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AFFECTIVE ORGANIZATIONAL COMMITMENT AND AUTONOMOUS MOTIVATION: A CROSS-LEVEL AND LONGITUDINAL INVESTIGATION OF EMPLOYEE WELL-FUNCTIONING

par

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Résumé

Cette thèse comprend trois articles approfondissant l'engagement et la motivation des employés dans une approche multiniveau, multisource et longitudinale.

Le premier article vise à examiner le lien sous-investigué entre l'engagement affectif envers l'organisation (EAO) et la proactivité, et en particulier le processus sous-jacent à ce lien ainsi que ses conditions contingentes. En utilisant des données d'une enquête multiniveau et multi-source obtenues auprès de 172 infirmières provenant de 25 équipes en Belgique, nous avons constaté qu'au niveau individuel, l'EAO avait une relation positive avec le comportement proactif, laquelle était entièrement médiatisée par une motivation au travail autonome. Nous avons également constaté que le climat de communication au niveau de l'équipe modérait cette relation aux deux étapes de la relation de médiation. Plus précisément, l'EAO était plus fortement lié à la motivation autonome et cette dernière était plus fortement liée au comportement proactif lorsque le climat de communication était plus élevé.

Le deuxième article porte sur le rôle médiateur de la satisfaction du besoin d'autonomie dans la relation entre l'EAO et la surcharge de rôle au fil du temps, mais aussi sur le rôle modérateur du concept de soi individuel. En utilisant des données en panel collectées à deux moments distincts auprès de 263 employés qui travaillaient pour différentes organisations de divers secteurs en Chine, nous avons constaté que la satisfaction du besoin d'autonomie médiatisait la relation entre l'EAO et la surcharge de rôle au fil du temps. Par ailleurs, la satisfaction du besoin d'autonomie et la surcharge de rôle étaient corrélées de manière réciproque et positive. De plus, la satisfaction du besoin d'autonomie entrainait une surcharge de rôle plus forte au fil du temps lorsque le concept

de soi individuel des employés était élevé (versus faible) tandis que, réciproquement, la satisfaction du besoin d'autonomie conduisait à un EAO plus élevé lorsque le concept de soi individuel était faible (versus élevé).

Le troisième article se centre sur la relation temporelle entre l'EAO et l'épuisement émotionnel par l'intermédiaire de la satisfaction des besoins fondamentaux. Dans la perspective de tester un modèle de croissance latente, nous avons recueilli des données d'enquête auprès de 284 employés permanents en trois vagues dans un intervalle de six mois au Canada, dans une période où l'économie était en plein essor. Nous avons constaté qu'un EAO fort et stable conduisait à une augmentation plus faible à travers le temps de la satisfaction du besoin d'autonomie et du besoin de relations. À son tour, une plus faible augmentation de la satisfaction du besoin d'autonomie entrainait une diminution plus faible de l'épuisement émotionnel, tandis qu'une augmentation plus faible de la satisfaction du besoin relationnel entrainait une baisse plus forte de l'épuisement émotionnel. De manière réciproque, une plus forte baisse de l'épuisement émotionnel conduisait à une augmentation plus forte de la satisfaction du besoin de relations. Ces résultats mettent en évidence le rôle dynamique de la satisfaction des besoins fondamentaux dans la relation de médiation entre le statut initial de l'EAO et le changement de l'épuisement émotionnel à travers le temps chez les employés permanents.

Mots clés : engagement affectif envers l'organisation; motivation autonome; comportement proactif; climat de communication; satisfaction des besoins fondamentaux; surcharge de rôle; concept de soi individuel; épuisement émotionnel; modélisation multiniveau; modélisation à décalage temporel; modélisation de croissance latente.

Méthodes de recherche : Questionnaire en ligne.

Abstract

This dissertation comprises three articles addressing employee commitment and motivation from a multilevel, multisource, and longitudinal approach.

The first article aims to examine the under-researched link between affective organizational commitment (AOC) and proactivity, and particularly the underlying process and the boundary conditions. Using multilevel and multisource survey data from 172 nurses in 25 teams in Belgium, we found that, at the individual level, AOC had a positive relationship to proactive behavior that was fully mediated by autonomous motivation. We also found that team-level communication climate moderated this relationship at both stages of the mediation. Specifically, AOC was more strongly related to autonomous motivation and the latter was more strongly related to proactive behavior when communication climate was stronger.

The second article focuses on the mediating role of autonomy need satisfaction in the relationship between AOC and role overload over time, and also on the moderating role of the individual self-concept. Using panel data collected at two points in time from 263 employees working for different organizations across various industries in China, we found that autonomy need satisfaction mediated the relationship between AOC and role overload over time. Interestingly, autonomy need satisfaction and role overload were reciprocally and positively related. Moreover, autonomy need satisfaction resulted in stronger role overload over time when employees' individual self-concept was high (vs. low) while, reciprocally, autonomy need satisfaction led to stronger AOC when the individual self-concept was low (vs. high).

The third article examines the temporal relationship from AOC to emotional exhaustion via the basic needs satisfaction. To test a latent growth model, we collected data from 284 tenured employees in three waves over 6 months during a booming economy in Canada. We found that a stabilized and strong AOC related to a lower increase in autonomy and relatedness needs satisfaction. In turn, a lower increase in autonomy need satisfaction led to a weaker decline in emotional exhaustion while a lower increase in relatedness need satisfaction resulted in a stronger decline in emotional exhaustion. Reciprocally, a stronger decline in emotional exhaustion accelerated the increase in relatedness need satisfaction. These findings highlight the dynamic role of basic needs satisfaction in mediating the relationship between the initial status of AOC and the change in emotional exhaustion among tenured employees.

Keywords : affective organizational commitment; autonomous motivation; proactive behavior; communication climate; the basic needs satisfaction; role overload; individual self-concept; emotional exhaustion; multilevel modeling; cross-lagged modeling; latent growth modeling.

Research methods : Online questionnaire.

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To my parents,

Hui-Zhen and Wen-Hong,

whose unfailing love

grants me the eyes to see

the true meaning of commitment

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Introduction

Commitment is inevitable (Brickman, 1987). As human beings we have to commit ourselves to someone or to something, sooner or later, and like it or not. This is particularly true when we must face the vicissitudes of life, for commitment enables us to persevere in, and rise above, the hardships in life because life is hard (Peck, 2003). Just as it is indispensable to individuals in their lives at large, so is commitment crucial to employees in the organization. This thesis is about employee commitment to the organization—commonly known as organizational commitment, and it focuses on the affective organizational commitment (AOC) that features emotional attachment (Meyer, Jackson, & Maltin, 2008). Although its roots can be traced back to the 1960s and even earlier (Meyer, 2016), AOC is still an "extremely promising" construct (Cropanzano & Mitchell, 2005, p. 884). Over the decades, research has shown that it is consistently related to organizational functioning, such as turnover (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002), job performance (Riketta, 2002), and organizational citizenship behaviors (LePine, Erez, & Johnson, 2002).

However, far less attention has been paid to the functioning of employees. Recently, researchers have been exploring the implications of AOC for employees themselves (Meyer & Maltin, 2010), and they have theorized that AOC is related to such employee outcomes as discretionary behavior (Meyer & Herscovitch, 2001) and job burnout (Meyer, Maltin, & Thai, 2012). This gives rise to several puzzles. For example, despite the strong and repeated theoretical proposal that AOC can activate the free agency of employees, motivating them to engage in proactive (or discretionary) work behavior

(Meyer, Becker, & Vandenberghe, 2004), most researchers have treated employees as passive respondents to the work context and have thus omitted to consider them as agents who can construct that context. This omission raises three questions: (1) Can AOC enable employees to behave proactively on the job? (2) If yes, how does it do so? and (3) What are the boundary conditions for it to do so? In addition to proactive work behavior, commitment theorists have begun to pay attention to another major employee outcome: job turnout (Meyer & Maltin, 2010). Emotional exhaustion, the core component of job burnout, has been found to decrease when AOC is high at the between-individual level (Lapointe, Vandenberghe, & Panaccio, 2011). However, although employees often experience emotional exhaustion as fluctuating within individuals over time, little has been said about this fluctuation. In addition to the scant research on the change in emotional exhaustion, there has been debate over the stability of AOC—some assert that it remains constant over time (Brickman, 1987), whereas others claim that it is subject to change (Becker, Ullrich, & Van Dick, 2013). This suggests that it would be worthwhile to investigate the change patterns of AOC and emotional exhaustion from a dynamic perspective, in an attempt to answer two other research questions: (4) Is AOC stable over time? and (5) How does AOC interplay with emotional exhaustion as both develop over time?

This thesis attempts to answer these questions using three studies. In the first one, we examine the connection between AOC and proactive behavior. We begin by identifying autonomous motivation as the key mechanism that mediates the relationship between AOC and proactive behavior at the individual level. We then investigate the moderating role of team-level communication climate. The multilevel and multisource

data allow us to investigate a cross-level moderated mediation model that explains how and when AOC drives proactive behavior. In the second study, we challenge the dominant assumption that employees have little choice but to adapt to the work context by investigating how this context can be constructed when AOC comes into play. To do so, we first examine how autonomy need satisfaction mediates the relationship between AOC and role overload. We then assess how employees' individual self-concept moderates the above mediating effects. The panel data allow us to examine the moderated mediation relationships that involve reciprocal causality. Finally, in the third study, drawing upon a sample of tenured employees, we begin by examining the change patterns of the core constructs (i.e., AOC, the basic needs satisfaction, and emotional exhaustion), and then we investigate how these change patterns relate to one another. The three-wave longitudinal data allow us to use latent growth modeling (LGM) to ascertain the stability of AOC over time, and to determine how it shapes employees' experience of the change pattern of emotional exhaustion. Specifically, we highlight the dynamic mediating role of the basic needs satisfaction in the relationship between the initial status of AOC and the change in emotional exhaustion over time.

Central to these three studies is the main contention that organizational commitment activates work motivation, which in turn shapes employee functioning, such as proactive behavior (Study One), perceived role overload (Study Two), and emotional exhaustion (Study Three). The next chapter will introduce the two focal concepts that constitute the theoretical cornerstone of this thesis: organizational commitment and work motivation. The three chapters that follow will respectively present the three studies that

form the core of this thesis. The final chapter will summarize the main contributions of the thesis and will also present possible avenues for future research.

Chapter 1:

Basic Theories: Employee Commitment and Work Motivation

In this chapter, we will first review the main definitions and major models of organizational commitment and work motivation in the field of organizational behavior. We will then focus on the three-component model (TCM) developed by Meyer and Allen (1991, 1997) and the self-determination theory (SDT) advanced by Deci and Ryan (1985; Ryan & Deci, 2000). Finally, we will integrate TCM and SDT into Meyer et al.'s (2004) model of employee commitment and motivation.

1.1 Organizational Commitment[1]

1.1.1 Definitions

Commitment has been a difficult concept to define (Meyer, 2016; Roe, Solinger, & Van Olffen, 2009). Since its introduction into the field of organizational behavior, a wide range of definitions have been proposed. An exhaustive review is beyond the scope of this thesis. In the following paragraphs, we will present some major definitions to show how the conceptualization of organizational commitment has evolved over recent decades.

Prior to 1980, commitment was generally theorized as a one-dimensional concept (Meyer, Irving, & Allen, 1998) mainly from two distinct approaches: one behavioral and the other attitudinal. In the behavioral approach, organizational commitment was viewed

[1] In this thesis, "employee commitment" and "organizational commitment" are interchangeable terms, both referring to employees' commitment to the organization, as opposed to the commitment made by the organization to its employees.

as being bound to a course of action, and most research examined the binding conditions and how the state of being bound shapes beliefs that sustain the action (e.g., Salancik, 1977a; cf. Staw 1997). Thus, commitment was typically defined as a tendency to pursue consistent lines of activity (Salancik, 1977b; cf. Becker, 1960). In the attitudinal approach, commitment was considered a psychological state and most research investigated its antecedents and consequences (e.g., Buchanan 1974). In this approach, organizational commitment was defined as the "relative strength of an individual's identification with and involvement in a particular organization"(Mowday, Steers, & Porter, 1979, p. 226). It is noteworthy that, despite some psychometric flaws (Bozeman & Perrewé, 2001), this definition and the accompanying measure ("Organizational Commitment Questionnaire") had dominated organizational behavior research for many years.

The 1980s and 1990s witnessed an expansion of commitment research. Wiener (1982, p 421), from a unidimensional perspective, defined organizational commitment as "the totality of internalized normative pressures to act in a way that meets organizational goals and interests." This definition underscores the normative (or socialization) processes—as opposed to the utilitarian-calculative processes that are exemplified in Homan's (1958) exchange notion and Becker's (1960) side-bets formulation—and it implies that commitment stems partly from other aspects of social environment even before the employment relationship starts. Notably, long before the multi-foci perspective took off, Reichers (1985, p. 465) had defined organizational commitment as a "process of identification with the goals of an organization's multiple constituencies." This attitudinal definition is similar to Mowday et al.'s (1979) in that they both define commitment as being unidimensionally based on value congruence. But the two differ from each other in

that Reichers' definition highlights the multiple targets to which employees can commit themselves.

By late 1980s and early 1990s, researchers began to broaden their views not only by looking beyond the affective attachment that characterizes organizational commitment—a unidimensional perspective that had dominated the attitudinal approach for years (Mowday et al., 1982), they also widened their outlooks by looking into targets other than the organization (Becker, 1992). The newly adopted multi-forms and multi-foci perspectives shared a common contention, that is, employee commitment reflects a perceived link (Klein, Brinsfield & Molloy, 2006). For example, O'Reilly and Chatman (1986, p. 492) defined organizational commitment as "the psychological bond linking the individual and the organization;" Mathieu and Zajac (1990, p. 171), as a "bond or linking of the individual to the organization;" and Allen and Meyer (1996, p. 252), as a "psychological link between the employee and his or her organization that makes it less likely that the employee will voluntarily leave the organization." These researchers further proposed that this psychological link can take different forms, which we will elaborate shortly.

The new millennium saw commitment research continue to flourish (Meyer, Jackson, & Maltin, 2008). From the various definitions that have been advanced and tested over past decades, the one that has emerged as the most prominent was proposed by Meyer and Allen (Allen & Meyer, 1990; Meyer & Allen, 1991). Specifically, Meyer, Becker, and Van Dick (2006, p. 666) defined commitment as "a force that binds an individual to a target (social or non-social) and to a course of action of relevance to that target." This definition is selected for the present thesis, as it is more parsimonious and

more inclusive than alternative ones, and the analogy of "force" serves our purpose to examine how organizational commitment can transform employees from being otherwise passive respondents into being proactive agents on the job. As noted earlier, organizational commitment can take different forms, as we will see next.

1.1.2 Models

Among the various commitment models advanced over past decades (e.g., Angle & Perry, 1981, Jaros, Jermier, Koehler, & Sincich, 1993), three are noteworthy: 1) O'Reilly and Chatman's (1986) three-basis model; 2) Mayer and Schoorman's (1992, 1998) two-dimensional model; and 3) Meyer and Allen's (Allen & Meyer, 1990; Meyer & Allen, 1991; 1997) three-component model (TCM). This third one, commonly referred to as the TCM, is the most studied and the best validated, hence selected for this thesis.

O'Reilly and Chatman (1986, p. 493) conceived of organizational commitment as "the psychological attachment felt by the person for the organization [, which reflects] the degree to which the individual internalizes or adopts characteristics or perspectives of the organization." The authors distinguished three bases on which this attachment can develop: 1) compliance or exchange, 2) identification or affiliation, and 3) internalization or value congruence. *Compliance* refers to adopting a behavior to gain rewards like pay and promotion. *Identification* refers to respecting the values and goals of the organization yet without accepting them as one's own. *Internalization* refers to accepting organizational values and goals as one's own because they are integral to one's true self. Although this model has received some empirical support, the distinction between identification and internalization remains unclear (e.g., Caldwell, Chatman and O'Reilly,

1990; O'Reilly, Chatman and Caldwell, 1991; cf. Meyer and Herscovitch, 2001). Moreover, compliance has been found unreliable (e.g., Vandenberg, Self and Seo, 1994).

Mayer and Schoorman (1992, p. 673; cf. 1998) conceptualized organizational commitment as having two dimensions: value and continuance. *Value commitment* refers to "a belief in and acceptance of organizational goals and values and a willingness to exert considerable effort on behalf of the organization." *Continuance commitment* is defined as "the desire to remain a member of the organization." The authors have found that value commitment is more strongly related to extra-role behaviors (e.g., citizenship behavior) while continuance commitment is more strongly related to quitting behaviors (e.g., turnover).

1.1.3 The TCM Theory

Meyer and Allen (1991, 1997; Allen & Meyer, 1990) advanced the TCM of organizational commitment. Like other multidimensional models, the TCM adheres to the common contention that commitment binds employees to the organization and reduces the quitting likelihood. Going beyond other models, the TCM incorporates two major advancements in commitment research over the past three decades. The first one is that commitment can take three different forms, reflecting three distinct mindsets (Meyer & Herscovitch, 2001): 1) affective attachment to the organization, 2) obligation to remain, and 3) perceived cost of leaving. These three forms (or mindsets) are referred to as affective commitment (AC), normative commitment (NC), and continuance commitment (CC), respectively (Meyer & Herscovitch, 2001). TCM further argues that employees can experience all three mindsets to varying degrees. Compared with the three bases of O'Reilly and Chatman's (1986) model that are found to be sometimes indistinct, the three

components of TCM are consistently distinct from one another. Compared with Mayer and Schoorman's (1992) two-dimensional model, the TCM provides richer content validity in that while AC and CC respectively map onto value and continuance commitment, NC reveals the moral imperative or indebted obligation that is missing in the two-dimensional model. The second major advancement incorporated in TCM is the notion that commitment can be directed toward different targets (or foci), such as the organization, supervisor, client, occupation, and union (e.g., Herscovitch & Meyer, 2002; Stinglhamber, Bentein, & Vandenberghe, 2002). Research has shown that commitments to these foci can both complement and conflict with one another (T. E. Becker, 2016).

Meyer and Herscovitch (2001), by extending Meyer and Allen's (1991, 1997) work, further developed the TCM into a more inclusive framework—a general model of workplace commitment—to account for both the forms and the diversity of foci. Specifically, they distinguished the consequences of commitment into two categories of work behavior: focal versus discretionary behavior. *Focal behavior* refers to the in-role activities that are specified within the terms of commitment, whereas *discretionary behavior* refers to the extra-role activities employees can opt in or out as they see fit. They further argued that all three forms of commitment bind employees to the focal behavior regardless of foci, but that discretionary behavior entails different commitment mindsets (or forms). In other words, employees can choose to engage in discretionary behavior, depending on the nature and strength of their commitment. Specifically, the likelihood for employees to engage in discretionary behavior increases with the strength of their AC, and to a lesser degree, their NC. In contrast, this likelihood should be unrelated or even negatively related to the strength of their CC.

Moreover, Meyer and Herscovitch (2001) also identified the bases upon which the three commitment mindsets develop. AC develops on three crucial bases: 1) shared values, 2) identification with the relevant target, and 3) personal involvement (T. E. Becker, 1992). In contrast, NC develops on two key bases: 1) cultural and organizational socialization, and 2) the receipt of benefits that activate the obligation to reciprocate (Wiener, 1982). Finally, CC develops on two major bases: 1) accumulated investments or side bets (H. S. Becker, 1960), and 2) lack of alternatives (Powell & Meyer, 2004).

1.2 Work Motivation

1.2.1 Definitions

Like commitment, motivation has been a difficult concept to define, partly because it can be conceptualized from so many ontological and epistemological perspectives that it almost defies definition (e.g., Dewsbury, 1978). For example, Kleinginna and Kleinginna (1981) have identified about 140 definitions. Despite this challenge, Pinder (1998, p. 11), by accommodating various theoretical perspectives, has advanced a definition that is well accepted among organizational researchers (Donovan, 2001; Kanfer & Chen, 2016; Meyer et al., 2004):

> Work motivation is a set of energetic forces that originates both within as well as beyond an individual's being, to initiate work-related behavior, and to determine its form, direction, intensity, and duration.

More recently, Locke and Latham (2004, p. 388) proposed a similar definition:

> The concept of motivation refers to internal factors that impel action and to external factors that act as inducements to action. The three aspects of action that motivation can affect are direction (choice), intensity (effort), and duration (persistence).

> Motivation can affect not only the acquisition of people's skills and abilities but also how and to what extent they utilize their skills and abilities.

In Pinder's definition, motivation is compared to an energizing force that drives employees to engage in certain work behavior, and this force shapes the form, direction, intensity, and duration of that behavior. In other words, the person-situation interaction begets a force that explains what employees are energized to achieve, how they try to achieve it, how hard they try, and when they quit. These features speak to the origin, mechanism, outcome, and boundary conditions of work motivation, and thus bear significant implications for this thesis.

1.2.2 Models

Since the inception of the research on work motivation in the 1930s, a multitude of theoretical models have been proposed to explain motivated behavior in organizations (Donovan, 2001). A forerunner in this field, Lewin (1938) propounded an expectancy-based model (i.e., "resultant valence" theory) that highlighted the role of employee perceptions in shaping work behavior. Following this model, early theories focused on the determinants of work motivation from three major perspectives: whereas drive theories (e.g., Hull, 1943) underlined the role of physiological need deprivation and reinforcement theories (e.g., Skinner, 1953) emphasized the effect of past-behavioral consequences (punishment versus rewards), need theories (e.g., McClelland, 1961) focused on the role of psychological needs or values. As the field evolved, modern theories on work motivation have adopted process and context perspectives, paying more attention to how and under what conditions employees are motivated to behave differently on the job. Over past decades, so many models have been forwarded that even a sketchy review (e.g., Locke & Latham, 2004)—let alone an exhaustive one (e.g., Pinder, 1998)—

of their roots and evolution is beyond the scope of this thesis (for detailed reviews of motivational models, see Donovan, 2001; Kanfer, 1990; Kanfer & Chen, 2016; Latham, 2012; Pinder 1998). In the following paragraphs, we will briefly present two major theories (goal-setting theory and cognitive evaluation theory) and elaborate on a third one (self-determination theory), which will help lead us to the theoretical taproot of this thesis, that is, the integrative model of employee commitment and motivation (Meyer et al., 2004).

The notion that goals initiate and regulate behavior has a long history in motivation research (Austin & Vancouver, 1996; cf. Latham, 2012). The most prominent goal-based theory of motivation, according to Miner (2003), is goal setting theory (GST), which is developed inductively from accumulated empirical experiments and correlational studies over 25 years between 1964 and 1989 (Lock & Bryan, 1968; Locke & Latham, 1990). GST (Latham & Locke, 2017) posits that setting specific and difficult goals leads to higher performance than setting vague or no goals. This is because vague goals (e.g., "just do your best") have no external referent and thus are subject to idiosyncratic interpretations. Besides the two goal cores (i.e., specificity and difficulty) that affect performance, GST also identifies four key moderators: 1) *task ability*, that is, task-relevant knowledge or skills; 2) *goal commitment*, the sine qua non of challenging goals, for without commitment goals do not exist; 3) *performance feedback*, which facilitates goal attainment by providing advice on whether the person should start, continue, change, or stop a course of action; and 4) *situational constraints*, such as the adequacy of resources. Moreover, GST pinpoints four crucial mechanisms—choice, effort, persistence, and strategy—to explain why goals can be an effective motivator. Respectively, these four mechanisms mean: 1)

Goals offer people focus and serve a directive function by orienting attention and effort toward goal-relevant activities and away from goal-irrelevant ones. 2) Goals have an energizing function, and high goals stimulate greater effort than low goals. 3) Goals impact persistence, given enough time and sufficient ability, hard goals generally enhance persistence (LaPorte & Nath, 1976). 4) Goals influence action through urging people to seek, develop, and apply task-relevant strategies (Wood & Locke, 1990; cf. Latham & Locke, 2017, pp. 146-147).

GST has received substantial empirical support from numerous practical applications (Locke & Latham, 2002; 2013). "Its central concern with bottom-line performance makes it mainstream in industrial-organizational psychology, where it was formulated" (Deci, 1992, p. 168). However, GST treats motivation as a unitary concept, thus failing to address some of the most important motivational questions—the content of motivation for one (Vroom & Deci, 1992), that is, why are goals motivating? This failure to look into the nature of motivation cuts short its power in explaining the distinct qualitative aspects of motivational consequences, such as employee functioning (e.g., on the same job for the same pay one employee vegetates while another innovates). To better explain motivational nature and consequences, we need additional models.

Like GST, cognitive evaluation theory (CET) is developed inductively from initial laboratory experiments (Deci & Ryan, 1985). But unlike GST that focuses primarily on motivation at the workplace, CET has been extended to various settings (Ryan & Deci, 2000). It must be noted that CET is exclusively focused on *intrinsic motivation*, which is defined as "doing something for its own sake, out of interest and enjoyment, and CET posits that people need to feel both competent and autonomous in order to be intrinsically

motivated" (Gagné, Deci, & Ryan, 2017, p. 101). In other words, CET focuses on the fundamental needs for competence (i.e., the capacity to effectively interact with one's environment) and autonomy (i.e., the freedom to act as one desires to), and it maintains that social-contextual events (e.g., communications and rewards) that satisfy these two needs will strengthen intrinsic motivation, whereas those that frustrate such needs will weaken intrinsic motivation. CET is considered one of the major traditional theories of work motivation (Ambrose & Kulik, 1999) in part because of its provocative yet empirically corroborated argument that rewards can dampen intrinsic motivation. Although this argument has been well accepted in the field of organizational behavior (Kohn, 1993), CET bears a clear limitation for practitioners, that is, much of what many people do on the job is not interesting or enjoyable. Then how to motivate employees at the workplace? This limitation leads us to the self-determination theory (SDT).

1.2.3 Self-Determination Theory

SDT has evolved for more than forty years in the form of interlinked mini-theories[2] (CET for one) that not only share the organismic and dialectical assumptions, but all involve the concept of basic psychological needs (Ryan & Deci, 2017). On the one hand, SDT assumes that human beings are agentic and growth-oriented organisms, and as such they innately tend to seek challenges to realize their potentials and flourish. Hence the organismic assumption. On the other hand, SDT also assumes that this organismic tendency to flourish represents only one side of a dialectical interface—the other side being social context that can facilitate or frustrate this tendency. Hence the dialectical assumption. More importantly, SDT posits that people have three basic psychological

[2] For the latest and detailed reviews of these mini-theories, see Ryan and Deci (2017). For a sketchy review of them, see Ryan & Deci (2002).

needs (i.e., competence, autonomy, and relatedness), and that they tend to flourish in a context where they feel: (1) competent, that is, they can master their challenges and accomplish their objectives, (2) autonomous, such that they can choose to do what they like, and (3) related to others, so that they can interact with others in a meaningful way (e.g., giving and receiving). In contrast, in a context that frustrates these basic needs, people are unlikely to thrive (Gagné, Deci, & Ryan, 2017, p. 98).

In addition to the intrinsic motivation, which is the primary focus of CET, SDT proposes the extrinsic motivation as a second overarching type of motivation (Ryan & Deci, 2000). *Extrinsic motivation* is defined as doing something not for its own sake but for separate and instrumental outcomes, such as obtaining rewards or avoiding punishment. These instrumental outcomes can be perceived differently through a process of internalization (Gagné & Deci, 2005). *Internalization* refers to "taking in" an external regulation (or value) so much so that it becomes internally regulated (or valued) and thus is experienced as if it were self-determined (Ryan, 1995). It must be noted that internalization is not about transforming extrinsic motivation into intrinsic one, but rather about making extrinsic motivation relatively autonomous through shared goals or values. Specifically, SDT distinguishes extrinsic motivation into four regulation forms along the continuum of autonomy (Deci, Olafsen, & Ryan, 2017): external, introjected, identified, and integrated.

External regulation, the least autonomous form, refers to "doing an activity to obtain rewards or to avoid punishments" (Gagné, Forest, Gilbert, Aube, Morin, & Malorni, 2010, p. 221). Behavior so regulated is associated with feelings of being controlled. *Introjected regulation* refers to doing an activity in order to avoid feelings of

guilt or to win others' respect. Behavior so regulated is often under the moral pressure of social acceptability, and thus is experienced as somewhat controlled. *Identified regulation* refers to doing an activity because it is congruent with one's goals and values and thus is personally important. Behavior so regulated is experienced as somewhat autonomous. Finally, *integrated regulation*, the most autonomous form, refers to doing an activity because one fully accepts and assimilates its values, to the extent that it reflects one's true self. Behavior so regulated is experienced as being freely chosen and thus fully autonomous. Researchers often recategorize the types of motivation, so that external and introjected regulations represent *controlled motivation*, whereas identified, integrated, and intrinsic regulations represent *autonomous motivation* (Deci, Olafsen, & Ryan, 2017). SDT further proposes that when autonomously motivated either through feeling competent or self-governing or well connected with others, people are likely to thrive on the job. In contrast, when the motivation is perceived as controlled, either through contingent rewards or coercive measures, people may perform to produce short-term gains, but this can exert negative spillover effects on subsequent performance in longer run (Deci et al, 2017).

Moving beyond GST that considers motivation a unitary concept, SDT conceptualizes motivation as multidimensional, and it uses the basic needs satisfaction to delineate the multifaceted nature (i.e., the content) of motivation, which allows it to predict and explain the motivational consequences that are qualitatively distinct (e.g., on the same job and for the same pay, controlled motivation drives one employee to vegetate, whereas autonomous motivation enables another to innovate). The novel point in SDT is this: It is the sense of self-governing (or autonomy)—namely the "awareness of the self

as capably exerting control that is central to human motivation" (Baumeister, 2010, p. 164).

1.3 The Theory of Employee Commitment and Motivation

Juxtaposed, SDT and TCM show striking similarities when it comes to the nature and consequences of motivation, which allows Meyer et al (2004) to integrate them into a complex model[3] of employee commitment and motivation. In this model, motivation is conceptualized as a broader concept than commitment, and commitment is considered one in the set of energizing forces that motivate discretionary (versus non-discretionary) behavior. Notably, "the binding nature of commitment makes it rather unique among the many forces. [For] the term commitment is generally reserved for important actions and decisions that have relatively long-term implications" (Meyer et al, 2004, p. 994). The core of this model, which is also the key to the current thesis, is the rationale that motivational mindset (i.e., goal regulation) provides reasons for a course of action. This motivational mindset can vary across situations depending on the regulation forms as aligned along the autonomy continuum according to SDT. Specifically, Meyer et al. suggested that employees with a strong AOC are most likely to feel autonomously motivated because they share organizational goals and values. In contrast, employees with continuance commitment to the organization tend to experience organizational goals as externally regulated because they are concerned with the instrumental outcomes (e.g., perceived sacrifice or lack of alternatives). Employees with normative commitment to the

[3] Built on Locke's (1997) general framework of motivation process, this complex model entails another key theory—regulatory focus theory (Higgins, 1997, 1998). For the present purpose, we focus primarily on the integration of TCM and SDT.

organization are likely to experience introjected form of regulation because they consider organizational goals an obligation.

