How balance theory explains high-tech professionals' solutions of enhancing job satisfaction

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ABSTRACT

R&D professionals in high-tech industries often face struggles between the work and family domains. Additionally, the job autonomy is an essential antecedent of being a professional, whereas a R&D manager determines the subordinates' job autonomy, helps mitigate their work–family conflict and contributes their innovativeness. Accordingly, the R&D employee, supervisor, job autonomy, and family which form a tetragonal-relationship system are the major entities in the R&D employee's cognitive structure. The R&D employee's and supervisor's perceptions about other entities are regarded as the connections among entities and stand for the concepts of leader–member exchange, self-determination (i.e., perceptions about job autonomy), managerial control (related to autonomy support), work–family conflict, and managerial work–family support. Although prior studies indicate individual influences of these concepts on the job satisfaction, they neglect the combined influences. This study applies the balance theory to explore how R&D professionals balance these connections in their cognitive structure for achieving the high job satisfaction. Among 32 possible combinations of factors, this study identifies four causal conditions for the high job satisfaction and indicates the best and worst conditions. The findings inform implications to manage R&D professionals.

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1. Introduction

Employees often face struggles between work and family domains. Such struggles are particularly obvious for R&D employees in high-tech industries due to highly demanding works and their professional roles. On one hand R&D employees who occupy work roles may experience work–family conflict (Lee, 2008), and on the other they are professionals with the necessary knowledge and skills and thus require more autonomy than other employees (Farr-Wharton, Brunetto, & Shacklock, 2011). R&D managers frequently query whether R&D professionals can be "led" (Scott & Bruce, 1998) and face a dilemma of the autonomy need of professionals and the managerial control (Raelin, 1985).

R&D managers may influence how employees handle their work- or family-related affairs. At work supervisors can determine professionals' job autonomy and supply job resources so that they are able to contribute subordinates' innovativeness (Lapierre, Hackett, & Taggar, 2006; Lee, 2008). Literature also confirms a positive effect of the good supervisor–subordinate relationship, such as leader–member exchange, on innovativeness for R&D employees (e.g., Atwater & Carmeli, 2009; Lee, 2008; Scott & Bruce, 1998). Additionally, a supportive supervisor is a necessary resource helping mitigate the work–family conflict

(Frye & Breaugh, 2004). Consequently, the supervisor plays an important role in managing R&D professionals (Lee, 2008).

Taken together, four entities, including R&D subordinate, immediate supervisor, job autonomy, and family, are influential in a R&D subordinate's work and family lives. The perceptions and evaluations of the R&D subordinate and supervisor about other entities constitute the connections between entities. The connections among these entities respectively stand for concepts of leader–member exchange (LMX), self-determination (i.e., perceptions about job autonomy), managerial control (related to autonomy support), work–family conflict, and managerial work–family support.

Fig. 1 models the entities and represents the conceptual framework in a R&D employee's cognition. Specifically, the R&D employee concentrates on these entities and connections when he/she evaluates the work and family domains. The arrow in Fig. 1 represents one's perception toward the other. Three theories including the conservative resource theory (COR), social exchange theory (SET), and job demands–control (JD-C) model help understand why these concepts are particularly important for R&D employees and how they are closely relevant to each other.

The essence of COR theory is that individuals seek to obtain and maintain resources such as time, cognition, and energy (Hobfoll, 1989). Owing to a fixed amount of resources an individual's investment of resources in a domain reduces the level of resources available for investment in another one (Amah, 2009). According to COR theory, as resources are depleted without adequate replenishment, negative

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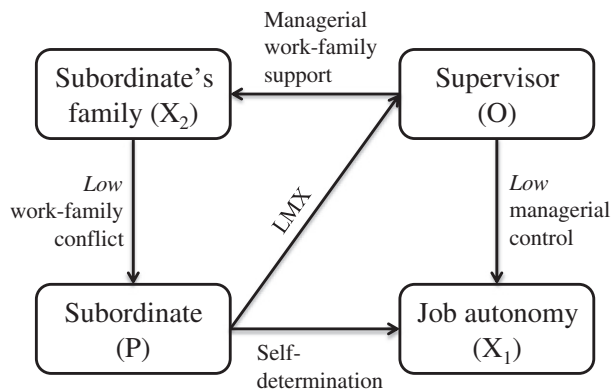
Fig. 1. The conceptual framework.

outcomes including the work–family conflict or decreased job satisfaction are likely to result (Harris, Wheeler, & Kacmar, 2011). The work–family conflict not only represents the result of depleted resources but also may further exhaust remaining resources. COR theory also posits that employees in a high quality LMX with their supervisors are usually provided resources which help replenish their resources (Harris et al., 2011) so that they may experience less work–family conflict (Karatepe & Uludag, 2008). Accordingly, COR theory provides a mechanism through which LMX and the work–family conflict are related, and explains why they are critical factors for exploring a R&D employee whose works suck up scores of resources.

SET suggests that the favorable treatment from an exchange partner creates an obligation to reciprocate (McNall, Nicklin, & Masuda, 2010). Building on SET, previous studies documented that LMX, job autonomy, and managerial work–family support improved an employee's organizational commitment and innovation due to the norm of reciprocity (Agarwal, Datta, Blake-Beard, & Bhargava, 2012; McNall et al., 2010; Park & Searcy, 2012; Wang, Lawler, & Shi, 2011). Thus, R&D supervisors can utilize LMX, job autonomy, and managerial work–family support as resources in exchange for R&D employees' contributions to innovation.

