The Interactive Effects of Behavior-based Sales Control System and Supervisory Support on Work Engagement: A SDT and OST Perspective

Faheem Ahmad Khan* Tahir Saeed**

Abstract

The purpose of this study is to investigate the relationship between Behavioral-based sales control system and salespersons' work engagement dimensions, vis-à-vis examining the role of supervisory support as an effect modifier on these relationships. Drawing on two theoretical foundations i.e. self-determination (SDT) and organizational support theory (OST), the conceptual model not only inspects the main effect of Behavior-based sales control system on three dimensions of salespersons' work engagement but also examines how the interaction among Behavior-based sales control system and supervisory support affects the strength of these relationships. Multi-stage stratified random sampling of national and multinational pharmaceutical firms was used. The data utilized for this empirical research was collected from questionnaire responses by medical representatives of twenty national and multinational pharmaceutical firms. Analysis through structural equation modeling revealed that Behavior-based sales control system was positively related with vigor, dedication and absorption. Regarding the interaction effects supervisory support had a positive effect on the relationships between Behavior-based sales control system and the three dimensions of work engagement. Implications for research and practice are also discussed.

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Keywords: Behavior-based sales control system, supervisory support and work engagement.

1. Introduction

One of the main tasks of top level managers in any sales organization is the formulation of effective sales force control strategy. Control strategy is crafted at the top level and is then translated by middle level mangers i.e. field managers into functional directives like monitoring, directing, evaluating and controlling the behaviors of sales people. It is important to note that sales people are the most critical element for sales organizations because they interact with customers and are the key players in bringing revenue for the firms and creating value for the customers. Sales force is also considered as the face and voice of the sales organizations in the market (McAmis, Evans, & Arnold, 2015; Panagopoulos, Johnson, & Mothersbaugh, 2015).

The command and control systems of the sales organizations are anticipated to direct sales people in creating the right value for organizations as well as for the customers. Though, different control types (i.e., formal and informal) have shown to bring out mixed reactions (i.e., positive and negative) from salespeople and differed in their value output (Miao & Evans, 2014). Salespeople, predominantly in pharmaceutical organizations, are conferred extraordinarily higher degree of freedom in their selling activities, which may in turn build the chance for unintended consequences. At the same time, sales control research has also been debated extensively about the role of motivation (intrinsic and extrinsic) in producing desired results from the salespeople (Yang, Kim, & McFarland, 2011). Considering the role of motivation in producing desired results, proper designing and implementation of control systems is a necessary condition for creating success.

Sales force control system is a collection of managerial activities like monitoring, directing, evaluating and compensating salespersons (Krafft, DeCarlo, Poujol & Tanner, 2012); focusing on the maximization of positive behavioral and intentional output from firms' sales force, which is one of the important avenue for sales organizations to generate revenue (Hall, Ahearne, & Sujan, 2015). To ensure salespersons' sustainability in generating results, sales organizations design control systems and implement these systems to escort an organization to the achievement of its stated goals (Drake-Knight, 2012). It is important to note down that the logic of sales force control systems existence is to align the behaviors and outcomes of salespersons with the wellbeing of their respective firms.

There is plenty of research that has focused on explaining how organizations can influence salespersons' behavior through formal sales control systems (e.g., Miao & Evans, 2014) and informal sales control systems (e.g., Lopez & McMillan-Capehart, 2009).

Changes are emerging in the markets and also in sales force management practices and these changes are pressing demands on sales researchers and organizations to align theory with practice. Despite the fact, that there are extensive research efforts in this regard, the reality is that to a great extent our knowledge is fragmented (Panagopoulos et al., 2015) and still rests on research models and their underlying assumptions that were advanced in the past and needs reconsideration to deal with the actuality of the changing landscape of markets (Jones, Brown, Zoltners, & Weitz, 2005). New selling models along with new breed of salespeople, sales managers, and leaders are on the rise (Dixon & Tanner, 2012; Plouffe, Nelson, & Beuk, 2013). These transformations necessitate reconsideration of the present approaches used in managing the sales force. Especially, in how sales force is monitored, directed, evaluated and rewarded in order to maintain a productive sales culture that attains higher level of achievement in today's extremely aggressive and competitive global economy (Spillecke & Brettel, 2013).

The consequences of Behavior-based Sales Control (BBSC) system (i.e., type of sales control system) can be classified into two broad categories i.e. salesperson's and organization related systems. Salesperson's related

variables like capabilities, affects, behavioral strategies, motivation, performance, job fulfillment and participative decision making, job stress (Oliver & Anderson, 1995), selling and non- selling behavioral performance, and outcome performance (Baldauf, Cravens, & Grant, 2002; Cravens, Piercy, & Low, 2006; Jaworski & Kohli, 1991; Piercy, Low, & Cravens, 2004), supervisor satisfaction (Küster & Canales, 2008) are thoroughly researched. On the organizational side, variables like market performance and profitability (Slater & Olson, 2000; Tansu Barker, 2001), innovativeness of sales department (Matsuo, 2009) are well established as consequences of BBSC system.