Meyer et al. also proposed nondiscretionary and discretionary behavior as the distant consequences of motivational mindset. *Nondiscretionary behavior* refers to activities that can be specified in an employment relationship (i.e., a labor contract), whereas *discretionary behavior* refers to those that cannot be explicitly specified and demand more effort and persistence, which are often at the discretion of employees (e.g., helping a client solve an urgent problem on Sunday, although one can legitimately postpone the activity to Monday). Specifically, Meyer et al. suggested that autonomous motivation mindset provides reasons for engaging in discretionary behavior, whereas controlled motivation mindset provides reasons for shrinking from it.

Because this thesis is focused on employees' agentic behavior, which is intimately related to discretionary behavior, we select SDT's autonomous motivation as the key mechanism to explain how AOC leads to specific types of discretionary work behavior. It is noteworthy that the causality between commitment mindset and motivation mindset still remains an unsolved issue. On the one hand, SDT researchers argue that motivation mindset leads to commitment mindset but not vice versa through an internalization process (Gagné, Chemolli, Forest, & Koestner, 2008). On the other hand, commitment researchers propose that commitment mindset causes motivation mindset, because the binding nature of commitment makes it a particularly strong energizing force that can shape the motivational state employees experience during task performance (Meyer, 2014). Thus, we attempt to address this causality issue by using longitudinal data collected from diverse work settings in different countries.

In sum, we select the novel elements of Meyer et al.'s (2004) complex model—that is, "commitment → motivation → discretionary behavior"—to investigate how AOC can enable employees to behave proactively on the job, so that they can construct a positive work context and function well and flourish. Now we turn to the articles that form the heart of this thesis.

Chapter 2:

Article 1: From Affective Organizational Commitment to Proactive Behavior: A Cross-Level Investigation of the Roles of Autonomous Motivation and Communication Climate

2.1 Abstract

The link between affective organizational commitment and proactivity is not well understood and its underlying process and boundary conditions are under-investigated. To fill this gap, this study examined the relationships among affective organizational commitment, autonomous motivation, and proactive work behavior, and used team-level communication climate as a moderator. Using multilevel, multisource survey data from 172 nurses in 25 teams, we found that, at the individual level, affective organizational commitment had a positive relationship to proactive behavior that was fully mediated by autonomous motivation. We also found that team-level communication climate moderated this relationship at both stages of the mediation. Specifically, affective organizational commitment was more strongly related to autonomous motivation and the latter was more strongly related to proactive behavior when the team communication climate was high (vs. low) in openness, satisfaction, and mutual understanding. We discuss the implications of these findings for commitment and proactivity research and for practice and suggest directions for future research.

2.2 Introduction

As organizational life becomes increasingly unpredictable (Grant, Nurmohamed, Ashford, & Dekas, 2011), employees can no longer flourish at work and be effective by simply following managers' instructions and passively adapting to present conditions. To succeed at the workplace and meet performance expectations, they often have to take the initiative in changing the status quo for better prospective conditions—commonly known as proactive behavior (Crant, 2000). Proactive behavior has been found to contribute to positive employee outcomes (Fuller & Marler, 2009) like job performance (Podsakoff, MacKenzie, Paine, & Bachrach, 2000), career success (Seibert, Kraimer, & Liden, 2001), and innovation (Kichul & Gundy, 2002). Because of its far-reaching impact in a rapidly changing work environment, proactive behavior is important for employees as well as organizations and warrants in-depth investigations.

Despite its importance, proactive behavior remains insufficiently understood, particularly about how it is driven at the workplace (Parker, Williams, & Turner 2006). Among its potential drivers, affective organizational commitment (AOC)—featuring emotional attachment to the organization—has received surprisingly little attention. This is presumably because researchers propose that a negative affect (e.g., dissatisfaction) is likely to stimulate proactive behavior (Frese & Fay, 2001) whereas a positive affect, such as AOC, is unlikely to stimulate it (Parker et al., 2006). This proposition, however, demands scrutiny. There are strong theoretical grounds for AOC to dispose employees to proactive work behavior because, as commitment theorists (Meyer & Herscovitch, 2001) submit, AOC reflects an emotional attachment to the organization. Thus, employees with AOC are more motivated to make the organization a better workplace. Following this

logic, AOC should be an enabler of proactive behavior. Therefore, our first aim is to answer the question: How does AOC enable employees to behave proactively at work?

We then draw on self-determination theory (Ryan & Deci, 2000), which allows us to select autonomous motivation as the mediator that links AOC with proactive behavior. Autonomous motivation is characterized by "people being engaged in an activity with a full sense of willingness, volition, and choice" (Deci, Olafsen, & Ryan, 2017, p. 20). As commitment theorists propose (Meyer, Becker, & Vandenberghe, 2004), employees who have AOC tend to share the organizational values and thus experience assigned goals as their own. As a result, AOC can activate autonomous motivation. In turn, according to proactivity theorists (Parker, Bindl, & Strauss, 2010), autonomous motivation provides reasons for proactive behavior, for people who are autonomously motivated by intrinsic interest (e.g., the work is enjoyable) or by value identification (e.g., the work is important to themselves) tend to engage in proactive work behavior (Strauss & Parker, 2014). Therefore, by challenging the conventional view that AOC does not relate to proactive behavior, we attempt to investigate how they are related. With this investigation, we intend to contribute to the commitment and proactivity research by examining autonomous motivation as a crucial mechanism that relates AOC to proactive behavior.

In addition to the increasing workplace unpredictability, employees are faced with growing workplace interdependency (Griffin, Neal, & Parker, 2007), and teamwork has become a prevalent practice in organizations (Chen & Kanfer, 2006; Wombacher, & Felfe, 2016). This makes team communication climate—i.e., individuals' shared perception of the quality of interpersonal relations and communication in a workgroup—a major aspect of the work context, one that can fundamentally shape the relationship

between AOC and proactive behavior. Although communication climate was initially studied in commitment research (e.g., Trombetta & Rogers, 1988) and was reported to be either an antecedent (e.g., Guzley, 1992) or a mediator (e.g., Smidts, Pruyn, & Riel, 2001) for organizational commitment, surprisingly, researchers seem to have overlooked the moderating role it can play in relations involving employee commitment. Just like commitment research, curiously, motivation research has seldom examined the contextual effect (i.e., the moderating role) of communication climate at the workplace (cf., Ryan & Deci, 2017). Given the importance of effective communication as one of the best principles for work motivation and performance (Meyer, 2017), our second aim is to examine team communication climate as a key boundary condition for the association of AOC with proactive behavior. With this examination we attempt to respond to a second question: What is the role of team communication climate in the indirect relationship between AOC and proactive behavior via autonomous motivation?

We draw on communication climate research to contend that when team members are open and candid and when they show mutual understanding and feel satisfied while speaking with one another, this positive team communication climate strengthens the positive indirect relationship between AOC and proactive behavior via autonomous motivation. On the one hand, this is because the positive communication climate heightens the salience of the shared values and goals embedded in AOC, whereby it intensifies the sense of "being in the same boat" when the workplace unpredictability and interdependency loom ever larger, thus making AOC a stronger driving force for autonomous motivation (Meyer et al., 2004). On the other hand, this is because it also lowers the threshold of proactive behavior which is, by definition, risky (i.e., to take the

initiative in challenging the status quo), thus enabling team members who are autonomously motivated to engage in proactive behavior. In contrast, a negative team communication climate (i.e., one low in openness, understanding, and satisfaction) tends to reduce the salience of shared values and goals that are deeply rooted in AOC, thus inhibiting AOC from activating autonomous motivation. Moreover, this negative communication climate also raises the threshold of proactive behavior, sensitizing team members to its risks and thus weakening the positive effect of autonomous motivation on it. Therefore, our second contribution is to examine the moderating role of team communication climate in the relations involving AOC, autonomous motivation, and proactive behavior.

In the next sections, we present our hypotheses and research model (see Figure 2.1). With the present cross-level study, we examine the mediating role of autonomous motivation and the moderating role of team communication climate in the relationship between AOC and proactive behavior.

Insert Figure 2.1 about here

Figure 1 summarizes the general model and specific hypotheses. We propose that within teams AOC positively and indirectly influences proactive behavior through activating autonomous motivation, and that team-level communication climate positively moderates this individual-level indirect influence of AOC at both stages.

2.3 Individual-Level Relationships: AOC, Autonomous Motivation, and Proactive Behavior

Employee commitment has been researched with various theories (Klein, Molloy, & Cooper, 2009), the most established one, the three-component model (TCM; Allen & Meyer, 1990), defines commitment as "a force that binds an individual to a target (social or non-social) and to a course of action of relevance to that target" (Meyer, Becker, & Van Dick, 2006, p. 666). While commitment may take different forms for different targets (T. E. Becker, 2016), this study focuses on its affective component towards the organization (i.e., AOC), as it has been identified as a consistent predictor of positive outcomes for employees (Maltin, Meyer, Chris, & Espinoza, 2015). AOC refers to the emotional attachment to the organization that employees develop when they share organizational values and goals (Meyer & Herscovitch, 2001).

Just like employee commitment, work motivation has been researched with numerous theories (Kanfer & Chen, 2016). Self-determination theory (SDT) has emerged as a major one (Deci & Ryan, 1985, 2000). Similar to TCM, SDT distinguishes motivation into different forms along a continuum of internalization[4] (Gagné, Forest, Gilbert, Aube, Morin, & Malorni, 2010) ranging from controlled to autonomous motivation. Controlled motivation refers to doing an activity to obtain rewards or avoid punishments, while autonomous motivation refers to doing an activity because it is enjoyable or because one identifies with its values and goals and accepts it as one's own.

Meyer et al. (2004) integrated TCM and SDT into a complex model whereby they theorized that AOC and autonomous motivation prompt work behavior that is at

[4] Or continuum of autonomy (Deci, Olafsen, & Ryan, 2017), meaning the extent to which an individual accepts the values and goals of an activity as her own because they are integral to her true self and reflect her volition.

employees' discretion (i.e., discretionary behavior; Meyer & Herscovitch, 2001). One discretionary behavior that has attracted much attention recently (Wu, Parker, Wu, & Lee, 2018) is proactive behavior. It refers to "taking the initiative in improving current circumstances or creating new ones [, which] involves challenging the status quo rather than passively adapting to present conditions" (Crant, 2000, p. 436). Thus, proactive behavior typifies self-started and future-oriented actions that aim to improve the current situation (Parker, Williams, & Turner, 2006), and as such it is a rather unique category of discretionary behavior, in that its hallmark consists not in being in-role or extra-role, but in being future-oriented, that is, whether employees strive for "a future outcome that has an impact on the self or environment" (Grant & Ashford, 2008, p. 9). Like employee commitment, proactive behavior can be directed towards different targets at multiple levels, including individual tasks and social entities such as the team or the organization one belongs to (Griffin, Neal, & Parker, 2007).

On the one hand, Meyer et al. (2004) argued that AOC can activate autonomous motivation because AOC is based on shared values and goals that dispose employees to consider organizational values and goals as their own (i.e., as self-determined), and thus it can facilitate the emergence of autonomous motivation. Indeed, research has shown that employees with high AOC are more likely to develop autonomous motivation (Meyer, Stanley, & Parfyonova, 2012), and meta-analysis has also shown that AOC positively relates to autonomous motivation (Maltin et al., 2015). On the other hand, Parker, Bindl, and Strauss (2010) proposed that autonomous motivation can lead to proactive behavior. This happens not only because proactive behavior is, by definition, autonomous (self-governing) rather than externally imposed by coercive or seductive contingencies, but

more importantly because autonomous motivation provides employees with reasons to behave proactively on the job. Specifically from a SDT perspective, individuals tend to behave proactively at work when they find their job-related activities enjoyable or when they identify with the values and goals exemplified by these activities and consider them personally important. In other words, proactive behavior is, by definition, self-expressive, and as such it is most likely to be motivated by the autonomous forms of regulation (i.e., autonomous motivation), which reflect employees' intrinsic interests or personal values and goals that are integral to their true self. For example, programmers may reinvent their job to make it more challenging and enjoyable (Massimini & Carli, 1988), or employees usually take the initiative in seeking out critical feedback to accomplish personally important tasks (Ashford, Blatt, & VandeWalle, 2003). Indeed, studies have found that autonomous motivation fosters proactive work behavior (Grant, Nurmohamed, Ashford, & Dekas, 2011; Parker, Williams, & Turner, 2006), and meta-analysis has also shown that the two constructs are positively related (Van den Broeck, Ferris, Chang, & Rosen, 2016).

Given that AOC activates autonomous motivation, and that the latter likely prompts proactive behavior, it stands to reason that autonomous motivation may act as mediator between AOC and proactive behavior. Therefore, the following mediation hypothesis is proposed.

Hypothesis 1: At the individual level, AOC has a positive indirect relationship with proactive behavior through autonomous motivation.

2.4 Cross-Level Relationships: Team Communication Climate as the Moderator

We have thus far assumed that if employees are committed to their organization, they are likely to develop autonomous motivation, and then, if autonomously motivated,

they are likely to engage in proactive work behavior. However, aspects of the work context can intervene to promote or constrain both likelihoods (Johns, 2006). We argue that a key aspect of the work context in this regard is the team communication climate, which refers to employees' perception of the quality of the interpersonal relations and communications in a group (Bartels, Pruyn, De Jong, & Joustra, 2007). Notably, we focus on the communication climate at the team (as opposed to the organizational) level because, for most employees, the work team constitutes a more proximal context than the organization and thus exerts stronger contextual effects on them (T. E. Becker, 2009). Among the multiple dimensions of the team communication climate (cf. Dennis, 1974; Muchinsky, 1977; Roberts & O'Reilly, 1974; Shortell et al., 1991), we selected three—openness, understanding, and satisfaction—that are highly relevant to the current study. *Communication openness* refers to the extent to which team members feel that they can express themselves truthfully and candidly when speaking with one another. *Communication understanding* refers to the extent to which team members perceive their communication to be comprehensive, effective, and mutually significant. *Communication satisfaction* refers to the degree to which team members find their communication generally adequate. Together, these three dimensions capture the perceived quality of the team communication climate. TCM and SDT theorists concur that communication that forms the work team climate has significant implications for employee motivation (cf. Deci, 1992, p. 170; Meyer, 2017, p. 93).

Meyer (2017) conceived of effective communication as one of the best principles for motivating employees, and he suggested that AOC is unlikely to materialize when the communication is ineffective because employees "will not understand that what they do

is valued and appreciated unless someone tells them so" (p. 93). Extending his suggestion, we argue that it takes frequent and effective communication to remind employees of, and thus reinforce, the shared organizational values and goals. More specifically, we argue that when the team communication climate is positive (i.e., high in openness, understanding, and satisfaction), it will heighten the shared organizational values and goals—which are deeply rooted in their AOC—thus making AOC a stronger driving force for autonomous motivation. In other words, in a communication climate featuring openness, understanding, and satisfaction, the expression of one's values and goals is supported and appreciated. This will encourage people to act out their true self. As a result, by aligning the organization's and employees' values and goals, AOC should more strongly drive autonomous motivation. In contrast, when the team communication climate is negative (i.e., low in openness, understanding, and satisfaction), it will reduce the salience of the shared values and goals embedded in AOC, and it also tends to discourage employees from expressing their true self, thus inhibiting AOC from activating autonomous motivation. Therefore, the following hypothesis is proposed.

> *Hypothesis 2a:* The team-level communication climate moderates the individual-level positive relationship between AOC and autonomous motivation such that this positive relationship is stronger (vs. weaker) when communication climate is high (vs. low).

Like Meyer (2017), Deci (1992, p. 170) also emphasized the importance of interpersonal communication, stating that SDT "devotes considerable attention to detailing the contextual conditions that promote self-determined (vs. controlled) action … [in particular, the] general interpersonal climates (e.g., work group climates)." Building

on Deci's statement, we contend that the team communication climate can also moderate the positive relationship between autonomous motivation and proactive behavior, and that this positive relationship should be stronger when the team communication climate is positive. This is because proactive behavior, by definition, is risky, for it often entails going against norms and is thus expected to be controversial (Morrison, 2006). However, when team members are open, mutually understanding, and satisfied in their interpersonal communication at daily work, they build a positive communication climate that promotes cognitive flexibility (Martin & Anderson, 1998), which helps lower the threshold of engaging in proactive behavior, for this climate signals to them that challenging the status quo to improve the current work situation (i.e., proactive behavior) is appreciated and endorsed by other team members. As a result, the positive team communication climate grants them a strong sense of security, making them feel free to express their autonomous motivation by engaging in proactive behavior. By contrast, a negative communication climate signals to team members that it may not be safe to behave proactively, because doing so amounts to going against norms, which would expose themselves to criticisms and even ostracism (Ferris, Lian, Brown, & Morrison, 2015) by other team members (Parker, Bindl, & Strauss, 2010). In other words, team communication climate can orient employees to channel their autonomous motivation towards or away from proactive behavior. Therefore, we propose the following hypothesis.

> *Hypothesis 2b:* The team-level communication climate moderates the individual-level positive relationship between autonomous motivation and proactive behavior such that this positive relationship is stronger (vs. weaker) when communication climate is high (vs. low).

Taken together, we argue that the team communication climate, by heightening the salience of shared values and goals embedded in AOC, strengthens the positive effect of AOC on autonomous motivation. Meanwhile, it also grants team members a sense of security, without which they will refrain from engaging in proactive behavior even when autonomously motivated. Integrating our arguments from Hypotheses 2a and 2b, we propose that communication climate strengthens the indirect relationship between AOC and proactive behavior through autonomous motivation.

> *Hypothesis 3:* The team-level communication climate moderates the individual-level positive indirect relationship between AOC and proactive behavior via autonomous motivation, such that this positive indirect relationship is stronger (vs. weaker) when the team communication climate is high (vs. low).

2.5 Method

2.5.1 Sample and Procedure

During a postgraduate program in nursing management, we invited trainees (i.e., nursing heads) to participate in an online survey consisting of two types of questionnaires: one for their subordinates (i.e., ward nurses) and the other for themselves as immediate supervisors (i.e., nursing heads). We asked the trainees to invite the nurses of their wards to participate in this survey. Those nurses who agreed to participate gave their email addresses to the nursing heads who forwarded this information to the researchers. An invitation email with a link to the online survey was then sent by the researchers to prospective participants and indicated that (a) their participation would be voluntary, (b) only the researchers would have access to individual responses and would not disclose their responses to any third party, including other participants. The subordinate

questionnaire measured AOC, autonomous motivation, team communication climate, and the control variable of task interdependence (see control variables section for details), among others. Nursing heads separately completed the supervisor questionnaire addressing, among others, the proactive behavior of each individual nurse. A coding scheme was used to match subordinates' and nursing heads' responses.

In total, we obtained usable responses from 182 ward nurses and 28 nursing heads. After matching the responses between supervisors and their subordinates, we dropped 10 responses because of low data quality (e.g., careless responding; DeSimone & Harms, 2018). The final sample comprised 172 nurses pertaining to 25 teams/nursing heads. The average team size was 10 members ($SD \approx 6$; range = 3-20 members per team). Team members (i.e., nurses) averaged an age of 36.68 years ($SD = 9.75$) and an organizational tenure of 8.03 years ($SD = 7.90$), and were 84% female.

2.5.2 Measures

All measures were originally in English and were translated from English to French by following an independent translation-back-translation procedure to ensure equivalence in meaning (Brislin, 1980). We used 7-point Likert-format scales ranging from 1 (strongly disagree) to 7 (strongly agree) in this online survey. All control and study variables were measured using nurses' self-reports, except subordinates' proactive behavior, which was assessed by their immediate supervisors (i.e., nursing heads).

AOC. We used three high-loading items from Meyer, Allen, and Smith's (1993) six-item scale to measure AOC. An example item was "This organization has a great deal of personal meaning for me." Alpha reliability for this scale was .83.

Autonomous motivation. Following Gagné et al. (2008), we merged intrinsic and identified motivation into autonomous motivation, which was measured by the three high-loading items from Gagné, Forest, Gilbert, Aube, Morin, and Malorni's (2010) six-item scale. An example item was "I enjoy this work very much." Alpha reliability for this scale was .81.

Proactive behavior. We used three high-loading items from Griffin, Neal, and Parker's (2007) nine-item scale to measure the three dimensions of proactive behavior. These three items were "She (he) comes up with ideas to improve the way in which her (his) core tasks are done" (Individual task); "She (he) improves the way her (his) team does things" (Team member); and "She (he) makes suggestions to improve the overall effectiveness of the organization (e.g., by suggesting changes to administrative procedures)" (Organization member). Alpha reliability for this scale was .90.

Communication climate. We used three high-loading items from Shortell, Rousseau, Gillies, Devers, and Simons' (1991) twelve-item scale to measure the three dimensions of communication climate. These three items were "The communication among team members is very open" (Openness); "When members in this team are speaking with one another, they understand each other very well" (Understanding); and "The quality of information that is communicated among team members is yet to be improved" (reverse coded) (Satisfaction). Alpha reliability for this scale was .80.

Control variables. At the individual level, we controlled for nurses' gender, age, and organizational tenure, as they could impact their job attitudes and behaviors (e.g., Riordan, Griffith, & Weatherly, 2003). At the team level, we controlled for team size and task interdependence as they were found to influence team members' job performance

(e.g., Dong, Bartol, Zhang, & Li, 2017). Task interdependence was assessed by Mayer and Kozlowski's (1997) five-item scale which was aggregated to the team level. We conducted analyses both with and without control variables and obtained similar results that did not alter our conclusions. So, following recent recommendations by methodologists regarding statistical control (e.g., Becker, Atinc, Breaugh, Carlson, Edwards, & Spector, 2016), we present in the next section the results of analyses excluding the control variables. Results of the analyses with the controls are available on request.

2.6 Results

2.6.1 Confirmatory Factor Analyses

We conducted confirmatory factor analyses (CFAs) to examine whether the same set of participants (i.e., nurses) perceived the three measures (i.e., AOC, autonomous motivation, and communication climate) to be distinctive[5]. Because the data had a nested structure (i.e., nurses were nested within nursing wards), we used multilevel CFA through Mplus 8.1 (Muthén & Muthén, 1998-2017) to examine the distinctiveness of our constructs. The overall model fit was assessed by the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). The hypothesized three-factor model displayed a good fit to the data, $\chi^2(24) = 26.32$, CFI = 1.00, TLI = .99, RMSEA = .02, SRMR = .05 (see Table 2.1). All indicators loaded significantly ($p < .001$) onto the intended factors. Four alternative models (three two-factor models and one single-factor model) were compared with the hypothesized model (see Table 2.1). The results showed

[5] The other set of participants (i.e., nursing heads) responded to the fourth measure (i.e., proactive behavior). Because only one measure was used, it did not need a separate CFA analysis.

that the hypothesized model fitted the data significantly better than all three two-factor models ($\Delta\chi^2(2)$ = 121.82 to 137.51) and the one-factor model ($\Delta\chi^2(1)$ = 256.53). These results support the discriminant validity of the measures we used in this study.

Insert Table 2.1 about here

2.6.2 Data Aggregation

To test the hypothesized cross-level model, communication climate, measured at the individual level, was aggregated to the team level. The aggregation was supported by one-way analysis of variance (ANOVA), which showed that the means of communication climate differed significantly across teams, $F(24, 147) = 2.90$, $p < .001$. In addition, the average individual-level inter-rater reliability ($r_{wg(j)}$; James, Demaree, & Wolf, 1984) across the 25 teams was .75, indicating acceptable level of individual-level agreement. Lastly, the intraclass correlation (ICC1) and reliability of group mean (ICC2) were respectively .31 and .88, $F(1, 32) = 8.49$, $p < .01$ (LeBreton & Senter, 2008). These results warranted the aggregation of communication climate to the team level.

2.6.3 Analyses of Structural Models

Given the nested nature of the data, we adopted Preacher, Zyphur, and Zhang's (2010) approach to conduct two-level path analyses within the framework of multilevel structural equation modeling (MSEM)[6] using Mplus 8.1 (Muthén & Muthén, 1998-2017). This approach allowed us to test our hypotheses simultaneously rather than piecemeal

[6] We used observed-means (vs. latent-variable) approach, because model estimation is difficult. This is suggested by Preacher, Zhang, and Zyphur (2016, p. 199): "It is notable that when model estimation is difficult, researchers may consider alternative methods such as Bayes estimation or even an observed-means approach (despite its potential bias)."

(e.g., in a causal sequence). Specifically, we first estimated an individual-level MSEM model (MSEM 1) with random slopes—excluding the cross-level moderator—to test the mediation effect by using the Monte Carlo method[7], which enabled us to compute the confidence interval (CIs) (e.g., 95% CI) for the indirect effect in the context of nested data. We then estimated a cross-level moderation MSEM model (MSEM 2) that incorporated team-level communication climate as the predictor of the individual-level random slopes representing the relationships (a) between AOC and autonomous motivation and (b) between autonomous motivation and proactive behavior (Preacher, Zhang, & Zyphur, 2016). Finally, integrating MSEM 1 and MSEM 2, we assessed the cross-level dual-stage moderated mediation MSEM model (MSEM 3), in which team-level communication climate moderated the individual-level indirect relationship between AOC and proactive behavior via autonomous motivation. More specifically, we group-mean centered AOC (individual-level predictor) and grand-mean centered communication climate (team-level moderator) in the analyses of moderation (Enders & Tofighi, 2007). Xu's pseudo-R^2 (Xu, 2003; cf. Snijders & Bosker, 1999) was calculated to report effect sizes for individual-level variances in autonomous motivation (mediator) and proactive behavior (outcome) that were explained by AOC (predictor) (Hofmann, Griffin, & Gavin, 2000).

Before testing hypotheses, we examined null (intercept-only) models in hierarchical linear modeling (HLM; Hofmann et al., 2000; Raudenbush & Bryk, 2002) to determine whether there were significant between-team variances in the outcome variables. The results showed that significant variances in autonomous motivation (21%)

[7] *R*-based Monte Carlo simulator and technical details are available from http://www.quantpsy.org.

and proactive behavior (27%) resided at the team level. In addition, AOC varied by 18% between teams and 82% within teams. The results supported conducting cross-level MSEM as planned. Table 2 summarizes descriptive statistics and correlations for the study variables.

Insert Table 2.2 about here

We first compared six alternative structural models (SM1-SM6; see Table 2.3) to ascertain the model that best explained our data. When building these six models, we followed the principle of parsimony (James, Mulaik, & Brett, 2006). Specifically, we started with a baseline model of complete mediation (SM1) without adding a direct path from AOC to proactive behavior. SM2 added a direct path from AOC to proactive behavior (i.e., representing partial mediation). SM3 was a model of complete mediation reversing the order of the constructs where autonomous motivation led to AOC which in turn related to proactive behavior. SM4 was a model of partial mediation derived from SM3. Finally, SM5 reversely mirrored SM1 by specifying a model of complete mediation: "proactive behavior → autonomous motivation → AOC", and SM6 was a model of partial mediation derived from SM5. Because the six alternative mediation models were not consistently nested, we used Akaike information criterion (AIC) and sample-size adjusted Bayesian information criterion (BIC) to evaluate model comparisons (cf. Merkle, You, & Preacher, 2016). As shown in Table 3, both AIC (933.72) and BIC (933.32) values of the hypothesized model (SM1) were smaller than those of the other five alternative models. Moreover, the five alternative models displayed non-significant mediation effects. These

results suggested that our hypothesized model (SM1) was superior and was thus selected to test hypotheses.

Insert Table 2.3 about here

2.6.4 Test for Hypotheses

Table 2.4 reports the results of MSEM models testing all hypotheses. Hypothesis 1 proposed that AOC positively and indirectly relates to proactive behavior via autonomous motivation. As shown in MSEM 1 of Table 2.4, AOC positively related to autonomous motivation (random slope: $sa = .21$, $p < .01$), which in turn positively related to proactive behavior (random slope: $sb = .28$, $p < .001$). We then examined the significance of the indirect effect ($sa \times sb$ + covariance (sa, sb); Bauer, Preacher, & Gil, 2006) by conducting a Monte Carlo simulation with 20,000 replications (Preacher et al., 2010). Bootstrapping results showed a significantly positive indirect effect of AOC on proactive behavior via autonomous motivation ($sa \times sb$ + covariance (sa, sb) = .06, 95%CI = [.03; .10]). Thus, Hypothesis 1 was supported. The mediation model explained significant individual-level variances in autonomous motivation (17%) and proactive behavior (6%).

Insert Table 2.4 about here

Our next hypotheses predicted that team communication climate positively moderates the relationship both between AOC and autonomous motivation (Hypothesis

2a) and between autonomous motivation and proactive behavior (Hypothesis 2b). As shown in MSEM 2 of Table 2.4, team communication climate positively related to the individual-level random slopes of the relationship between AOC and autonomous motivation (γa = .16, p < .001) and between autonomous motivation and proactive behavior (γb = .23, p < .001). To illustrate the form of these interactions, we first plotted the regression line for autonomous motivation on AOC at 1 *SD* below and above the mean of communication climate (Aiken & West, 1991; see Figure 2). Simple slopes analyses (Preacher, Curran, & Bauer, 2006) showed that AOC was more strongly related to autonomous motivation when communication climate was high (simple slope: $sa1$ = .34, p < .001) than when it was low (simple slope: $sa2$ = .10, *ns*), and that the slope difference was statistically significant ($sa1 - sa2$ = .23, p < .001). Hypothesis 2a is thus supported. We then plotted the regression line for proactive behavior on autonomous motivation at 1 *SD* below and above the mean of communication climate (see Figure 3). Simple slopes analyses showed that autonomous motivation was more strongly related to proactive behavior when communication climate was high (simple slope: $sb1$ = .41, p < .001) than when it was low (simple slope: $sb2$ = .08, *ns*), and the slope difference was statistically significant ($sb1 - sb2$ = .33, p < .001). Hypothesis 2b is supported.

