

**SELF-DETERMINATION THEORY AND JOB OUTCOMES:
THE MODERATING EFFECTS OF PERCEIVED AUTONOMOUS SUPPORT**

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The present study tests the theoretical influence of factors from self determination theory (SDT) including the three facilitators (global aspirations, mindfulness and global motivation), the three needs satisfaction (autonomy, competence and relatedness), and perceived autonomous support (PAS) towards job outcomes of 386 New Zealand managers. The theory suggests that individuals with higher SDT dimensions will achieve greater wellbeing, and we extend this towards job outcomes (job satisfaction, organizational commitment, and OCB Individual and OCB Organization). Importantly, few studies include more than one SDT dimension. Data was collected at two times, separating predictors (time 1) and outcomes (time 2). Towards all job outcomes there were significant direct effects from global motivations, PAS, and most of the need satisfaction dimensions, with mindfulness also influencing job satisfaction. In addition, PAS was tested as a moderator of the three facilitators and three needs satisfaction and a number of significant interactions were found towards all job outcomes. Universally, high relatedness satisfaction led to higher job outcomes when PAS was also high, and global motivations also benefited from high PAS towards OCB Organization, while high PAS benefited OCB Individual only at low levels of global aspirations. Overall, there is strong and consistent support for SDT dimensions influencing job outcomes, and the consistent direct and interaction benefits of PAS highlight its importance.

INTRODUCTION

SDT is a motivation theory based on the premise that people actively seek opportunities to develop their fullest potential. As they seek such opportunities, this enhances individuals well-being (Deci & Ryan, 2000; Greguras & Diefendorff, 2009). SDT maintains development is via autonomous striving to broaden knowledge, connect with people, seek challenges, and to integrate these experiences into an authentic sense of self, and crucially, this motivation is regulated by the *self* (Ryan & Deci, 2008; Vansteenkiste, Neyrink, Niemiec, Soenens, De Witte & Van den Broeck, 2007; Sheldon & Kasser, 2001; Greguras & Diefendorff, 2009; Deci & Ryan, 2000). SDT is developed via five separate, yet integrated theories of wellbeing. These theories have been integrated into the ‘whole’ theory of SDT and hence SDT is referred to as meta-theory for framing motivational studies. The meta theory seeks to explain how each of the antecedents to wellbeing, including, Aspirations – the goals a person pursues; Motivation – the degree to which one is intrinsically or extrinsically motivated to undertake work activities, and Mindfulness – present awareness and focus; facilitate the meeting of SDT’s three basic needs for autonomy, competence and relatedness. Each of these is discussed in detail below.

Aspirations

SDT suggests that the goals a person pursues will either enhance, or detract, from wellbeing (Kasser, et al 2007). Hence, SDT emphasizes that the *nature* of the aspiration that either supports or detracts from wellbeing. Kasser and Ryan (1993, 1996) distinguished between *intrinsic aspirations* (growth, affiliation, community contribution), and *extrinsic aspirations* (wealth, image and fame). The terms *intrinsic* and *extrinsic* aspirations are used to highlight that some goals are expected to be more closely linked to the satisfaction of the three basic needs of autonomy, competence and relatedness (as outlined further below) than other goals. Goals that are labeled intrinsic are satisfying in their own right hence they provide direct satisfaction of the three basic needs. In contrast, extrinsic goals have an ‘external’ orientation (Williams, et al., 2000) or a ‘having’ orientation (Van Boven & Gilovich, 2003), which are more related to obtaining contingent approval or external signs of worth, and are therefore concerned with external manifestations of importance,

rather than with meeting an internal psychological need satisfaction. Previous research concludes that when people are focused on extrinsic goals, they tend to be more oriented toward interpersonal comparisons (Patrick, Ryan & Pintrich, 1999; Lyubomirsky & Ross, 1997; Sirgy, 1998), acquiring external signs of self-worth (Kasser, Ryan, Couchman & Sheldon, 2004), and unstable self-esteem (Kernis, Brown & Brody, 2000). Consequently, extrinsic goal pursuits can be associated with poorer wellbeing (Sheldon & Kasser, 2008; Kashden & Breen, 2007), reduced empathy and pro-social behavior (Sheldon & Kasser 2001), and less optimal functioning, than intrinsic goal pursuits (Kasser & Ryan, 1996). Alternatively, intrinsic aspirations have been found to relate positively to work related outcomes such as job satisfaction, flexibility and overall positive adjustment (Vansteenkiste et al., 2007). Overall, research finds that intrinsic goal pursuit supports a sense of psychological wellbeing, whereas extrinsic goal pursuit has detrimental outcomes for the individual (Deckop et al., 2010; Sheldon & Filak, 2008; Sheldon, Ryan, Deci & Kasser, 2004; Kasser & Ryan, 2001; Vansteenkiste et al., 2007).

Intrinsic v Extrinsic Motivation

Intrinsic motivation is defined as the engagement in an activity for its own sake, for the satisfaction and enjoyment experienced from undertaking the activity in itself (Gagne & Deci, 2005). An intrinsically motivated employee is fully interested and engaged in the experiences they gain while working. Alternatively, extrinsic motivation is concerned with undertaking an activity in order to obtain an outcome that is separate to the *activity*. Hence, extrinsically motivated employees would put effort into their jobs to obtain pay, or better their status, or enhance their own self esteem (Vallerand, 1997; Koestner & Losier, 2002, Baard et al., 2004). Therefore, SDT postulates that intrinsic or extrinsic motivation differ in terms of the *underling regulatory* processes and assessments a person makes about goal directed behaviour, and their ability to reach their goals within certain contexts. Intrinsic motivation has been associated with active information seeking (Koestner & Losier, 2002), goal attainment (Sheldon & Elliot, 1998), enhanced performance (Amabile, Goldfarb & Brackfield, 1990; Baard et al., 2004), and increased wellbeing (Ilardi et al., 1993). Extrinsic motivation has been associated with inconsistent striving towards goals (Koestner,

Losier, Vallerand & Carducci, 1996), vulnerability to persuasion (Koestner & Losier, 2002), and impaired performance and persistence because of concentration difficulties (see Vallerand, 1997 for a review).