Considering the rapid changes occurring in the business environment, it is important for the sales organizations to realize how salespersons' perceive BBSC system and whether this system has the ability to establish positive relationship with salespersons' work engagement which derives positive behavioral outcomes. If BBSC system as perceived by the salespersons is misaligned with the essential nutrients of work engagement, then the salespersons may slot in some form of variation from the desired outcomes. This inability of BBSC system to relate with work engagement may consequently result in an inadvertent malfunctioning by the organization as a whole.

There exist an extensive research regarding work engagement in general but, surprisingly there is a deficient level of empirical research on this specific variable in sales management domain. Moreover, research lacks in the practical utility of this novel concept of engagement (Christian, Garza, & Slaughter, 2011; Macey & Schneider, 2008). In addition to this, there is a shortage of conceptual and empirical research connecting organizational level intervention like sales force control system with salespersons' work engagement. Understanding and exploring the relations between BBSC system and salespersons' work engagement may perhaps offer important guidelines for sales management in designing and implementing control initiatives and will encourage future research efforts in this specific domain.

Sales control systems and salespersons' work engagement in individual

and organizational terms are the important topics in their own right with well-established theoretical basis, but the truth is, we are far away from being able to integrate them in a cohesive manner to assist practicing managers. Established but unconnected body of literature regarding the consequences of control systems and the antecedents of work engagement exist. However, yet to be researched is whether BBSC system act as an antecedent to work engagement especially in the context of pharmaceutical selling environment.

In sum, broad literature review on BBSC system unfolds the presence of some important gaps in control research, which calls for the importance of future research agendas. These agendas can include re-conceptualization of control system, appropriate selection of theoretical lens on studies related to BBSC system can rest. Moreover, it can also focus on more appropriate selection of moderators and mediators between control research and important job outcomes to predict more reliable results.

The purpose of this study is to examine the relationship between BBSC system and three dimensions of work engagement. It also examines the role of supervisory support as a moderator between the relationships. Two important research questions are posed in this study: (a) what is the relationship between BBSC system and vigor, dedication and absorption? and (b) does the value of supervisory support increase the strength of relationship between BBSC system and three dimensions of work engagement?

2. Theoretical Background and Conceptual Model

Extensive review on control systems' literature reveals that different researchers have used widespread theoretical paradigms like agency theory (Darmon, 1998; Menguc & Tansu Barker, 2003; Lapierre & Skelling, 2005), transaction cost analysis (Krafft, 1999; Mallin, Asree, Koh, & Hu, 2010; Pappas, Flaherty, & Hunt, 2007), organizational theory (Lopez & McMillan-Capehart, 2009), configuration theory (Onyemah & Anderson, 2008), theory of relational self (Ahearne, Haumann, Kraus, & Wieseke, 2013), vertical

dyad linkage theory (Krafft, DeCarlo, Poujol, & Tanner, 2012), JD-R model (Miao & Evans, 2013), goal setting theory and theories of motivation and leadership (Joshi & Randall, 2001; Miao, Evans, & Shaoming, 2007).

Considering the nature of this study i.e. related to the perception of salespersons regarding control system and supervisory support, two important theoretical paradigms i.e. Self Determination Theory (SDT) and Organizational Support Theory (OST) guided the empirical research effort regarding BBSC system, salespersons' work engagement and supervisory support.

Work engagement as a construct is different from general work related motivation. Most theories related with work motivation explains the strength and not the form of motivation, whereas SDT focuses on the form of motivations, so looking at work engagement through the lens of SDT is more relevant and applicable.

SDT discuss the processes that how different types of motivation, environmental factors and social conditions affect human behavior. Theory assumes that there are three universal and basic human needs which are relatedness, autonomy and competence. Fulfillment of these needs is essential for human productivity (Niemiec & Ryan, 2009). When these human needs are fulfilled, a feeling of wellbeing and self-motivation arises. If these needs are not met, it results in frustration and reduced self-motivation (Ryan & Deci, 2000). Theoretically different kinds of motivations exist. In extrinsic motivation a person performs activity because of external pressure. In intrinsic motivation a person performs any activity for its own pleasure, joy and satisfaction (Levesque, Copeland, & Sutcliffe, 2008). A sub theory within SDT framework i.e. Cognitive Evaluation Theory (CET) is used in developing the structure of this study.

OST explain the general beliefs of employees regarding his/her organization i.e. how organizations value their working and show care to them. Managers are seen as agents of organizations by the employees and

represent the organization's thinking towards employees. If the behaviors and norms of managers/supervisors are perceived as favorable for subordinates, they feel that the organization is in their favor or vice versa.