Insert Figures 2.2 and 2.3 about here

Finally, Hypothesis 3 stated that team communication climate will positively moderate the indirect and positive relationship between AOC and proactive behavior via autonomous motivation. As shown in MSEM 3 of Table 2.4, the conditional indirect effect

was positive and significant for nurses whose teams were high in communication climate (+1*SD*: *estimate* = .16, 95% CI = [.05; .27]) but nonsignificant for nurses whose teams were low in communication climate (-1*SD*: *estimate* = .03, 95% CI = [-.02; .08]). The difference between these two conditional indirect effects was significant (*estimate* 1 − *estimate* 2 = .13, 95% CI = [.06; .20]). Taken together, these results indicated that team-level communication climate strengthens the individual-level positive indirect effect of AOC on proactive behavior via autonomous motivation. The cross-level moderated mediation model (MSEM 3) explained significant individual-level variances in autonomous motivation (17%) and proactive behavior (6%).

2.7 Discussion

This study aimed to explore *how* and *when* AOC enables employees to engage in proactive behavior—two questions that remained unresolved in the organizational behavior literature. Integrating commitment and motivation theories (Meyer et al., 2004) with proactivity research (Crant, 2000), we argued that autonomous motivation mediates the relationship between AOC and proactive behavior. Drawing on the literature on communication climate (Bartels et al., 2007), we further proposed that the team communication climate positively moderates this relationship at both stages of the mediation. The MSEM analyses allowed us to examine the cross-level, dual-stage moderated mediation hypotheses simultaneously. The results supported our hypotheses. The resulting implications are outlined below.

2.7.1 Theoretical Implications and Future Directions

Our findings cast new light on the relation between AOC and proactive behavior. First, prior research conventionally considered AOC an unlikely enabler of proactive

behavior (Parker, 2000) presumably because AOC reflects a positive affect (as opposed to a negative affect; Frese & Fay, 2001). In support of this line of reasoning, Parker et al. (2006) found AOC to be unrelated to proactive behavior. Our study at first sight seems to concur with this conventional view, for the zero-order correlation between AOC and proactive behavior was not significant (r = .02, *ns*; Table 2.2), suggesting that they are not related. However, an in-depth mediation analysis reveals a significant indirect relation that is fully mediated by autonomous motivation (AOC → autonomous motivation → proactive behavior). Countering the conventional view that denies the AOC-proactivity association, this finding supports our argument that AOC can enable employees to engage in proactive behavior and that autonomous motivation is the linchpin. This corroborated argument contributes two novel points, one to commitment literature and other to proactivity and motivation research.

The first one is: It broadens the scope of motivational consequences in Meyer et al.'s (2004) complex model, in that proactive behavior is more than extra-role (or discretionary), for all tasks—in-role or extra-role—can be performed in a more or less proactive manner: "The key criterion for identifying proactive behavior is not whether it is in-role or extra-role, but rather whether the employee anticipates, plans for, and attempts to create a future outcome that has an impact on the self or environment" (Grant & Ashford, 2008, p. 9; cf. Parker et al., 2010, p. 829). Therefore, this finding reveals that AOC not only can enable employees to broaden their job roles and thus make them more responsible organizational citizens (Organ, 1990), it can also empower them to look beyond the here and now and to the future, so that they are more receptive to challenging uncertainties and even become change initiators.

The second point is: Prior research examining the AOC-motivation link and the motivation-proactivity link has considered the two links separately and has not yet investigated how AOC and autonomous motivation interplay to influence proactive behavior. Following Meyer et al.'s (2004) integrative model of employee commitment and motivation, we argue that AOC, through shared values and goals, can activate autonomous motivation. On the other hand, drawing on Parker et al.'s (2010) model of proactive motivation, we contend that autonomous motivation, by providing reasons for actions, can drive proactive behavior. Combining these two models, we further reason that as a motivational mindset stemming from AOC and leading to proactivity, autonomous motivation should mediate the AOC-proactivity relationship. The strict mediation analyses based on structural model comparisons support this line of reasoning. That is, AOC activates autonomous motivation, which in turn leads to proactive behavior. This finding provides counter-evidence to the currently dominant view among proactivity researchers that positive affect is unlikely to shape proactive behavior (e.g., Parker et al., 2006). In fact, there are strong theoretical grounds for positive affect to influence people's proactivity. For example, the broad-and-build theory (Fredrickson, 2001) posits that positive affect can enable people to broaden their mindsets and thus can help them build enduring personal resources. It follows that such enduring resources would allow people to look beyond the present and to the future, and by doing so positive affect can and should foster proactivity. In this study, AOC and autonomous motivation, to much extent, reflect such positive affect, and they have been found to enhance proactive behavior. Future studies are needed to investigate how other types of positive affect (e.g., passion for work; Vallerand, Houlfort, & Forest, 2014) may also lead to proactivity at work.

These two novel points speak to the importance of proactive behavior on the job. As noted in the beginning of this article, a rapidly changing business world necessitates proactivity for both employees and organizations to survive and flourish. Our findings suggest that proactive behavior is a crucial motivational outcome, and as such it warrants more attention of commitment researchers. Future studies are needed to explore if other forms of commitment (e.g., NC and CC) are also related to proactive behavior; and if so, what is the nature of such relationships (e.g., positive or negative) and how they are related (e.g., through other motivational mindsets, such as "NC → introjected motivation → proactivity", and "CC → external motivation → proactivity"). If possible, researchers can apply SEM to larger samples to test simultaneously how multiple commitment mindsets influence proactive (vs. reactive) behavior through multiple motivational mindsets, so that the net effect of each motivation mechanism can be partialled out to assess its relative importance.

Encouragingly, recent research has found positive links (Wu et al., 2018) both between career commitment and career-oriented proactive behavior (Belschak & Den Hartog, 2010) and between work unit commitment and work unit-oriented proactive behavior (Strauss, Griffin, & Rafferty, 2009). What our study adds here is that AOC (vs. career and work unit commitment), with the target that is more distant (i.e., the organization vs. career and work unit), can still prompt general (vs. career-oriented or work unit-oriented) proactive work behavior. This new finding lends support to Meyer et al.'s (2004, p. 994) argument that "commitment can serve as a particularly powerful source of motivation and can often lead to persistence in a course of action." And the course of action that cries for persistence typically involves going against norms,

challenging the status quo, and initiating programs for a better prospective situation (Parker et al., 2010)—the very hallmarks of proactive work behavior. Future research may use larger samples with more statistical power to examine the possibility of partial mediation (as opposed to the full mediation in this study), for it is plausible to expect that over and above the effect of autonomous motivation on proactive behavior, AOC can exert incremental influence.

Finally, prior research has omitted to examine communication climate as a key aspect of the work context that can moderate the relations involving AOC, autonomous motivation, and proactive behavior. As Table 2.2 shows, communication climate significantly related to all these core constructs. The curious omission prompts us to investigate the dual-stage moderating effects of team communication climate. As expected, communication climate varied across teams, suggesting that it existed at the team level. This finding is noteworthy in that most research on communication climate has operationalized it at the individual level (e.g., Bartels et al., 2007; Guzley, 1992; Smidts et al., 2001; Trombetta & Rogers, 1988), yet a "climate" by itself connotes the notion of the "context" rising above the individual level. A clear strength of the present study lies in its multi-level research design, which has allowed us to aggregate individual responses to communication climate items to the team level, such that the cross-level moderating effect more realistically reflected what was going on in the work teams.

In support of our argument, the team communication climate was found to positively moderate both AOC's effect on autonomous motivation and the latter's effect on proactive behavior. This can be explained by drawing on communication climate research (Keyton, 2014; cf. Ashkanasy & Dorris, 2017; Claes, 2001; Virtanen, 2000; West

& Richter, 2011). Specifically, a positive team communication climate heightens the salience of the shared values and goals underlying AOC, and thus it helps employees build on the values they believe in to derive an autonomous motivation. This would make AOC a more powerful activator of autonomous motivation. Meanwhile, a positive team communication climate lowers the threshold of challenging the status quo and makes proactive behavior less risky, whereby it makes autonomous motivation a stronger driving force for proactive behavior. These findings enrich our understanding of the team communication climate as a crucial aspect of the work context that shapes the relations involving commitment, motivation, and proactivity. Future research may assess other major aspects of the work context—team psychological safety (Edmondson, 1999) for one—that bear implications for work attitudes and performance as essential as AOC, autonomous motivation, and proactive behavior. Taken together, the findings not only deepen our understanding of how AOC indirectly fosters proactive behavior through activating autonomous motivation, they also enrich our knowledge of why the team communication climate moderates the indirect fostering effect of AOC at both stages.

2.7.2 Practical Implications

In practical terms, the findings reported here suggest autonomous motivation as a key mechanism and communication climate as a crucial condition for managers to gain and maintain a proactive work force. We will discuss how managers can concretely promote employees' autonomous motivation in Study Two (i.e., the next article). In the current section, we would like to elaborate on how managers can cultivate a positive communication climate, so that affectively committed employees can freely express their autonomous motivation by proactively performing their job roles. First, managers are

advised to monitor the communication climate in the work teams, as shown in the current study, work teams constitute a proximal context that can strongly influence employees' work experience. To do that, not only team leaders (i.e., supervisors), but more importantly, managers themselves are encouraged to adopt a bottom-up (vs. top-down) approach by engaging in frequent informal communications with team members. This can be done by setting up regular team-building activities, such as Friday brown-bag talks and occasional outdoor activities. Second, besides the level of communication climate, managers should pay close attention to the content of it. In this study, we have highlighted three key elements: openness, understanding, and satisfaction. Accordingly, managers are recommended to provide each employee with adequate opportunities to speak up, be listened to, and fully participate. To do that, managers should have a strong sense of caring for employees' specific needs—particularly their basic needs for autonomy, relatedness, and competence. For example, in trying to build a positive communication climate, managers may ask themselves, "Am I catering to team members' need for doing their job the way they see fit?" Third, managers could emphasize the interdependence between team members as the key success factor for the team, the work unit, and the organization. This emphasis should be grounded in the incentive system of the organization, so that pay and promotion are not based purely on individual performance, but partly on team performance. Finally, managers should pay serious attention to the team processes, such as the intrateam conflict (Jehn, 1995), for relationship conflict that is loaded with negative emotions (e.g., anger and frustration; Baron, 1991) can damage team communication climate.

2.7.3 Limitations

This study has some limitations. First, although the number of individual participants was reasonable (N = 172), the number of teams was small (N = 25), limiting the power to test more complex multi-level models (e.g., with multiple predictors and outcomes mediated by parallel or serial mediators). Second, our sample was composed of nurses. Although this allowed us to control for occupation and industry variations, it also limited the generalizability of our findings. Third, the present study was cross-sectional. It was thus impossible to make causal inferences for the directions of the paths in our model. Although model comparisons helped us rule out some alternative explanations (e.g., autonomous motivation leads to AOC), additional longitudinal studies are needed to verify and strengthen our findings. Finally, we only selected three dimensions of communication climate. This might have biased the moderation test results. Future studies can use the full scale of this construct to obtain more comprehensive understanding of its moderating effects. In the same vein, we selected three high-loading indicators for each core construct, which might have affected the findings. Although other researchers have also used this approach (e.g., Griffin et al., 2007; Wu et al., 2018), ideally, the use of full scales should be preferred to ensure construct validity.

In conclusion, this study contributes to the literature on commitment and proactivity by emphasizing autonomous motivation as the key mechanism that links AOC and proactive behavior. It also shows that the individual-level mediating effect of autonomous motivation is moderated by the team-level communication climate at both stages. Echoing Meyer's (2013, 2017) call for seeking out the basic principles that explain why people are motivated on the job and why the work context matters, we integrated four constructs that embody the basic principles into a parsimonious model. The findings

deepen our understanding of how the team-level communication interacts with the individual-level motivation to bring out proactive behavior for employees at the workplace, so that through the proactive behavior they can and will change the organization into a better workplace.

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Tables and Figures

Table 2. 1: Confirmatory Factor Analysis of Measurement Models: Fit Indices

Model	χ^2	*df*	CFI	TLI	RMSEA	SRMR	Model comparison	$\Delta\chi^2$	Δdf	*p*
Subordinate-rated measures										
1. Three-factor [a]	*26.32*	*24*	*1.00*	*.99*	*.02*	*.05*				
2. Two-factor [b]	137.84	26	.75	.65	.16	.12	2 vs. 1	134.06	2	<.001
3. Two-factor [c]	148.45	26	.72	.62	.17	.14	3 vs. 1	121.82	2	<.001
4. Two-factor [d]	147.24	26	.73	.62	.17	.13	4 vs. 1	137.51	2	<.001
5. One-factor [e]	256.11	27	.48	.31	.22	.17	5 vs. 1	256.53	3	<.001

Note: *N* = 172. Best-fitting model is in italics. CFI = comparative fit index; TLI = Tucker-Lewis fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

[a] The hypothesized measurement model.

[b] Affective organizational commitment and autonomous motivation are combined.

[c] Affective organizational commitment and communication climate are combined.

[d] Autonomous motivation and communication climate are combined.

[e] All items load on a single factor

Table 2. 2: Descriptive Statistics and Correlations among Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
Individual-level											
1. Gender (1 = female, 2 = male)	1.14	0.35	-								
2. Age	36.68	9.75	.04	-							
3. Organizational tenure	8.03	7.90	-.10	.61**	-						
4. Affective organizational commitment	4.60	1.16	.01	-.13	-.04	(.86)					
5. Autonomous motivation	5.67	0.83	-.04	-.07	-.08	.43**	(.84)				
6. Proactive behavior	4.99	0.98	.01	.20*	.15	.02	.14	(.96)			
Team-level [a]											
7. Team size	9.73	5.68	.04	.14	.10	-.08	-.02	-.00	-		
8. Task interdependence	5.85	1.00	.10	-.07	.02	.18*	.26**	.06	.01	(.89)	
9. Communication climate	4.83	0.96	.06	-.08	-.06	.18*	.21**	.16*	.10	.04	(.86)

Note. $N = 172$ individuals in 25 teams. Age and tenure variables were measured in years. Alpha coefficients are reported in parentheses along the diagonal.

[a] Team-level means were assigned down to individual team members.

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

Table 2. 3: Summary of Fit Statistics for Hypothesized vs. Alternative Mediation Models

Structural Model	Mediation Type	AIC	BIC[a]	Comparison	ΔAIC	ΔBIC
SM1: x → m → y	*Complete Mediation*	*933.72*	*933.32*			
SM2: x → m → y	Partial Mediation	947.54	946.99	SM2 – SM1 =	13.82	13.67
SM3: m → x → y	Complete Mediation	1079.57	1079.17	SM3 – SM1 =	145.85	145.85
SM4: m → x → y	Partial Mediation	1083.97	1083.42	SM4 – SM1 =	150.25	150.10
SM5: y → m → x	Complete Mediation	1015.70	1015.30	SM5 – SM1 =	81.98	81.98
SM6: y → m → x	Partial Mediation	1029.85	1029.29	SM6 – SM1 =	96.13	95.97

Note. The best fitting model is in italics.

AIC = Akaike information criterion; BIC = Bayesian information criterion; SM = structural model; *x* = affective organizational commitment; *m* = autonomous motivation; *y* = proactive behavior.

[a] BIC estimate was sample-size adjusted.

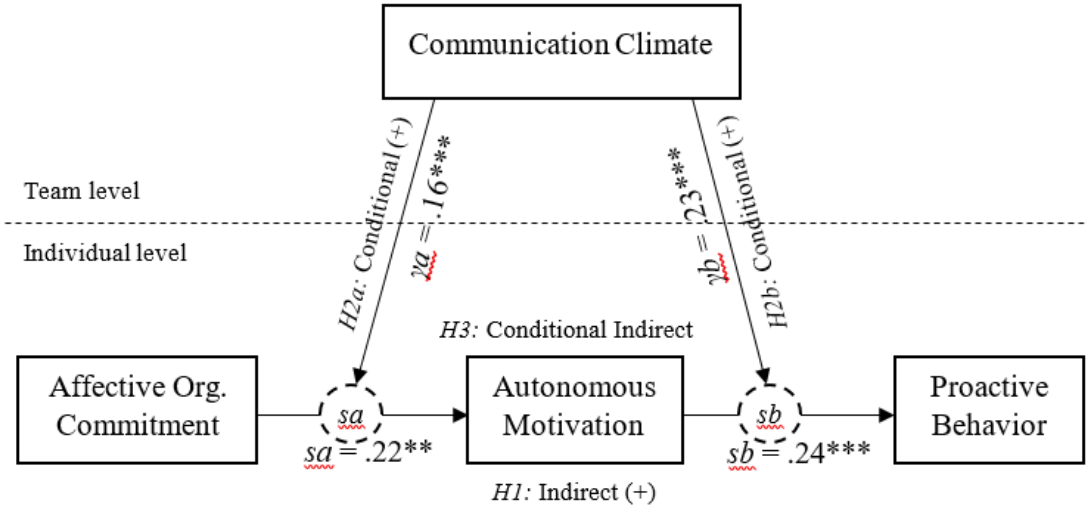
Table 2. 4: Unstandardized Coefficients of MSEMs for Testing Main, Mediation, and Moderation Effects

	MSEM 1 ($x \rightarrow m \rightarrow y$)		**MSEM 3** ($x*w \rightarrow m*v \rightarrow y$)	
	($x \rightarrow m$)	($m \rightarrow y$)	**MSEM 2** ($x*w \rightarrow m$)	**MSEM 2** ($m*v \rightarrow y$)
Variables	*DV: m*	*DV: y*	*DV: m*	*DV: y*
Level 1 & 2 covariates				
Gender	.01	-.01	.01	-.01
Age	.01	.00	.01	.00
Organizational tenure	.00	.00	.00	.00
Team size	.02	-.01	.02	.00
Task interdependence	.16	-.01	.15	.00
Level 1 predictors				
Affective organizational commitment	.21**		.22**	
Autonomous motivation		.28***		.24***
Cross-level interaction				
Affective organizational commitment × Communication climate			.16***	
Autonomous motivation × Communication climate				.23***
Pseudo-R^2	.17	.06	.17	.06

Note. N = 172 individuals in 25 teams. MSEM = multilevel structural equation modeling; *DV* = dependent variable; x = affective organizational commitment; m = autonomous motivation; y = proactive behavior; $w = v$ = communication climate.

**$p < .01$; ***$p < .001$.

Figure 2. 1: Cross-Level Moderated Mediation: Model Results



Note. Unstandardized path coefficients for the hypothesized model.

sa = first-stage random slope; *sb* = second-stage random slope;

γa = first-stage cross-level moderating effect; *γb* = second-stage cross-level moderating effect.

** $p < .01$; *** $p < .001$

Figure 2. 2: Cross-Level Interaction Between Communication Climate and Affective Organizational Commitment in Predicting Autonomous Motivation

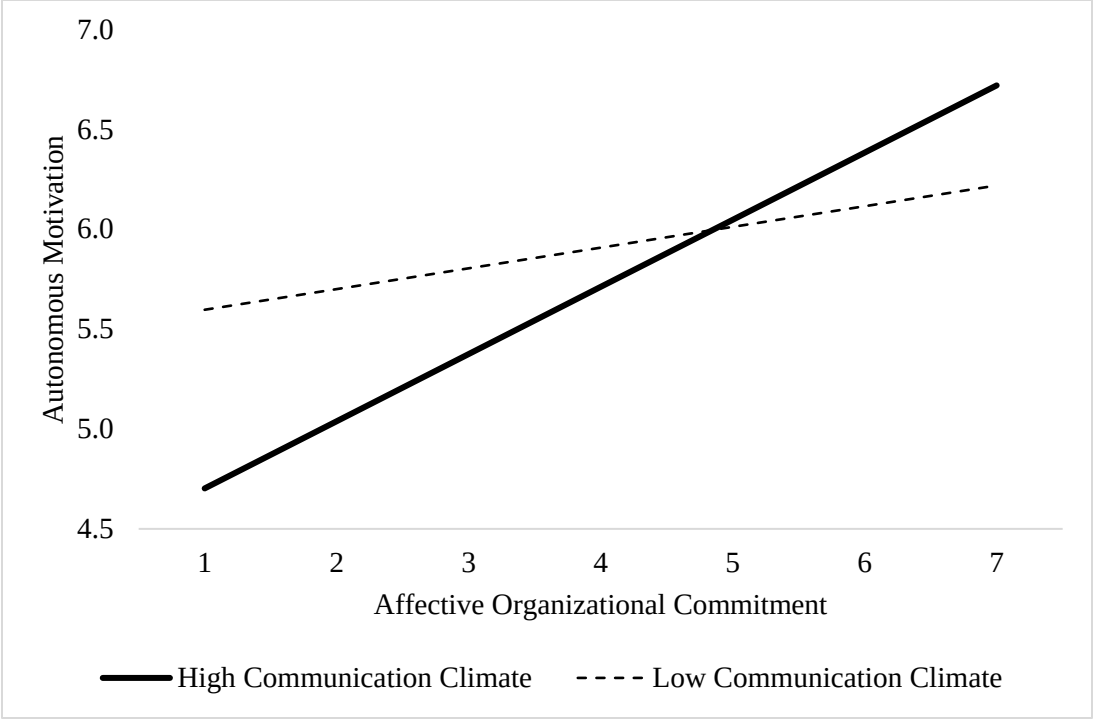
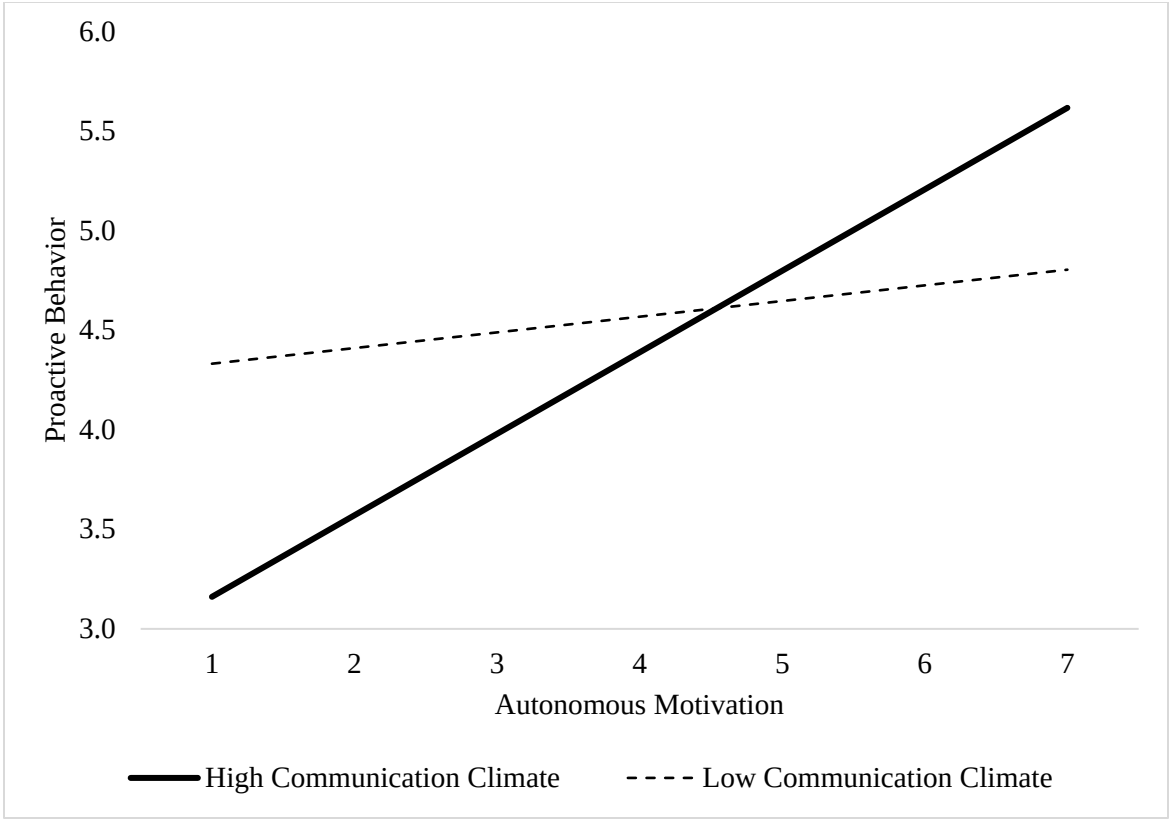


Figure 2. 3: Cross-Level Interaction Between Communication Climate and Autonomous Motivation in Predicting Proactive Behavior



Appendix

Appendix 2. 1: Confirmatory Factor Analysis (CFA) of the Core Study Variables: Item Loadings

Item	Loading
Affective Organizational Commitment	
1. I feel emotionally attached to this organization.	.73
2. This organization has a great deal of personal meaning for me.	.82
3. I am proud of belonging to this organization.	.81
Autonomous Motivation	
1. I do this job because I enjoy it very much.	.85
2. I do this job because I have fun doing it.	.88
3. I do this job because it fits my personal values.	.60
Team Communication Climate	
1. The communication among the team members is very open.	.70
2. When speaking with one another, the team members understand each other very well.	.92
3. The quality of the information that circulates among the team members is yet to be improved. (Reverse coded)	.68
Proactive Behavior	
1. S/he has come up with ideas to improve the way in which her/his core tasks are done.	.83
2. S/he has improved the way her/his work team does things.	.93
3. S/he has made suggestions to improve the overall effectiveness of the organization (e.g., by suggesting changes to administrative procedures).	.85

Note. N = 172 individuals in 25 teams. Entries are completely standardized CFA loadings. All measures are self-reports except Proactive Behavior, which is appraised by the supervisor. Model fit indices: $\chi^2(48) = 59.43$, CFI = .99, TLI = .98, RMSEA = .04, SRMR = .05.

Chapter 3:

Article 2: Affective Organizational Commitment and Role Overload: When Autonomy Need Satisfaction Meets the Individual Self-Concept

3.1 Abstract

This study examines the mediating role of autonomy need satisfaction in the relationship between affective organizational commitment (AOC) and role overload over time, and the moderating role of the individual self-concept. Using panel data collected at two points in time from 263 employees working for different organizations across various industries in China, we found that autonomy need satisfaction mediated the relationship between AOC and role overload over time. Interestingly, role overload and autonomy need satisfaction were reciprocally and positively related. Moreover, autonomy need satisfaction resulted in stronger role overload over time when employees' individual self-concept was high (vs. low) while, reciprocally, autonomy need satisfaction led to stronger AOC when the individual self-concept was low (vs. high). We discuss the implications of these findings for future research on employee commitment, autonomy need satisfaction, and role overload.

3.2 Introduction

Employee commitment has been long researched from the employer perspective, with a focus on how to keep a productive workforce (Gellatly & Hedberg, 2016; Stanley & Meyer, 2016). It was until recently that researchers began to adopt the employee perspective and examined commitment's role regarding the aspects of work environment that threaten well-being (Meyer & Maltin, 2010)—often referred to as workplace stressors (Wallace, Edwards, Armold, Frazier, & Finch, 2009). Although employee commitment and workplace stressors have been researched for decades (Lazarus & Folkman, 1984; Meyer & Allen, 1984), the mechanisms underlying their association remain poorly understood. As the business world becomes increasingly uncertain with stressors looming ever larger in the workplace (Davis & Kim, 2015), and as commitment functions to reduce uncertainty and bears implications for stressors (Brickman, 1987), it is important that we have a clearer understanding of how employee commitment connects with workplace stressors.

The need to better understand the commitment-stressor interface is particularly warranted for the affective component of commitment in connection to role overload. For one, affective organizational commitment (AOC) reflects employees' emotional attachment to the organization based on shared values and has emerged as the component most strongly related to employee-relevant outcomes (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Similarly, role overload is a unique stressor as it refers to situations where one has too many responsibilities and tasks to accomplish given the resources available (Rizzo, House, & Lirtzman, 1970) and can be experienced as a hindrance or a challenge. Compared with other role stressors that constantly undermine employee

functioning (Sonnentag & Frese, 2003), role overload sometimes impedes (LePine, Podsakoff, & LePine, 2005) while other times fosters (McCauley, Ruderman, Ohlott, & Morrow, 1994) employee functioning. Given the strong predictive power of AOC on employee-relevant outcomes (Meyer et al., 2002) and the unclear nature of role overload, studying the mechanisms that link the two constructs is worthwhile.

The study of the link between AOC and role overload offers an opportunity to reverse the perspective generally adopted in research where the work context (i.e., role overload) is thought to influence the attitude (i.e., AOC). Indeed, it is puzzling to see researchers unanimously follow the same logic by framing "context as a supporting backdrop for human agency rather than a target of that agency" (Johns, 2018, p. 38). We maintain that people's prior attitude may influence how they construct their proximal work context (Fligstein, 2013; Johns, 1991; Scott, 1995; Zilber, 2002). The present study innovates in several ways in regard to past research on AOC and role overload and as such offers unique contributions to this literature. First, we look at the relationship from AOC to role overload and in so doing we reverse the assumption that work context is given and explore the idea that commitment can lead to role overload.

Second, the idea of looking at the relationship from AOC to role overload is based on the fundamental assumption of human agency, that is, human beings are born free—or, the need for autonomy is inborn. This assumption led us to choose autonomy need satisfaction, which refers to the feeling of self-governing when performing an act (according to self-determination theory [SDT]; Ryan & Deci, 2000), as the guiding principle (Meyer, 2013) in building a model that was amenable to empirical test. Autonomy need satisfaction represents the most autonomous motivational mindset within

SDT (Gagné & Deci, 2005), and is theorized to parallel AOC (Meyer, Becker, & Vandenberghe, 2004) from the perspective of work motivation. Moreover, meta-analysis (Van den Broeck, Ferris, Chang, & Rosen, 2016) shows that autonomy need satisfaction positively correlates with both AOC and workload, which justifies its being selected as a potential mediator. Theoretically, we draw on Meyer et al.'s (2004) integrative model of commitment and motivation to suggest that AOC is deep-rooted in shared values that are integral to employees' self, which helps satisfy the need for autonomy. In turn, autonomy need satisfaction should enable employees to define their job role more broadly and thus drive them to engage in role overload, thereby revealing how AOC can ultimately contribute to shape employees' work environment.