Mindfulness

SDT suggests that it is through reflective consideration of a person's goals and motivations that one can come to accept some and reject goals (Ryan et al., 2008). Therefore, SDT asserts that optimal self-functioning requires one's actions to be self-endorsed. As such, the ability to act reflectively supports the development of self-determination (Ryan & Deci, 2008). Therefore, SDT asserts that if people are to take responsibility for their own autonomous functioning, this is based on the "full endorsement of one's actions, which are based on the mindful reflections that underlie one's motivation" (Chirkov et al, in press, p.5). When people are mindful and aware of what is really occurring, they are in a better position to make meaningful choices and to act in an integrated manner. Brown and Ryan (2003) recently began empirically investigating the role of awareness in self-determined action, through the concept of mindfulness. Mindfulness has had substantial attention regarding its relationship with wellbeing (e.g. Brown & Ryan, 2003; Weinstein, Brown & Ryan, 2009) and stress reduction (e.g. Grossman, Niemann, Schmidt & Walach, 2004; Shapiro, Astin, Bishop, & Cordova, 2005). Jimenez, Niles and Park (2010) found support for the important role of mindfulness on wellbeing. Their findings showed that higher levels of mindfulness were associated with higher levels of positive emotions, mood regulation expectancies, and self-acceptance, which in turn, were all negatively related to depressive symptoms. From an SDT perspective, evidence from recent research underscores the importance of mindfulness in promoting autonomous regulation (Ryan et al, 2008). Brown and Ryan (2003) showed at both within and between person levels of analysis, an association between greater mindfulness and autonomous self-regulation was evident. More recently, studies have shown that people who are more mindful embrace more intrinsic (relative to extrinsic) values, and experience less discrepancy between what they have and what they want (Brown & Ryan, 2007).

Basic Psychological Needs

Within SDT the unifying concept of psychological needs provide the “framework for integrating findings” (Deci & Ryan, 2000, p. 263). Specifically, with SDT, a critical issue in the effects of goal pursuit, motivation and goal attainment, concerns the degree to which people are able to satisfy their psychological needs of autonomy, competence and relatedness (Ryan et al., 2008; Sheldon & Niemiec, 2006; Sheldon & Filak, 2008), as these are considered necessary for optimal functioning. The *need for autonomy* is defined as a desire to act with a sense of freedom, choice and volition, that is, to be the creator of one’s actions and to feel psychologically free from control and others expectations (Deci & Ryan, 2000). The *need for competence* represents the desire to feel capable, master the environment and to bring about desired outcomes (Deci & Ryan, 2000; White, 1959). It is prominent in the propensity to explore and influence the environment, and to engage in challenging tasks to test and extend one’s skill, that aids a sense of accomplishment. Finally, the *need for relatedness* is conceptualised as the inherent predisposition to feel connected to others. That is, to be a member of a group, and to have significant emotional ties, beyond mere attachment, to others (Baumeister & Leary, 1995, Deci & Ryan, 2000). Therefore, the need for relatedness is satisfied if people experience a sense of unity and maintain close relationships with others. Satisfaction of all three needs is considered essential to wellbeing (Deci & Ryan, 2000). Various studies have confirmed the positive versus negative consequences of the experience versus frustration of the basic psychological needs (Deci & Ryan, 2000). The satisfaction of the needs for autonomy, competence and relatedness has been shown to relate positively to employees’ work related wellbeing in terms of task and job satisfaction, work engagement, learning, affective commitment, job performance, self rated performance, intrinsic motivation, organisational commitment, organisational citizenship behaviours, life satisfaction and general wellbeing (Greguras & Diefendorff, 2009, 2010; Lynch, Plant & Ryan, 2005; Vansteenkiste et al., 2007; Van den Broeck, et al., 2008).

Perceived Autonomy Support (PAS)

SDT proposes that contexts (as well as individual differences listed above) support the satisfaction of psychological needs and wellbeing (Gagne, 2003; Gagne, Ryan, & Bargmann, 2003) Therefore, according to SDT all people have the capacity to pursue growth and development, but whether they succeed or not, can depend on the features of the context within which they seek these opportunities. Within the workplace, motivation and wellbeing are likely to be satisfied within a workplace environment that supports one's self determination, and this is termed autonomy supportive (Ryan & Deci, 2008; Sprietzer et. al., 2005). Deci et al. (1989) showed that training managers to maximize subordinates' opportunities to take initiative, provide informational feedback (non-controlling), and acknowledge the subordinates' perspectives, improved subordinates' attitudes and trust in the corporation and the display of other positive work-related attitudes. The researchers found that the level of managers' autonomy support increased in the intervention sites relative to the control group sites and, even more importantly, that these changes crossed over to their subordinates, who reported increases in perceptions of the quality of supervision, trust in the organization, and job-related satisfaction.

Gagne (2003) showed that the level of perceived autonomy support, in a volunteer work organization, related positively to need satisfaction of the volunteers, which in turn related positively to the amount they volunteered for the activity and negatively to their likelihood of leaving the organisation. Baard et al. (2004) found support for a model where management autonomy support was related to the satisfaction of employees' psychological needs, which was related in turn to employee's higher performance evaluations, engagement in one's work, and wellbeing, in both Bulgarian and American samples. Richer and Vallerand (1995) showed that autonomy-supportive supervisors stimulate autonomy and competence satisfaction, whereas controlling supervisors thwart subordinates' needs. Lynch, Plant and Ryan (2005) found that when change was introduced staff members who perceived greater PAS from their supervisors, showed greater internalised motivation for implementing the change, than did those who experienced their supervisors as more controlling. Gagne, Koestner and Zuckerman, (2000) found positive differences in acceptance for major organisational change, when led by autonomy supportive versus controlling

supervisors. Therefore, providing support that an autonomy supportive environment facilitated acceptance of organisational change. Furthermore, Hagger, Chatzisarantis, Barkoukis, Wang, and Baranowski (2005) found that PAS was significantly related to a number of outcomes including attitudes and intentions, across a number of different sample settings (British, Greek, Polish and Singaporean). Consequently, the direct effects of PAS have been supported in a wide range of national settings.

OUTCOMES

Job Satisfaction

Locke (1969) defined job satisfaction as “the pleasurable emotional state resulting from the appraisal of one’s job as achieving or facilitating the achievement of one’s job values” (p. 316) and it has been argued that job satisfaction is one of the three most important predictors of overall well-being (see Argyle, 1989; Judge and Watanabe, 1993). The extent that employees believe they are treated well and gain important outcomes from their jobs, are fundamental to job satisfaction (Spector, 1997) and a growing body of research has examined the potential causes of job satisfaction (Brief, 1998; Spector, 1997). Previous research on job satisfaction suggests that the nature of work tasks can influence employee satisfaction (Hackman & Oldham, 1976; 1980). Specifically, job satisfaction has been found to be determined by the extent to which a job involves high levels of challenge and competence (Fried & Ferris, 1987; Loher et al., 1985). Other research has found that stressful work conditions (Fisher & Gitelson, 1983; Jackson & Schuler, 1985; Spector & Jex, 1998), interpersonal treatment at work (Bowling & Beehr, 2006; Spector & Jex, 1998) and the work family interface (Haar & Roche, 2010) also relate to job satisfaction.