In this study, the relationship between BBSC system and work engagement's dimensions are based on CET (i.e., auxiliary theory of SDT) while OST provide the basis for testing the moderating role of supervisory support between BBSC system and work engagement dimensions.

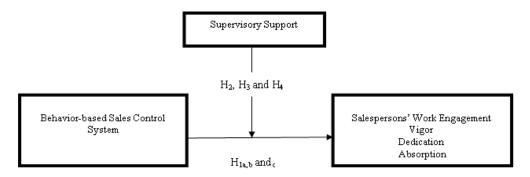


Fig. 1 Conceptual Model

2.1 Behavior-based Sales Control System and Salespersons' Work Engagement

Looking through the lens of social psychology theory i.e. CET, it is illustrated how BBSC system can be viewed as a control system that has essential components (i.e., activity and capability) to link with the three dimensions of work engagement in a pharmaceutical selling environment.

Under BBSC system, managers focus on the behavioral output of salespersons. Based on the level of importance, BBSC system keeps track of salespersons behavioral output. Sales researchers in the past have devoted noticeable efforts to unveil the linkages of BBSC system with salespersons related consequences (i.e., Panagopoulos & Dimitriadis, 2009; Piercy, Cravens, & Lane, 2012; Verano-Tacoronte & Melián-González, 2008).

At the same time, an important line of research stream i.e. work engagement has allured researchers' attention in the past few years. It provides a nexus to cultivate the desired behavior among employees, and is labeled as a mandatory ingredient to energize and to go beyond the required level of their output. Work engagement by its description is considered as a positive, affective and motivational state of mind and consists of vigor, devotion and absorption. Vigor means high level of positive energy and spirit, the willingness of a person to invest high level of effort in work and not being easily fatigued by any difficulty related to task performance. Dedication means strong involvement in work, where an individual feels a strong commitment and enthusiasm by developing a sense of inspiration and pride for the work. Absorption means enjoying work with a pleasant state of mind and not detaching oneself from work (Schaufeli, Bakker & Salanova, 2006).

Engagement as a concept was initially introduced in business and the corporate world in 1990s. Poon (2013) pointed that much of the research on work engagement is opinion based rather than on solid evidences. By and large, work engagement is conferred as a behavioral outcome (Shuck & Wollard, 2010) and a diminutive interest is shown by the researchers to explore the antecedents that might drive the cognitive and affective states of engagement. Generally, literature on the concept of engagement has investigated conceptual relationships between the possible antecedents and consequences, and these repeated efforts from researchers resulted in contrasting and detached results (e.g., Bakker, 2011; Baron, 2012; Christian, Garza, & Slaughter, 2011; Wollard & Shuck, 2011).

Antecedents that develop work engagement at the organizational level circle more or less around basic human needs fulfillment. The recognition and importance of fulfilling the basic needs seem simple; however, it highlights the complexity of actually creating circumstances or conditions for the engagement to happen. But still, there exist strong evidence that organizational factors play a crucial role in cultivating engagement (e.g., Fock, Yim, & Rodriguez, 2010; Shuck, 2011). In addition to this, the role of

organizational culture has also been examined by researchers like (Shuck, Rocco, & Albornoz, 2011) as an antecedent variable signifying conceptual link between the variables.

Furthermore, research has suggested that workplace climate (i.e., supportive, dependable, and constructive) augment the conditions necessary for engagement (Dollard & Bakker, 2010). Working conditions, fair pay, and provision of resources are also recommended potential factors for cultivating engagement at organizational level (Harter, Schmidt, & Hayes, 2002).

Work engagement that comes from external sources like feedback, recognition of employees on the job is conceptually related, but no empirical substantiation exists. There is a relative lack of empirical research that pays attention to the role of typical sales force management initiative like BBSC system as an antecedent to engagement. Work engagement of salespersons in the modern era is definitely an important subject and researchers' work on this concept is quite stumpy. Keeping in view the aforementioned facts and the logic provided by CET, the authors hypothesize;

H1: BBSC system has a positive relationship with the three dimensions of work engagement i.e. a-vigor, b- dedication and c- absorption.

2.2 Supervisory Support as a Moderator

Supervisory support refers to the extent to which supervisors care about their subordinates, value their efforts and support them (Edmondson & Boyer, 2013). Supervisors are supposed to be caring about their subordinates which in turn help in managing their affective behaviors. Being an agent of an organization it becomes the responsibility of a supervisor to direct, care, value and support their subordinates, which ultimately leads to the attainment of organizational goals.

OST is of the view that supervisors' actions portray the intentions of an organization (Levinson, 1965). Due to close working relations between the

subordinates and their supervisors, the organizational goals and objectives are effectively communicated to employees. Also, according to theory, there are different types of perceived encouraging treatments provided by organizations including fairness, organizational rewards, job condition and supervisory support. These treatments result in increased level of perceived organizational support, which consequently leads to employee wellbeing.