Conversely, our third aim is to examine the possibility that role overload, as a stressor, can retroact on and undermine autonomy need satisfaction because role overload constitutes a constraining work environment, which takes away from employees' sense of autonomy (Gagné & Deci, 2005). In a similar vein, from a SDT perspective, autonomy need satisfaction may subsequently facilitate the emergence of AOC (Gagné & Deci, 2005). We thus propose that AOC, autonomy need satisfaction, and role overload will be reciprocally related.

Finally, our last aim is to consider employees' individual self-concept as a moderator in our model. The self-concept influences how people make sense of their social context (Baumeister, 2010; Fiske & Taylor, 2008; Johnson, Chang, Kim, & Lin, 2017). Compared with collective and relational self-concepts that are others-oriented, the individual self-concept, being self-oriented, is relevant to autonomy need satisfaction because the sense of individuation—which is the hallmark of individual self-concept—

resonates with one's sense of autonomy (i.e., the feeling of volition in one's act; Ryan & Deci, 2000). On one hand, autonomy need satisfaction may increase role overload among employees with a high individual self-concept because the need for autonomy would be appealing to them as a mechanism for engaging in role overload. On the other hand, autonomy need satisfaction may result in stronger AOC among employees with a low individual self-concept because they tend to attribute their autonomy need satisfaction to the organization rather than their own input (e.g., personal efforts and abilities), which disposes them towards an AOC.

In the next sections, we present our hypotheses and research model (Figure 1). The results of a two-wave panel study examining the temporal cross-lagged effects of AOC, autonomy need satisfaction, and role overload, are then presented along with the moderating role of the individual self-concept.

3.3 Defining AOC, Role Overload, and Autonomy Need Satisfaction

While employee commitment has been theorized variously (Klein, Molloy, & Cooper, 2009), the most established theory is the three-component model (TCM; Allen & Meyer, 1990). The TCM defines commitment as "a force that binds an individual to a target (social or non-social) and to a course of action of relevance to that target" (Meyer, Becker, & Van Dick, 2006, p. 666). This binding force reflects three different mindsets—desire, felt obligation, and perceived cost— towards multiple targets such as organization and supervisor (T. E. Becker, 2016). Among different commitment mindsets and targets, AOC consistently stands out as the strongest predictor of employee-relevant outcomes (Meyer et al., 2002) and was thus selected as a core construct in this study.

Recently, commitment researchers began to pay more attention to workplace stressors (Chris, Maltin, & Meyer, 2016; Meyer & Maltin, 2010; Meyer, Stanley, & Parfyonova, 2012; Vandenberghe, Panaccio, Bentein, Mignonac, & Roussel, 2011). The stress literature (e.g., Lazarus, 2001) defines workplace stressors as aspects in work environment that threaten people's optimal functioning. Not all stressors, however, are considered threatening: researchers differentiate between hindrance and challenge stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Crawford, LePine, & Rich, 2010). Hindrance stressors threaten personal growth whereas challenge stressors promote it (Folkman, 1984). Among role stressors, role ambiguity and role conflict have been identified as hindrance stressors (Sonnentag & Frese, 2003). In contrast, role overload, referring to situations where demands are perceived to exceed one's resources (Rizzo et al., 1970), can be a hindrance (LePine et al, 2005) or a challenge (McCauley et al., 1994) stressor. Because we were interested in how AOC may enable employees to take more workload, role overload was thus selected as our second core construct.

In connecting AOC to workplace stressors, researchers mainly draw on stress theories (e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hobföll, 1989; Lazarus & Folkman, 1984) to suggest that employees high in AOC are less likely to suffer from stress because they have resources to cope with it. As Meyer and Maltin (2010) pointed out, such explanation stops short of explicating the specific underlying mechanisms. One such mechanism, as repeatedly suggested yet insufficiently tested, is the satisfaction of basic psychological needs (Chris et al., 2016; Meyer & Maltin, 2010), which is the core of SDT (Ryan & Deci, 2000). As a well-established motivation theory, SDT maps self-regulation onto a spectrum of motivation ranging from autonomous (e.g., enjoying the

task because it is interesting and consistent with one's values) to controlled (e.g., performing the task because it pays well) motivation, and posits that personal growth comes with autonomous motivation. As Gagné and Deci (2005) emphasized, autonomy need satisfaction is the hallmark of, and sometimes substituted for (Deci, Olafsen, & Ryan, 2017), autonomous motivation. Thus, we selected autonomy need satisfaction—defined as the need for autonomy being satisfied when individuals believe what they are doing is consistent with their core values and reflects their own choice—as a third focal construct.

3.4 Relating AOC to Autonomy Need Satisfaction

Meyer et al. (2004) integrated TCM and SDT into a complex model in which a key proposition is that commitment mindsets cause motivational mindsets. In their model, AOC reflects shared values and goals between employees and the organization (Meyer & Herscovitch, 2001), which disposes people to perceive the choice of the commitment target (i.e., the organization) as reflecting their own volition (Chris et al., 2016) and the performing of the tasks as reflecting their own choice. Such perception of free choice yields a strong sense of self-governing (i.e., autonomy), which helps satisfy the need for autonomy. In other words, AOC is rooted in the belief that one is performing a job role according to one's intrinsic interests, which not only creates a sense of autonomy but also satisfies the innate need for autonomy. In support of this view, Meyer, Stanley, and Parfyonova's (2012) cross-sectional study shows that AOC positively relates to autonomy need satisfaction ($\rho = .46$). Meta-analysis (Maltin, Meyer, Chris, & Espinzona, 2015) also shows that AOC is positively associated with autonomy need satisfaction ($\rho = .58$). However, these findings were cross-sectional and did not allow causal interpretations

(Cole & Maxwell, 2003). Grounding this argument in a longitudinal test with panel data for clearer understanding of temporal precedence, we present the following hypothesis.

Hypothesis 1: Time 1 AOC is be positively related to Time 2 autonomy need satisfaction, controlling for Time 1 autonomy need satisfaction.

3.5 Relating Autonomy Need Satisfaction to Role Overload

According to transactional stress theory (Lazarus & Folkman, 1984), whether role overload is appraised as challenge or hindrance depends on whether people perceive themselves as having resources to cope with it. When they perceive role overload as exceeding their coping resources, they appraise it as a hindrance. Alternatively, when perceiving sufficient coping resources, people appraise it as a challenge. Of various coping resources (Folkman, 1984), autonomy is considered a crucial one (Ryan & Deci, 2000) and being satisfied in the need for autonomy indicates that one has psychological resources that facilitate the challenge appraisal of role overload. Moreover, autonomy need satisfaction is a positive psychological state that, according to broaden-and-build theory (Fredrickson, 2001), broadens an individual's mindset, enabling her to see wider ranges of thoughts and actions than she typically does (Baumeister & Vohs, 2007).

In addition, autonomy need satisfaction also broadens people's minds and thus activates an autonomous motivational mindset of "want to do" as autonomy concerns "acting from interest and integrated values" (Ryan & Deci, 2002, p. 8). Such a "want to do" mindset may drive employees to define their job role broadly. That is, because the values and goals underlying the job role are integral to employees' true self, they tend to experience an autonomous motivation and come to define their job role broadly—considering the otherwise extra-role tasks as in-role duties, which results in higher

perceived role overload. Based on the above reasoning, we present the following hypothesis.

Hypothesis 2: Time 1 autonomy need satisfaction is positively related to Time 2 role overload, controlling for Time 1 role overload.

3.6 Accounting for Reciprocal Relationships

Thus far we have argued, from commitment theorists' perspective (Meyer et al., 2004), that AOC helps satisfy the need for autonomy which in turn, through broadening employees' mind (Fredrickson, 2001), facilitates the emergence of role overload. Conversely, from SDT perspective (Gagné & Deci, 2005), role overload constitutes a constraining (rather than autonomy-supportive) work environment and thus suppresses autonomy need satisfaction, which in turn reduces AOC, as we elaborate next.

SDT (Gagné & Deci, 2005) posits that autonomy-supportive (rather than constraining) work environments promote employees' basic needs satisfaction—particularly their need for autonomy. Indeed, the recent meta-analysis (Van den Broeck et al, 2016) shows that among various antecedents to autonomy need satisfaction, workload is a negative predictor (ρ = -.19), indicating that too much workload—that is, role overload—undermines autonomy need satisfaction. This is because role overload reflects a work condition in which job demands exceed one's resources (e.g., "I have too much work to do everything well."), and it is thus often considered a role stressor, as such it constitutes a constraining (rather than autonomy-supportive) work condition. And a key proposition of SDT is that constraining (or controlling) work condition frustrates employees' need for autonomy. Thus, the following hypothesis is proposed.

Hypothesis 3: Time 1 role overload is negatively related to Time 2 autonomy need satisfaction, controlling for Time 1 autonomy need satisfaction.

As a counter-argument to commitment theorists' (Meyer et al., 2004) proposition that commitment mindsets cause motivational mindsets (e.g., when people feel attached to the organization thanks to shared values and goals, they want to accomplish their job tasks), SDT theorists (Gagné & Deci, 2005) argued that motivational mindsets cause commitment mindsets (e.g., when people want to accomplish their job tasks, they are likely to internalize the values and goals of the organization, which helps them develop a strong AOC). In support of this counter-argument, Gagné, Chemolli, Forest, and Koestner's (2008) panel study shows that autonomous motivation leads to AOC, but not vice versa. Similarly, Greguras and Diefendorff (2009) find that autonomy need satisfaction exerts a positive time-lagged effect on AOC. Notably, as Meyer (2014) points out, besides Gagné et al.'s (2008) study, few studies have examined the temporal relationship between commitment and motivational mindsets[8]. To contribute to this inquiry, and following SDT's argument, we propose the following hypothesis.

Hypothesis 4: Time 1 autonomy need satisfaction is positively related to Time 2 AOC, controlling for Time 1 AOC.

Combined, the previous hypotheses form a mediation model in which autonomy need satisfaction mediates the reciprocal relationships between AOC and role overload over time. However, there are theoretical grounds to expect that the individual self-

[8] Using occupational affective commitment rather than AOC, Fernet, Austin, and Vallerand (2012) replicated Gagné et al.'s (2008) research findings on the causality between autonomous motivation and affective commitment.

concept will act as a moderator in our model (Figure 3.1) as is discussed in the next section.

3.7 The Individual Self-concept as a Moderator

The self-concept is defined as the knowledge structure containing information relevant to the self (Lord & Brown, 2004). It guides people's motivation by making some values and goals more salient (Chen & Welland, 2002; Dweck, 1996) according to three self-concept levels: individual, relational, and collective (Johnson & Chang, 2006). The individual level focuses on individuation that feeds one's sense of uniqueness, whereby one derives self-worth from being judged different and better than others. At this level, people are guided by self-interest and personal values such as pay, promotion, and status. The relational and collective levels speak to the extent to which one's self-definition is based on dyadic connections with others (relational) or group membership (collective). At these levels, one maintains self-worth from positive relationship with others or the social standing of the group one belongs to (Johnson, Chang, & Yang, 2010).

Although the three self-concept levels may vary within a person across situations (Markus & Wurf, 1987), one level tends to be more salient at any given time (Oyserman, 2001), which reflects one's chronic self-concept (Lord & Brown, 2004). This study focuses on the chronic individual self-concept. Compared with relational and collective self-concepts that are others-oriented, the individual self-concept, being self-oriented, should interact with autonomy need satisfaction in influencing how employees interpret, respond to, and act on their work environment (Johnson et al., 2017). Autonomy need satisfaction may stimulate more role overload for employees high in individual self-concept because these people are sensitive to anything that helps differentiate them from

others, since individuation is a key concern for their sense of well-being. They like to be distinct from others. Thus, satisfying the need for autonomy makes particular sense for them as it helps achieve individuation (e.g., "I have freedom to do my job the way I think it can be done best"). As a consequence, the salience of this need may be higher and act as a stronger driving force of role overload. This may happen because autonomy need satisfaction makes them feel better about themselves, which then broadens their mind and allows them to define their job role broadly and take more responsibilities. In contrast, a low individual self-concept lowers the salience of autonomy need satisfaction and should reduce the impact of autonomy need satisfaction on role overload. Thus, we present the following hypothesis.

> *Hypothesis 5:* The individual self-concept moderates the relationship between Time 1 autonomy need satisfaction and Time 2 role overload, controlling for Time 1 role overload, such that this positive relationship is stronger when the individual self-concept is high rather than low.

Alternatively, autonomy need satisfaction may yield a stronger AOC for employees low in individual self-concept. This is because the individual self-concept may affect the internalizing process by which employees take in organizational values and goals so as to develop a strong AOC. Theorists of the self (Markus & Kitayama, 1991; Oyserman, Elmore, & Smith, 2012) hold that the self-concept orients how people make sense of their experiences. Employees high in individual self-concept will tend to interpret the satisfaction in ways consistent with their personal values that advocate individuation (e.g., hardworking). Indeed, research (Morris & Peng, 1994) shows that people who have high individual self-concept tend to attribute positive work experiences (e.g., autonomy

need satisfaction) to their personal efforts whereas people with a low individual self-concept tend to attribute positive work experiences to the help received from other social entities such as the organization (Triandis & Gelfand, 2011). Thus, employees who have a high individual self-concept tend to attribute their autonomy need satisfaction to their individuating characteristics (e.g., personal efforts and abilities), which may detract them from developing a strong AOC. In contrast, employees who have a low individual self-concept may be less tempted to attribute their autonomy need satisfaction to their own actions. Instead, they would be more likely to think that it is the organization that provides the tasks which help satisfy their need for autonomy. In other words, a low individual self-concept heightens the salience of autonomy need as being satisfied by the organization, which makes autonomy need satisfaction a stronger motivator that drives employees to internalize organizational values and goals, resulting in a stronger AOC. Thus, the following hypothesis is proposed.

> *Hypothesis 6:* The individual self-concept moderates the relationship between Time 1 autonomy need satisfaction and Time 2 AOC, controlling for Time 1 AOC, such that this positive relationship will be stronger when the individual self-concept is low rather than high.

3.8 Method

3.8.1 Sample and Procedure

We launched this survey in major cities of China (e.g., Beijing, Shanghai, and Xi'an). One hundred and fifteen prospective participants were contacted individually. They were also asked to invite other participants in their networks by distributing email invitations with a link to the online questionnaire. The email explained the objectives of

the research, ensured confidentiality, and invited participants to complete two waves of questionnaires at 3-month intervals. In total, 1304 participants completed the questionnaire at Time 1 (T1). A total of 279 (21%) of the T1 participants completed the questionnaire at Time 2 (T2). Between T1 and T2, sixteen participants changed organizations and were thus excluded, leaving a final sample of 263 participants. These 263 participants—31% men—had an average age of 34.35 years (SD = 7.75), an average organizational tenure of 5 years (SD = 4.53). They worked in different organizations and industries, including community service (19%), healthcare (12%), manufacturing (10%), education (8%), and retail and wholesale (4%), among others. Among these 263 participants, 58% worked in small organizations (< 100 employees), 30% in medium-sized organizations (100-1,000 employees), and 12% in large organizations (> 1,000 employees).

To examine whether participant attrition led to nonrandom sampling over time, we tested whether the probability of participating at T2 (N = 279) among T1 respondents (N = 1304) could be predicted by T1 variables (Goodman & Blum, 1996). The logistic regression predicting T2 participation from T1 variables was significant, $\chi^2(7) = 43.00$, $p < .001$, with age ($b = -.13$, $p < .05$), being male ($b = .68$, $p < .001$), role overload ($b = .19$, $p < .001$), and autonomy need satisfaction ($b = -.16$, $p < .05$) being significant. Specifically, younger, male, overloaded, and less satisfied (in autonomy need) participants were more likely to drop out at T2. We discuss these effects in the limitations section.

3.8.2 Measures

All measures were translated from English to Mandarin Chinese by following an independent translation-back-translation procedure (Brislin, 1980). We measured participants' age, gender, organizational tenure, and individual self-concept at T1, and all other variables at T1 and T2, using 7-point Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree).

AOC. We used three high-loading items from Meyer, Allen, and Smith's (1993) six-item scale to measure AOC. An example item is "I would be very happy to spend the rest of my career with this organization." Alpha reliabilities for this scale were .87 (T1) and .91 (T2).

Autonomy need satisfaction. We used three high-loading items from Chiniara and Bentein's (2016) 4-item scale to measure autonomy need satisfaction, and adapted the wording to tie in the items with the answering options in our survey. An example item is "I have opportunities to take personal initiatives in my work." Alpha reliabilities for this scale were .89 (T1) and .90 (T2).

Role overload. We used the 3-item scale from Schaubroeck, Cotton, and Jennings (1989) to measure role overload. An example item is "I have too much work to do everything well." Alpha reliabilities for this scale were .65 at both T1 and T2.

Individual self-concept. We used three high-loading items from Johnson, Selenta, and Lord's (2006) 5-item subscale to measure individual self-concept. An example item is "I feel best about myself when I perform better than others." Alpha reliability for this scale was .76 (T1).

Control variables. We initially controlled for age, gender, and organizational tenure at T1, as they may influence employees' work attitudes and experiences (Chiniara

& Bentein, 2016). All significance tests for structural parameters were similar when we included the control variables. Therefore, they were dropped in the analyses reported.

3.9 Results

3.9.1 Confirmatory Factor Analyses

Before testing hypotheses, we conducted confirmatory factor analyses (CFA) to examine the distinctiveness of our study variables, using Mplus 7.4 (Muthén & Muthén, 1998-2015).[9] Results are presented in Table 3.1. The hypothesized four-factor model of T1 variables yielded a good fit to the data, $\chi^2(48) = 107.47$, $p < .001$, CFI = .94, TLI = .92, SRMR = .07, RMSEA = .09. So did the hypothesized three-factor model of T2 variables, $\chi^2(24) = 56.42$, $p < .001$, CFI = .97, TLI = .96, SRMR = .07, RMSEA = .08. Moreover, any more parsimonious CFA model for T1 and T2 variables specified by combining variables into fewer factors induced a significant loss of fit ($p < .001$; see Table 3.1). These results suggest that the T1 and T2 variables were distinguishable.

3.9.2 Descriptive Statistics and Correlations

Table 3.2 presents descriptive statistics and correlations for the study variables. AOC ($r = .46$, $p < .01$), autonomy need satisfaction ($r = .46$, $p < .01$), and role overload ($r = .43$, $p < .01$) were moderately stable over time. Within and between waves, AOC correlated positively with autonomy need satisfaction (*r's* = .17 – .38, *p's* < .01), and negatively with role overload (*r's* = -.20 – -.40, *p's* < .01). Autonomy need satisfaction correlated negatively with role overload within waves (T1: -.25, $p < .01$; T2: -.14, $p < .01$), but not between waves (T1−T2: -.03, *ns*; T2−T1: -.10, *ns*). The individual self-

[9] In all SEM analyses, we adopted the maximum likelihood estimation method. A critical assumption of SEM is multivariate normality. Because our data were not multivariate normal, we based our analyses on the MLM (rather than ML) estimator. As Byrne (2012) suggested, the MLM estimator generates parameter estimates and model fit indices that are more robust to multivariate non-normality.

concept correlated positively with autonomy need satisfaction at T1 (r = .31, p < .01) and T2 (r = .20, p < .01).

3.9.3 Measurement Invariance

To ensure that measures were invariant over time for longitudinal SEM analyses, we tested measurement invariance (Vandenberg & Lance, 2000). Nested model comparisons indicated that the nature of the constructs as operationalized at T1 and T2 displayed configural invariance and the relations between items and their corresponding constructs also remained unchanged (i.e., metric invariance), as evidenced by the non-significant loss of fit between the constrained model of AOC, autonomy need satisfaction, and role overload, and the unconstrained model, $\Delta\chi^2(6) = 4.91$, *ns* (results are available upon request). Hence, the assumption of measurement invariance was met for all constructs.

3.9.4 Time-Lagged Structural Equation Models

We used the method recommended by Cole and Maxwell (2003) to test mediation with two waves of data (for empirical examples, see De Cuyper, Makikangas, Kinnunen, Mauno, & De Witte, 2012; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). This method (see Figure 3.2) comprises a set of two longitudinal tests: first on the causal relationships between predictor and mediator (Panel A), and second on the causal relationships between mediator and outcome (Panel B). As Cole and Maxwell (2003) emphasized, this two-step mediation-testing method controls for prior levels of the dependent variable in each longitudinal relationship, without which the causal relationship would be spuriously inflated. Note that a third test involves testing the

relationship between predictor and outcome (Panel C), which is intended to establish whether longitudinal mediation is partial vs. complete.

Table 3.3 summarizes the fit statistics for the four alternative structural models that were used to examine the longitudinal relationships among the three constructs. Panel A tests the relationships between AOC and autonomy need satisfaction by comparing four structural models: (1) the stability model [SM1] with no cross-lagged effects; (2) the normal causation model [SM2] in which T1 AOC related to T2 autonomy need satisfaction; (3) the reversed causation model [SM3] in which T1 autonomy need satisfaction related to T2 AOC; and (4) the reciprocal causation model [SM4] that combined the three previous models. The $\Delta\chi^2$ tests supported the normal causation model (SM2). This model yielded a good fit, $\chi^2(73) = 85.78$, CFI = .99, TLI = .99, RMSEA = .03, SRMR = .03, and it improved over the stability model (SM1−SM2: $\Delta\chi^2(1) = 8.54$, $p < .01$), and was more parsimonious than the reciprocal causation model (SM2−SM4: $\Delta\chi^2(1) = .02$, *ns*). Moreover, the reversed causation model did not improve over the stability model (SM1−SM3: $\Delta\chi^2(1) = .07$, *ns*). As can be seen in Figure 3.2 (Panel A), T1 AOC was related positively to T2 autonomy need satisfaction ($\gamma = .30$, $p < .001$), controlling for T1 autonomy need satisfaction ($\gamma = .36$, $p < .001$). Hypothesis 1 is supported. In contrast, T1 autonomy need satisfaction was unrelated to T2 AOC ($\gamma = .01$, *ns*), controlling for T1 AOC ($\gamma = .49$, $p < .001$). Thus, Hypothesis 4 is rejected.

Likewise, Panel B presents the fit statistics for the four structural models testing the cross-lagged relationships between autonomy need satisfaction and role overload. As can be seen in Table 3.3, the $\Delta\chi^2$ tests supported the reciprocal causation model (SM4). This model yielded a good fit, $\chi^2(71) = 126.03$, CFI = .96, TLI = .94, RMSEA = .05,

SRMR = .09, and significantly improved over the normal causation model (SM2−SM4: $\Delta\chi^2(1) = 6.07$, $p < .05$). The results (see Figure 3.3, Panel B) showed that T1 autonomy need satisfaction related positively to T2 role overload ($\gamma = .52$, $p < .01$), controlling for T1 role overload ($\gamma = .79$, $p < .001$). Hypothesis 2 is supported. Reciprocally, T1 role overload related positively to T2 autonomy need satisfaction ($\gamma = .34$, $p < .05$), controlling for T1 autonomy need satisfaction ($\gamma = .68$, $p < .001$). This result contradicts Hypothesis 3.

Additionally, Panel C assesses the direct relationships between AOC and role overload over time to examine whether mediation was partial vs. complete. As Table 3.3 shows, adding causal paths between the two variables (SM2, SM3, and SM4) did not improve model fit over the stability model (SM1) ($\Delta\chi^2(1) = .16$ to $.22$, *ns*). Therefore, based on the parsimony rule (James, Mulaik, & Brett, 2006), the stability model (SM1) was retained as the best model, indicating no direct relationships between AOC and role overload over time. Hence, autonomy need satisfaction fully mediated the relationship between AOC and role overload.

3.9.5 Moderating Effects of the Individual Self-Concept

Hypotheses 5 and 6 predicted moderating effects of the individual self-concept on the relationships between T1 autonomy need satisfaction and T2 role overload, controlling for T1 role overload, and between T1 autonomy need satisfaction and T2 AOC, controlling for T1 AOC, respectively. We conducted moderated multiple regressions—with T2 role overload and T2 AOC as respective dependent variables—to test Hypotheses 5 and 6. In testing these hypotheses, we entered control variables (i.e., age, gender, and organizational tenure) at Step 1, the T1 dependent variable at Step 2, the T1 predictor and

moderator (centered; see Aiken & West, 1991) at Step 3, and the interaction term (i.e., predictor × moderator) at Step 4. Results are presented in Table 3.4 (Hypothesis 5) and Table 3.5 (Hypothesis 6).

Table 3.4 shows that, controlling for T1 role overload (β = .53, p < .001; Model 2), T1 autonomy need satisfaction interacted with individual self-concept (β = .20, p < .001; Model 4) and accounted for incremental variance in T2 role overload (ΔR^2 = .04, p < .001). To illustrate the form of this interaction, we plotted the regression line for T2 role overload on T1 autonomy need satisfaction at 1 *SD* below and above the mean of individual self-concept (Aiken & West, 1991; see Figure 3.3). The regression line for T2 role overload on T1 autonomy need satisfaction was significantly positive when individual self-concept was high, t (255) = 4.08, p < .001, but nonsignificant when it was low, t (255) = -.90, *ns*. Moreover, the slopes of these regression lines differed significantly, t (255) = 3.27, p < .01, indicating that the relationship was stronger when the individual self-concept was high. In post hoc analyses, we adopted Hayes's (2018) advice and used the Johnson-Neyman (J-N) technique (Preacher, Curran, & Bauer, 2006)—by applying PROCESS macro for SPSS (Hayes, 2018)—to identify the levels of individual self-concept at which the effect of T1 autonomy need satisfaction on T2 role overload would transition from statistically significant to nonsignificant. The results showed that when the level of individual self-concept (range = 1-7; M = 4.86) went above 4.94, the effect was significantly positive (β = .15, p < .05) while it turned significantly negative (β = -.32, p < .05) when the level of individual self-concept was below 3.06. This pattern of findings is consistent with Hypothesis 5.

Likewise, Table 3.5 shows that, controlling for T1 AOC (β = .53, p < .001; Model 2), T1 autonomy need satisfaction interacted with individual self-concept (β = -.15, p < .01; Model 4) and accounted for incremental variance in T2 AOC (ΔR^2 = .02, p < .01). To illustrate the form of this interaction, we plotted the regression line for T2 AOC on T1 autonomy need satisfaction at 1 *SD* below and above the mean of individual self-concept (see Figure 3.4). The regression line for T2 AOC on T1 autonomy need satisfaction was significantly positive when individual self- concept was low, t (255) = 2.08, p < .05, but nonsignificant when it was high, t (255) = -1.01, *ns*. In addition, the slopes of these regression lines differed significantly, t (255) = 2.24, p < .05, indicating that the relationship was stronger when the individual self-concept was low. The post hoc analyses with J-*N* technique (Preacher et al, 2006) showed that when the level of individual self-concept was below 4.07, the effect was significantly positive (β = .22, p < .05) while it turned significantly negative (β = -.30, p < .05) when the level of individual self-concept was above 6.81. Overall, these results are consistent with Hypothesis 6.

3.10 Discussion

This study explored three broad questions related to human agency: (1) Does people's prior attitude influence their work context? (2) How would that work context in turn shape their ensuing attitude? (3) What boundary condition affects this reciprocal process? Specifically, we combined principles from the TCM and SDT (Meyer et al., 2004; Ryan & Deci, 2000) and the broaden-and-build theory (Fredrickson, 2001) to theorize that AOC enables employees to engage in role overload and that autonomy need satisfaction explicates how AOC connects with role overload temporally and reciprocally. Drawing on the theory of the self (Markus & Kitayama, 1991), we further argued that the

individual self-concept moderates the mediating effects of autonomy need satisfaction, such that autonomy need satisfaction may on the one hand stimulate more role overload for employees with high individual self-concept while on the other hand yield stronger AOC for employees with low individual self-concept. Findings from this cross-lagged panel study supported most of these arguments. Implications of these findings are outlined below.

3.10.1 Theoretical Implications

Our findings provide three key insights in light of what prior research theorized or uncovered about the connection between AOC and role overload. First, prior research unanimously assumed role overload as a context that precedes AOC, treating employees as passive respondents to role overload. Our findings challenge this assumption, demonstrating that AOC, through satisfying the need for autonomy, can enable employees to engage in role overload. By reversing the dominant assumption, future studies may test this broad question— "How do people come to construct their work context?"—on other established commitment drivers: perceived organizational support (POS; Eisenberger, Huntington, Hutchison, & Sowa, 1986) for one. It is plausible to argue, through the lens of social cognition (Fiske & Taylor, 2008), that people tend to practice selective interpretation of their current context (e.g., T2 POS) that confirms their prior attitude (e.g., T1 AOC), suggesting that AOC can lead to POS over time.

Second, prior research has repeatedly suggested (but seldom tested) basic need satisfaction as a mediator to explain the relationship from work context to employee commitment (Meyer, 2014). By relaxing the dominant assumption, we extended the oft-suggested thesis and contended that autonomy need satisfaction mediates the reciprocal

relationship between AOC and role overload. Consistent with commitment theorists' proposition that commitment mindsets cause motivation mindset (Meyer et al., 2004), our cross-lagged analyses show that AOC exerted positive time-lagged effect on autonomy need satisfaction, which in turn exerted positive time-lagged effect on role overload. Moreover, AOC did not directly relate to role overload over time, indicating that autonomy need satisfaction fully mediates AOC's time-lagged effect on role overload. Interestingly, the zero-order correlation between T1 AOC and T2 role overload was significantly negative (r = -.25, p < .01; Table 2). In contrast, as we took a longitudinal perspective and controlled for role overload's autoregressive effect, a different pattern emerged: T1 AOC was not directly related to T2 role overload (γ = .06, *ns*; Figure 3.2, Panel C), with AOC's enabling effect being fully mediated by autonomy need satisfaction. Future research may use larger-sized samples (and thus more statistical power) to investigate the possibility of partial mediation. Alternatively, other mediators could be examined. For example, relatedness need satisfaction may represent another mechanism by which AOC relates to role overload.