Several studies have examined the relationships between job satisfaction and other wellbeing outcomes. A meta-analysis by Tait, Padgett and Baldwin, (1989), for example, found a corrected correlation of .44 between job satisfaction and life satisfaction. More recently, a meta-analysis by Thoresen, Kaplan, Barsky, Warren and de Chermont (2003) found that job satisfaction was related to both positive affect and the absence of negative affect. Other research has found that job satisfaction is positively associated with happiness (Michalos & Orlando, 2006; Weaver, 1978).

Specifically in relation to SDT, the experience of autonomy, competence and relatedness has been shown to relate positively to employees' job satisfaction (Greguras & Diefendorff, 2009, 2010; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). When the work context is perceived as autonomous (compared to controlled) job satisfaction and other wellbeing outcomes have been found to be enhanced (Fernet, Guay & Senécal, 2004; Milette & Gagne, 2008). In relation to aspirations, Vansteenkiste, Neyrinck, Niemic, Soenens, De Witte, and Van den Broeck (2007) found that adopting extrinsic over intrinsic work place aspirations was linked to less job satisfaction. Dane (in press) suggested that mindfulness may manifest in enhanced workplace outcomes, such as job satisfaction, however this remains untested.

Organisational Commitment

While job satisfaction relates to aspects of the job that an employee finds satisfying, organizational commitment on the other hand, focuses on their attitudes towards the entire organization. The underlying tenant is that as employees are committed to the organizations goals, this enhances the ability of the organisation to reach these goals. Hence, the long term sustainability of the organisations rests, in part, with the enduring commitment of employees. Northcraft and Neale (1996) defined organizational commitment as an attitude reflecting an employee's loyalty to the organization, and an ongoing process through which organization members express their concern for the organization and its continued success. Meyer and Allen (1991) asserted that affective commitment refers to the emotional bond an employee has with an organization and is formed by personal and structural characteristics and work experience (Mowday., Porter and Steers, 1982). Work experience, however, had the strongest and most consistent link with affective commitment (Meyer & Allen, 1991). Meyer, Allen and Smith (1993) noted that employees whose organizational experiences are consistent with their expectations and needs tend to build a stronger affective attachment to their organization

Meyer et al. (1993) asserted that individuals with a strong continuance commitment are less likely to involve themselves in activities beyond those required to continue membership. Meyer et al. (1993) found job satisfaction significantly and positively associated with affective commitment,

while Meyer and Allen (1991) reported that promotion, satisfaction, job characteristics, extrinsic and intrinsic exchange, as well as extrinsic and intrinsic rewards, were related to commitment. Meyer, Becker and Vandenberghe (2004) found a positive relationship between employee motivation and organizational commitment, and in relation to SDT, Greguras and Diefendorff (2009) found commitment was enhanced through the experience of the three needs within the workplace. Overall, SDT dimensions have been found to relate positively to affective commitment (Kuvaas & Dysvik, 2010; Fernet, Guay & Senécal, 2004; Milette & Gagne, 2008). Finally, Bono and Judge (2003) found that leaders influence the autonomous goals of employees and this influenced both job satisfaction and organizational commitment in employees.

Organisational Citizenship Behaviours

Organizational citizenship behaviours (OCB) is defined as “discretionary behaviours that are not directly or explicitly recognized by the formal reward system and that, in the aggregate, promote the effective functioning of the organization” (Organ, 1988, p. 4). It is the extra role behaviour that goes beyond the directed formal obligations described in job description, which is the behaviour that exceeds one’s basic job (Katz & Kahn, 1978). Such behaviour was thought to include employee willingness to follow rules, persist, volunteer, help, and cooperate (Borman and Motowidlo, 1993). However, because of the high competition rates, the standard of employee recruitment has preferred to employ those that can be expected to go the extra mile in the workplace (Chan, Taylor & Markham, 2008). Organ, Podsakoff and MacKenzie (2005) defined OCB as discretionary employee behaviours performed for the benefit of the organization or co-workers that exceed nominal job requirements and not formally recognized by the organization. In that definition, the concept has been classified into two directions: (1) OCB organization (OCBO) and (2) OCB individual (OCBI). Researchers, such as Salam, Cox and Sims (1996), argued that OCB is really interactive and ‘social’ in nature, and should, therefore, also be viewed as an element of team culture.

OCB Individual included self-disciplined behaviour such as following rules, putting forth effort, demonstrating commitment and motivation, and taking the initiative to solve a problem at work (Calson, Witt, Zivnuska, Kacmar & Grzywacz, 2008). It can also include OCBs towards

individuals such as helping others, assisting supervisors, taking time listening to others, helping new employees and passing along information to co-workers (Chen, Niu, Wang, Yang & Tsaur, 2009). OCB Organization is composed of interpersonally oriented behaviours that contribute to organizational accomplishment. It will include behaviours that assist in the building and mending of relationships, putting people at ease, encouraging cooperation, increasing consideration of others and expressing compassion and sensitivity (Carlson et al., 2008). It also includes behaviours such as attending non-required meetings and sharing ideas with others that function to keep workers informed of organizational strategies and to engage them in efforts to improve the organization (Lambert, 2000).

Hypotheses

We hypothesize a number of direct positive relationships with job outcomes. We test the potential for global aspirations and motivations (intrinsic aspirations/motivations less extrinsic aspirations/motivations) and mindfulness as enhancing job satisfaction, organizational commitment and OCBs. In this regard, workers who aspire to more intrinsic aspirations than extrinsic are more likely to enjoy their job, be committed, and engage in work roles beyond their contract. Similarly, workers who are motivated more by intrinsic aspects than extrinsic and who are more mindful and aware of the present are more likely to report higher job outcomes. However, the full model of SDT remains to be tested in relation to job outcomes and this leads to our first set of hypotheses.

Hypothesis 1: Higher global aspirations will be positively related to (a) job satisfaction, (b) organizational commitment, (c) OCB Individual and (d) OCB Organization.

Hypothesis 2: Higher mindfulness will be positively related to (a) job satisfaction, (b) organizational commitment, (c) OCB Individual and (d) OCB Organization.

Hypothesis 3: Higher global motivations will be positively related to (a) job satisfaction, (b) organizational commitment, (c) OCB Individual and (d) OCB Organization.