Supervisory support covers a wide spectrum of conceptualizations like motivating supervision (Beausaert, Segers, & Gijselaers, 2011), empowering leadership (Zhang & Bartol, 2010), supportive leadership (Amabile, Schatzel, Moneta, & Kramer, 2004) and transformational leadership (Bartram & Casimir, 2007).

Supervisory support is positively associated with commitment (Eisenberger et al., 2002) and work engagement (Bakker & Demerouti, 2007). The relationship between a supervisor and subordinates serve as an energizer and motivates subordinates to perform better. Supervisors on the basis of mutual trust take care of subordinate's needs and emotions (Kianto, 2008). It encourages employees to take initiative, express their views and idea to present novel solutions of problems (Saunders, Sheppard, Knight, & Roth, 1992).

Furthermore, support from supervisor provides an opportunity of learning and development (Kianto, 2008) by providing challenging but inspiring tasks (Janssen, 2005). Also according to Chughtai and Buckley (2011) supervisory support and trust leads to higher levels of engagement and lays a foundation for innovative job behaviors. Based on reviewed literature and support from OST, it is likely to assume that perceived supervisory support could affect the strength of relationships between BSSC system and the three dimensions of work engagement.

H2: The interaction effect between BBSC system and supervisory support will predict salespersons' vigor, such that supervisory support will strengthen the positive association between BBSC system and salespersons'

vigor.

H3: Supervisory support will moderate the relationship between BBSC system and salespersons' dedication such that, if more support is present, the strength of positive relationship between BBSC system and dedication will be increased.

H4: BBSC system and supervisory support will interact to influence salespersons' work engagement such that, if more support is present, the strength of positive relationship of BBSC system with absorption will be increased.

3. Research Method

In view of the fact that the purpose of this study is to inspect the direct relationship between BBSC system and the three dimensions of work engagement, vis-à-vis examining the role of supervisory support as an effect modifier on these relationships. The research setting for this study is the pharmaceutical industry, using salespersons as the key informants. The study used a survey questionnaire as an instrument to quantify BBSC system, supervisory support and work engagement.

Research in sales management typically falls down within two widespread worldviews, the positivist and naturalistic paradigms, both of these paradigms have disparate suppositions concerning reality (Howe, 2009). With regards to reality, the positivists suppose that single reality exists, which can be measured as compared to naturalistic paradigm, which considers that there are multiple realities that continuously vary with time and difficult to gauge. From these paradigms originated quantitative research method and qualitative research method respectively. The quantitative research supports the positivist paradigm, and qualitative research method allies with naturalistic paradigm and both have different foci (Johnson & Onwuegbuzie, 2004).

Babones (2015) explained that quantitative research is classified as hard

science, it is more formal in rhythm, is brief and purposeful, and consequently uses deductive approach for problem solving. While qualitative research is classified as soft science and tends to be casual, multifarious, wide, and slanted. Research approach in qualitative inquiry follows inductive approach in solving problems. Both the methods are suitable because both add enormous value to the body of knowledge.

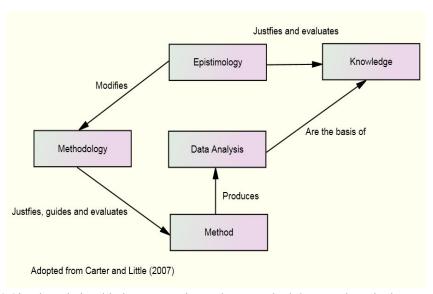


Fig. 2 Simple Relationship between Epistemology, Methodology, and Method

Choice between the two methods depends upon the research question(s) being asked and the amount of information previously available regarding the issue at hand (Mendlinger & Cwikel, 2008). To answer the questions posed in the study, quantitative design is more appropriate as compared to qualitative design. Given that the descriptive-level of research is plentiful as far as BBSC system and its outcome is concerned, the next rational step is to conduct correlational study for examining the relationships between BBSC system and dimensions of work engagement. A correlational mode of inquiry is used to answer the questions; its advantage is that it will provide an assessment of strength and direction of relationships of the study variables. Carter and Little (2007) clarify the relationship between epistemology, methodology and method.

3.1 Measures

Salespersons (i.e., medical representatives) of pharmaceutical firms responded to the scales of BBSC system, supervisory support, and work engagement. The BBSC system is measured by capturing two dimensions: activity control (5 items) and capability control (5 items) on a 5 point likert scale with anchors 1= strongly disagree to 5= strongly agree from Kohli, Shervani, & Challagalla's (1998). Supervisory support was measured according to Greenhaus, Parasuraman, and Wormley's (1990) and comprised of nine-item scale and operationalized as a provision of career guidance (3 items), performance feedback (2 items), challenging work (2 items), and work opportunity (2 items) on 5 point likert scale with anchors 1= strongly disagree to 5= strongly agree. Work engagement of salespersons was measured from Utrecht Work Engagement Scale (UWES) a battery of seventeen items covering three dimensions i.e. vigor (6 items), dedication (5 items), and absorption (6 items) with anchors 1= never and 5 = always, developed by Schaufeli, Salanova, González-Romá, and Bakker (2002).

