positive and negative repercussions. Such that, employee with high narcissistic tendencies (instilled through education and mimicking managers) may develop negative perception of green initiatives if they seek to fit exiting values with narcissist manager who are attuned to short-term projects rather than sustainability-led projects that often cost money, resources and time. Such prescription may translate into negative beliefs among employee about EMS adoption and lead to “de-coupled” EMS initiatives: employee may perceive them as disconnected from regular operations and thus, consider them less important. This may result in less devotion to consider replacing phased-out parts or long-term research for developing and designing eco-friendly products.

![Cognitive Process Map](image)

Figure 1. Cognitive process map of normative pressures, EMS perception and overall innovation performance.

Method

Study Design

This research adopted a descriptive and quantitative approach to examine how manager-employee narcissism congruence influences students’ approach toward environmental management system adoption, and firm product innovation performance. To some extent, our methodology mirrors the approach of Whitaker’s study [22] on the negative impacts of narcissism dyads.

Participants and Procedures

Given the unique nature of sample characteristics (dyads), the authors were compelled to adopt convenient sampling for data collection using Guanxi (personal relationships). Another reason for this research strategy was the nature of questionnaire, which required participants with adequate knowledge to understand the research objective and rationale e.g., R&D, compliance and product innovation. The demographic variables were controlled, where sample comprised of 442 managers-employee pairs (882 in total) from diverse organizations in China. The demographic sample showed some interesting differences, for instance, the male respondents were high in employee sample (269, 60.9%) than managers (114, 25.8%), whereas the number of female participants was higher in the sample of managers (328, 74.2%) than employees (173, 39.1%). Respondents were working in manufacturing (39.4%), trade (21.3%), services (25.6%), and other sectors (13.7%). These survey respondents represented EMS registered companies including multinationals (68%), joint-ventures (12.7%) and state-owned enterprises (18.8%). The sample
comprised of respondents from firms that were engaged in the process of implementing environment standards (e.g., ISO14001 and EU Regulation for the EMAS) with an average of 21 EMS registrations (Low). The preliminary analysis also indicated that most managers-employee relationships were more than 3.5 years (on average). A structured questionnaire was designed for data collection using Breslin’s (1986) back-translation procedures, in which the questionnaire was developed in English and then translated into Chinese with the assistance of language experts, who were kept blind to research objective and purpose. Several revisions were made to enhance the consistency of survey instrument. Besides restricted access, the authors experienced serious difficulties in accessing and analysing data, which somehow affected several key analyses planned in the study.

Measures

**Narcissism.** Ames et al. [48] 16 item battery was used to collect responses on narcissism, which has statistically proven to be time-saving and effective compared to other scales with nearly 40 items. Sample items for narcissist include “I think I am a special person”, “I am more capable than other people” and, non-narcissist options comprised of statements such as “I don’t like it when I find myself manipulating people” and, “I try not to be a show off”.

**Environmental Management System (EMS) Perception.** Daddi et al.’s [3] 17 items battery was used with slight modification to examine employee perception of three different dimensions of environmental strategies (EMS): process innovation, product innovation and organizational innovation using usual score of 1-5 (1: strongly disagree; 5 strongly agree). Sample items include “EMS stimulates the adoption of green technology or (Best Available Techniques),” “EMS influences the design and development of products,” and “EMS stimulates innovative communication patterns internally (with employees) and externally (with stakeholders).”

**Overall Innovation Performance.** Despite criticism that measuring instruments for overall innovation performance are somewhat inconclusive and imprecise [49], Alegre et al. [50] offer a comprehensive measure of overall innovation performance that integrates two critical aspects (i.e. efficacy and efficiency), and also explains the complex interrelationship between product innovation and firm performance. The scale is not only consistent with previous literature [51], but also consistent with the current version of the Organization for Economic Co-operation and Development (OECD) Oslo Manual [52]. Using the 12 items scale, respondents were asked to share their opinion about the perceived product innovation performance of their firm compared with competitors in the past 5 years, ranging from 1 (much worse) to 5 (much better). Sample items include “Replacement of products is being phased-out,” “development of environment-friendly products,” and “Global satisfaction degree with innovation projects efficiency.”