In addition to the three facilitators of SDT (aspirations, mindfulness and motivations), we also test the influence of the three needs satisfaction towards OCBsworkplace (wellbeing?) outcomes, suggesting that workers who have their three needs met, are more likely to be satisfied at

work, demonstrate greater organizational commitment and be more willing to engagement in extra-role behaviors. For example, workers who feel their need for autonomy—and freedom competence in the workplace is being met, ~~might be able~~ maybe be more satisfied with their jobs given the ability to enhance their skills, demonstrate greater commitment to the organizations goals as they view their competence gains not only job satisfaction but may aid the overall goals of the organization, and these employees may demonstrate greater citizenship behaviors by giving greater assistance to ~~to redirect their energies into helping~~ colleagues and the organization, through the sharing of their enhanced competence, ~~both as a response to social exchange obligations, but perhaps also through having greater time to spend on activities beyond their immediate job requirements.~~ This leads to the next set of direct hypotheses.

Hypothesis 4: Higher need for autonomy satisfaction will be positively related to (a) job satisfaction, (b) organizational commitment, (c) OCB Individual and (d) OCB Organization.

Hypothesis 5: Higher need for competence satisfaction will be positively related to (a) job satisfaction, (b) organizational commitment, (c) OCB Individual and (d) OCB Organization.

Hypothesis 6: Higher need for relatedness satisfaction will be positively related to (a) job satisfaction, (b) organizational commitment, (c) OCB Individual and (d) OCB Organization.

Interaction Effects

SDT studies have found that managers' autonomy support led to greater satisfaction of the needs for competence, relatedness, and autonomy and, in turn, to more job satisfaction, higher performance evaluations, greater persistence, greater acceptance of organizational change, and better psychological adjustment (Baard et al., 2004; Deci et al., 2001; Gagne', Koestner & Zuckerman 2000; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992; Gange & Deci, 2005). Taken together, studies in organizations have provided support for the propositions that autonomy supportive (rather than controlling) work environments and managerial methods that enhance such, promote basic need satisfaction (explained above), and a number of positive outcomes for organisations such as reduced turnover, effort, commitment, engagement and performance. We

suggest that perceived autonomy support (PAS) will moderate the effects of the three facilitators and the three needs satisfaction through enhancing the benefits towards OCBs.

Hypothesis 7: PAS will moderate (enhance) the effects of the three facilitators (a) aspirations, (b) mindfulness, and (c) motivations, towards job outcomes

Hypothesis 8: PAS will moderate (enhance) the effects of the three needs satisfaction (a) autonomy, (b) competence, and (c) relatedness, towards job outcomes

METHOD

Sample and Procedure

Data were collected from over 250 organizations, spread across a wide regional location in New Zealand. Supervisors and managers were the target of this survey, and a question was included in the front of the survey to confirm they were in a position of authority (supervisor or manager). A total of 418 surveys (from 600) were returned for a response rate of 69.7%. Survey one included items relating to the three facilitators, three needs satisfaction, PAS, as well as demographic variables. Two weeks later survey two was administered to the same participants containing the job outcome measures and this was completed by 386 respondents, for an overall response rate of 64.3%. On average, the participants were 37.4 years old (SD=13), 58% were male, married (59%), parents (54%), and union members (12%). Respondents worked 39.7 hours per week (SD=13.4), had job tenure of 5.7 years (SD=6.6) and organizational tenure of 9 years (SD=9.3). Education was well spread, with 31.3% having a high school qualification, 23.2% technical college qualification, 33.5% university degree, and 12% postgraduate qualification. By race, 62.6% were European/white, 23.3% Asian, 8.4% Maori (indigenous people of New Zealand), 3.1% Indian, 1% Pacific Islanders, and 1.6% other ethnicity. By industry sector, 64.3% were from the private sector, 29.5% public sector, and 6.2% from the not-for-profit sector, and on average, managers worked in firms with 580 employees (SD=2215).

Measures

Independent Variables

Aspirations were assessed using 30-item Aspirations Index by Kasser (2002), coded 1=not at all, 5=very. Questions followed the stem “Please circle the number that best represents your opinion relating to the following goals or aspirations that you hope to accomplish over the course of your life”. These items relate to six dimensions, which relate to *intrinsic aspirations* (meaningful relationships, personal growth, and community contributions) and *extrinsic aspirations* (wealth, fame, and image). Sample items are “To have many expensive possessions” (wealth aspirations) and “To gain increasing insight into why I do the things I do” (personal growth aspirations). As per Brown and Kasser (2005), we calculated Global Aspirations by subtracting the totaled *extrinsic aspirations* scores from the totaled *intrinsic aspirations* scores. All dimensions had adequate reliability ($.75 < \alpha < .91$). Global Motivations were calculated using 18-items by Tremblay, Blanchard, Taylor, Pelletier and Villeneuve (2009), coded 1=does not correspond at all, 5=corresponds exactly. These items relate to six dimensions, which relate to *intrinsic motivation* (intrinsic motivation, integrated regulation and identified regulation) and *extrinsic motivation* (introjected regulation, external regulation, and amotivation). We used the same technique as Blanchard, Tremblay, Mask and Perras (2009) where the more important intrinsic and extrinsic motivation dimensions are weighted (3 x intrinsic motivation and amotivation; 2 x integrated regulation and external regulation; 1 x identified regulation and introjected regulation) and then a new measure of global motivation is created where the total of extrinsic motivation dimensions is subtracted from intrinsic motivation dimensions. Sample items are “Because I derive much pleasure from learning new things” (intrinsic motivations) and “I don’t know why, we are provided with unrealistic working conditions” (amotivation). All dimensions had adequate reliability ($.80 < \alpha < .88$).

Mindfulness was measured using the 15-items of Brown and Ryan (2003), coded 1=never, 5=all of the time. A sample item is “I could be experiencing some emotion and not be conscious of it until some time later”. All 15 items are reverse scored to produce a score where the higher score indicates greater mindfulness and awareness of the present ($\alpha = .91$). The three needs was measured using 21-items by Deci, Ryan, Gagné, Leone, Usunov, and Kornazheva (2004), coded 1=not at all

true, 5=very true. Questions followed the stem “How important is the following to you...” and items were spread amongst the three needs. Need for Autonomy Satisfaction was measured using 7-items, a sample item is “I feel like I can make a lot of inputs to deciding how my job gets done” ($\alpha = .65$). Need for Competence Satisfaction was measured using 5-items, a sample item is “People at work tell me I am good at what I do” ($\alpha = .63$). The item “I have been able to learn interesting new skills on my job” was dropped because it dragged the reliability down too low otherwise (if included $\alpha = .52$). Need for Relatedness Satisfaction was measured using 8-items, a sample item is “I get along with people at work” ($\alpha = .78$). Despite the reliability scores for autonomy and competence being below the established acceptable coefficient alpha mark of 0.70 (Nunnally 1978), these scores are similar to others used in the literature. For example, Greguras and Diefendorff (2009), in a study of Singapore workers, reported similarly low reliabilities on these two needs: autonomy ($\alpha = .66$) and competence ($\alpha = .67$). Consequently, these poor reliabilities are likely due to the measure itself, especially relating to these two dimensions.