3.2 Population, Sample and Data Collection

The pharmaceutical industry is preferred as research setting for this empirical study. The rationale for selecting this setting is the prevalence of BBSC system and secondly, the customers (doctors) in case of pharmaceutical firms are very conscious about the products they are prescribing and are very much eager to know the details and benefits attached to different products. As a result, it is essential for pharmaceutical firms to devote higher level of resources to train, coach and mentor salespersons so that salespersons demonstrate more customer-centric behavior, which in turn will be mirrored in salespersons' performance.

Though engagement is a decisive factor in success and failure across all types of employees, the authors consider that salespersons' work engagement is predominantly pertinent in the pharmaceutical industry. Where customers (doctors) look forward to salespersons as an important source of information

acquisition, and expect that they are highly motivated and fervent regarding delivering services. Consequently, it is conceded that the requirement of salespersons' work engagement is more pertinent in a pharmaceutical sales context where firms believe customers' service is an important component of their overall strategy. Also customers look forward to such behavior from salespersons.

The data source is the salespersons of 20 pharmaceutical firms including both multinational and national firms. While conducting the survey, the pharmaceutical industry employed 80,000 to 90,000 salespersons in 806 total firms operating in Pakistan. Top 100 pharmaceutical firms (IMS Q-3 2014 report) in revenue terms were selected as target population, among these 100 firms there were 24 multinational firms and 76 national firms which served as a basis for stratification. Based on this proportion 5 multinational and 15 national firms were randomly selected from each strata.

Keeping in mind, the ratio of these firms in the industry; medical representatives of multinational firms were calculated as 19,200 and the number of medical representatives in national firms were calculated as 60,800. Taking into consideration the confidence interval of 95 percent from the respective populations, the sample of 377 medical representatives from the multinational and 383 medical representatives from national firms were determined as the final sample (Sekaran, 2005, p. 268). As a result, we had a final sample size of 760 salespersons from selected 20 firms.

Pakistan Pharmaceutical Manufacturing Association was asked for assistance and cooperation in the distribution of questionnaires to 5 multinational and 15 national firms, as selected through multistage stratified random sampling.

4. Data Analysis and Results

After deleting the cases with missing data, 633 cases were kept for statistical analysis. Before conducting detailed analysis, data was scrutinized

through descriptive and case summary reports for correctness of the data and was checked for outliers. A total of 14 cases were identified as outliers and were deleted using box plot technique. The data from remaining 619 cases was appropriate and was subjected to further statistical tests on Statistical Package for Social Sciences (SPSS-21) and Analysis of Moment Structures (AMOS-18) softwares.

4.1 Descriptive Statistics

Intercorrelations between constructs were assessed using SPSS-21. Table 1 provides support for the theorized relationships between latent constructs.

Table 1
Descriptive Analysis and Inter Correlation (N=619)

	Descriptive Analysis and Intel Correlation (N=019)								
	Constructs	1	2	3	4	5	Mean	Skewness	Kurtosis
							(SD)		
1	BBSC		0.46**	0.60**	0.58**	0.53**	31.19	2.4	02
		-	0.46	0.60	0.38.	0.33	(4.79)	34	
2	SupSpt			0.55**	0.58**	0.51**	27.98	5.1	0.01
		-	-	0.33	0.38	0.31	(5.85)	54	
3	Vigor				0.58**	0.61**	16.59	70	0.66
		-	-	-	0.38	0.01	(2.69)	79	
4	Dedication				-	0.5.(**	19.03	5.6	02
		-	-	-		0.56**	(4.19)	56	
5	Absorption				-		21.01	0.62	32
		-	-	-		-	(3.61)	0.63	

Note: ** p < 0.01

BBSC system was positively correlated with supervisory support (r = 0.46 at p < 0.01), positive with vigor (r = 0.60 at p < 0.010), with dedication (r = 0.58 at p < 0.01) and with absorption (r = .53 at p < 0.01), while supervisory support showed a positive relationship with vigor (r = .55 at p < 0.01) with dedication (r = .58 at p < 0.01) and with absorption (r = .51 at p < 0.01). Vigor positively related with dedication (r = .58 at p < 0.01) and absorption (r = .61 at p < 0.01) and dedication demonstrated a positive relationship with absorption (r = .56 at p < 0.01). Table 1 also provide means, standard deviations, skewness and kurtosis of the latent variables for the sample.