Contrary to our expectation from a SDT perspective, autonomy need satisfaction (representing autonomous motivation) did not mediate the effect of role overload on AOC over time. In the first step of the proposed mediation, role overload exerted a positive time-lagged effect on autonomy need satisfaction. This finding contradicts both dominant theorizing (Meyer & Maltin, 2010) and recent meta-analysis (Van den Broeck et al., 2016), with the former implying and the latter showing that role overload (or workload) undermines autonomy need satisfaction. This panel study displays stronger evidence that role overload can foster autonomy need satisfaction over time. This may happen because

role overload—plausibly perceived as a challenge that offers opportunities for personal growth—can help employees take initiatives and thus yield greater autonomy need satisfaction. However, this process did not extend to AOC. That is, autonomy need satisfaction did not exert a time-lagged effect on AOC. Because this finding runs counter to Gagné et al.'s (2008) panel-study finding that autonomous motivation (reflecting autonomy need satisfaction) led to AOC, further studies are needed to clarify the causal directions between commitment and motivation mindsets (Meyer, 2014). Such contradictory between-study findings may signal the overlook of relevant boundary conditions (Johns, 2006), and this study tested an important one: the individual self-concept. Indeed, emphasizing that the evidence of $X \rightarrow Y$ association is not required in order for X's effect on Y to be moderated, Hayes (2018) strongly discouraged avoiding moderation test just because X (e.g., T1 autonomy need satisfaction) is not directly associated with Y (e.g., T2 AOC).

Third, the individual self-concept interacted with T1 autonomy need satisfaction in influencing T2 AOC. Employees with low individual self-concept were more likely to develop an AOC from satisfying their need for autonomy than did employees with high individual self- concept. This moderating effect can be attributed to the rationale that the self-concept disposes people towards selective interpretation (Fiske & Taylor, 2008): employees with low individual self-concept tend to interpret their autonomy need as being satisfied by the organization while employees with high individual self-concept tend to interpret such need as being satisfied by their own input (e.g., hardworking). Notably, this significant moderation effect qualifies our earlier conclusion that T1 autonomy need satisfaction did not relate to T2 AOC, indicating that autonomy need satisfaction did lead

to AOC over time, yet only for employees with low individual self-concept. As such, our findings reconcile the competing arguments between commitment and SDT researchers, lending empirical support to the growing consensus that commitment and motivation mindsets are reciprocally related over time (Chris et al., 2016). However, our findings show that this reciprocal causality should be contingent on certain boundary conditions such as the individual self-concept. Future research may test other boundary conditions. For example, besides person factors (e.g., self-concept), would situation factors (e.g., career stage) moderate this reciprocal relationship over time? We believe so. It might entail needs satisfaction initially for newcomers to develop AOC while for old-timers AOC may hold more sway over needs satisfaction on a regular basis.

Interestingly, our post hoc analyses (J-N technique) revealed that when the individual self- concept was high, autonomy need satisfaction exerted a positive time-lagged effect on role overload as hypothesized from the broaden-and-build theory. In contrast, when the individual self-concept was low, autonomy need satisfaction exerted a negative time-lagged effect on role overload. In other words, for employees with a low individual self-concept, autonomy need satisfaction may disengage them from role overload. This finding counters the traditional view that autonomous motivation generally enhances employees' willingness to assume more job responsibilities (Meyer, Gagné, & Parfyonova, 2010). Alternatively, when the individual self-concept was low, autonomy need satisfaction exerted a positive time-lagged effect on AOC, as hypothesized from SDT, which also concurs with the meta-analytical finding (Van den Broeck et al., 2016) that autonomy need satisfaction positively relates to AOC. In contrast, when the individual self-concept was high, autonomy need satisfaction exerted a negative time-

lagged effect on AOC, contradicting the conventional rationale that autonomous motivation always increases AOC (Gagné & Deci, 2005). To our knowledge, these two counterintuitive findings— i.e., autonomous motivation may reduce AOC and may also demotivate employees from taking more responsibilities—have never been reported previously. How to explain them?

A high individual self-concept may divert employees from attributing their autonomy need satisfaction to the organization, so much so that their autonomy need satisfaction can undermine—that is, inhibit and even damage—their AOC. This may happen because for employees who have a high individual self-concept, autonomy need satisfaction makes them feel particularly better about themselves, which broadens their mind and allows them to see more opportunities (e.g., targeting a new client with a new product). Yet, not all opportunities would be sponsored by the organization (e.g., the new product proposal being turned down). As a result, consistent with the theory of the self (Morris & Peng, 1994), the highly individualistic employees, on one hand, attribute their positive experiences (i.e., autonomy need satisfaction) to their individuating characteristics (e.g., hardworking and personal ability) rather than to the organization, which would inhibit them from developing an AOC. On the other hand, they are likely to attribute not so positive work experiences that impede their achieving individuation to the organization (e.g., proposal being refused may result in lost sales and loss of face), which might damage their AOC.

Alternatively, a low individual self-concept may lower the salience of autonomy need satisfaction as an autonomous motivation mindset that focuses on achieving individuation. The lowered salience suppresses the impact of autonomy need satisfaction

on role overload to the extent that it may disengage employees from role overload. This may happen because employees with a low individual self-concept may see themselves as being more interdependent with others (Markus & Kitayama, 2010). As such, they like to cultivate feelings of balance and harmony between themselves and others (Markus, 2016), suggesting that when the individual self-concept is low, it imbues one's sense of autonomy with a caring for others. In these circumstances, autonomy need satisfaction may prompt employees to better fit in with others, which may disengage them from role overload. This is because role overload might be considered a hindrance to balance and harmony (Williams & Alliger, 1994). In this scenario, role overload would be perceived as a hindrance stressor—less for lack of perceived resources as conventionally theorized (Lazarus & Folkman, 1984) than for its damage to workplace harmony and balance.

To summarize, a high individual self-concept heightens the salience of autonomy need satisfaction as a self-referenced motivator that drives employees towards role overload and away from AOC in such polarized ways for the same reasons that a low individual self-concept heightens the salience of autonomy need satisfaction as an others-referenced motivator that drives employees towards AOC and away from role overload. This might explain the above findings that under certain conditions autonomy need satisfaction may reduce role overload and damage AOC.

3.10.2 Practical Implications

This study highlights the practical importance of autonomy need satisfaction as the crucial means by which AOC may enable employees to broadly define their job roles and engage in role overload. To fully reap the enabling benefit of AOC, organizations are advised to first recruit employees who are most likely to develop AOC, that is, who share

the values and goals of the organization, or, who fit the organization. Research has shown that person-organization fit strongly correlated with AOC (Kristof-Brown, Zimmerman, & Johnson, 2005). Selecting people by fit can be achieved in each stage of recruitment: from pre-recruitment (e.g., explicitly elaborating the mission on website) to recruitment (e.g., evaluating value congruence in interviews) and to post-recruitment (e.g., socializing newcomers in ways that help them internalize organizational values and goals; Miller & Jablin, 1991).

With AOC ready, organizations could next focus on satisfying employees' need for autonomy, using this need as a guiding principle in designing programs to bring out the best from their employees. Organizations are recommended to boost employees' autonomy need satisfaction by training their managers to (a) encourage employees to take initiatives, that is, set directions for performance while empowering employees to perform tasks as they see the best; (b) provide timely and positive feedback while minimizing controlling languages and treating poor performance as a learning opportunity rather than as a handle for criticism; and (c) acknowledge employees' feelings and let them know that people are often constrained to do things they don't want to. These concrete measures have been shown to be effective in promoting employees' autonomy need satisfaction on a regular basis (Deci, Connell, & Ryan, 1989).

3.10.3 Limitations

This study has limitations. First, relying on self-reports may raise the concern of common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Although this issue is minimal as we collected data at separate times and controlled for autoregressive effects, studies using multiple sources of data are warranted. Second, there

was some attrition bias. Being male and younger, reporting lower autonomy need satisfaction and higher role overload led to more likelihood of withdrawing from the final sample, suggesting possible range restriction in these variables. Further studies are needed to replicate our findings with samples that are free from such range restrictions. Third, although Cole and Maxwell (2003) contended that two-wave panel designs are much better than cross-sectional designs, we would ideally need three waves of data to holistically test the conditional process model (Hayes, 2018). This would also enable us to apply more advanced methods (e.g., latent growth modeling; Ployhart & Vandenberg, 2010) to address interesting questions that concern within-person change; for example, "How will the change of AOC enable employees to dynamically construct their work context?" In this way, future within-person research may investigate the dynamic mediating effect of basic needs satisfaction on the relationship between employee commitment and role stressors over time. Finally, the reliability of the role overload scale was low, both at T1 and T2 (.65), which may have affected its predictive validity.

In conclusion, this panel study extends the literature on employee commitment and workplace stressors by highlighting autonomy need satisfaction as a crucial mediator of the reciprocal relationships between AOC and role overload over time. It also shows that the mediating effects of autonomy need satisfaction are moderated by the individual self-concept. Our findings reveal that the mechanisms underlying AOC and role overload are more complex than previously thought. Hence, these findings may sharpen our understanding of the nuanced ways the self and the need for autonomy interplay to shape human agency.

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Tables and Figures

Table 3. 1: Confirmatory Factor Analysis of Measurement Models: Fit Indices

Model	χ^2	*df*	CFI	TLI	RMSEA	SRMR	Model comparison	$\Delta\chi^2$	Δdf	*p*
Time 1										
6. *Four-factor*[a]	*107.47*	*48*	*.94*	*.92*	*.07*	*.09*				
7. Three-factor[b]	388.03	51	.68	.59	.16	.16	2 vs. 1	238.27	3	<.001
8. Three-factor[c]	239.64	51	.82	.77	.12	.11	3 vs. 1	226.15	3	<.001
9. Three-factor[d]	233.93	51	.83	.78	.12	.13	4 vs. 1	115.28	3	<.001
10. Two-factor[e]	496.95	53	.58	.48	.18	.16	5 vs. 1	486.72	5	<.001
11. One-factor[f]	Failed to converge									
Time 2										
1. *Three-factor*[a]	*56.42*	*24*	*.97*	*.96*	*.07*	*.08*				
2. Two-factor[b]	502.16	26	.56	.40	.26	.21	2 vs. 1	277.02	2	<.001
3. Two-factor[c]	223.16	26	.82	.75	.17	.14	3 vs. 1	135.47	2	<.001
4. One-factor[f]	651.19	27	.43	.24	.30	.22	4 vs. 1	483.27	3	<.001

Note: *N* = 263. CFI = comparative fit index; TLI = Tucker-Lewis fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual. Best-fitting model in italics.

(a) The hypothesized measurement model.

(*b*) Affective organizational commitment and autonomy need satisfaction were combined.

(c) Autonomy need satisfaction and role overload were combined.

(d) Autonomy need satisfaction and individual self-concept were combined.

(e) Affective organizational commitment, autonomy need satisfaction, and role overload were combined.

(f) All variables were combined

Table 3. 2: Descriptive Statistics and Correlations among Variables

	Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1.	Affective organizational commitment (T1)	4.52	1.38	(.87)									
2.	Affective organizational commitment (T2)	4.29	1.38	.46**	(.91)								
3.	Autonomy need satisfaction (T1)	5.21	1.11	.33**	.17**	(.89)							
4.	Autonomy need satisfaction (T2)	4.98	1.08	.38**	.25**	.46**	(.90)						
5.	Role overload (T1)	3.22	1.15	-.40**	-.20**	-.25**	-.10	(.65)					
6.	Role overload (T2)	3.53	1.10	-.25**	-.34**	-.03	-.14**	.43**	(.65)				
7.	Individual self-concept	4.86	1.05	-.06	-.05	.31**	.20**	-.04	-.01	(.76)			
8.	Age	34.35	7.75	.03	.08	-.00	.10	.13*	.06	.12	-		
9.	Gender (1 = male, 2 = female)	1.69	0.46	.10	.11	-.06	-.02	-.11	-.08	-.09	-.07	-	
10.	Organizational tenure	4.60	4.53	-.01	.07	-.04	-.05	.14*	.08	.15*	.61**	-.06	-

Note. $N = 263$. Age and tenure variables were measured in years. T1 = Time 1; T2 = Time 2. Alpha coefficients are reported in parentheses on the diagonal.

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

Table 3. 3: Fit Statistics for the Structural Equation Models

Models		χ^2	*df*	CFI	TLI	RMSEA	SRMR	Model comparison	$\Delta\chi^2$	Δdf	*p*
Panel A: AOC and NSaut (*X*→*M*)											
SM1	Stability model	103.08	74	.99	.98	.04	.06				
SM2	*Normal causation model*	*85.78*	*73*	*.99*	*.99*	*.03*	*.03*	*SM1−SM2*	*8.54*	*1*	*<.01*
SM3	Reversed causation model	103.10	73	.98	.98	.04	.06	SM1−SM3	.07	1	.79
SM4	Reciprocal causation model	85.82	72	.99	.99	.03	.03	SM2−SM4	.02	1	.88
Panel B: NSaut and RolOve (*M*→*Y*) [a]											
SM1	Stability model	149.91	73	.95	.92	.06	.09				
SM2	Normal causation model	132.05	72	.96	.94	.06	.08	SM1−SM2	34.64	1	<.001
SM3	Reversed causation model	138.56	72	.95	.93	.06	.09	SM1−SM3	11.12	1	<.001
SM4	*Reciprocal causation model*	*126.03*	*71*	*.96*	*.94*	*.05*	*.09*	*SM2−SM4*	*6.07*	*1*	*<.05*
Panel C: AOC and RolOve (*X*→*Y*) [a]											
SM1	*Stability model*	*69.57*	*73*	*1.00*	*1.00*	*.00*	*.04*				
SM2	Normal causation model	69.60	72	1.00	1.00	.00	.04	SM1−SM2	.16	1	.69
SM3	Reversed causation model	69.24	72	1.00	1.00	.00	.04	SM1−SM3	.22	1	.64
SM4	Reciprocal causation model	69.32	71	1.00	1.00	.00	.04	SM2−SM4	.16	1	.69

Note: Best-fitting model in italic. *N* = 263. CFI = comparative fit index; TLI = Tucker-Lewis fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual. AOC = Affective organizational commitment; NSaut = Autonomy need satisfaction; RolOve = Role overload; SM = Structural model.

[a] To improve model fit, we allowed two items of role overload to correlate at T1. They are "I have too much work to do everything well" and "I never seem to have enough time to get everything done". Such correlation has substantive meaning and is a valid model modification (Byrne, 2012).

Table 3. 4: Results of Moderated Multiple Regression Analysis for Time 2 Role Overload

Step	Variable(s) entered	Model 1	Model 2	Model 3	Model 4
1	Age	.02	-.03	-.03	-.01
	Gender	-.07	-.00	-.00	-.00
	Organizational Tenure	.06	.03	.03	.04
2	Role overload (Time 1)		.53***	.53***	.51***
3	Autonomy need satisfaction (Time 1)			.15*	.10
	Individual self-concept			.01	.00
4	Autonomy need satisfaction (Time 1) × Individual self-concept				.20***
ΔR^2		.01	.25***	.02*	.04***

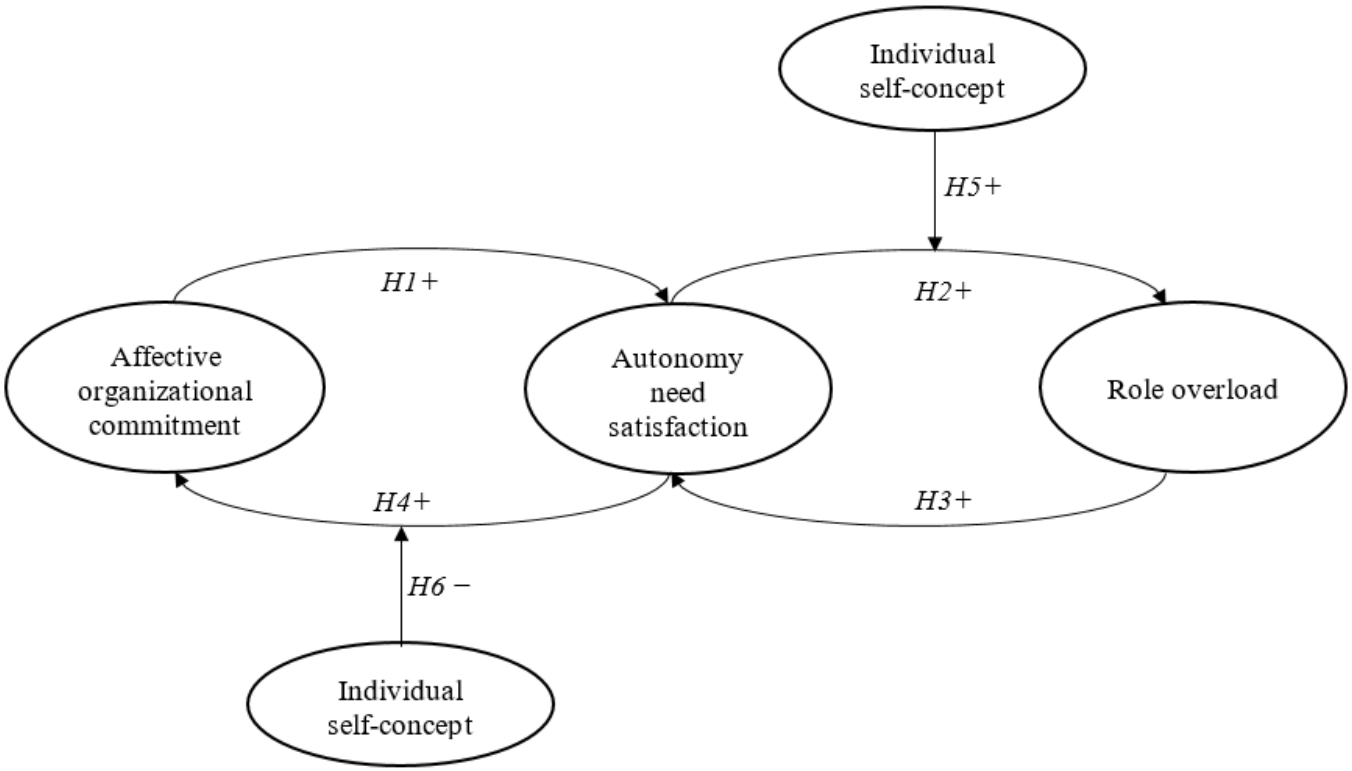
Note: Except for ΔR^2 row, entries are standardized regression coefficients. Model 1: F (3, 259) = .96, $p > .05$; Model 2: F (4, 258) = 22.53, $p < .001$; Model 3: F (6, 256) = 16.67, $p < .001$; Model 4: F (7, 255) = 17.00, $p < .001$.
*$p < .05$; ***$p < .001$

Table 3. 5: Results of Moderated Multiple Regression Analysis for Time 2 Affective Organizational Commitment

Step	Variable(s) entered	Model 1	Model 2	Model 3	Model 4
1	Age	.06	.02	.03	.01
	Gender	.11	.06	.05	.05
	Organizational Tenure	.04	.06	.07	.06
2	AOC (Time 1)		.53***	.52***	.52***
3	Autonomy need satisfaction (Time 1)			.03	.05
	Individual self-concept			-.05	-.05
4	Autonomy need satisfaction (Time 1) × Individual self-concept				-.15**
ΔR^2		.02	.28***	.00	.02**

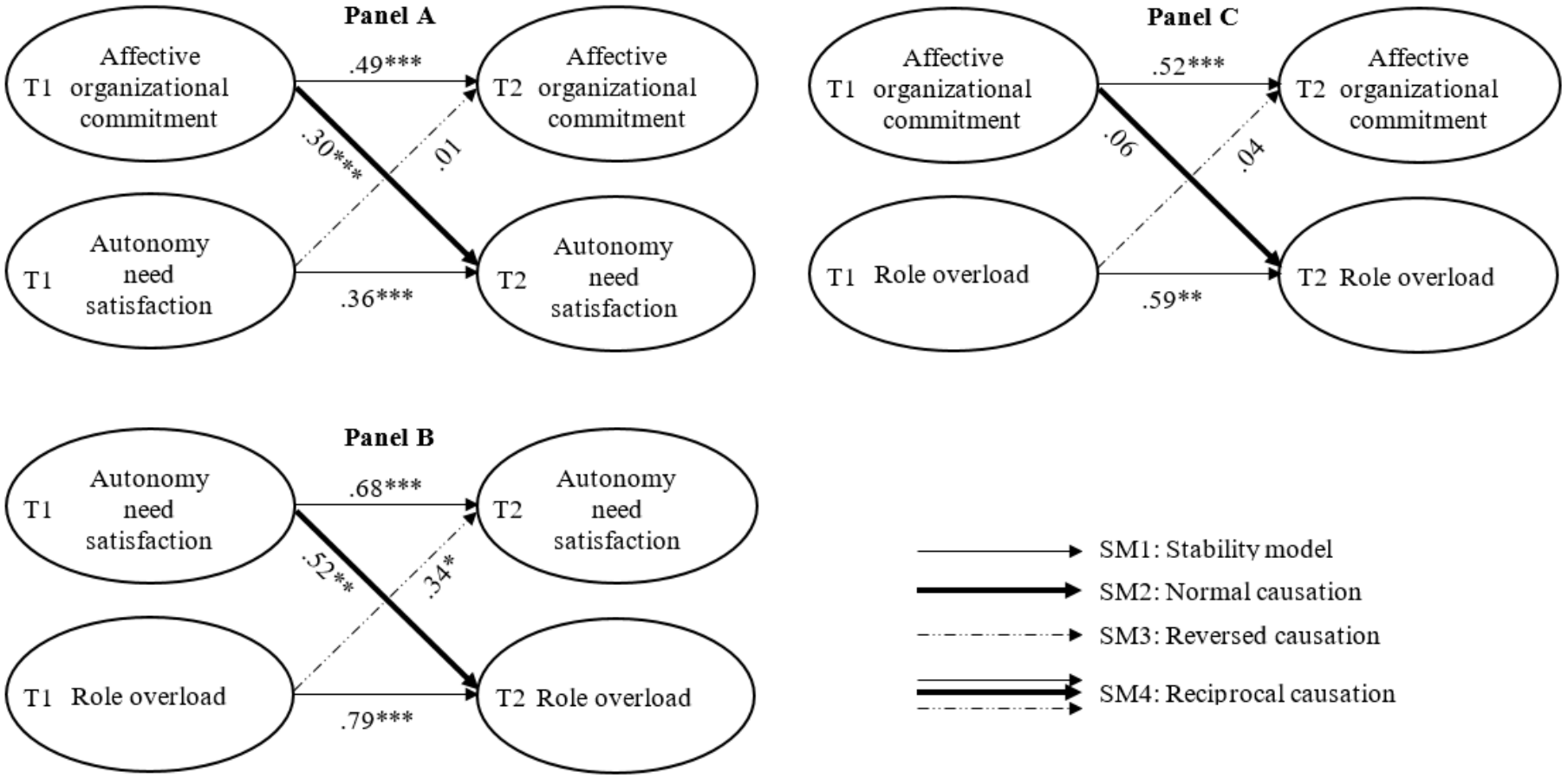
Note: Except for ΔR^2 row, entries are standardized regression coefficients. AOC = Affective organizational commitment. Model 1: F (3, 259) = 1.65, $p > .05$; Model 2: F (4, 258) = 27.41, $p < .001$; Model 3: F (6, 256) = 18.32, $p < .001$; Model 4: F (7, 255) = 17.21, $p < .001$.
**$p < .01$; ***$p < .001$.

Figure 3. 1: General Theoretical Model



Note: H = Hypothesis.

Figure 3. 2: Structural Models for the Cross-lagged Relationships among Study Variables



Note: Path coefficients are standardized. T1 = Time 1; T2 = Time 2; SM = structural model. *$p < .05$; **$p < .01$; ***$p < .001$.

Figure 3. 3: Interaction between Time 1 Autonomy Need Satisfaction and Individual Self-concept in Predicting Time 2 Role Overload

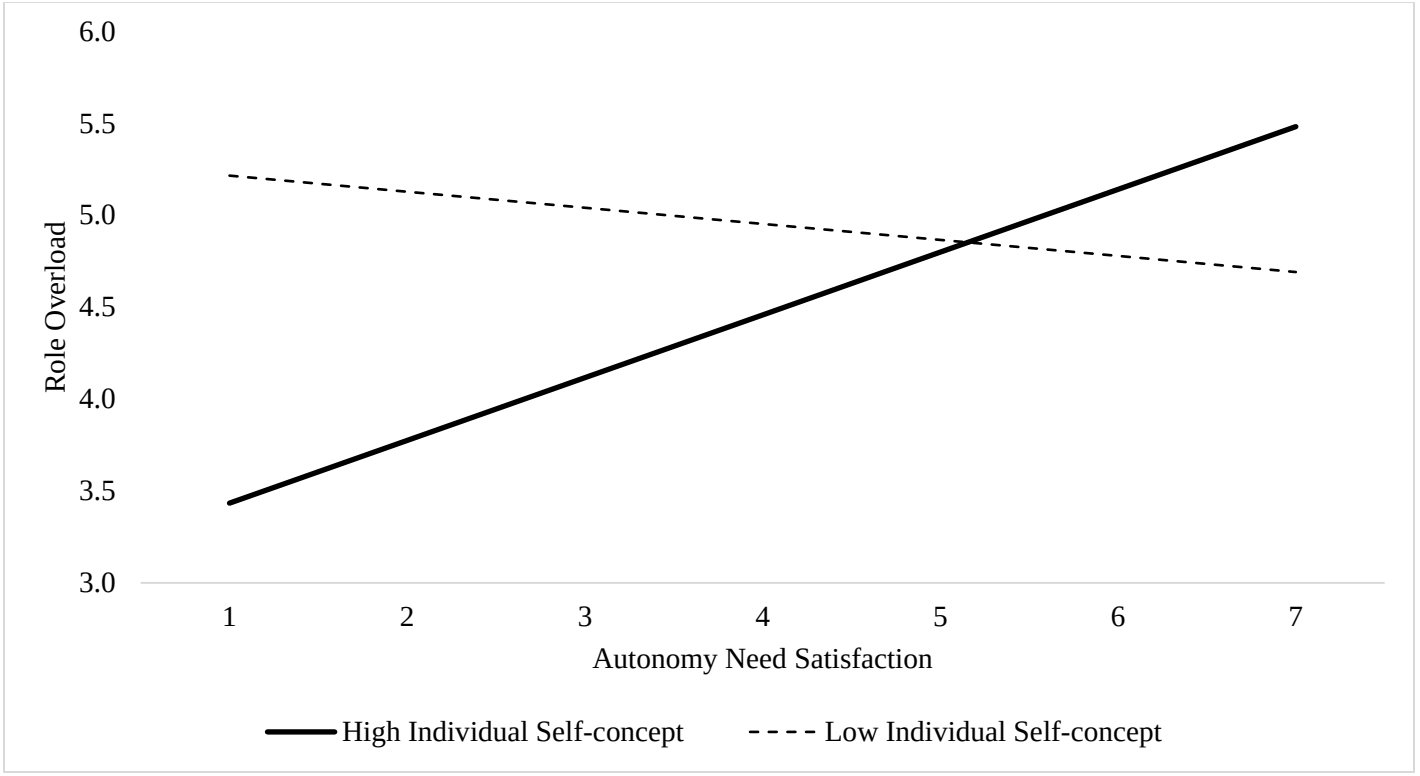
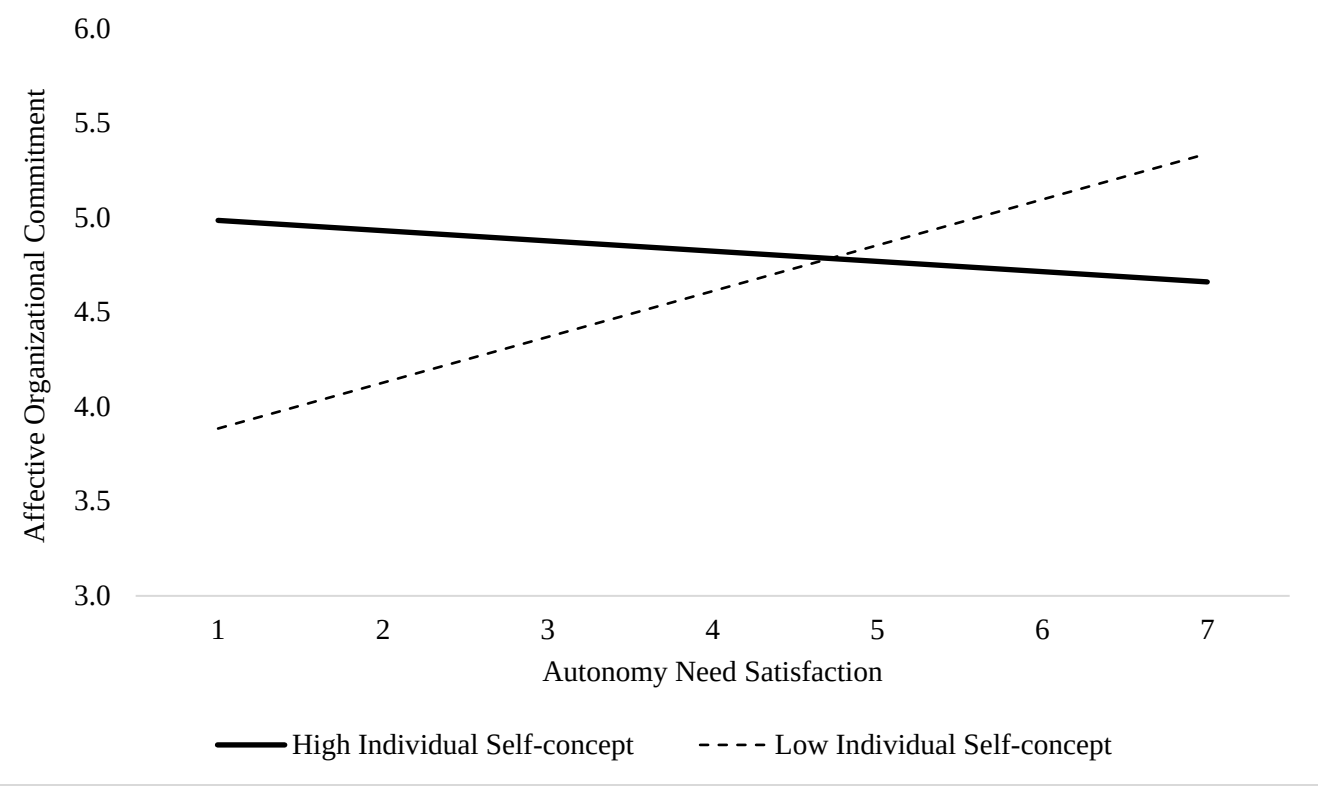


Figure 3. 4: Interaction between Time 1 Autonomy Need Satisfaction and Individual Self-concept in Predicting Time 2 Affective Organizational Commitment



Appendix

Appendix 3. 1: Confirmatory Factor Analysis (CFA) of the Core Study Variables: Item Loadings

Item	Loading	
	Time 1	**Time 2**
Affective Organizational Commitment		
1. I do not feel a strong "sense of belonging" to my organization. (Reverse coded)	.81	.85
2. I do not feel "emotionally attached" to this organization. (Reverse coded)	.88	.93
3. I do not feel like "part of the family" at my organization. (Reverse coded)	.80	.86
Autonomy Need Satisfaction		
1. I have opportunities to take personal initiatives in my work.	.77	.82
2. I have autonomy in my job.	.90	.92
3. I have opportunities to exercise my own judgment and my own actions.	.90	.87
Individual Self-Concept		
1. I thrive on opportunities to demonstrate that my abilities or talents are better than those of other people.	.80	-
2. I have a strong need to know how I stand in comparison to my coworkers.	.66	-
3. I feel best about myself when I perform better than others.	.69	-
Role Overload		
1. I have too much work to do everything well.	.86	.83
2. The amount of work I am asked to do is fair. (Reverse coded)	.24	.22
3. I never seem to have enough time to get everything done.	.82	.87

Note. N = 263. Entries are completely standardized CFA loadings. All measures are self-reports.
Model fit indices at Time 1: $\chi^2(48) = 107.47$, CFI = .94, TLI = .92, RMSEA = .07, SRMR = .09.
Model fit indices at Time 2: $\chi^2(24) = 56.41$, CFI = .97, TLI = .96, RMSEA = .07, SRMR = .08.