Moderator Variable

Perceived Autonomous Support was measured by six items by Baard, et al (2004) coded 1=strongly disagree, 5=strongly agree. A sample item is “My manager listens to how I would like to do things” ($\alpha = .92$). A higher score indicates employees perceive greater support for autonomy.

Dependent Variables

Job Satisfaction was measured using 5-items from Judge, Bono, Erez and Locke (2005), coded 1=strongly disagree, 5=strongly agree. Sample questions are “Each day at work seems like it will never end” (reverse coded) and “Most days I am enthusiastic about my work” ($\alpha = .79$).

Organizational Commitment was measured using the 6-items affective commitment measure of Meyer, Allen and Smith (1993), coded 1=strongly disagree, 5=strongly agree. Sample items included “I do not feel a strong sense of belonging to my organization” (reverse coded) and “I would be very happy to spend the rest of my career with this organization” ($\alpha = .76$). OCB Individual (OCB Individual) and OCB Organization (OCB Organization) was measured using 8-items each from Lee and Allen (2002), coded 1=never, 5=always. Sample items are “Help others

who have been absent” (Individual, $\alpha = .87$) and “Offer ideas to improve the functioning of the organization” (Organization, $\alpha = .91$).

Analysis

Hierarchical regression analysis was used to analyze the data with job outcomes as the criterion variables and a total of four models were calculated (job satisfaction, organizational commitment, OCB Individual and OCB Organization). Control variables were entered in Step 1 (age, gender, union member, marital status and education) and Step 2 had the three facilitators (global aspirations, mindfulness and global motivations). Step 3 held the three needs satisfaction dimensions (autonomy, competence and relatedness). The potential moderator (PAS) was entered in Step 4, and the interactions between PAS and the six predictor variables (3 facilitators and 3 needs satisfaction) were entered in Step 5. To address issues of multi-collinearity, mean centering of the interaction terms was undertaken (Aiken & West, 1991).

RESULTS

Descriptive statistics for the study variables is shown in Table 1.

Insert Table 1 about here

Table 1 shows that all study variables are significantly correlated with each other in the expected direction, except mindfulness and OCB Individual ($r = .07$, non significant).

Results of the hierarchical regression for Hypotheses 1 to 8 are shown in Tables 2 to 5.

Insert Tables 2 to 5 about here

Direct Effects of Facilitators

Tables 2 to 5 show that despite global aspirations being significantly correlated to all job outcomes, it is a non-significant predictor towards all job outcomes amongst the three facilitators, while mindfulness is significantly related to job satisfaction ($\beta = .19$, $p < .01$). Global motivations are

consistently related significantly to all outcomes: job satisfaction ($\beta = .40, p < .001$), organizational commitment ($\beta = .40, p < .001$), OCB Individual ($\beta = .14, p < .05$), and OCB Organization ($\beta = .32, p < .001$). From the R^2 Change figures in Step 2 we can see that three facilitators account for a large amount of variance towards job satisfaction (23%, $p < .001$) and organizational commitment (13%, $p < .001$), modest amounts of variance towards OCB Organization (8%, $p < .001$) but only a small amount of variance towards OCB Individual with 3% ($p < .1$). Overall, there is support for Hypothesis 2a only, and Hypotheses 3a to 3d. There is no support for Hypothesis 1.

Direct Effects of Three Needs Satisfaction

Tables 2 to 5 also show that three needs satisfaction autonomy is significantly associated with job satisfaction ($\beta = .11, p < .1$), organizational commitment ($\beta = .13, p < .05$), OCB Individual ($\beta = .12, p < .1$) and OCB Organization ($\beta = .15, p < .05$). Three needs satisfaction competence is significantly associated with job satisfaction ($\beta = .14, p < .05$), organizational commitment ($\beta = .16, p < .05$), OCB Organization ($\beta = .15, p < .05$) but not OCB Individual ($\beta = .05$, non significant). Finally, three needs satisfaction relatedness is significantly associated with organizational commitment ($\beta = .27, p < .001$), OCB Individual ($\beta = .24, p < .01$) and OCB Organization ($\beta = .21, p < .01$), but not job satisfaction ($\beta = .08$, non significant). From the R^2 Change figures in Step 3 we can see that three needs satisfaction account for a large amount of variance towards organizational commitment (12%, $p < .001$) and OCB Organization (10%, $p < .001$), modest amounts of variance towards OCB Individual (7%, $p < .001$), and small amounts of variance for job satisfaction (4%, $p < .01$). Overall, there is support for Hypotheses 4a to 4d, Hypotheses 5a, 5b and 5d, and Hypotheses 6b, 6c and 6d.

The Role of PAS

The Tables also show that universally, PAS is a significant predictor of all outcomes (all $p < .001$) accounting for moderate amounts of variance from its direct effect (4-7%, all $p < .001$). The Tables also show that there are a number of significant interactions, with PAS interacting with global aspirations towards OCB Individual ($\beta = -.20, p < .01$) and PAS interacting with global motivations towards OCB Organization ($\beta = -.14, p < .05$). Furthermore, PAS interacted uniformly with needs

satisfaction relatedness towards all outcomes: job satisfaction ($\beta = .17, p < .01$), organizational commitment ($\beta = .11, p < .05$), OCB Individual ($\beta = .11, p < .1$), and OCB Organization ($\beta = .15, p < .05$). These interactions all account for a significant additional amount of variance beyond direct effects, although these are uniformly small: job satisfaction (3%, $p < .05$), organizational commitment (1%, non significant), OCB Individual (3%, non significant), and OCB Organization (3%, $p < .1$).

To facilitate interpretations of the significant moderator effects, the interactions are presented in Figures 1 to 3.