**Data Analysis**

Data analysis was conducted using SPSS 21 and AMOS 21 for conducting descriptive and SEM analysis. To examine manager-employee narcissism congruence, Cyril Burt’s Congruence Coefficient (1948) was adopted. Popularized by Ledyard Tucker (1951), also known as *Tucker’s Congruence Coefficient*, Lorenzo-Seva and Berge [53] argue that this is a more meaningful Index. Coefficient values can range from -1.00 (no congruence) to 1.00 (absolute congruence), whereas the congruence coefficient is calculated using formulae \( r = \frac{\sum XY}{\sqrt{\sum X^2 \sum Y^2}} \). First, manager-employee narcissism responses were collected against 16 items of narcissism scale (NP 16), separately. Second, these mean values of responses from manager and employees were inserted into the above-noted formulae to extract the congruence coefficient. A value of 0.78 (mean) indicated high narcissism congruence between managers and employees i.e. close to 0.85 [53].
Results and Findings

Descriptive Statistics

Following sections presents the outcome of various analyses. Below, Table 1 shows the descriptive statistics including mean, standard deviation and Cronbach’s alpha values for latent variables. As seen, the correlation values clearly indicated that the manager-employee narcissism congruence (NAR_CONG) indicated a significant negative relationship with all latent constructs (EMSAP_PRI, EMSAP_PDI, EMSAP_OI), while EMS dimensions also demonstrated a negative relationship with overall innovation performance. The Cronbach’s alpha values indicated strong reliability with scores of 0.8 (on avg.) i.e. > 0.6.

Table 1. Mean, Standard Deviations, Cronbach’s alpha and Correlation Coefficients.

| Variables   | M   | SD  | 1    | 2   | 3   | 4   | 5   |
|-------------|-----|-----|------|-----|-----|-----|-----|
| 1. NAR_CONG | 0.78| 0.23| .85  |     |     |     |     |
| 2. EMSAP_PRI| 3.97| 0.82| -0.426**| 0.77|     |     |     |
| 3. EMSAP_PDI| 3.88| 0.52| -0.658**| 0.442**| .88 |     |     |
| 4. EMSAP_OI | 3.34| 0.91| -0.335**| 0.433**| 0.422**| .87 |     |
| 5. OIP      | 3.84| 0.77| -0.764**| -0.265*| -0.612**| 0.453*| .84 |

Note. ** Significant at .01 or (p<0.01). N = 882 (442 Manager-Employee pairs). Scales are from 1 to 5. Coefficient (α) reliabilities are shown in the diagonal. EMAS = Environment Management System Adoption Preference, PRI = Process Innovation, PDI = Product Innovation, OI = Organizational Innovation, OIP = Overall Innovation Performance.

CFA and Goodness of the Model

As a next step, SEM approach was adopted to examine the directional effects of these variables. After testing few possible models, a final 5 factor measurement model was selected for hypotheses testing. To access the reliability and validity of measurement model, confirmatory factor analysis of the measurement model was conducted. Overall, the scores of all fit indices suggested that the measurement model was statistically acceptable: CMIN/DF = 2.987 > 3 [54]; the root-mean-square error of approximation (RMSEA) =0.064 > 0.08, Tucker Lewis index (TLI) = 0.903, IFI = 0.914, comparative fit index (CFI) = 0.912, goodness of fit index (GFI) = 0.890 (from 0 to 1) [55]. As a step further, Harmon’s single factor approach was used to address the common method bias, in which one factors accounted for less than 50% of the variance.