Chapter 4:

Affective Organizational Commitment, Needs Satisfaction, and Emotional Exhaustion: A Longitudinal Study among Tenured Employees

4.1 Abstract

This study examines the temporal relationship from employees' affective organizational commitment (AOC) to their emotional exhaustion via their basic needs satisfaction. To test a latent growth model, we collected data from 284 tenured employees in three waves over 6 months during an economic boom in Canada. We found that a stabilized and strong AOC related to a lower increase in autonomy and relatedness needs satisfaction; in turn, a lower increase in autonomy need satisfaction led to a weaker decline in emotional exhaustion while a lower increase in relatedness need satisfaction resulted in a stronger decline in emotional exhaustion; reciprocally, a stronger decline in emotional exhaustion accelerated the increase in relatedness need satisfaction. These findings highlight the dynamic role of basic needs satisfaction in mediating the relationship between the initial status of AOC and the change in emotional exhaustion among tenured employees.

4.2 Introduction

Organizational commitment has drawn considerable attention for decades (Meyer, 2016). Of different commitment forms, affective organizational commitment (AOC)—reflecting the mindset of emotional attachment to the organization—has been established as a consistent predictor of organizational outcomes such as job performance and turnover from employers' perspective (Cooper-Hakim & Viswesvaran, 2005; Mathieu & Zajac, 1990; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Riketta, 2002). Over the past decade, researchers have been paying more attention to the impact of AOC from employees' perspective (Meyer & Maltin, 2010). Among multiple employee-relevant outcomes, emotional exhaustion—a key component of job burnout that is experienced as feeling "used up" at work—is an important strain experience due to its devastating effects on employees' functioning (Maslach, Schaufeli, & Leiter, 2001). Prior cross-sectional (Cropanzano, Rupp, & Byrne, 2003) and cross-lagged (Lapointe, Vandenberghe, & Panaccio, 2011) research has reported AOC to be negatively related to emotional exhaustion. Presumably, this can be explained by reasoning that AOC enhances individuals' inner resources of autonomy and security, which reduces emotional exhaustion (Lapointe et al., 2011).

Our study intends to extend the above line of inquiry yet from a different angle by zooming in on the role of temporal change within individuals, since past studies linking AOC to emotional exhaustion focused on the variance question of why AOC influences emotional exhaustion, while overlooking the process question of how this influence works out over time. That is, past studies have been limited by a research design that is between-individual and lacks mediating processes (Bono & McNamara, 2011). In adopting a

dynamic process-oriented approach (Lazarus & Folkman, 1984), the present study moves beyond prior variance-oriented research by viewing the relation between AOC and emotional exhaustion from between- and within-individual perspectives, and incorporating the basic needs (i.e., need for autonomy, competence, and relatedness) satisfactions as key mechanisms (Bromiley & Johnson, 2005) that explain how AOC sways the change pattern of emotional exhaustion . Moreover, we examine these relations among tenured employees, namely, a category of employees that has attained the adaptation stage of the socialization process (Katz, 1980) and thus may have a more stable AOC.

Traditionally, studies on changes in work attitudes and relevant experiences focus on newcomers within one year upon their organizational entry (Lee, Ashford, Walsh, & Mowday, 1992; Meyer & Allen, 1988; Meyer, Bobocel, & Allen, 1991; Ostroff & Kozlowski, 1992; Vandenberg & Self, 1993; Vandenberghe, Panaccio, Bentein, Mignonac, & Roussel, 2011), with consensus emerging from a socialization perspective (Ashforth, 2001) that positive attitudes (e.g., AOC and job satisfaction) tend to decline due to unmet expectations while perception of negative work experiences (e.g., role stressors) tends to increase due to more realistic estimate of work conditions over time. However, we know far less about what happens to the change patterns beyond the initial entry period when newcomers become old-timers. Even the scarce research on old-timers' change in AOC gave mixed findings: some found a decline (e.g., Beck & Wilson 2000) while others reported an increase (e.g., Gao-Urhahn, Biemann, & Jaros, 2016). From a theoretical standpoint, scholars maintain that AOC concerns people's deep-rooted values and as such should be stable over time (cf. Brickman, 1987; Meyer, Becker, &

Vandenberghe, 2004). A stable pattern of AOC among old-timers may help them curb the volatility of emotional exhaustion as experienced at work on an ongoing basis (Baer, Dhensa-Kahlon, Colquitt, Rodell, Outlaw, & Long, 2015; Grant, Berg, & Cable, 2014). Noticeably, research on such volatility—which speaks to the change in emotional exhaustion within (vs. between) individuals over time—is in clear minority (Bakker, Demerouti, & Sanz-Vergel, 2014; Cole, Walter, Bedeian, & O'Boyle, 2012). It is thus worthwhile to investigate the change trajectory of emotional exhaustion over time, particularly because feeling increasingly exhausted over time is more insidious to the individual than experiencing exhaustion at only one point in time (Schaufeli & Buunk, 2002). Hence, our first aim is to examine if AOC changes or remains stable among tenured employees and how this may affect the change trajectory of their emotional exhaustion.

Our second aim is to examine mechanisms that may explain how AOC influences emotional exhaustion in a process involving change. From the perspective of conservation of resources (COR; Hobföll, 2002), researchers suggested that AOC closely relates to valued resources which may reduce emotional exhaustion (Lapointe et al., 2011; Panaccio & Vandenberghe, 2009). But which valued resources? Self-Determination Theory (SDT, Ryan & Deci, 2000) concurs with COR theory (Hobföll, 1989) that basic need satisfactions constitute such valued resources. Building on this concurrence, we argue that it is the temporal change in need satisfactions (as valued resources) that may explain AOC's influence on the change in emotional exhaustion. With this argument, we want to share a fresh look hidden from past static views that relationships between AOC and need satisfactions are positive (Maltin, Meyer, Chris, & Espinzona, 2015); by contrast, a fresh look from a dynamic perspective may provide a more realistic assessment of the mediating

process featuring basic need satisfactions, as they are known to vary within individuals over time (Ryan & Deci, 2017). Yet, it is unclear how these needs dynamics would play out in connecting the change pattern of AOC to the change pattern of emotional exhaustion. Moreover, as the present study focuses on long-tenured employees, who are likely to experience stable and high levels of AOC, a real possibility is that, despite the booming economy over the study period, the rate of growth in need satisfactions would decrease over time due to diminishing returns, which would lower the rate of decline in emotional exhaustion.

For the above two aims, we conducted a study among a sample of long-tenured employees (i.e., having attained the adaptation stage in the process of their socialization; Katz, 1980) in which AOC, need satisfactions, and emotional exhaustion were measured at three occasions spaced by three months. In the sections to follow, we develop hypotheses about the pattern of change in these variables over time and propose an integrated model of their interrelationships. In doing so, we draw upon COR theory (Hobföll, 1989, 2002) to specify whether AOC should enhance vs. restrain the change trajectories of valued resources (i.e., need satisfactions) in our sample and how this may affect change in emotional exhaustion over time. From within-individual perspective, we borrow from SDT's (Ryan & Deci, 2000)—which is intimately related with COR theory in that both theories consider need satisfactions as essential psychological resources (Hobföll, 2002)—proposition that basic need satisfactions vary within individuals over time and any factor (e.g., AOC) that produces variations in need satisfactions will also produce variations in individuals' functioning (e.g., emotional exhaustion; cf. Ryan & Deci, 2017).

4.3 Change beyond Organizational Entry

4.3.1 Affective Organizational Commitment

While organizational commitment may take different forms, this study focuses on its affective component as it has been identified as a stronger predictor of employees' stress experiences (Meyer et al., 2002). AOC reflects an emotional attachment to the organization resulting from shared values and personal involvement (Meyer & Herscovitch, 2001). Although AOC may change among newcomers upon organizational entry (e.g., Vandenberghe et al., 2011), it is generally regarded as "a stable construct that develops slowly over time" (Albrecht & Dineen, 2016, p. 72). As AOC is reserved for important decisions with long-term implications (Meyer et al., 2004), it connotes persistence and stability (Brickman, 1987). Research has shown that AOC is generally stable over time (Sturges, Guest, Conway, & Davey, 2002).

Two mechanisms may explain how AOC develops and stabilizes in time. First, according to social exchange theory (Blau, 1964; Cropanzano, Anthony, Daniels, & Hall, 2017) and the norm of reciprocity (Gouldner, 1960), employees who benefit from the organization are likely to reciprocate with personal involvement and emotional attachment (e.g., Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001; Lee & Peccei, 2007; Meyer & Allen, 1997). Conversely, when the organization breaches its obligations to employees, AOC declines (e.g., Bal, De Lange, Jansen, & Van der Velde, 2008; Ng, Feldman, & Lam, 2010; Zhao, Wayne, Glibkowski, & Bravo, 2007). In this social exchange process, AOC may thus change. Second, in the long run AOC tends to stabilize. As research on organizational socialization suggests, when employees have worked with the organization for a longer period of time, they should have completed two

major socialization stages: "accommodation" (Feldman, 1976) when newcomers try to understand and assimilate the goals and values of the organization; and "adaptation" (Katz, 1980) when employees become fully accepted old-timers who have established an organizational identity and developed positive attitudes towards the organization (Bauer, Morrison, & Callister, 1998). It follows that, absent disruptive social exchanges such as breach of obligations (e.g., downsizing), old-timers tend to possess such positive and stable attitudes towards the organization as AOC (Van Maanen & Schein, 1979).

Both mechanisms prompt us to expect a no change pattern in AOC to occur in the current study. Over the study period, Canada, the host country of this study, witnessed no disruptive changes (e.g., downsizing due to economic downturns);[10] and organizations in general did not breach their obligations to employees as they struggled to keep their employees. Hence, participants as a whole should not have undergone a significant decline in their AOC. In addition, as participants had worked with their organizations for over ten years on average, their AOC should be stabilized. Therefore, we propose the following hypothesis:

> *Hypothesis 1:* During this study, a no change pattern will occur in employees' AOC.

[10] When our study started in June 2017, Canada NewsWire (CNW Group, a Canadian-based commercial press-release service provider founded in 1960) predicted that "[T]he economy will grow at nearly double the average pace of the prior two years… Consumer spending, housing starts, and a strong turnaround in business investment are largely responsible for the continued momentum that has built on the robust gains in the second half of last year" (CNW, 12 June 2017).

As our study approached its end, CNW documented that "As 2017 comes to a close, the Canadian economy is on track to record its fastest pace of growth since 2011 thanks to strong consumer spending and a hot housing market. The labour market has also been remarkably strong with 329,000 new jobs created over the last year--the fastest gain in a decade. Canada's economic growth in 2017 was the fastest increase among the G7 countries. In all, the Canadian economy expanded by 3.0 per cent in 2017" (CNW, 21 December 2017).

4.3.2 Basic Needs Satisfaction

SDT identifies three basic psychological needs (i.e., autonomy, relatedness, and competence). Satisfaction of these needs engenders autonomous (vs. controlled) motivation, which in turn enhances individuals' optimal functioning and well-being (Ryan & Deci, 2000). Need for autonomy is satisfied when individuals are doing what is consistent with their values and the doing reflects their own choice. Need for relatedness is satisfied when individuals feel connected with others. Need for competence is satisfied when individuals believe they can act effectively to achieve their objectives. SDT further suggests that supportive work environments promote needs satisfaction (Gagné & Deci, 2005).

Ryan and Deci (2017, p. 243) proposed that "Psychological need satisfactions … vary within persons over time … from highly aggregated levels of analysis down to moment-to-moment … functioning." Indeed, research shows that needs satisfaction is dynamic and can change within individuals on a daily or weekly basis (e.g., Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Ryan, Bernstein, & Brown, 2010; Sheldon, Ryan, & Reis, 1996). Such daily or weekly dynamics should extend to longer time frames such as the 6-month period in this study, when the Canadian economy was burgeoning and the labor market was flourishing. Here, we expected needs satisfaction to increase over the study period. From a macro-economic perspective, a booming economy reflects productive and innovative economic activities aggregated from individuals. A central tenet of SDT is that "the more autonomy, competence, and relatedness satisfactions individuals feel when participating in economic activities, the more productive, innovative, and persistent those people will be" in contributing to the booming economy (Ryan & Deci, 2017, p. 606). We contend that a booming economy with a flourishing labor market—as the backdrop of the

current study—bespoke an aggregate of individuals whose needs satisfaction was increasing. From organizations' perspective, as Ryan and Deci (2017) suggested, employers in a booming economy are more motivated to provide supportive work conditions to attract and retain employees, which would boost needs satisfaction within individuals. Therefore, we present the following hypothesis:

Hypothesis 2: During this study, employees' (*a*) autonomy, (*b*) relatedness, and (*c*) competence needs satisfaction will increase.

4.3.3 Emotional Exhaustion

Emotional exhaustion refers to feeling depleted of one's emotional and mental resources that are needed to meet job demands (Maslach et al., 2001; Moore, 2000). According to COR theory (Hobföll, 1989), when people are confronted with a prolonged threat of resource losses (e.g., unemployment), they tend to feel depleted and suffer emotional exhaustion. Research shows that emotional exhaustion often occurs in the context of a worsening labor market (e.g., mass layoffs; De Cuyper, Makikangas, Kinnunen, Mauno, & De Witte, 2012). Conversely, we expected the growing labor market in the current study to provide a positive context in which the threat of resource losses should be weakening, hence emotional exhaustion should decrease. Therefore, we give the following hypothesis:

Hypothesis 3: During this study, employees' emotional exhaustion will decrease.

4.4 Longitudinal Relationships among AOC, Needs Satisfaction, and Emotional Exhaustion

Drawing on literatures in social exchange, COR, and organizational socialization, we have so far presented hypotheses on the change trajectories for core variables in the context of a booming economy. As we move on to next sections, our focus narrows down

on micro-level investigation of how these change trajectories relate to one another within individuals over time.

4.4.1 AOC and Change in Needs Satisfaction

Integrating commitment theory (Meyer & Allen, 1991) and SDT (Ryan & Deci, 2000), Meyer et al. (2004) proposed that employees' commitment mindsets activate motivation mindsets, with AOC leading to autonomous motivation, which is reflected in (sometimes substituted with) basic needs satisfaction (Deci, Olafsen, & Ryan, 2017). AOC may function as an energizing force (Deci & Ryan, 2012; Meyer, 2014) because it provides a deep sense of meaningfulness and purpose (Kim, Shin, Hewlin, Vough, & Vandenberghe, 2018; Kobasa, 1982) and builds such enduring personal resources as the satisfaction of basic psychological needs (cf. Hobföll, 2002; Ryan & Deci, 2000). Specifically, AOC reflects both employees' volition in the choice of the organization and their emotional attachment to it (Chris, Maltin, & Meyer, 2016), which helps satisfy employees' needs for autonomy and relatedness. Meanwhile, AOC is also based on personal involvement (Meyer & Herscovitch, 2001), and research shows that persistent personal involvement can improve employees' belief in their competence (Wood & Bandura, 1989). Hence, AOC also helps satisfy the need for competence. In support of this line of reasoning, Meyer, Stanley, and Parfyonova's (2012) cross-sectional study showed that because employees with a strong AOC were performing tasks that were consistent with their desires and values, they did experience satisfaction in all three basic needs. Meta-analysis (Maltin et al., 2015) also shows that AOC positively relates to autonomy ($\rho = .58$), relatedness ($\rho = .60$), and competence ($\rho = .21$) need satisfactions.

However, the intensity of the energizing force in AOC—i.e., its resource-building effect on needs satisfaction—may not sustain in time once employees become fully institutionalized. That is, when employees' AOC stabilizes at higher levels, as we predict to be the case of tenured employees, the growth rate of needs satisfaction is likely to slow down. This can be explained within the socialization stage model (Katz, 1980): as employees continue to work with the organization for a long period of time, they will encounter an adaptation stage when previously challenging tasks become progressively routinized and less exciting, which may prompt them to "question warily the meaningfulness of what they are doing and where it may lead" (p. 104). In other words, old-timers high in AOC may experience diminishing returns of the sense of meaningfulness and purpose on the job, prompting them to adjust the cognitive evaluation of their job roles, which may detract from their autonomy and competence needs satisfaction (cf. Ryan & Deci, 2000). Meantime, the diminishing returns of AOC's sense of meaningfulness and purpose may also constrain the growth of emotional attachment to the organization, which may take away from the growth in their relatedness need satisfaction—inducing this need satisfaction to satiate over time (cf. Baumeister & Leary, 1995). Consequently, long-tenured employees will be less motivated to develop new relationships at work. This rationale finds empirical support in studies showing that, with extended organizational tenure, employees usually established sufficient social ties in the organization to a point that they would rather maintain existing ties than build new ones (Chan & Schmitt, 2000; Forret & Dougherty, 2004; Ng & Feldman, 2010), which may result in a slower growth in relatedness need satisfaction. To summarize, we expect a negative relationship between the initial status of AOC and the rate of change in needs

satisfaction in our sample of old-timers, because higher levels of AOC would induce satiation in needs satisfaction due to the diminishing returns of AOC's sense of meaningfulness and purpose. Thus, we propose the following hypothesis:

> *Hypothesis 4:* Over time, the higher the initial status of employees' AOC (i.e., at Time 1), the lower the rate of increase in their (*a*) autonomy, (*b*) relatedness, and (*c*) competence needs satisfaction.

4.4.2 Relationship between Change in Needs Satisfaction and Change in Emotional Exhaustion

COR theory (Hobföll, 1989, p. 516) posits that "people strive to retain, protect, and build resources" and consider it a threat to lose (or about to lose) these valued resources. The theory further suggests that actual and prospective resource losses, if sustained, may cause people to suffer resource depletion, which induces emotional exhaustion (Hobföll & Freedy, 1993). Essential among these valued resources are SDT's basic needs (cf. Hobföll, 2002; Ryan & Deci, 2000). It has been inductively established that when satisfied in these essential resources of basic needs, people are autonomously motivated and can function with minimal expenditure of energy and maximal psychological safety (Ryan & Deci, 2017), which protects them from feeling and fearing resource losses for now and in future, thereby reducing their emotional exhaustion (Bakker et al., 2014). Empirical studies have shown that when people were satisfied in SDT's basic needs and felt autonomously motivated, they were less likely to undergo emotional exhaustion (Fernet, Gagné, & Austin, 2010; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Meta-analysis (Van den Broeck, Ferris, Chang, & Rosen, 2016) also shows that autonomy (ρ = -.56), relatedness (ρ = -.35), and competence (ρ = -.37) need satisfactions negatively relate to emotional exhaustion.

Following SDT's proposition that needs satisfaction varies within individuals over time (Ryan & Deci, 2017) and building on between-individual research findings that needs satisfaction negatively predicts emotional exhaustion, we argue that the change in needs satisfaction negatively relates to the change in emotional exhaustion. As needs satisfaction is expected to increase and emotional exhaustion to decrease in the current study, we present the following hypothesis:

> *Hypothesis 5:* Over time, the higher (vs. lower) the rate of increase in employees' (*a*) autonomy, (*b*) relatedness, and (*c*) competence needs satisfaction, the higher (vs. lower) the rate of decline in their emotional exhaustion.

4.4.3 Change in Needs Satisfaction as a Dynamic Mediator

Combined, the above hypotheses form a dynamic mediation model: change in needs satisfaction mediates AOC's effect on change in emotional exhaustion. Research has shown that AOC (Lapointe et al., 2011) and needs satisfaction (Van den Broeck et al., 2008) negatively predict emotional exhaustion. However, few studies have examined how AOC and needs satisfaction relate to each other in influencing emotional exhaustion. Drawing on the socialization stage model (Katz, 1980), we suggest that old-timers are unlikely to reconsider their AOC on a regular basis (Mowday, Porter, & Steers, 1979); in contrast, they may re-evaluate their needs satisfaction (Ryan & Deci, 2017) and experience changes in emotional exhaustion (Bakker et al., 2014) on an ongoing basis. Thus, AOC's impact on emotional exhaustion should be transmitted by needs satisfaction on an ongoing basis.

Noticeably, the above mediating mechanism has not yet been examined from a dynamic perspective. Recently, Ryan and Deci (2017) proposed it as a key principle of

SDT that within-individual variations in needs satisfaction explain why a factor (e.g., AOC) produces variations in individuals' optimal functioning (of which emotional exhaustion is an example). Drawing from COR theory and the socialization stage model (Katz, 1980), we argue that as an individual works with the organization for a long period of time, her AOC stabilizes at such higher levels that the growth in her needs satisfaction slows down. In turn, as needs satisfaction—considered as essential resources—grows slower due to the diminishing returns of AOC's sense of meaningfulness and purpose, the decline in resource depletion becomes weaker. Therefore, we present our last hypothesis:

> *Hypothesis 6:* Over time, the initial status of employees' AOC (i.e., at Time 1) will be related to a weaker decline in their emotional exhaustion through a weaker increase in their (*a*) autonomy, (*b*) relatedness, and (*c*) competence needs satisfaction.

4.5 Method

4.5.1 Sample and Procedure

We surveyed adult (age ≥ 18 years) full-timers through Legerweb, the largest Canadian web panel with 400,000 active and representative members across Canada. Prospective participants understood that (a) their participation was voluntary, (b) we did not collect information that could identify them (e.g., employee or employer name), and (c) they would complete three waves of surveys at 3-month intervals. To reach 300 participants who would complete all three waves of surveys, we started the survey with 900 participants at Time 1 (T1), among whom 520 (56%) also participated at Time 2 (T2). Among T2 respondents, 338 (65%) also participated at Time 3 (T3). After exclusion of 35 careless respondents (e.g., who failed the attention-check item), there remained 303

participants who completed all three waves of surveys. Among them, 19 changed organizations between T1 and T3, and were thus excluded. The final sample had 284 participants, whose responses were matched across T1, T2, and T3 for subsequent analyses. In this final sample, participants had an average age of 45.20 years (*SD* = 10.61), an average organizational tenure of 10.91 years (*SD* = 8.35), and 50% were men. These participants worked in various industries, including public administration (12%), education (12%), health care (12%), technical service (11%), and manufacturing (8%). Among these participants, 13% worked for small (51−100 employees), 21% for medium (101−500 employees), and 66% for large (>500 employees) organizations.

To examine whether participant attrition gave rise to nonrandom sampling over time, we tested whether the probability of participation at T2 (*N* = 520) and T3 (*N* = 338) among T1 participants (*N* = 900) could be predicted by T1 and/or T2 variables (Goodman & Blum, 1996). The logistic regression predicting T2 participation from T1 variables was nonsignificant, $\chi^2(8) = 14.00$, *ns*; however, more competence need satisfaction at T1 predicted a higher probability of T2 participation ($b = .23$, $p < .05$). The logistic regression predicting T3 participation from T1 and T2 variables was nonsignificant, $\chi^2(11) = 10.10$, *ns*; and none of the predictors was significant. The logistic regression predicting T3 participation from T2 variables was nonsignificant, $\chi^2(3) = 6.48$, *ns*; yet, more autonomy need satisfaction at T2 predicted a higher probability of T3 participation ($b = .27$, $p < .05$). Thus, while attrition was mostly randomly distributed, two needs satisfactions were related to stronger retention in the sample. We discuss these effects in the limitations section.

4.5.2 Measures

We used 5-point Likert-format scales ranging from 1 (strongly disagree) to 5 (strongly agree) in our surveys. The five core variables were repeatedly measured across T1, T2, and T3.

AOC. We used three high-loading items from Bentein, Vandenberg, Vandenberghe, and Stinglhamber's (2005) adapted version of Meyer, Allen, and Smith's (1993) six-item scale to measure AOC. An example item is "I am proud to belong to this organization." Alpha reliabilities for this scale were .93 (T1), .91 (T2), and .90 (T3).

Needs satisfaction. We used three high-loading items for each of the three basic needs satisfaction from Chiniara and Bentein's (2016) four-item scales—while adapting the wording to tie in the items with the answering options in our survey. For autonomy need satisfaction, a sample item is "I have freedom to do my job the way I think it can be done best." The alpha reliabilities for this scale were .80 (T1), .80 (T2), and .82 (T3). For relatedness need satisfaction, an example item is "I have positive social interactions with other people at work." The alpha reliabilities for this scale were .85 (T1), .81 (T2), and .83 (T3). For competence need satisfaction, a typical item is "I feel confident in my ability to do my job properly." The alpha reliabilities for this scale were .84 (T1), .86 (T2), and .85 (T3).

Emotional exhaustion. We used three high-loading items from Schaufeli, Leiter, Maslach, and Jackson's (1996) MBI-GS (Maslach Burnout Inventory – General Survey) (see also Lapointe et al., 2011) to measure emotional exhaustion. A sample item is "I feel used up at the end of a work day." The alpha reliabilities for this scale were .85 (T1), .88 (T2), and .88 (T3).

Control variables. As previous research showed that age, gender, and organizational tenure could relate to employees' attitudes and work experiences (e.g., Riordan, Griffith, & Weatherly, 2003), we controlled for these variables at T1.

4.5.3 Data Analysis

We tested the hypothesized model with Latent Growth Modeling (LGM) in Mplus 7.4 package (Muthén & Muthén, 1998-2015), using maximum-likelihood estimation (i.e., MLM).[11] Mplus 7.4 enabled us to integrate LGM analyses with a bias-corrected (BC) bootstrap procedure so as to assess mediation effects involving within-individual change over time. The bootstrap procedure—as recommended by Preacher and Hayes (2008) and MacKinnon, Lockwood, and Williams (2004)—is ideally suited to testing multiple mediation paths as in our study, because this procedure directly assesses indirect effects, provides higher statistical power, better controls Type I error, and does not depend on the assumption of normal distribution as conventional mediation analyses do, such as the Sobel test (Sobel, 1982) and the causal-step approach (Baron & Kenny, 1986).

4.6 Results

4.6.1 Descriptive Statistics and Correlations

As Table 4.1 shows, all study variables displayed high reliabilities, ranging from .80 to .93. As expected, across T1, T2, and T3, AOC and the three needs satisfactions had positive pairwise correlations, and these four variables negatively related to emotional exhaustion, except that competence need satisfaction significantly related to emotional exhaustion only at T1. Regarding control variables, organizational tenure did not relate to

[11] A critical assumption of SEM analyses is multivariate normality. Because our data were not multivariate normal, we based our analyses on MLM (rather than ML) estimator. As Byrne (2012) suggested, the MLM estimator generates parameter estimates and model fit indexes that are more robust to multivariate non-normality.

any substantive variables, while over time, age related to competence need satisfaction, and gender related to AOC.

4.6.2 LGM Analyses

We used LGM (Bentein et al., 2005; Chan & Schmitt, 2000; Lance, Vandenberg, & Self, 2000; Vandenberghe, Bentein, & Panaccio, 2017) to investigate how AOC at T1 related to change in needs satisfaction and change in emotional exhaustion over time. LGM comprises two components: (1) the initial-status component indicates the value of latent variables when the study starts, and (2) the change component represents the rate of increase or decrease in latent variables over the study period. In LGM analyses, researchers usually specify second-order factors (SOFs) to measure initial status and change in study variables. This study uses SOFs to test whether change in needs satisfaction leads to change in emotional exhaustion (Hypothesis 5).

LGM analyses typically follow three phases: (1) testing measurement invariance over time; (2) comparing univariate SOF LGM models to determine the form of temporal change and residual structure of each growth factor; and (3) testing multivariate SOF LGM models to examine structural relationships among growth factors. When comparing models, we adopted Hu and Bentler's (1999) suggestion that, for a model to fit data well, the comparative fit index (CFI) and Tucker-Lewis index (TLI) should be close to .95; and the root mean square error of approximation (RMSEA) and the standardized root-mean-square residual (SRMR) should be close to .06 and .08, respectively. Chi-square difference ($\Delta\chi^2$) tests were used to compare the fit of nested models.[12]

[12] When model comparison is based on MLM estimation, it is inappropriate to compute $\Delta\chi^2$ in the conventional way by direct subtraction (Byrne, 2012). To calculate the correct $\Delta\chi^2$, we applied Satorra and Bentler's (2001) formula, which is also available on the Mplus website (http://www.statmodel.com/chidiff.shtml).

Measurement invariance. Nested model comparisons were first performed to test measurement invariance. Results indicated that the assumption of configural (i.e., the nature of the construct that is operationalized by measured variables remains unchanged across time) and metric (i.e., the relations between items and their corresponding constructs are invariant across time) invariance was met for all study variables. Thus, invariance constraints were incorporated in SOF LGM analyses. Moreover, we covaried same-item residuals across T1, T2, and T3.