Insert Figure 1 to 3 about here

Plots of the interaction terms for global aspirations and PAS towards OCB Individual (Figure 1), shows that when global aspirations are low there is a major difference between respondents, with respondents with high PAS reporting highest OCB Individual. This benefit is nullified at high levels of global aspirations, when respondents with high PAS report a decrease in OCB Individual and those with low PAS report an increase, ending with all respondents at similar levels of OCB Individual at high aspirations, irrespective of level of PAS. Plots of the interaction terms for global motivations and PAS towards OCB Organization (Figure 2), shows that when global motivations are low there is a major difference between respondents, with respondents with high PAS reporting highest OCB Organization. At high levels of global motivations, respondents with low PAS report an increase in OCB Organization while those with high PAS report stable levels of OCB Organization. However, overall, respondents with high global motivations and high PAS still report significantly higher levels of OCB Organization. Overall, these findings provide some support for Hypothesis 7c only. The effects between relatedness satisfaction and PAS are similar towards all outcomes and these are graphed collectively (Figure 3). At low levels of relatedness satisfaction, higher job outcomes are reported by those with high PAS, albeit only slightly higher than those with

low PAS. However, at high levels of relatedness satisfaction, respondents with high PAS report significant increases in all job outcomes compared to low PAS, supporting the Hypothesis 8a.

Overall, the regression models for job outcomes were significant and sizeable: job satisfaction ($R^2 = .43$, $F = 10.212$, $p < .001$), organizational commitment ($R^2 = .40$, $F = 9.065$, $p < .001$), OCB Individual ($R^2 = .18$, $F = 3.015$, $p < .001$) and OCB Organization ($R^2 = .32$, $F = 6.615$, $p < .001$). Finally, the variance inflation factors (VIF) were examined for evidence of multicollinearity, which is evident at VIF scores of 10 or higher (Ryan 1997). The scores from the present study were all below 3.0, indicating no evidence of multicollinearity unduly influencing the regression estimates.

DISCUSSION

The present study is one of the few SDT studies to incorporate the majority of dimensions from the literature, namely the three facilitators, three needs satisfaction, and perceived autonomous support. Overall, the seven SDT dimensions were all significantly correlated with OCB Organization and all but mindfulness were significantly correlated with OCB Individual. This highlights the importance of testing a wider range of SDT predictors than say a single dimension (e.g. motivation). The regression analysis showed that of the three facilitators, only global; motivations was a consistent predictor of OCB behaviour. This supports the links between employees who are more intrinsically motivated engaging in more helpful behaviours, towards both co-workers and the organization at large. There was much stronger support for the three needs satisfaction, with both autonomy and relatedness being significant predictors of both OCB behaviours, while competence was also related to OCB Organization. From the amount of variance accounted for, we can also see the three needs satisfaction dimensions were stronger at predicting OCBs than the three facilitators, although these were fairly close towards OCB Organization. Overall, there was strong support for the direct effects of SDT dimensions towards OCBs.

In addition to the direct effects, the direct effects of perceived autonomous support (PAS) were also support, with this SDT dimension directly influencing OCBs at similar levels of influence (variance) as the three facilitators. In addition to the direct effects of PAS, its potential moderating influence on the other SDT dimensions was tested and found to significantly influence both forms

of OCBs. Towards OCB Individual, PAS was only advantageous for workers with low levels of global aspirations, while PAS was beneficial for workers at all levels of relatedness satisfaction, indicating the greatest levels of OCB Individual were achieved by workers perceiving high support for autonomy and having high relatedness satisfaction. The benefits of relatedness satisfaction and PAS is replicated towards OCB Organization, while PAS also benefits global motivations, providing higher OCB Organization at all levels of global motivations. Overall, there is strong support for PAS moderating and enhancing the influence of SDT dimensions towards OCB outcomes. This provides strong support for the SDT literature and supports the testing of PAS as a moderator of other SDT dimensions (specifically the three facilitators and the three needs satisfaction).

Conclusion

Despite the positive findings there are some limitations, including the lack of strong reliability in the needs satisfactions measures, although this seems standard to this particular measure (e.g. Greguras & Diefendorff, 2009). However, overall we have a large sample and the separation of variables (predictors and outcomes) at two distinct time periods reduces the chances for common method variance, as does testing moderating effects of PAS. Furthermore, our wide sample of organizations and leaders enhances the generalizability of our findings, although these are limited to managers only. Future research might seek to explore these effects on employees at all levels of an organization. Overall the present study finds that SDT influences OCBs as expected, and that PAS can have additive benefits through enhancing the direct effects of other SDT dimensions.

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Table 1. Descriptive Statistics and Correlations

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	37.4	13.1	--												
2. Education	2.3	1.0	.09	--											
3. Global Aspirations	1.4	.96	.27**	.05	--										
4. Mindfulness	3.8	.66	.39**	.00	.40**	--									
5. Global Motivations	5.5	6.0	.28**	.04	.41**	.40**	--								
6. Autonomy	3.6	.58	.32**	-.04	.27**	.41**	.52**	--							
7. Competence	3.9	.63	.31**	-.10	.44**	.48**	.53**	.61**	--						
8. Relatedness	3.9	.60	.15**	-.12*	.36**	.32**	.40**	.48**	.56**	--					
9. PAS	3.7	.82	.12*	-.01	.22**	.23**	.35**	.38**	.36**	.32**	--				
10. Job Satisfaction	3.6	.69	.26**	-.05	.33**	.37**	.48**	.37**	.41**	.35**	.46**	--			
11. Org Commitment	3.4	.71	.26**	.09	.24**	.18**	.41**	.41**	.39**	.34**	.47**	.63**	--		
12. OCB Individual	3.5	.72	-.02	-.02	.18**	.07	.21**	.20**	.24**	.31**	.29**	.31**	.26**	--	
13. OCB Organization	3.8	.78	.15**	.02	.16**	.13*	.32**	.32**	.34**	.27**	.39**	.53**	.61**	.52**	--

N=386, *p< .05, **p< .01

Table 2. Hierarchical Moderated Regression Analysis for Job Satisfaction

Variables	Models with Job Satisfaction				
	Step 1 Controls	Step 2 Facilitators	Step 3 Satisfaction	Step 4 Moderator	Step 5 Interactions
Age	.17*	-.00	-.03	.00	-.02
Gender	.01	-.03	-.04	-.03	-.04
Union Member	.03	.07	.08	.04	.04
Marital Status	.10	.05	.07	.07	.09
Education	-.07	-.07	-.03	-.04	-.05
Global Aspirations		.02	-.02	-.02	-.00
Mindfulness		.19**	.12*	.12*	.09†
Global Motivations		.40***	.28***	.23***	.24***
Needs Satisfaction Autonomy			.11†	.05	.09
Needs Satisfaction Competence			.14*	.10†	.07
Needs Satisfaction Relatedness			.08	.04	.04
Perceived Autonomous Support (PAS)				.29***	.30***
Global Motivations x PAS					-.07
Global Aspirations x PAS					.05
Mindfulness x PAS					-.08
Needs Satisfaction Autonomy x PAS					.04
Needs Satisfaction Competence x PAS					-.08
Needs Satisfaction Relatedness x PAS					.17**
R ² Change	.06**	.23***	.04**	.06***	.03*
Total R ²	.06	.29	.33	.40	.43
Total Adjusted R ²	.05	.27	.30	.37	.39
Total F Statistic	3.558**	13.135***	11.523***	13.848***	10.212***

† p < .1, * p < .05, ** p < .01, *** p < .001. Standardized regression coefficients. All significance tests were single-tailed.