4.2 Measurement Validation

Five factor nested Confirmatory Factor Analysis (CFA) is applied to assess the unidimensionality, validity, and reliability of the measures for the sets of latent constructs (i.e., BBSC system, supervisory support and work engagement). In order to evaluate the fit of the CFA models numerous goodness-of-fit indices were used as suggested in the Structural Equation Modeling (SEM) literature e.g. (Bentler, 1992; Hu & Bentler, 1999; Marsh, Balla, & McDonald, 1988; Ping, 2004; Sila & Ebrahimpour, 2005; Venkatraman, 1989) such as $\chi 2$ / df; Goodness of Fit Index (GFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Table 2 present the constructs' related dimensions and indicators.

Table 2
Latent Constructs. Dimensions and Indicators

	Latent Constructs, Dimensions and indicators					
Latent Variables	Dimensions/Operationalization	Observed Variables				
		(Indicators)				
Behavior-based Sales	Activity Control	AC1, AC2, AC3, AC4				
Control System		and AC5				
	Capability Control	CC1, CC2, CC3, CC4				
		and CC5				
Work Engagement	Vigor	VG1, VG2, VG3, VG4,				
		VG5 and VG6				
	Dedication	DD1, DD2, DD3, DD4				
		and DD5				
	Absorption	AB1, AB2, AB3, AB4,				
	•	AB5 and AB6				
Supervisory Support	Career guidance, Performance	CG1, CG2, CG3, PF1,				
- • • •	feedback, Challenging work	PF2, CW1, CW2, WO1				
	and Work opportunities	and WO2				

The CFA for the data provided a good fit ($\chi 2 = 932.38$, df = 453, $\chi 2/\text{df} = 2.05$, GFI=.91, NFI=.88, CFI=.93, RMSEA=.04). All the factor loadings above the threshold value were highly significant and supported the convergent validity of the scales (Anderson & Gerbing, 1988). On the whole, the results suggest that the constructs have sound psychometric properties and seem appropriate for substantive analysis and interpretation. Table 3 demonstrates CFA results in terms of factor loadings, α value, Composite Reliabilities (CR) and

Average Variance Extracted (AVE).

Table 3 CFA Results

Items	CFA Results						
Supervisory Support α = .80 ; CR = .81 ; AVE = .33	Construct and	Factor Loadings	Construct and	Factor Loadings			
Activity control α = .76 ; CR = .74; AVE = .40) Capability control α = .71; CR = .72; AVE = .40) AC1	Items	Items					
α= .76; CR= .74; AVE= .40) Capability control α= .71; CR=.72; AVE=.40) AC1 .70 CG1 .57 AC2 .72 CG2 .59 AC3 .71 CG3 .58 AC4 Deleted PF1 .55 AC5 .58 PF2 .49 CC1 .69 CW1 .53 CC2 .59 CW2 .54 CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted WO2 .57 Work Engagement Vigor α=.81; CR=.81; AVE=.51 Deleted VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	Behavior-based s	ales control system	Supervisory Support				
	Activit	y control					
AC1	α= .76 ; CR=	.74; AVE= .40)					
AC1 .70 CG1 .57 AC2 .72 CG2 .59 AC3 .71 CG3 .58 AC4 Deleted PF1 .55 AC5 .58 PF2 .49 CC1 .69 CW1 .53 CC2 .59 CW2 .54 CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR=.87; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	Capabili	ity control					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	α = .71; CR=.	72; AVE=.40)					
AC3 .71 CG3 .58 AC4 Deleted PF1 .55 AC5 .58 PF2 .49 CC1 .69 CW1 .53 CC2 .59 CW2 .54 CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR=.87; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	AC1	.70	CG1	.57			
AC3 .71 CG3 .58 AC4 Deleted PF1 .55 AC5 .58 PF2 .49 CC1 .69 CW1 .53 CC2 .59 CW2 .54 CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR=.87; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	AC2	.72	CG2	.59			
AC4 Deleted PF1 .55 AC5 .58 PF2 .49 CC1 .69 CW1 .53 CC2 .59 CW2 .54 CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR= .87; AVE=.58 Absorption α =.79; CR=.79; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 .74 DD2 .76 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66							
AC5	AC4	Deleted	PF1	.55			
CC2 .59 CW2 .54 CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR=.87; AVE=.58 Absorption α=.79; CR=.79; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	AC5	.58	PF2	.49			
CC3 .72 WO1 .58 CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR= .87; AVE=.58 Absorption α = .79; CR=.79; AVE=.33 VG1 .74 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	CC1	.69	CW1	.53			
CC4 .55 WO2 .57 CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR=.87; AVE=.58 Absorption α = .79; CR=.79; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	CC2	.59	CW2	.54			
CC5 Deleted Work Engagement Vigor α=.81; CR=.81; AVE=.51 Dedication α = .88; CR= .87; AVE=.58 Absorption α = .79; CR=.79; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	CC3	.72	WO1	.58			
Work Engagement Vigor α=.81 ; CR=.81 ; AVE=.51 Dedication α = .88; CR= .87; AVE=.58 Absorption α = .79 ; CR=.79 ; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	CC4	.55	WO2	.57			
Vigor α=.81 ; CR=.81 ; AVE=.51 Dedication α = .88; CR=.87; AVE=.58 Absorption α = .79 ; CR=.79 ; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	CC5	Deleted					
Dedication α = .88; CR= .87; AVE=.58 Absorption α = .79; CR=.79; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	Work Er	ngagement					
Absorption α = .79 ; CR=.79 ; AVE=.33 VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	Vigor α=.81 ; Cl	R=.81 ; AVE= .51					
VG1 .75 VG2 .74 VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	Dedication $\alpha = .88$; CR= .87; AVE=.58					
VG2	Absorption $\alpha = .79$; CR=.79 ;AVE=.33					
VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	VG1	.75					
VG3 Deleted VG4 Deleted VG5 .63 VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	VG2	.74					
VG5	VG3	Deleted					
VG6 .75 DD1 .74 DD2 .76 DD3 .81 DD4 .78 DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	VG4	Deleted					
DD1	VG5	.63					
DD2	VG6	.75					
DD3	DD1	.74					
DD4	DD2	.76					
DD5 .76 AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	DD3	.81					
AB1 .60 AB2 .72 AB3 .58 AB4 .50 AB5 .66	DD4	.78					
AB2 .72 AB3 .58 AB4 .50 AB5 .66	DD5	.76					
AB3 .58 AB4 .50 AB5 .66	AB1	.60					
AB4 .50 AB5 .66	AB2	.72					
AB5 .66	AB3	.58					
	AB4	.50					
ΔR6 68	AB5	.66					
ADV .00	AB6	.68					