Univariate SOF LGM analyses. Nested univariate SOF LGM models were then tested for each variable to determine its change trajectory—namely the form of temporal change and the structure of first-order factors (FOFs) residuals. We compared five alternative models: Model 0 was a "no change" model; Model 1 featured a linear change and homoscedastic residuals; Model 2 involved a linear change and heteroscedastic residuals; Models 3 and 4 represented optimal change with homoscedastic (Model 3) and heteroscedastic (Model 4) residuals. In LGM models, linear change is specified by fixing the paths from the change SOF to the T1, T2, and T3 FOFs at 0, 1, and 2, respectively (Chan & Schmitt, 2000). In an optimal change model, the third path is freely estimated to test whether change is nonlinear. In addition, homoscedastic residuals are specified by constraining the FOF residuals to be constant across measurement occasions, while allowing these residuals to be freely estimated gives heteroscedastic residuals. The purpose of comparing models with homoscedastic vs. heteroscedastic residuals is to test the homoscedasticity assumption in LGM analyses.

We compared nested models (linear vs. nonlinear; homoscedastic vs. heteroscedastic) in order to select the SOF LGM model that best captured the change

trajectory for each variable. Because we repeated the same measures over time, similar measurement errors should occur, hence we expected residual structure to be homoscedastic. We also expected change trajectories of emotional exhaustion and the three needs satisfactions to be linear, because it would be rare for disruptive events (i.e., nonlinear change) to happen simultaneously to participants from different organizations across various industries, since no such events took place in Canada over the study period. Thus, we expected Model 1 (linear change and homoscedastic residuals) to best depict change trajectories for emotional exhaustion and the three need satisfactions. In contrast, as AOC was hypothesized to be temporarily stable, we expected to retain Model 0 (no change) for AOC.

Table 4.2 presents the results of these analyses. As the contrast ($\Delta\chi^2$) between Model 0 and Model 1 or 2 was nonsignificant for AOC and competence need satisfaction, both variables displayed a flat trajectory of change over time. Therefore, Hypothesis 1 is supported while Hypothesis 2c is rejected, triggering further rejection of Hypotheses 4c, 5c, and 6c. For the other three variables (autonomy and relatedness need satisfaction, and emotional exhaustion), nested model comparisons showed that a linear change model (Model 1 or 2) outperformed a no-change model (Model 0). Additional comparisons between Model 1 and Model 3 and between Model 2 and Model 4 showed that models involving an optimal change function did not improve over models involving a linear change function; thus, a linear change function should be preferred. In addition, comparisons between Model 1 and Model 2 and between Model 3 and Model 4 showed that allowing residuals to be heteroscedastic did not improve model fit for these variables—suggesting the more parsimonious homoscedastic structure is preferable.

Therefore, in the principle of parsimony, Model 1 (linear change with homoscedastic residuals) was selected as the model best depicting within-individual change over time for these three variables.

To further ascertain whether linear change in emotional exhaustion, and autonomy and relatedness need satisfactions was positive (i.e., an increase) or negative (i.e., a decrease), we examined the SOF LGM parameter estimates (factor means and variances) for the change factors of the selected models. As can be seen in Table 4.3, the change factor mean was significantly positive for autonomy (μ_S = .05, p <.05) and relatedness (μ_S = .04, p <.05) needs satisfaction, and significantly negative for emotional exhaustion (μ_S = -.07, p <.05), indicating that over the study period, participants on average experienced a within-individual increase in autonomy and relatedness needs satisfaction, as well as a within-individual decrease in emotional exhaustion. Hypotheses 2a, 2b, and 3 are supported. In addition, Table 4.3 also displays significant between-individual variations in the within-individual increase in autonomy (σ_S^2 = .05, p < .01) and relatedness (σ_S^2 = .03, p < .01) need satisfactions, suggesting that autonomy and relatedness needs satisfactions increased faster for some participants than others across time.

Multivariate SOF LGM analyses. To examine how AOC at T1 related to change in needs satisfaction and change in emotional exhaustion over the study period, we constructed an augmented multivariate SOF LGM model (see Figure 4.2). To focus on the hypothesized relationships among AOC at T1, change in needs satisfaction, and change in emotional exhaustion, we kept but deemphasized non-focal relationships by (a) covarying all initial-status factors; (b) allowing same-construct SOFs (i.e., initial-status

factor and change factor) to covary; and (c) covarying change in autonomy need satisfaction with change in relatedness need satisfaction. All these covariances, having substantive bases (e.g., the initial status of three needs satisfactions are related with each other; Ryan & Deci, 2017), made way for the four hypothesized structural paths: (1) from AOC at T1 to change in autonomy need satisfaction (path a_1, H4a); (2) from AOC at T1 to change in relatedness need satisfaction (path a_2, H4b); (3) from change in autonomy need satisfaction to change in emotional exhaustion (path b_1, H5a); and (4) from change in relatedness need satisfaction to change in emotional exhaustion (path b_2, H5b).

Before testing Hypotheses 4, 5, and 6, we compared the hypothesized structural model (SM0) with five alternative structural models (SMs 1-5). SM1 added to SM0 one path (*c*) to test the direct effect of AOC at T1 on change in emotional exhaustion; this path was to test whether the hypothesized mediating effects would be partial or complete. In addition, although change in needs satisfaction could influence change in emotional exhaustion, a reverse influence is also plausible. For example, as individuals' emotional exhaustion increases, they may become less involved in their work (e.g., minimizing their efforts on both performing tasks and interacting with others), which might reduce their needs satisfaction. To examine these effects, we added two paths to our hypothesized model (SM0) to test the reverse effects of change in emotional exhaustion on change in autonomy (SM2, path b_{1r}) and relatedness (SM3, path b_{2r}) needs satisfaction, respectively. SM4 combined SM2 and SM3, testing both reverse effects (b_{1r} and b_{2r}) simultaneously. Finally, SM5 combined SM1, SM2, and SM3, simultaneously testing all alternative effects. As can be seen from Table 4.4, the hypothesized structural model (SM0) yielded a good fit, $\chi^2(689) = 795.99$, $p < .01$, CFI = .98, TLI = .98, SRMR = .08,

RMSEA = .02. Compared with SM0, SM3 (i.e., adding the reverse causal path b_{2r} from change in emotional exhaustion to change in relatedness need satisfaction) significantly improved model fit, $\Delta\chi^2(1) = 17.33$, $p < .001$. SM3 was also more parsimonious than both SM4 (adding b_{1r} and b_{2r}: $\Delta\chi^2(1) = .04$, *ns*) and SM5 (adding *c*, b_{1r} and b_{2r}: $\Delta\chi^2(2) = .09$, *ns*). Hence, SM3 was retained as the best multivariate SOF LGM model to test Hypotheses 4, 5, and 6.

Hypothesis 4 predicted that AOC would negatively relate to the rate of increase in autonomy and relatedness needs satisfaction. As Figure 4.2 shows, the paths from AOC at T1 to change in autonomy (a_1 = -.03, $p < .05$) and relatedness (a_2 = -.12, $p < .001$) needs satisfaction were both significantly negative, indicating that the higher AOC at T1, the slower the increase in autonomy and relatedness needs satisfaction over time. Hypotheses 4a and 4b are supported. Hypothesis 5 predicted that the rate of increase in needs satisfaction would positively relate to the rate of decline in emotional exhaustion. The path from change in autonomy need satisfaction to change in emotional exhaustion was significantly negative (b_1 = -.49, $p < .05$). In contrast, the path from change in relatedness need satisfaction to change in emotional exhaustion was significantly positive (b_2 = .57, $p < .05$). Because emotional exhaustion followed a negative (i.e., decreasing) linear trajectory, whereas autonomy and relatedness needs satisfaction followed a positive (i.e., increasing) linear trajectory, a negative (vs. positive) sign associated with the slope-slope structural effect indicates that the rate of increase in needs satisfaction was positively (vs. negatively) related with the rate of decrease in emotional exhaustion (cf. Chan & Schmitt, 2000). Thus, the slower the increase in autonomy need satisfaction, the slower the decline in emotional exhaustion. Hypothesis 5a is supported. By contrast, the slower the increase

in relatedness need satisfaction, the faster the decline in emotional exhaustion. Hypothesis 5b is thus rejected.

4.6.3 Mediation analyses.

Finally, Hypothesis 6 predicted that a slower increase in autonomy and relatedness needs satisfaction would similarly mediate the effect of AOC at T1 on the rate of decline in emotional exhaustion. The bias-corrected bootstrap (N = 5000) results showed that the mediating effect of change in autonomy need satisfaction (Hypothesis 6a) was significantly positive ($a_1 \times b_1$ = .01; 90% CI = [.001, .071]), while the mediating effect of change in relatedness need satisfaction (Hypothesis 6b) was significantly negative ($a_2 \times b_2$ = -.07; 95% CI = [-.311, -.001]). Thus, the initial status of AOC was related to a slower decline in emotional exhaustion via a slower increase in autonomy need satisfaction. Hypothesis 6a is supported. In contrast, the initial status of AOC was related to a steeper decline in emotional exhaustion via a slower increase in relatedness need satisfaction, which contradicts Hypothesis 6b.

Of incidental interest, Figure 4.2 shows that the rate of change in emotional exhaustion had a reciprocal effect on the rate of change in relatedness need satisfaction (b_{2r} = -1.46, p < .01). Specifically, a faster rate of decline in emotional exhaustion induced a steeper increase in relatedness need satisfaction. We elaborate on this unanticipated finding in the discussion.

4.7 Discussion

This study aimed to examine change patterns of AOC, needs satisfaction, and emotional exhaustion and the role of change in the relationships among these variables in a sample of old-timers during an economic boom. Based on the idea that commitment has

long-term implications (Meyer et al., 2004) and is stable when employees have reached the adaptation stage of socialization (Katz, 1980), we expected AOC not to change over the study period. In contrast, from SDT and COR perspectives, we expected needs satisfaction to increase and emotional exhaustion to decrease. Findings generally supported these expectations. Moreover, the initial status of AOC was found to relate to a lower increase in autonomy and relatedness need satisfactions. In turn, a lower increase in autonomy need satisfaction led to a weaker decline in emotional exhaustion while a lower increase in relatedness need satisfaction reciprocally related with a stronger decline in emotional exhaustion. Below, we discuss the implications of these findings for theory and practice.

4.7.1 Theoretical Implications

Using LGM to operationalize change, we found that AOC remained unchanged while autonomy and relatedness need satisfactions increased and emotional exhaustion decreased over the study period. As we reasoned, AOC tends to stabilize once employees have reached the adaptation stage of socialization (Katz, 1980), and as old-timers have established positive organizational identities, their AOC will stabilize at higher levels (Bauer et al., 1998; Van Maanen & Schein, 1979). Moreover, during the study, absent disruptive changes (e.g., mass layoffs) sweeping across organizations, the economy of Canada—the host country of our study—was experiencing a booming trend, with an expanding labor market. Such prosperous conditions make this context ideal for AOC to be relatively high and stable ($3.40 \leq M \leq 3.49$; Table 4.1; $\mu_S = .04$, *ns*; Table 4.3). In contrast, autonomy and relatedness need satisfactions were found to increase, which is consistent with prior research indicating that needs satisfaction often changes across time,

even in the short term (e.g., Reis et al., 2000; Ryan et al., 2010; Sheldon et al., 1996). The attractiveness of the labor market may explain why the change in both need satisfactions was on the rise. Meanwhile, emotional exhaustion was found to decline. This finding adds to prior between-individual evidence that a contracting labor market—a context opposite to the current one—may expose employees to high levels of emotional exhaustion (De Cuyper et al., 2012), by suggesting that in an expanding labor market employees in general report low levels of emotional exhaustion ($2.70 \leq M \leq 2.84$; Table 4.1). But more noticeably, this finding also goes beyond such evidence, revealing that within individuals, employees in a booming market are likely to experience a decrease in emotional exhaustion. This may occur because a growing labor market is abundant in job opportunities, which increases perceptions of job security and tempers the threat of resource losses (Hobföll & Shirom, 2000; Hoge, Sora, Weber, Peiro, & Caballer, 2015; Sender, Arnold, & Staffelbach, 2017).

Unexpectedly, no change occurred in competence need satisfaction. This finding might suggest that, compared with autonomy and relatedness need satisfactions, competence need satisfaction is relatively stable because the sense of competence is more skill or task (vs. relationship) oriented: once a skill (e.g., riding a bicycle) is acquired, it tends to remain unchanged. For tasks that must be performed at work, unless there is a dramatic increase in task difficulty or complexity, individuals' sense of competence in performing the tasks should be relatively stable. In support of this rationale, Reis et al. (2000) found that competence need satisfaction was relatively stable throughout the week for students, showing no significant fluctuation between the week and the weekend. Our

finding suggests that the stability of competence need satisfaction may extend to a different population (i.e., employees) and longer time frame (i.e., 6 months).

Our findings shed new light on the relationships between AOC and need satisfactions. From a static perspective, past studies have shown these relationships to be positive (Maltin et al., 2015; Meyer et al., 2012), as is reflected in the positive correlations between AOC and need satisfactions at T1, T2, and T3 in our data. Extrapolating from these between-individual evidences, one may infer that a higher AOC would accelerate the growth in needs satisfaction because AOC, imbued with strong emotional attachment and deep sense of meaningfulness and purpose (Kim et al., 2018), should activate a stronger autonomous motivation (Meyer et al., 2004; Vandenberghe, 2009) which may promote faster growth in needs satisfaction. However, our findings counter such extrapolation. As we look into these relationships from a dynamic perspective, a different pattern emerges: The initial status of AOC negatively related to the rate of increase in autonomy and relatedness need satisfactions (Figure 2). This may happen because by the time employees became fully socialized—as reflected in a stabilized and stronger AOC—fewer, if any, opportunities to take initiative at work (i.e., autonomy) would be available because they had been used previously (Katz, 1980). Similarly, the intensity of networking activities (which may satisfy the need for relatedness) would be reduced due to old-timers having established sufficient social ties in the organization (Ng & Feldman, 2010). Thus, a stabilized and strong AOC exerted negative effect on the growth in autonomy and relatedness need satisfactions. This finding challenges the conventional assumption about the consistently positive effect of AOC (Meyer & Maltin, 2010), and

sharpens our understanding of AOC's temporal effect on the needs dynamics (cf. Meyer, 2014; Ryan & Deci, 2017).

Our findings also cast new light on the relationships between need satisfactions and emotional exhaustion. Previous cross-sectional study (Van den Broeck et al., 2008) reported that Need Satisfaction (singular)—with three basic needs aggregated as a whole—negatively correlated with emotional exhaustion. The latest meta-analysis (Van den Broeck et al., 2016), based mainly on cross-sectional studies, also showed that the three basic need satisfactions negatively correlated with emotional exhaustion. These correlational findings are consistent with the corresponding zero-order correlations in our data. However, when we examined these relationships from a dynamic perspective, we found these relationships more complex than initially thought. First, as expected, the growth rate of autonomy need satisfaction was positively related to the decline rate of emotional exhaustion. This may happen because autonomy need satisfaction (as a job resource; Schaufeli & Bakker, 2004) enables employees to function with minimal expenditure of energy and maximal sense of security (Lapointe et al., 2011) and thus forestalls the feelings of resource depletion. This finding adds to the traditional view that job burnout is a progressive process (Hobföll & Freedy, 1993) with emotional exhaustion preluding (Leiter & Maslach, 1988) or following (Golembiewski, 1989) depersonalization and lack of accomplishment (cf. Lee & Ashforth, 1993), by highlighting that emotional exhaustion, in itself, is also a dynamic process that involves fundamental human agency, namely, commitment and needs satisfaction (cf. Brickman, 1987; Ryan & Deci, 2017).

Second, perhaps the most surprising result was that the rate of increase in relatedness need satisfaction negatively related to the rate of decline in emotional

exhaustion. That is, the slower the individual's relatedness need satisfaction grew, the faster her emotional exhaustion declined over time. This counterintuitive finding signals some divergent effect of relatedness need satisfaction hidden from past research. From a static between-individual perspective, and consistent with conventional view in job burnout literature (Schaufeli, 2017), relatedness need satisfaction exerts a resource-conserving effect that decreases emotional exhaustion: those who report higher relatedness need satisfaction often have better networks with greater support from colleagues for task-relevant information (Seibert, Kraimer, & Liden, 2001) and social or emotional support (Gersick, Bartunek, & Dutton, 2000; Leiter & Stright, 2009; Toegel, Kilduff, & Anand, 2013), which helps alleviate their job demands, and subsequently reduces their emotional exhaustion (Schaufeli & Bakker, 2004). However, from a dynamic perspective, relatedness need satisfaction can exert a resource-depleting effect that increases emotional exhaustion. Specifically, as socialization proceeds to a later stage, an individual usually finds it hard to increase her relatedness need satisfaction, because her need for relatedness is almost satiated and its satisfaction offers diminishing returns (Baumeister & Leary, 1995). To further a steep increase in relatedness need satisfaction, she may have to intensely build new networks, which consumes more resources than if she focuses on maintaining her existing networks (Ng & Feldman, 2010). And a key principle of COR theory is that people must invest resources to gain resources (Hobföll, 2001). Since an individual's resources are limited, in trying to reap a steeper growth of relatedness need satisfaction, she may have to increase her investment of energies so intensely that it becomes a taxing demand, which would in turn deplete her limited resources at a faster rate, resulting in emotional exhaustion.

In other words, between individuals, relatedness need satisfaction in general is profitable, while within individuals who already experience strong relatedness need satisfaction, it may not be expedient to increase it with much intensity, for doing so incurs overinvestments of time and energies, which depletes resources and can slower the decline in emotional exhaustion. As Baumeister and Leary (1995, p. 517) explained, "The first few close social bonds appear to be the most important, beyond which additional ones furnish ever lesser benefits." Thus, an old-timer would rather focus on maintaining her existing strong ties, which is reflected in relatively high levels of relatedness need satisfaction (see Table 4.1). One may also speculate that the slower growth in relatedness need satisfaction reflects a deepening (vs. widening) social network. That is, maintaining old—rather than building new—social ties would enable an individual to maximize the resource-conserving effect (while minimizing the resource-depleting effect) of relatedness need satisfaction. As the old social ties deepen over time, on one hand, they demand not too much maintaining effort (e.g., old buddies don't need to stick together always: regular brief phone calls or occasional meal chats suffice to forge the tie). On the other hand, the deepening ties grant an increasing sense of security. Knowing that one's connections in the workplace are getting stronger over time tends to make one feel better supported and safe in dealing with one's job demands (Edmondson, 1999; Zadow, Dollard, Mclinton, Lawrence, & Tuckey, 2017), which in turn may accelerate the decline in emotional exhaustion over time.

The accelerating decline in emotional exhaustion, in turn, was found to reciprocally lead to a higher rate of increase in relatedness need satisfaction. While not predicted, this finding is consistent with COR theory's corollary that employees with

greater resources are more capable of resource gain (Hobföll, Halbesleben, Neveu, & Westman, 2018). That is, when an individual is experiencing a faster decline in emotional exhaustion thanks to the social supports mentioned earlier, she is gaining back resources. As her resources accumulate, she is more capable of proactively interacting with others (Gagné, Deci, & Ryan, 2017; Parker, Bindl, & Strauss, 2010), and the social supports received from her networks motivate her to reciprocate (Farh, Lanaj, & Ilies, 2017; Flynn, 2003) with support-giving. Paradoxically, once in a resource gain spiral (Hobföll et al., 2018), the same support-giving, now being motivated by gratitude (Fredrickson, 2004), becomes less taxing than earlier noted. On the contrary, giving back support fulfills her desire to reciprocate and may also result in an upward-spiraling social exchange (cf. Fredrickson, 2013; Hobföll et al., 2018), which is likely to increase the growth rate of relatedness need satisfaction. This finding substantiates both SDT's basic assumption that humans are proactive by nature (Gagné et al, 2017) and proactivity researchers' proposition that engaging in proactivity may help fulfill basic psychological needs such as the need for relatedness (Parker et al., 2010). Obviously, future longitudinal studies are needed to examine this reciprocal relationship between relatedness need satisfaction and emotional exhaustion.

4.7.2 Practical Implications

Our study provides evidence that autonomy and relatedness need satisfactions are key mechanisms through which AOC relates to emotional exhaustion over time. In order to preclude the devastating effects of emotional exhaustion on employees' wellbeing (Bakker et al., 2014; Kahn, in press), organizations are advised to boost employees' autonomy need satisfaction by constructing autonomy-supportive work conditions (e.g.,

involving employees in decision-making, explicating meaningful rationales when assigning tasks, offering employees discretion on when and how to perform tasks; Deci & Ryan, 2014). Meanwhile, organizations may also foster employees' relatedness satisfaction by providing sufficient social supports (e.g., timely and constructive feedback from the supervisor, acknowledgement of their feelings on the job, and incentive system that reinforces cooperation among coworkers; Deci, Connell, & Ryan, 1989). Our data suggest that old-timers know how to adjust the intensity with which they network with colleagues. It is thus advisable that organizations offer employees enough discretion on how to interact with colleagues. For example, when forming project teams, supervisors could empower employees to design team composition and fine-tune project schedule so as to better satisfy employees' needs for autonomy and relatedness. However, while the three basic need satisfactions are intimately related (Ryan & Deci, 2017), this study shows that autonomy need satisfaction, but not relatedness need satisfaction, fosters the decline in emotional exhaustion. By satisfying employees' need for autonomy, organizations may hit two birds with one stone: As a valued job resource, autonomy need satisfaction not only helps curb job burnout (e.g., emotional exhaustion) (Fernet et al., 2010; Schaufeli, 2017), it also facilitates work engagement as several studies demonstrate (e.g., Chiniara & Bentein, 2016; Kovjanic, Schuh, & Jonas, 2013). Over time, this personal involvement would enhance job performance and may indirectly satisfy employees' need for competence (Wood, & Bandura, 1989).

The finding that AOC did not change significantly over the study period has important implications. Even if AOC was stable in our sample of tenured employees, organizations are advised to evaluate AOC on a regular basis. We should interpret the

stability of AOC found in this study as a characteristic that makes AOC an ideal "dashboard indicator" of work conditions bearing on employee functioning. As Chris et al. (2016) recommended, measuring AOC is easier and more efficient than measuring all individual work conditions. If AOC—an otherwise stable indicator—shows signs of undesired changes, it may represent just the tip of the iceberg, calling for a more thorough inspection of work conditions as a necessary follow-up.

4.7.3 Limitations and Future Directions

This study has limitations. First, as we examined change patterns of the variables and their relationships among old-timers during a booming economy, it would be worth conducting similar examinations yet in different contexts such as a contracting economy. More ideally, if possible, researchers may follow old-timers through a full economic cycle—from downturn to upturn—over longer time frame, so as to further enrich our understanding of the dynamic relationships among the variables. Second, our findings relied on self-report measures. Although the use of LGM on data collected at multiple times considerably reduces endogeneity, future investigations using multiple sources of data would further enrich our understanding of the relationships among AOC, need satisfaction, and well-being. Third, participants who reported lower autonomy and competence need satisfactions were more likely to drop from the final sample, hence a possible range restriction in these variables might have biased the results.

Last, we did not include any moderator in our model, though there are theoretical grounds suggesting that individual differences should interact with needs satisfaction in influencing emotional exhaustion. One such individual difference, as SDT suggests (Ryan & Deci, 2017), is individuals' autonomy orientation, which reflects "a general tendency

to experience social contexts as autonomy supportive and to be self-determined" (Gagné & Deci, 2005, p. 339). Research has shown autonomy orientation to be positively related to autonomous motivation, employee functioning, and work engagement (Gagné et al., 2017). Autonomy orientation may heighten the salience of basic need satisfactions as crucial personal resources in affecting emotional exhaustion. It would be interesting to examine the role of autonomy orientation in moderating the relationship between need satisfactions and emotional exhaustion.

Overall, this study revealed that, among old-timers during a booming economy, AOC stabilized at such higher levels as to yield a slower growth in autonomy and relatedness need satisfactions. In turn, the slower growth in autonomy need satisfaction engendered a slower decline in emotional exhaustion, and the slower growth in relatedness need satisfaction led to a faster decline in emotional exhaustion, which reciprocally accelerated the growth in relatedness need satisfaction. Future research examining these dynamics in different contexts with finer-grained designs (e.g., including relevant moderators) would enrich our understanding of how employee commitment and basic need satisfactions interrelate in enabling tenured employees to shape their functioning over time.

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Tables and Figures

Table 4. 1: Descriptive Statistics and Correlations among the Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. AOC^{T1}	3.40	1.17	(.93)																	
2. AOC^{T2}	3.49	1.11	.72**	(.91)																
3. AOC^{T3}	3.47	1.09	.73**	.74**	(.90)															
4. $NSau^{T1}$	3.74	0.89	.44**	.41**	.35**	(.80)														
5. $NSau^{T2}$	3.80	0.83	.30**	.40**	.29**	.67**	(.80)													
6. $NSau^{T3}$	3.85	0.82	.37**	.40**	.49**	.59**	.69**	(.82)												
7. $NSre^{T1}$	3.70	1.00	.58**	.47**	.48**	.26**	.18**	.23**	(.85)											
8. $NSre^{T2}$	3.76	0.95	.49**	.55**	.51**	.23**	.22**	.22**	.75**	(.81)										
9. $NSre^{T3}$	3.81	0.91	.39**	.42**	.56**	.18**	.19**	.32**	.68**	.74**	(.83)									
10. $NSco^{T1}$	4.33	0.70	.30**	.25**	.20**	.27**	.15*	.21**	.38**	.23**	.26**	(.84)								
11. $NSco^{T2}$	4.36	0.62	.26**	.28**	.20**	.29**	.31**	.30**	.37**	.34**	.33**	.64**	(.86)							
12. $NSco^{T3}$	4.35	0.64	.14*	.17**	.20**	.24**	.16**	.37**	.22**	.20**	.32**	.59**	.64**	(.85)						
13. EE^{T1}	2.84	1.20	-.43**	-.28**	-.34**	-.37**	-.28**	-.28**	-.29**	-.21**	-.23**	-.21**	-.19**	-.18**	(.85)					
14. EE^{T2}	2.73	1.22	-.41**	-.32**	-.44**	-.25**	-.24**	-.27**	-.26**	-.32**	-.31**	-.08	-.10	-.11	.61**	(.87)				
15. EE^{T3}	2.70	1.26	-.47**	-.40**	-.52**	-.33**	-.22**	-.34**	-.27**	-.26**	-.27**	-.11	-.09	-.19**	.64**	.69**	(.88)			
16. Age	45.20	10.61	.06	-.09	-.01	-.03	-.06	-.01	.05	-.10	.02	.17**	.14*	.15*	-.02	-.08	-.02	-		
17. Gender	-	-	.14*	.13*	.13*	.02	-.02	-.04	.07	.09	.02	-.10	-.04	-.04	-.01	.01	-.11	-.23**	-	
18. Tenu	10.91	8.35	.06	-.07	-.05	.03	-.03	-.03	.03	-.06	-.03	.05	.11	.07	-.06	-.07	-.03	.50**	-.07	-

Note. $N = 284$. Alpha coefficients are reported on the diagonal in brackets. AOC = affective organizational commitment; NSau = autonomy need satisfaction; NSre = relatedness need satisfaction; NSco = competence need satisfaction; EE = emotional exhaustion; Tenu = organizational tenure (years); T1 = Time 1; T2 = Time 2; T3 = Time 3. For gender: 0 = female, 1 = male.

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

Table 4. 2: Univariate SOF LGMs: Tests of Alternative SOF LGM Specifications

Models (M_i)	Change function	FOF residuals structure	χ^2	*df*	CFI	TLI	SRMR	RMSEA	Comparison	$\Delta\chi^2$	Δdf
Affective Commitment to Organization (AOC)											
M0	*No change*		*48.50*	*27*	*.99*	*.99*	*.04*	*.05*	*M0 – M1*	*2.17*	*1*
M1	Linear	Homoscedastic	46.37	26	.99	.99	.04	.05	M1 – M2	2.36	2
M2	Linear	Heteroscedastic	44.15	24	.99	.99	.04	.05	M2 – M4	1.61	1
M3	Optimal	Homoscedastic	43.49	25	.99	.99	.04	.05	M1 – M3	2.67	1
M4	Optimal	Heteroscedastic	42.49	23	.99	.99	.04	.06	M3 – M4	0.69	2
Autonomy Need Satisfaction (NSau)											
M0	No change		27.29	29	1.00	1.00	.05	.00	M0 – M1	4.84*	1
M1	*Linear*	*Homoscedastic*	*23.03*	*28*	*1.00*	*1.00*	*.05*	*.00*	*M1 – M2*	*.39*	*2*
M2	Linear	Heteroscedastic	22.94	26	1.00	1.00	.05	.00	M2 – M4	-	-
M3	Optimal	Homoscedastic	23.04	27	1.00	1.00	.05	.00	M1 – M3	.26	1
M4	Optimal	Heteroscedastic	Model 4 failed to converge.						M3 – M4	-	-
Relatedness Need Satisfaction (NSre)											
M0	No change		31.98	27	1.00	1.00	.04	.03	M0 – M1	6.20*	1
M1	*Linear*	*Homoscedastic*	*26.47*	*26*	*1.00*	*1.00*	*.03*	*.01*	*M1 – M2*	*.64*	*2*
M2	Linear	Heteroscedastic	25.83	24	1.00	1.00	.03	.02	M2 – M4	-	-
M3	Optimal	Homoscedastic	26.33	25	1.00	1.00	.03	.01	M1 – M3	.30	1
M4	Optimal	Heteroscedastic	Model 4 failed to converge.						M3 – M4	-	-

Table 4.2: Univariate SOF LGMs: Tests of Alternative SOF LGM Specifications (continued)

Models (M_i)	Change function	FOF residuals structure	χ^2	*df*	CFI	TLI	SRMR	RMSEA	Comparison	$\Delta\chi^2$	Δ *df*
Competence Need Satisfaction (NSco)											
M0	*No change*		*30.15*	*29*	*1.00*	*1.00*	*.05*	*.01*	*M0 – M1*	*.67*	*1*
M1	Linear	Homoscedastic	29.40	28	1.00	1.00	.05	.01	M1 – M2	1.67	2
M2	Linear	Heteroscedastic	27.73	26	1.00	1.00	.04	.02	M2 – M4	.13	1
M3	Optimal	Homoscedastic	29.06	27	1.00	1.00	.05	.02	M1 – M3	-.03	1
M4	Optimal	Heteroscedastic	27.22	25	1.00	1.00	.04	.02	M3 – M4	1.84	2
Emotional Exhaustion (EE)											
M0	No change		38.72	27	.99	.99	.04	.04	M0 – M1	5.15*	1
M1	*Linear*	*Homoscedastic*	*33.84*	*26*	*1.00*	*.99*	*.04*	*.03*	*M1 – M2*	*3.67*	*2*
M2	Linear	Heteroscedastic	30.23	24	1.00	.99	.03	.03	M2 – M4	.70	1
M3	Optimal	Homoscedastic	31.58	25	1.00	.99	.04	.03	M1 – M3	2.34	1
M4	Optimal	Heteroscedastic	29.48	23	1.00	.99	.03	.03	M3 – M4	2.07	2

Note. the best fitting model is in italics. SOF = second-order factor; LGM = latent growth modeling; M_i = model; FOF = first-order factor; CFI = comparative fit index; TLI = Tucker-Lewis fit index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation.