Table 3. Hierarchical Moderated Regression Analysis for Organizational Commitment

Variables	Models with Organizational Commitment				
	Step 1 Controls	Step 2 Facilitators	Step 3 Satisfaction	Step 4 Moderator	Step 5 Interactions
Age	.11	.04	.01	.04	.02
Gender	-.15*	-.17**	-.22***	-.20***	-.21***
Union Member	-.05	-.03	-.02	-.06	-.05
Marital Status	.14	.12	.14*	.14*	.15*
Education	.02	.02	.09	.08	.08
Global Aspirations		-.02	-.10	-.11	-.09
Mindfulness		-.06	-.15*	-.15*	-.17**
Global Motivations		.40***	.22***	.17**	.17**
Needs Satisfaction Autonomy			.13*	.07	.10†
Needs Satisfaction Competence			.16*	.12†	.10†
Needs Satisfaction Relatedness			.27***	.22***	.21**
Perceived Autonomous Support (PAS)				.29***	.29***
Global Motivations x PAS					-.07
Global Aspirations x PAS					.04
Mindfulness x PAS					.01
Needs Satisfaction Autonomy x PAS					-.02
Needs Satisfaction Competence x PAS					-.01
Needs Satisfaction Relatedness x PAS					.11*
R ² Change	.08**	.13***	.12***	.06***	.01
Total R ²	.08	.21	.33	.39	.40
Total Adjusted R ²	.06	.19	.30	.36	.36
Total F Statistic	4.251**	8.455***	11.166***	13.239***	9.065***

† p < .1, * p < .05, ** p < .01, *** p < .001. Standardized regression coefficients. All significance tests were single-tailed.

Table 4. Hierarchical Moderated Regression Analysis for OCB Individual

Variables	Models with OCB Individual				
	Step 1 Controls	Step 2 Facilitators	Step 3 Satisfaction	Step 4 Moderator	Step 5 Interactions
Age	.04	-.01	-.02	.00	-.00
Gender	.10	.08	.04	.05	.06
Union Member	.05	.06	.08	.05	.04
Marital Status	-.03	-.05	-.04	-.04	-.03
Education	-.03	-.03	.02	.01	.02
Global Aspirations		.05	-.01	-.00	.01
Mindfulness		.02	-.04	-.04	-.06
Global Motivations		.14*	.01	-.03	-.02
Needs Satisfaction Autonomy			.12†	.07	.13†
Needs Satisfaction Competence			.05	.01	-.03
Needs Satisfaction Relatedness			.24**	.20**	.17*
Perceived Autonomous Support (PAS)				.23***	.24***
Global Motivations x PAS					.09
Global Aspirations x PAS					-.20**
Mindfulness x PAS					.07
Needs Satisfaction Autonomy x PAS					-.10
Needs Satisfaction Competence x PAS					-.02
Needs Satisfaction Relatedness x PAS					.11†
R ² Change	.02	.03†	.07***	.04**	.03
Total R ²	.02	.04	.11	.15	.18
Total Adjusted R ²	.00	.01	.07	.11	.12
Total F Statistic	.791	1.403	2.868**	3.677***	3.015***

† p < .1, * p < .05, ** p < .01, *** p < .001. Standardized regression coefficients. All significance tests were single-tailed.

Table 5. Hierarchical Moderated Regression Analysis for OCB Organization

Variables	Models with OCB Organization				
	Step 1 Controls	Step 2 Facilitators	Step 3 Satisfaction	Step 4 Moderator	Step 5 Interactions
Age	.03	-.03	-.06	-.03	-.06
Gender	-.10	-.12*	-.15**	-.14*	-.15**
Union Member	.03	.05	.06	.02	.03
Marital Status	.12	.11	.13†	.14*	.15*
Education	.00	.01	.07	.06	.05
Global Aspirations		-.06	-.13*	-.13*	-.12*
Mindfulness		-.03	-.12*	-.12*	-.14*
Global Motivations		.32***	.14*	.09	.12*
Needs Satisfaction Autonomy			.15*	.09	.11†
Needs Satisfaction Competence			.15*	.11	.08
Needs Satisfaction Relatedness			.21**	.16*	.16*
Perceived Autonomous Support (PAS)				.31***	.31***
Global Motivations x PAS					-.14*
Global Aspirations x PAS					-.02
Mindfulness x PAS					.05
Needs Satisfaction Autonomy x PAS					.10
Needs Satisfaction Competence x PAS					-.04
Needs Satisfaction Relatedness x PAS					.15*
R ² Change	.04†	.08***	.10***	.07***	.03†
Total R ²	.04	.12	.22	.29	.32
Total Adjusted R ²	.02	.09	.18	.25	.27
Total F Statistic	1.995†	4.392***	6.502***	8.649***	6.615***

† p < .1, * p < .05, ** p < .01, *** p < .001. Standardized regression coefficients. All significance tests were single-tailed.

Figure 1. Interaction between Global Aspirations and PAS with OCB Individual as Dependent Variable