Hypothesis Testing

According to prior studies, testing complex indirect effects in models with four or more variables can be difficult. As per Kline [54] and Cohen and Cohen [56], the small effect sizes can inhibit researchers to predict the significance as effect sizes are normally small. As an alternative, Kline [54] proposes that “if all of its component path coefficients are significant, then the whole indirect effect can be taken as significant, too,” an approach used in recent studies as well e.g., [57]. Because the path coefficients that make up the complex indirect effect from manager-employee narcissism congruence to employee perception of EMS adoption to overall innovation performance meet this requirement, the complex indirect effect is considered significant despite the small effect sizes. As seen in Table 2 and Figure 2, manager-employee narcissism congruence negatively affected perceived environmental management system, which in turn, decreased overall innovation performance.
Figure 2. Path coefficients repressing direct effects of pressures to EMS perception to overall innovation performance. ** Significant at .01 or (p<0.01). N = 882 (442 Manager-employee pairs).

Table 2. Summary of direct and indirect effects.

| Paths                          | Path coefficients with significance value | S. E |
|-------------------------------|-------------------------------------------|------|
| NAR_CONG → EMSP_PRI            | -0.228***                                 | 0.024|
| NAR_CONG → EMSP_PDI           | -0.307***                                 | 0.030|
| NAR_CONG → EMSP_OI            | -0.100***                                 | 0.033|
| EMSP_PRI → OIP                | 0.245***                                  | 0.045|
| EMSP_PDI → OIP                | 0.182***                                  | 0.145|
| EMSP_OI → OIP                 | 0.557***                                  | 0.090|

Note. *** Significant at .001 or (p<0.001). NAR = Narcissism; CONG = Congruence; EMSP = Environment Management System Perception; PRI = Process Innovation; PDI = Product Innovation; OI = Organizational Innovation; OIP = Overall Innovation Performance.

Discussion and Implications

This study clearly demonstrate that manager-employee narcissism congruence induce negative perception of EMS adoption initiatives, which in turn, decreases overall product innovation performance perception among employees. Ronningstam’s [58] call for exploring non-western etiology of ‘narcissism’ makes sense as current findings clearly demonstrate how narcissism ‘epidemic’ can negatively influence perception of EMS and overall innovation performance. The implications of our findings are discussed in line with recent global survey that assert the need for organizations, in particular Chinese, to revisit the following aspects to improve low impact materials, optimized manufacturing, efficient distribution, low impact use, optimized human lifetime, optimized end-of-life and overall innovation performance [15], [27].

Revisiting Managerial Values and Competencies

Mirroring prior beliefs, present results call into question the effectiveness of managers, whose destructive personality traits are somehow contributing to perceived ineffectiveness of environmental strategies (EMS) among employees in China. If Chinese institutions, and particularly specific leaders/managers are principal sources of normative pressures that drive pro-environmental attitudes or EMS implementation initiatives e.g., specific tasks or process phases, such as: equipment maintenance (e.g. machinery checks, filter maintenance); chemical handling, storage, dosing and dispensing [3], then managerial talent in Chinese enterprises certainly needs a serious overhaul. De Luque et al. [57] also contend that “executives who are low in narcissism may tend to justify their decisions by considering likely responses from a gamut of stakeholders and thus are viewed more consistently by followers as being participative and visionary in their leadership”. First, there is an imperative need for organizations to revisit managerial assessments methods, selection processes, and
training and development programs at all levels. Values, personality traits and EMS-orientation of both new and employee must be assessed using 360 degree feedback mechanism to help them improve self-awareness and moral identity, as anecdotes to pro-EMS initiatives (e.g. Life-Cycle Analysis, Product/Organization Environmental Footprint, and Eco-label) and sustainable development [59]. Groves [59] argues that congruence of leader-follower ethical values is critical to successful implementation of sustainable business practices, as most companies are unaware of environmental (e.g., EMS) norms and practices. According to Hays report’s findings [27] and Gallup survey [28], Chinese companies that created a conducive, energizing and eco-friendly climate demonstrated speedy progress, sustainable profits, innovation.