JD-C model posits that the job autonomy acts as a buffer for negative effects of demanding jobs (Van der Doef & Maes, 1999). Job autonomy, the important job characteristic for professionals, describes the extent to which the job provides freedom and discretion to the employee in scheduling the work and in determining how to conduct it (Park & Searcy, 2012). While the self-determination defines the employee's perception of the job autonomy, the managerial control reflects the supervisor's permission to provide autonomy for subordinates. The agreement between the self-determination and managerial control determines whether R&D employees obtain enough job autonomy for themselves.

JD-C model's extension, job demands–resources (JD-R) model, regards the job autonomy and managerial work–family support as job resources which are strongly linked to motivational-based outcomes (e.g., job satisfaction) (Agarwal et al., 2012; Mauno, Kinnunen, & Ruokolainen, 2006). Both JD-C and JD-R models imply that R&D supervisors can utilize the job autonomy, LMX, and managerial work–family support as resources to handle demanding R&D works and thus exchange for R&D employees' contributions to innovation.

COR, SET, and JD-C theories underpin our conceptual framework which displays complex relationships among four entities in work and family domains (see Fig. 1). The findings of meta-analyses report that these factors are linked to important organizational outcomes, particularly the job satisfaction (e.g., Fried, 1991 for autonomy; Gerstner & Day, 1997 for LMX; Kossek & Ozeki, 1998 for work–family conflict). Prior studies focus on the separate effects of one or two of these factors for R&D professionals or other employees, and indicate that employees have high job satisfactions when they have good LMX, they are satisfied

with the job autonomy, or they have less work–family conflict (e.g., Farr-Wharton et al., 2011; Mauno et al., 2006; Raelin, 1985).

Although prior studies indicate the individual impact of LMX, autonomy, work–family conflict, and managerial work–family support on the job satisfaction, they cannot totally explain the job satisfaction in real life. For example, it is unknown how an employee with a good LMX evaluates the job satisfaction when he/she is dissatisfied with the job autonomy. Or how does an employee feel about the job satisfaction if he/she is satisfied with the job autonomy but experiences a high work–family conflict? Can the LMX or managerial work–family support help improve the employee's job satisfaction? Taking all these factors into account in the research is a critical issue in that they coexist in the individual cognitive framework and they are interrelated. In other words, these four entities and their interrelationships dominate the R&D employee's cognitive structure when he/she evaluates the job satisfaction.

For answering the above questions, this study applies the balance theory to exploring how to balance these relationships among R&D employee, supervisor, job autonomy, and family for creating the higher job satisfaction. Heider's (1958) balance theory is a meaningful lens for understanding the interactive effects among these factors. The balance model is a cognitive framework that describes how an individual perceives others around him/her, and focuses on the cognitive consistency (Awa & Nwuche, 2010). The "balance" situation or cognitive consistency means that an individual's perceptions about others achieve the equilibrium instead of contradiction. The basic model in the balance theory is a triad of a person, other person, and an entity. Relationships between any two entities determine the balance. For example, if a subordinate and his/her supervisor have similar opinions about the job (i.e., agreement), they are likely to establish a good working relationship. This is a so-called balanced situation. If the subordinate does not like the supervisor, he/she will alter the opinion for achieving the balance among the cognitions, and eventually have the different view from the subordinate.

Individuals strive for the cognitive balance in their cognitions of interpersonal relations (Davidson & Sussmann, 1977). Pleasantness arises when the cognitive balance is achieved (Carroll, 1977). Accordingly, the balance theory helps integrate the relevant factors in the individual cognitive framework and aids understanding how a R&D employee–supervisor relationship, their perceptions about the job autonomy and the employee's family can influence the employee's pleasantness of job (i.e., job satisfaction). Based on the balance theory, this study attempts to investigate how the balanced or imbalanced cognitive framework (see Fig. 1) creates the job satisfaction.

Note that the job satisfaction is not included in the framework in Fig. 1, because job satisfaction is the result of the cognitive framework. Based on the balance theory, individuals produce pleasantness when their cognitive structures achieve the balance. The job satisfaction can be regarded as the pleasantness in terms of the job. The objective of this study is to identify the appropriate cognitive structure that can lead to the high job satisfaction.

2. Balance theory

Heider's (1958) balance theory describes the process mechanisms in the minds of social actors such that a focal person (P) has positive or negative cognitions about other individual (O) and issue (X). Two actors and an entity are treated as a three-point cognitive structure equipped with three relationships. Relationships between entities (e.g., PO, PX, or OX) denote an individual's cognitions or sentiments about other entities. The cognition or sentiment means the positive $(+)$ or negative $(-)$ feelings that the individual gives to the other entities (Woodside & Chebat, 2001). A positive sign $(+)$ denotes that an individual gives more of a negative item than he/she receives, or that he/she receives more of a positive item than he/she gives. On the contrary, a negative sign $(-)$ denotes that an individual receives more of a negative item than he/she gives, or that he/she gives more of a positive item than