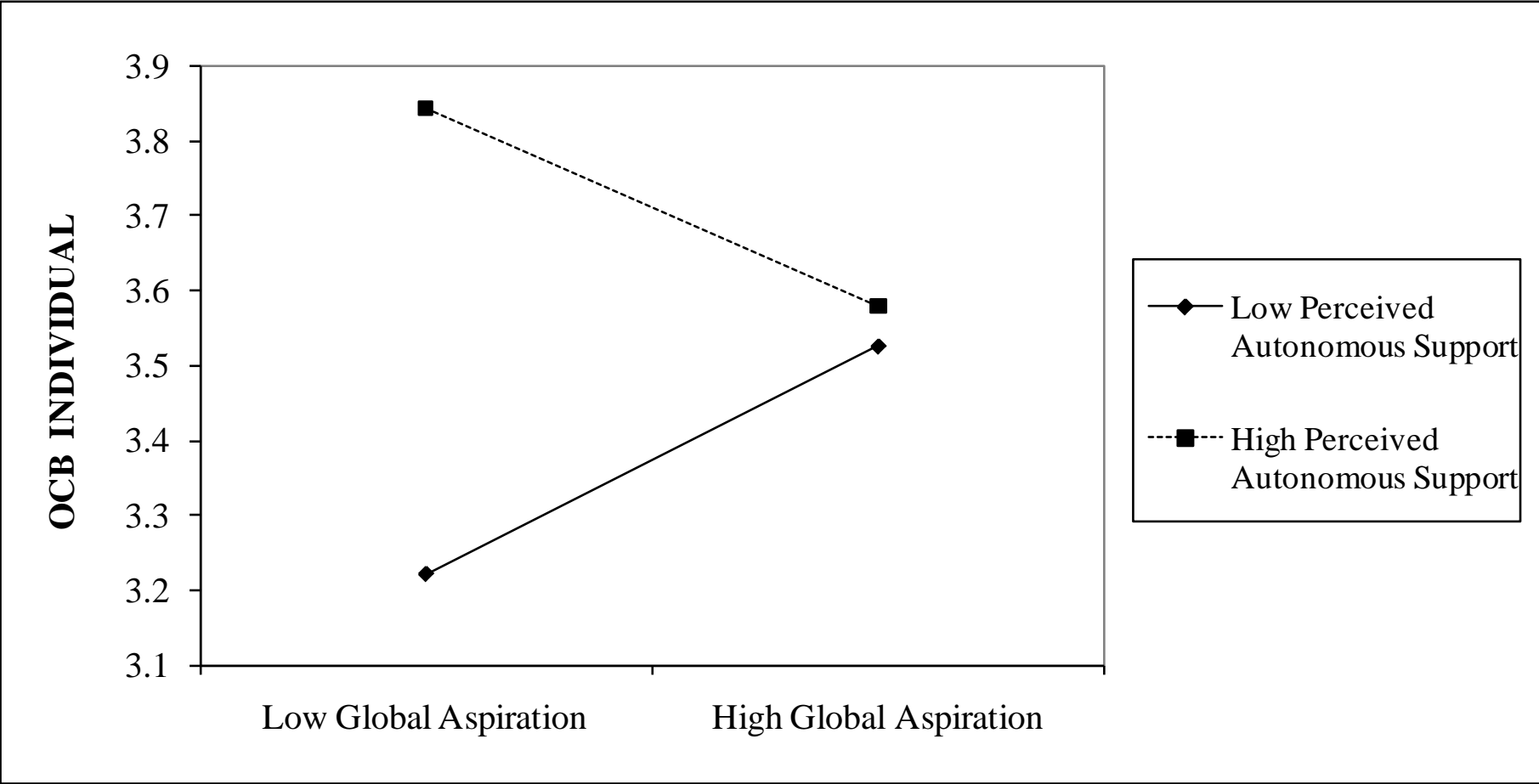


Figure 2. Interaction between Global Motivations and PAS with OCB Organization as Dependent Variable

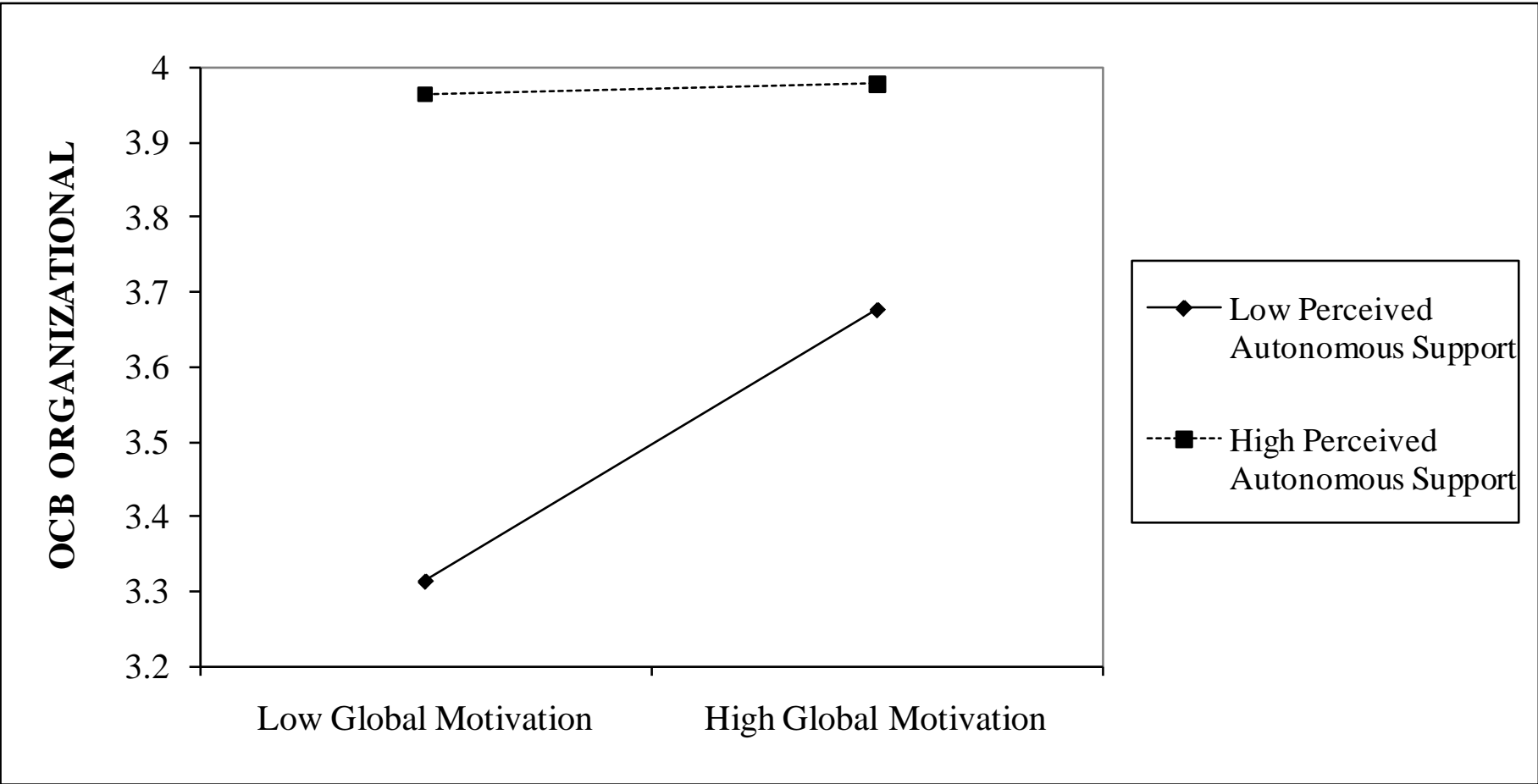


Figure 3. Interaction between Relatedness Satisfaction and PAS with All Job Outcomes as Dependent Variable