*$p < .05$.

Table 4. 3: Univariate SOF LGMs: Growth Parameters Estimates

Parameter	Initial Status (I) [a]		Change (S) [b]		Covariance I-S (σ_{I-S})
	M (μ_I)	Variance (σ_I^2)	M (μ_S)	Variance (σ_S^2)	
AOC no change & homoscedastic	3.46***	.96***	.04	.00	-.04
NSau linear & homoscedastic	3.56***	.46***	.05*	.05**	-.06**
NSre linear & homoscedastic	4.07***	.47***	.04*	.03**	-.05**
NSco no change & homoscedastic	4.37***	.31***	.02	.03*	-.04*
EE linear & homoscedastic	2.41***	.72***	-.07*	.01	.06

Note. Estimates are unstandardized, because standardizing the observed variables undermines the ability to assess change (cf. Bentein et al., 2005). SOF = second-order factors; LGM = latent growth model; AOC = affective commitment to organization; NSau = autonomy need satisfaction; NSre = relatedness need satisfaction; NSco = competence need satisfaction; EE = emotional exhaustion.

[a] I = intercept, indicating *initial status*.

[b] S = slope, indicating *change*.

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

Table 4. 4: Summary of Fit Statistics for Measurement Model, Hypothesized and Alternative Structural Models

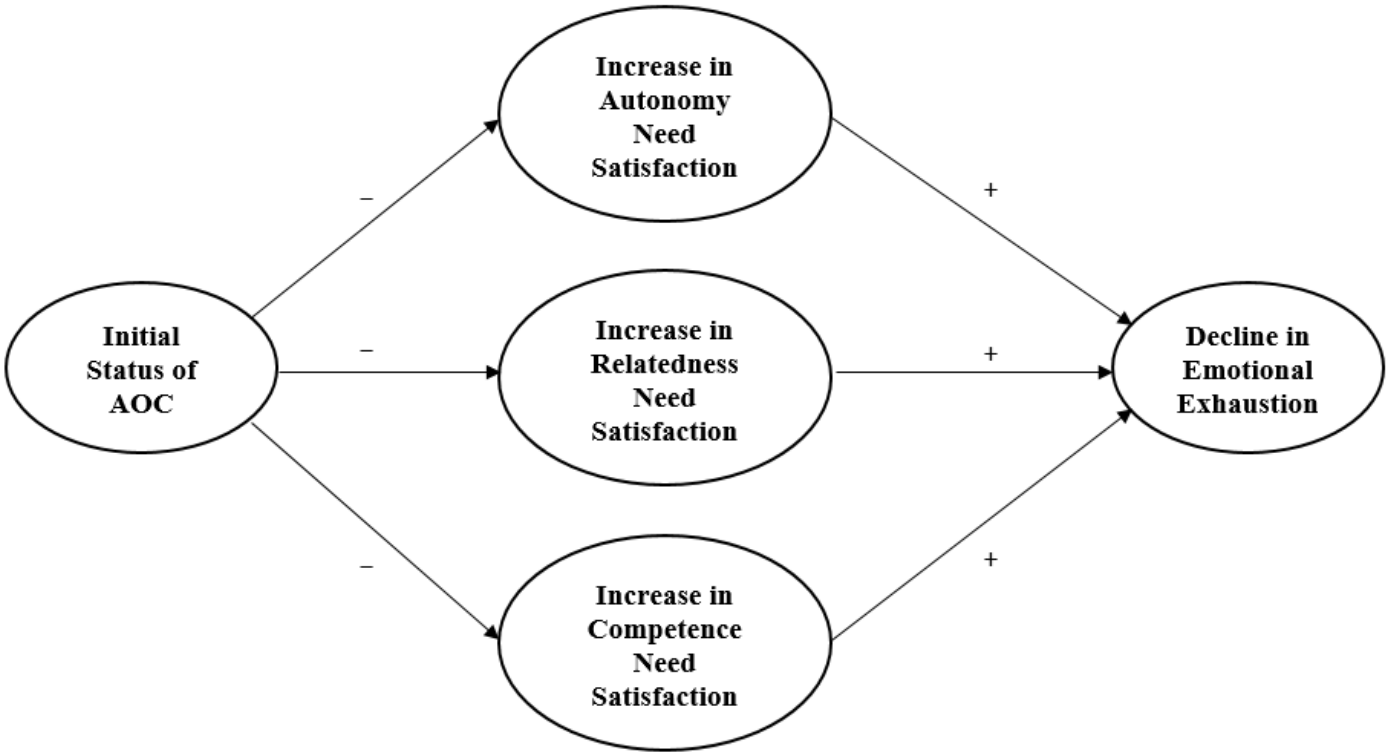
Measurement & Structural Models		χ^2	*df*	CFI	TLI	SRMR	RMSEA	Comparison	$\Delta\chi^2$	Δdf
Overall measurement model		923.70	795	.99	.98	.04	.02			
SM0	Hypothesized Model	795.99	689	.98	.98	.08	.02			
SM1	SM0 + 'AOC→EE'	793.13	688	.98	.98	.08	.02	SM0 – SM1	2.76	1
SM2	SM0 + 'EE→NSau'	794.70	688	.98	.98	.08	.02	SM0 – SM2	1.25	1
SM3	*SM0 + 'EE→NSre'*	*768.63*	*688*	*.99*	*.99*	*.07*	*.02*	*SM0 – SM3*	*17.33****	*1*
SM4	SM2 + SM3	768.92	687	.99	.99	.07	.02	SM3 – SM4	.04	1
SM5	SM1 + SM2 + SM3	768.81	686	.99	.99	.07	.02	SM3 – SM5	.09	2

Note: The best fitting model is in italics.

CFI = comparative fit index; TLI = Tucker-Lewis fit index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; SM = structural model; AOC = affective organizational commitment; NSau = autonomy need satisfaction; NSre = relatedness need satisfaction; EE = emotional exhaustion.

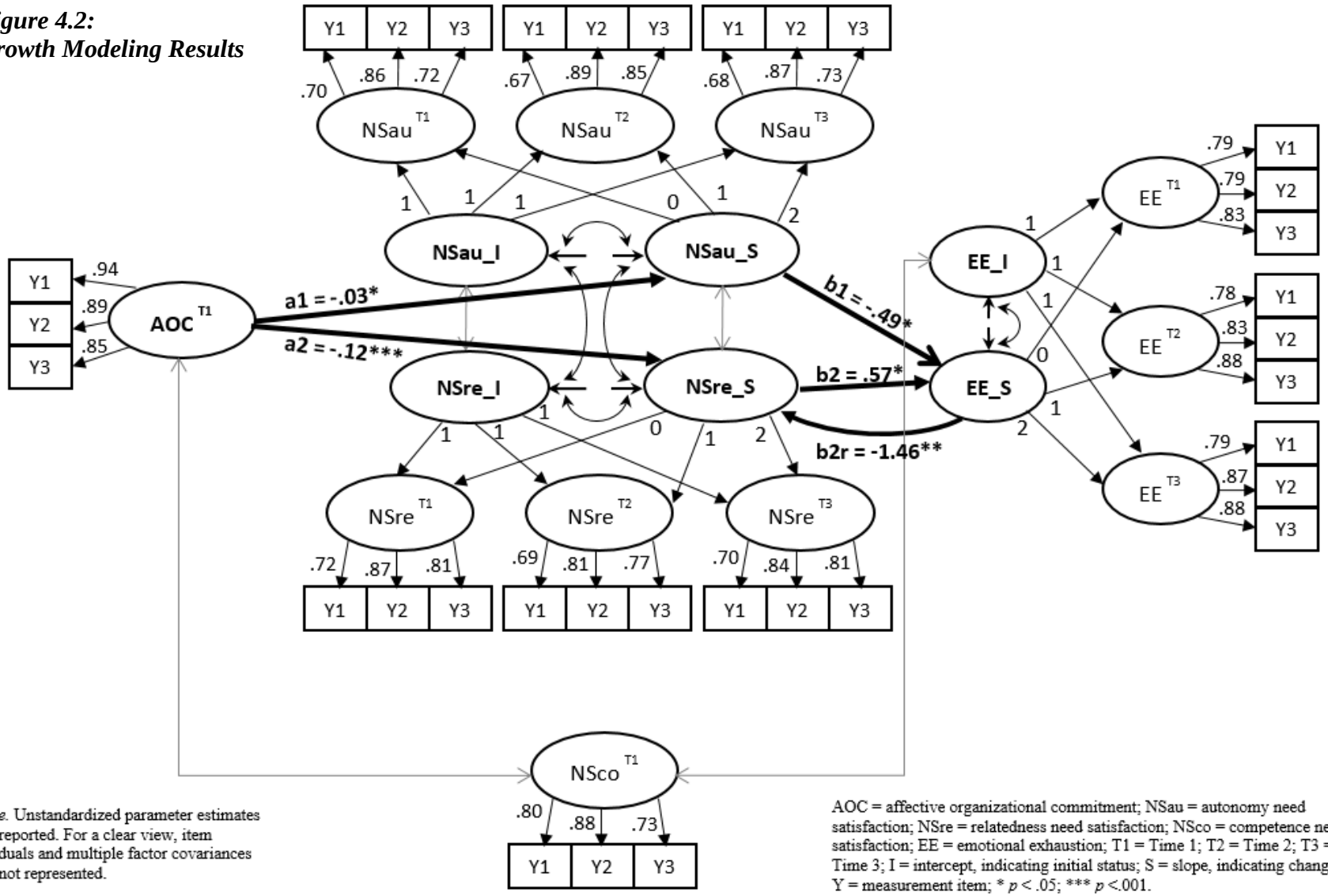
***$p < .001$.

Figure 4. 1: General Theoretical Model



Note. AOC = affective organizational commitment.

Figure 4.2:
Growth Modeling Results



Note. Unstandardized parameter estimates are reported. For a clear view, item residuals and multiple factor covariances are not represented.

AOC = affective organizational commitment; NSau = autonomy need satisfaction; NSre = relatedness need satisfaction; NSco = competence need satisfaction; EE = emotional exhaustion; T1 = Time 1; T2 = Time 2; T3 = Time 3; I = intercept, indicating initial status; S = slope, indicating change; Y = measurement item; * $p < .05$; *** $p < .001$.

Appendix

Appendix 4. 1: Confirmatory Factor Analysis (CFA) of the Core Study Variables: Item Loadings

Item	Loading		
	Time 1	**Time 2**	**Time 3**
Affective Organizational Commitment			
1. I really feel that I belong in this organization.	.94	.89	.91
2. I feel like part of the family at my organization.	.89	.91	.87
3. I am proud to belong to this organization.	.85	.88	.82
Autonomy Need Satisfaction			
1. I have autonomy in my job.	.70	.67	.68
2. I have opportunities to exercise my own judgment and my own actions.	.86	.89	.87
3. I have freedom to do my job the way I think it can be done best.	.72	.85	.73
Relatedness Need Satisfaction			
1. I have positive social interactions with other people at work.	.72	.69	.70
2. I have opportunities to make close friends at work.	.87	.81	.84
3. I have opportunities to talk with people about things that really matter to me.	.81	.77	.81
Competence Need Satisfaction			
1. I feel competent at doing my work.	.80	.83	.82
2. I feel confident in my ability to do my job properly.	.88	.82	.89
3. I have the sense that I can accomplish the most difficult tasks.	.73	.68	.70
Emotional Exhaustion			
1. I feel like I'm at the end of my rope.	.79	.78	.79
2. I feel used up at the end of a work day.	.79	.84	.86
3. I feel fatigued when I get up in the morning and have to face another day on the job.	.83	.88	.89

Note. N = 284. Entries are completely standardized CFA loadings. All measures are self-reports.
Model fit indices at Time 1: $\chi^2(80) = 108.86$, CFI = .99, TLI = .98, RMSEA = .04, SRMR = .04.
Model fit indices at Time 2: $\chi^2(80) = 115.26$, CFI = .98, TLI = .98, RMSEA = .04, SRMR = .04.
Model fit indices at Time 3: $\chi^2(80) = 136.14$, CFI = .97, TLI = .97, RMSEA = .05, SRMR = .05.

Chapter 5:

Conclusion

By applying multi-level, multi-source, and longitudinal research design to three employee samples from Belgium, China, and Canada, we have attempted to deepen the understanding of how AOC enables employees to be agentic and well-functioning on the job, so that they can shape their work context. Specifically, we have examined how autonomous motivation (or the basic needs satisfaction) mediates the effect of AOC on (1) employee agency, namely proactive behavior in Article One, (2) employee taking more task responsibilities, namely role overload in Article Two, and (3) employee well-functioning, which is reflected in the declining emotional exhaustion in Article Three. To sharpen our understanding of these mediated relationships, we have also investigated two crucial boundary conditions: the team-level communication climate in Article One and the individual self-concept in Article Two. Unlike the first and second articles in which we have adopted between-individual research design, in Article Three we have used within-individual design with three-wave longitudinal data to conduct LGM analyses, in order that we can investigate the dynamic relationships involving the change patterns of AOC, the basic needs satisfaction, and emotional exhaustion.

In Article One, we have found that at the individual level AOC enables employees to engage in proactive work behavior, and this enabling effect is fully mediated by autonomous motivation. This finding lends support to Meyer et al.'s (2004) proposal that commitment mindset activates motivation mindset, which in turn leads to discretionary

work behavior. Particularly, ACO that is based on shared values and goals helps employees develop autonomous motivation, which in turn prompts them to engage in proactive behavior. On the other hand, this finding provides counter-evidence—as opposed to Parker et al.'s (2006) empirical study—to the argument that AOC as a positive affect is unlikely to relate to proactive behavior (Parker, 2000) because it is presumably the negative affect (e.g., dissatisfaction) that is related to proactive behavior (Frese & Fay, 2001).

In addition to the mediating role of autonomous motivation at the individual level, we have verified the cross-level moderating effects of team communication climate at both stages of the mediation. The finding that team communication climate strengthens the positive effect of AOC on autonomous motivation reveals that employees' proximal context, the work team, can heighten the shared values embedded in AOC and thus can make it a stronger enabler of autonomous motivation. Not only so, this climate can also reduce the threshold of engaging in proactive behavior, which is by definition risky, and thus can make it more likely for autonomously motivated employees to behave proactively on the job. Therefore, the cross-level and dual-stage moderating role of team communication climate indirectly testifies to Meyer's (2017) proposal that effective communication is one of the best principles underpinning managerial practices to enhance employee commitment. However, in contrast to the conventional view that communication climate is either a driver or a consequence of organizational commitment (e.g., Bartels, Pruyn, De Jong, & Joustra, 2007), we argue that it should also be a crucial moderator in the relationships involving employee commitment. Compared with prior research on communication climate that has been dominated by single-level designs (e.g.,

Smidts, Pruyn, & Van Riel, 2001), the multi-level data in Article One have allowed us to aggregate individuals' perceptions about communications among their teammates to the team level, which has lent stronger evidence to our novel argument that team level communication moderates not only AOC's effect on autonomous motivation but also the latter's effect on proactivity.

Although model comparisons have enabled us to rule out the alternative explanation that autonomous motivation may help employees develop AOC, which in turn disposes them to proactive behavior, Article One is cross-sectional and thus deficient in ascertaining the causality between commitment and motivation. This issue is addressed in Article Two, in which, as compared with Article One, we have kept AOC as the predictor, while replacing autonomous motivation with autonomy need satisfaction for the mediator and selecting role overload as the outcome and the individual self-concept as the moderator. In Article One we have attempted to answer the question: How does AOC facilitate proactivity? By contrast, in Article Two we have tried to answer the question: How does AOC lead to role overload? These two questions are different but related. The first one focuses on proactive behavior as the outcome, whereas the second one on work context (i.e., role overload) as the criterion; hence different. Yet, they both speak to the agentic role employees can act out when AOC comes into play; hence related.

The panel data in Article Two have allowed us to examine the causal relationships among AOC, autonomy need satisfaction, and role overload. In support of our expectation, the results show that AOC reciprocally relates to autonomy need satisfaction. This finding corroborates the emerging consensus among commitment and SDT researchers that the causal connection between commitment and motivational mindsets

should be reciprocal (Meyer, 2014). On the one hand, with shared goals and values, a strong AOC often facilitates the emergence of autonomous motivation, whereas absent AOC, employees tend to experience their job tasks as imposed and thus feel externally motivated. On the other hand, employees whose need for autonomy is regularly satisfied at work are more likely to develop a strong AOC over time, whereas employees whose need for autonomy is constantly frustrated at work (e.g., by an abusive and controlling supervisor) are less likely to develop AOC.

Likewise, autonomy need satisfaction reciprocally relates to role overload. The finding that autonomy need satisfaction leads to role overload concurs with job-crafting researchers' view that the need for control (i.e., autonomy) often motivates people to broaden their work responsibilities to make their job more challenging and meaningful (Wrzesniewski & Dutton, 2001). However, the finding that over time role overload positively retroacts on autonomy need satisfaction is counterintuitive, in that it runs counter to the dominant view as well as the meta-analytical evidence, which suggests and shows that role overload constitutes a constraining work context and thus takes away from autonomy need satisfaction. Our panel data give stronger evidence to the argument that when role overload is considered a challenging context that promotes personal growth at work, employees with more task responsibilities tend to experience high autonomy need satisfaction.

Perhaps the most intriguing results consist in the polarized moderating role of the individual self-concept. In line with our expectation, on the one hand, autonomously motivated employees who have a high individual self-concept are more likely to broaden their job role and thus engage in role overload, as can be explained from the broaden-and-

build theory (Fredrickson, 2001). On the other hand, when autonomously motivated, those who have a low individual self-concept tend to attribute their autonomy need satisfaction to the organization, and thus develop a strong AOC, as can be explicated from SDT (Gagné & Deci, 2005). Unexpectedly, we have also found that when the individual self-concept is very low, autonomy need satisfaction exerts a negative time-lagged effect on role overload, and that when the individual self-concept is very high, autonomy need satisfaction exerts a negative time-lagged effect on AOC. In other words, when autonomously motivated, employees can not only reduce their AOC, they may also choose to disengage from role overload. These counterintuitive findings can be explained from the perspective of the theory of self (Markus & Kitayama, 2010). That is, a high individual self-concept heightens the salience of autonomy need satisfaction as a self-referenced motivator that drives employees towards role overload and away from AOC. In a similarly polarized way, a low individual self-concept heightens the salience of autonomy need satisfaction as an others-referenced motivator that drives employees towards AOC and away from role overload.

Together, the results from the first and second studies testify to this key argument: AOC is a strong energizing force that can activate autonomous motivation for employees to behave proactively on the job, so that they can take up more task responsibilities. The results also highlight the importance of autonomous motivation (or autonomy need satisfaction) as an essential mechanism that can fully mediate the energizing effect of AOC. Moreover, these two studies have identified two crucial boundary conditions that moderate the mediating effects of autonomous motivation. One condition is the situation factor: team communication climate; and the other, the person factor: the individual self-

concept. Both factors have been long researched and can thus be considered the basic principles as Meyer (2013, 2017) suggests. Specifically, the self-concept guides how people make sense of their experiences on an ongoing basis, while the communication climate influences how they interact with one another and how they interpret this interaction. With the first and second studies, we have adopted the interactionist approach (i.e., person × situation; cf. Judge & Zapata, 2015) to exploring employee commitment and motivation.

In practice, the findings from the first and second studies suggest that organizations can promote the agentic role of employees—be it engaging in proactive behavior or crating a better workplace—by developing, maintaining, and enhancing AOC. Accumulated empirical studies can provide organizations with evidence-based advice on the drivers of AOC—the perceived organizational support (Eisenberger, Huntington, Hutchison, & Sowa, 1986) for one. Moreover, it is a noteworthy finding that the causal relation between AOC and autonomy need satisfaction is reciprocal, for it reveals autonomy need satisfaction as an important channel whereby organizations can gain and maintain employee commitment (i.e., AOC). Specifically, when designing programs to enhance AOC, management may ask themselves: "What impact are these programs likely to have on the satisfaction of employee's need for autonomy?" (cf. Meyer, 2014, p. 46). In addition, our findings suggest that organizations need to provide employees with an open and constructive communication climate, so that not only employees feel valued by the organization, the management also knows what is going on in the field. A strong two-way commitment entails an effective two-way communication (Meyer, 2017, p. 7).

However, the first and second studies are of the between-individual research design, which limits our understanding to a static perspective. Little has been said about how employees experience the changes in commitment, motivational mindsets, and motivational consequences within individuals over time, and about how these changes are interrelated. For that, we now turn to the third and the final article.

In Article Three, we have adopted a dynamic approach by applying LGM analyses to longitudinal data. In doing so, we have attempted to find partial answers to a broad research question: How does commitment shape people's experience over time? With a sample of old-timers during an economic boom in Canada, we have first shown that, while motivational mindset and consequence may change, AOC tends to remain stable over time. This finding echoes Meyer's (2016, p. 516) suggestion that "commitment, more so than motivation or engagement, implies a long-term orientation. Motivation and engagement can ebb and flow, whereas commitments are presumably more stable." Second, we have found that a stabilized and strong AOC is negatively related to the growth in autonomy and relatedness need satisfactions, due to socialization effect and the diminishing return of needs satisfaction. Third, we have also found that the growth rate of autonomy need satisfaction is positively related to the decline rate of emotional exhaustion, as expected from COR perspective (Hobfoll, 1989). Surprisingly, the growth rate of relatedness need satisfaction is negatively related to the decline rate of emotional exhaustion, which in turn accelerates the growth of relatedness need satisfaction. This counterintuitive finding reveals the divergent effects—resource-conserving versus resource-depleting—that relatedness need satisfaction can exert on employee functioning (e.g., emotional exhaustion). Finally, we have found that the growth in autonomy and

relatedness need satisfactions fully mediates the effect of the initial status of AOC on the decline of emotional exhaustion. This finding further strengthens the central contention of this thesis, that is, the autonomous motivation is the key mechanism that explains why and how AOC can transform employees into proactive agents at the workplace.

Whereas all three articles attach much importance to the mediating role of autonomous motivation, the third one moves beyond the first and the second by highlighting the dynamic mediating role of autonomy and relatedness need satisfactions in the relations between AOC and emotional exhaustion within individuals over time. Moreover, Article Three also goes beyond Article Two by adding relatedness and competence need satisfactions as mediators parallel to the autonomy need satisfaction that is the most autonomous form of work motivation, but only to find competence need satisfaction a stable construct. In practical terms, the additional findings in Article Three mean that organizations should pay close attention to how employees perceive themselves as being connected with others on the job, for feeling well-connected with others may help reduce emotional exhaustion over time, whereas feeling ill-connected can expose employees to exacerbating emotional exhaustion, which poses insidious threats to employee functioning over time (Hakanen & Bakker, 2017).

The incidental finding that the declining rate of emotional exhaustion can accelerate the growth rate of relatedness need satisfaction has important implications. It implies that when feeling less emotionally exhausted, employees are more likely to behave proactively (e.g., giving support to co-workers), which in turn may boost autonomous motivation (e.g., by satisfying the need for relatedness as shown in Article Three). This finding echoes a major argument in Article One, that is, autonomous

motivation is positively related to proactive behavior. It even allows us to go one step further by conjecturing that the causal connection between autonomous motivation (e.g., relatedness need satisfaction) and employee functioning (e.g., emotional exhaustion) should be reciprocal over time.

Finally, the strong and dynamic mediating role of relatedness need satisfaction in the relationship between AOC and emotional exhaustion lends support to Baumeister and Leary's (1995) argument that the need to belong is perhaps the deepest human desire and hence a fundamental human motivation. Indeed, the findings from the Article One—that is, communication climate plays a crucial role in the motivation process—indirectly underscores the importance of being meaningfully connected with others through effective communication. Here, the basic principles (Meyer, 2013; 2017) of communication and of relatedness need satisfaction are two sides of the same coin.

Put together, the three articles testify that AOC still remains an important concept for both organizational researchers and practitioners, and that integrating employee commitment with work motivation is a promising approach to exploring employee functioning at the workplace. Since several avenues of research have been mentioned in the discussion section of each article, we will not repeat them here. But two points are worth highlighting.

The first point, there is room for further exploring employee commitment in a multi-form and multi-target approach—even better in a person-centered approach. For the present purpose, we have focused exclusively on AOC. However, to enrich our understanding of the different faces of commitment (Brickman, 1987), it is necessary to investigate not only the multiple forms and targets of commitment, but more importantly

how they combine into various commitment profiles (Meyer & Morin, 2016). Specifically, the current three studies have jointly testified to the proposition that AOC activates autonomous motivation, which in turn contributes to employee functioning (e.g., proactive behavior and emotional exhaustion). Parallel to this proposition are the alternative ones regarding other forms of commitment (cf. Meyer et al., 2004, p.101), such as:

Proposition 1. Normative commitment can stimulate introjected motivation, which in turn may negatively affect employee functioning by (*a*) reducing proactive behavior, (*b*) increasing emotional exhaustion, and (*c*) causing hindrance (vs. challenge) appraisal of role overload.

Proposition 2. Continuance commitment can induce controlled motivation, which in turn may undermine employee functioning by (*a*) reducing proactive behavior, (*b*) increasing emotional exhaustion, and (*c*) causing hindrance (vs. challenge) appraisal of role overload.

In a similar vein, one can further fine-tune propositions that involve continuance commitment by distinguishing "being-trapped" mindset (i.e., lack of alternatives) from "cost" mindset (i.e., high sacrifice), and argue that the former triggers employee ill-functioning through controlled motivation, whereas the latter promotes employee well-functioning through autonomous motivation.

Even better, one can turn to a person-centered approach by examining various commitment profiles (cf. Gellatly, Meyer, & Luchak, 2006; Meyer et al., 2012; Meyer & Herscovitch, 2001; Meyer, Morin, Stanley, & Maltin, 2019; Morin, 2016). In doing so,

one can forward finer-tuned propositions. For example, drawing on Meyer and Morin (2016), one could present the following propositions (cf. Meyer, 2014, p. 40):

> *Proposition 3.* When employees have both strong affective and normative commitment to the organization, hence the "moral imperative" commitment profile, they are likely to feel autonomously motivated, and in turn tend to (*a*) engage in proactive work behavior, (*b*) experience a decreasing emotional exhaustion, and (*c*) appraise role overload as a challenge rather than a hindrance to personal growth at the workplace.
>
> *Proposition 4.* When employees have both strong continuance and normative commitment to the organization, hence the "indebted obligation" commitment profile, they are likely to experience controlled motivation, and in turn tend to (*a*) refrain from proactive work behavior, (*b*) experience an increasing emotional exhaustion, and (*c*) appraise role overload as a hindrance rather than a challenge to personal growth at the workplace.

An in-depth investigation of this research avenue is beyond the scope of this thesis (for a detailed review, see Meyer & Morin, 2016). Yet it must be noted that a clear trend is emerging—more and more researchers are switching their mindset, theoretically and analytically, from variable-centered approach to person-centered one (Zyphur, 2009), for the latter complements the former when it comes to viewing employees more holistically as individuals who generally possess a particular set of attributes (e.g., multiple forms of commitment) across unique situations (e.g., multiple targets of commitment) and over a

specific period of time (e.g., changing profiles of commitment at different career stages). It behooves scholars in applied sciences to adapt their mindsets to what is really happening out there in the field, and the person-centered approach serves that purpose (Meyer & Morin, 2016; cf. Meyer, Morin, & Wasti, 2018; Meyer et al., 2019).

The second point, we have conducted these three studies in three countries from different cultures and have found the evidence that Meyer et al.'s (2004) integrative model of employee commitment and motivation applies to these different cultural contexts, that is, the contract-based commitment culture in North America exemplified by Canada versus the covenant-based commitment culture in Europe embodied by Belgium (Roe et al., 2009), and the individualist Western culture represented by Canada and Belgium versus the collectivist Eastern culture epitomized by China (Wasti, 2016). On the one hand, it is encouraging to see this Western model—both measurement and theory—generalizable to an Eastern culture. On the other hand, one cannot help but scrutinize this "imposed etic approach, which assumes culture-specific or emic theories, constructs, and measures (usually developed in the US or Canada) to be universal or etic" (Wasti, 2016, p. 363). This can raise an issue not only for the general theorizing in that the idea of autonomy (i.e., free will) may dominate in the West, whereas the notion of harmony (i.e., balanced society) may prevail in the East. It can also elicit a concern about the specific measuring, such as the subtleties of employee commitment—it seems plausible to conjecture that in a contract-based labor relationship (e.g., in North America) people tend to perceive their employment in a calculative manner; whereas a covenant-based one (e.g., in North Europe) is likely to imbue the employment relationship with a sense of duty or obligation (Roe et al., 2009, p. 140). The picture gets more complicated and nuanced as

one considers such factors as globalization (viz., the ever-increasing Americanization and Financialization; Davis & Kim, 2015), the economic and political transition in developing countries, the generation gap in terms of changing values, and the fast-moving and kaleidoscopic communications (e.g., social media; for insightful and prophetic views, see Postman, 2005).

All these factors confront us with the challenge to contextualize research on employee commitment and motivation. To meet this challenge in order that we can broaden the landscape by exploring additional and different ways employees experience commitment and motivation in other cultures, we could combine qualitative and quantitative research methods. Specifically, we can start with qualitative research by using indigenous theories and methods, and then cross-validate the qualitative results with quantitative research. In doing so, we could be better positioned to evaluate which parts of the theory and measurement are etic (i.e., universal) and which ones emic (i.e., culture-specific; for an exemplary operationalization, see Farh, Earley, & Lin, 1997; for thought-provoking perspectives, see Van de Ven, Meyer, & Jing, 2018). Viewing these challenging factors from another angle, we see the prospect that commitment research can and should take us a long way ahead—a challenge that demands our commitment.

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