Notes: Items (AC4, CC5, VG3 and VG4) were deleted based on lower factor loadings. α = Cronbach's alpha; CR = Composite reliability; AVE = Average Variance Extracted

4.3 Hypotheses Testing

Path analysis was used to test the hypotheses. In order to perform this analysis, BBSC system was modeled as a second order factor comprised of two dimensions (i.e., activity and capability control) with eight observed variables. Supervisory support was modeled with 9 observed variables and vigor with 4, dedication with 5 and absorption with 6 observed indicators.

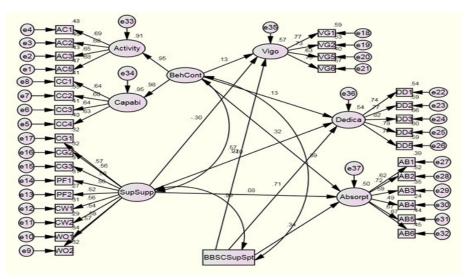


Fig. 3 Structural Model

BBSC system, supervisory support and the multiplicative term (i.e., BBSC system*supervisory support) were taken as exogenous variables in the model (an interaction term was created by multiplying the mean-centered variables of BBSC system and supervisory support) and dimensions of work engagement as endogenous variables. Busemeyer and Jones (1983) as well as Kenny and Judd (1984) primarily established this approach for testing moderation in SEM, and afterwards refined by Marsh, Wen, and Hau (2004). The paths from BBSC system, supervisory support and multiplicative term were connected to vigor, dedication and absorption.

Maximum Likelihood method was used to estimate structural

parameters. Model fit indices were in acceptable ranges i.e. (χ 2 = 1144.97, df = 483, χ 2/df= 2.37, GFI=0.90, NFI=0.90, CFI=0.93, RMSEA=0.04). The structural model explains a significant variance in vigor (R² = 0.57), dedication (R² = 0.54) and absorption (R² = 0.50).

Table 4 shows β -values, standard errors and p values for the structural model. H1a suggesting BBSC system will have a positive relationship with vigor is supported (β = .12, p < 0.05), H1b proposing that BBSC system will have a positive relationship with dedication is again supported (β = .13, p < 0.01). H1c is also confirmed showing a positive relationship with absorption (β = .32, p < 0.001). The direct relationships tested in this study are in line with the previous study conducted by Miao and Evans (2013).