**Formalizing Environmental Management Codes and Practices**

Skill exercises and role play should be regularly conducted to help employees and managers to understand the importance and pertinence of EMS to organizational success. Organizations must integrate EMS practices into formal staff selection procedures, competency and development frameworks through human resources (HR) practices, multisource/360-degree tools and ongoing assessments. Waldman and Galvin [60] suggest that employee selection process may include criterions such as the candidate’s ability to articulate complexities of sustainability practices, for example, developing strategies to balance stakeholder-interests and business scenarios with intellectual arguments about environmental strategies. In addition, organizations must invest in effective EMS training programs, in which competencies, desired values and code of ethics are explicitly and practically defined, in terms of their possible impact on process, product, organizational innovation, and overall firm performance at large. Such initiatives may include emphasis on areas such as, ISO 9001; safety, social responsibilities, and finance; ICT technologies; training and involvement of employees, continuous improvement; and public-private partnership. Additionally, a strong ethical climate based on strict compliance can serve as a check and balance mechanism to reduce possibilities of organization-wide narcissism practices and emerging narcissist manager/leaders [61].

**Curbing Organization-wide Narcissistic Tendencies**

Although Zhang et al. [62] present some paradoxical evidence that narcissism can co-exist to generate an innovative culture that improves innovation performance in China, our findings are contrary to such reasoning. Mainahand Perkins [63] also contend that increased awareness of narcissism through corporate, HR, board members or in some cases, employee interventions for narcissist individuals to seek psychological treatment may reduce the disruptive outcomes. Teams with high ratio of non-narcissist employees can be another way to curb narcissistic tendencies disrupting eco-innovation outcomes. From results, the negative effects of narcissism on overall innovation performance might also indicate a possible influence of long-term influence of managers or narcissist leaders training such managers. The point of concern for Chinese corporation is that narcissist employees have higher propensity to move up the leadership ladder and, if that happens, they can alter impressionable follower’s attitudes and instill organization-wide narcissism [63]. Overtime, every organization develops self-identity, which followers tend to imitate via commonly-shared values. Cognition about identity predicated on leader’s narcissism may translate into company-wide narcissism and eventually disrupt eco-innovation practices linked to sustainable innovation performance. Though moderate narcissism is somewhat acceptable for competitive and hostile environment that Chinese companies face today [64], enterprises might have to screen out extremely narcissistic tendencies and make tangible efforts to maintain the balance among managers and leaders through HR (for example, practices, assessment centres, simulations and job profiles) as it may disrupt sustainable development in the long-run. Chinese organization also need to focus on expanding leadership inventory and employ responsible leadership models into existing mix, which will not only curb narcissism, but also help to operationalize cognitive alignment of new and old manpower with eco-friendly innovation practices.
Theoretical Contributions

The current study makes several contributions. First, prior studies identify micro CSR theory and research [41], [65], as well as environmental research [3] identify lack of empirical models linking values to practices and outcomes. This study provides empirical evidence for the relationship of manager-employee narcissism congruence, as a micro-antecedent (pressure/motivator) to EMS perception and overall innovation performance. Second, this paper also contributes the numerous calls [22][25][21][31] for examining the toxic effects of narcissism on workplace behaviour by suggesting that manager-employee narcissism dyads can be potentially harm EMAS/EMS adoption. Perceived ineffectiveness of EMS among employees is more likely to reduce active employee engagement, which could lead to potential business losses, in terms of product and process innovation, and market reputation. Third, the paper empirically advances the inter- and intra-construct incremental and discriminant validity of NPI-16 [48], overall innovation performance [50] and EMS [3].

Limitations and Future Directions

Perhaps the cross-sectional research design is the most serious limitation as the findings presented in this study are unable to definitively confirm the causal process of narcissism on EMS adoption preferences and innovation. Future research is encouraged to explain these relationship using longitudinal research designs that allow causal conclusions. Still, our unique approach to assess extended manager-employee influences using congruence analysis offer greater confidence in these findings. Although Daddi et al. [3] and others find normative and mimetic pressures bearing positive links with innovation, our data open new inter-disciplinary possibilities in environmental management and psychology research by suggesting the opposite. Research in future may examine personal values (materialism, self-transcendence, self-enhancement, conservation, and openness to change), and its corresponding link to employee support as pressure dimension of EMS.

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