Table 4
Structural Model Results (N=619)

	Structural Woods (1000)					
Effects	Hypothesized Path	β	S.E	P value	Conclusion	
Linear Effects					_	
Hypothesis 1 _a (+)	BBSC System→ Vigor	.12	.06	0.05**	Supported	
Hypothesis $1_b(+)$	BBSC System→ Dedication	.13	.06	.01*	Supported	
Hypothesis $1_c(+)$	BBSC System→ Absorption	.32	.05	.001***	Supported	
Interaction Effects					_	
Hypothesis 2 (+↑)	BBSC*SupSpt→ Vigor	.92	.00	.001***	Supported	
Hypothesis 3 (+↑)	BBSC*SupSpt→ Dedication	.70	.00	.001***	Supported	
Hypothesis 4 (+↑)	BBSC*SupSpt→ Absorption	.34	.000	.001***	Supported	

Note: * p < 0.01, ** p < 0.05, *** p < .001

In addition, to test the linear effects, interaction effects of BBSC system and supervisory support on vigor, dedication and absorption were measured. The equation in SEM to measure interaction is represented in Equation 1.

$$\dot{\eta} = \beta 0 + \beta 1 * \xi + \beta 2 * \mu + \beta 3 * \xi * \mu + \varepsilon \tag{1}$$

Here, $\dot{\eta}$ is the vigor, ξ is the BBSC system and μ is supervisory support

and $\xi^*\mu$ is the interaction term of BBSC system and supervisory support. The β s correspond to the regression parameters, β 0 is constant and ϵ is the error term. Reliability and measurement error for $\xi^*\mu$ was calculated by using the formula as suggested by Ping (1995). $\xi^*\mu$ reliability = $\sqrt{(PxPz + r2xz)}$ = (r2xz+1) and measurement error = $(1-\xi^*\mu$ reliability), where Px and Pz are the reliabilities of independent variable (BBSC system) and the moderating variable (supervisory support), and rxz is the intercorrelation of X and Z.

H2 suggests that the interaction effect between BBSC system and supervisory support will predict salespersons' vigor, such that supervisory support will significantly strengthen the positive relationship between BBSC system and vigor (β = .92, p < 0.001). Results also show that supervisory support positively moderates the relationship between BBSC system and dedication (β = .70, p < 0.001), thus H3 is also accepted. The moderating effect of supervisory support between BBSC and absorption is also significant (β = .92, p < 0.001), hence, H4 is also supported. Thus, the results of this study are in line with the previous work of Menguc, Auh, Fisher, & Haddad (2013).

5. Discussion

The purpose of this empirical study was to examine the relationships among BBSC system and three work engagement's dimensions and to examine the role of supervisory support as a moderator. To do so, the study investigated direct and moderating relationships. Results showed a strong support for the moderating role of supervisory support on the paths between BBSC system, vigor, dedication and absorption.

It is obvious from the results that when it comes to designing and implementing the BBSC system, managers ought to consider the major propositions of SDT and OST. The implications of SDT and OST are to cautiously consider the factors i.e. relatedness, autonomy and competence and support from supervisors to seed in work engagement.

Results also imply that the linear effects of BBSC system with the three

dimensions of work engagement are indeed important, but the interactive effects of BBSC system and supervisory support are also important. It enhances the strength of relationship between BBSC system and the dimensions of work engagement in a pharmaceutical context. The inclusion of BBSC system as explanatory variable and work engagement as criterion variable in the conceptual model highlights the importance of these variables in expanding the theoretical model.

In earlier studies some researchers have suggested that BBSC system has an impact on work engagement, but researchers cast the notion of work engagement as adaptive selling behavior and salespersons' selling efforts, not with the true and established dimensions of work engagement. Through disaggregation of the global work engagement construct, the differential effect of BBSC system on vigor, dedication and absorption are identified. If work engagement as a global construct had been used as a dependent variable, the impact of BBSC system on distinct dimensions of work engagement would have become hard to pin down.

In sum the study is important because it:

- -Adds to the existing knowledge on BBSC system and its consequences
- -Demonstrates the linkage between BBSC system and work engagement dimensions which is of extreme managerial relevance.
- -Indicates that salespersons do view BBSC system as an organizational level intervention which is positively related with the nutrients of work engagement (an emerging trend not tested in sales management).
- -Also gazed deeper into the construct of work engagement.
- -Provides the support and application of SDT and OST in sales control research.
- -Provides a cognitive-based perspective on control approach from salespersons' view point.
- -Exhibits that different level of supervisory support act as an effect modifier between the relationships of BBSC system and dimensions of work engagement.
- -Provides the nexus for future researchers.

-Clarifies that sales organizations can benefit by more closely aligning the dimensions of BBSC system with the nutrients of work engagement to reap the benefits.

6. Limitations and Future Research Directions

The study carried by us holds quite a few limitations. First of all, the data collected was cross sectional in nature, which may not establish causal relations. Therefore, longitudinal studies should be conducted to find causal relations between the set of study variables. Second, the data collected from salespersons was based on their perception about BBSC system, supervisory support and different dimension of work engagement, which definitely raises questions for common method bias.

Furthermore, for this study BBSC system was treated as second order construct, which made us unable to propose relations for the two dimensions of BBSC system (i.e., activity and capability control) with the dimensions of work engagement. Future studies should be modeled in a way to explore relationships from dimensions of BBSC system to the dimensions of work engagement for clarity and more refined understanding. Other variables which may influence the levels of work engagement may be explored in future research studies.

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