

Providing a Model of Information Technology Role in Employees' Engagement in Work Based on Bakker and Demerouti's Model (Case study: Agriculture organization of Qom)

Mehdi Esmaili¹, Zahra Otouee², Masoud Arianfard³, Reza Seraji⁴

¹MA student of Public Management, University of Tehran, Qom campus

²MA degree of Microbiology

³MA student of IT management, University of Tehran, Qom campus

⁴MA Student Business Administration, Faculty of Management, Qom College, University of Tehran, Iran

ABSTRACT

This study has conducted with the title of appraising relationship between “information technology” and “employee engagement” in Agriculture organization of Qom. The aim of this study is appraising and evaluating these relationships. In order to measuring the variable “information technology”, the questionnaire which is provided by Moghimi is used. In order to measuring the variable “employee engagement” the 17 index of work engagement are used suggested by Salanova et al (2002). This is a descriptive and correlating survey. In order to collecting data, the questionnaire was used which is valid and reliable. For analyzing data, the correlation test was used. The results of Pearson and Spearman correlation test show positive correlation among IT and employee engagement. With 95% confidence the main hypothesis and three hypotheses were accept. These results show that IT affects employee engagement, vigor and also dedication to the job. The engaged in work employee can improve organizational performance.

KEYWORDS: Information technology, Vigor in work, Dedication to work, Absorbing in work, Agriculture organization of Qom

INTRODUCTION

During two last decades, the investment in IT was the most important issue which economists analyzed it. But today the most important issue is that whether the investment in IT affects performance and productivity? Most of studies try to discover the correlation among IT and organization performance (Badescu & Ayerbe, 2009, pp. 22–129)

The importance of IT is increasing for organization and its impact on international trade is widely felt (Jamali, Hashemi, 2011, p.21). But the findings of some studies are different. Doan and Kramer have shown that investing in IT has a positive and significance impact on Gross Domestic Product in developed countries. But this is not true for developing countries (Dewhurst F.W, 2003, pp. 348-374). Some comments suggest that IT has economic importance for two reasons. 1. IT facilitates adopting of innovation and organizational change; like the emergence of business models by cost savings, higher quality and customer based innovations. 2. Competition and market structure has changed. As a result, barriers will reduce and new channels for delivery of goods and services will increase (Badescu & Ayerbe, 2009, pp. 22–129). IT helps organizations to solve operational challenges and automate business environments (Ganapati, 2008).

Some of roles which people play in community are the same as they play in organization. Welbourne believes that organizational members play five roles in organization in which one of them is pivotal and the other four are non-pivotal. The pivotal role is his job which is described and has some standards and specified duties. The other four roles generally are not described and thereby are not the person's official duties. The person's role as organizational member, as a team member, his career role and his role as an innovator and entrepreneur in organization are the four non-pivotal roles. Welbourne (2007) believes that the most important issue for organizations and managers is engaging organizational member in the non-pivotal roles.

2. Statement of the problem

Engaging in work is component which has recently entered into organizational issue and it is not more than two decades since its advent. The employees, who are engaged in work, are light-hearted, energetic and efficient and have a great willingness to work and effort toward organizational goals. This concept was first used by Kahn

(190).He has defined engagement as “a psychological condition in which a person is submissive by his work role” (Kahn, 1990, 604).Employees, who are engaged in work, are energetic and active, make a positive relationship with their work and try to work efficiently (Koyuncuet al, 2006, p.300). The employees, who are not engaged in work, don’t do their job role in organization and withdraw cognitive and affective. They do their job role incompletely; their behaviors do not contain any efforts and finally they become like some dead persons with routine and aimless activities (Luthans & Peterson, 2002, p.278). Thereby job engagement is very important. Research findings indicate that the engaged in work employees have more willingness to play ultra-role especially in contracting with customers (Moliner et al, 2008, p.329) and have higher performance. So the customers who contract with these employees are more satisfied and more loyal (Salanova, Agut & Peiro, 2005, p.124). There are no full agreements on components which lead to engagement in work. Researchers consider a series of components which affect engaging in work such as personal components, job components and environmental components (Mello, Wildermuth & Pauken, 2008, p.210). Another important factor that can affect employees’ engagement is Information Technology (IT).

3.LITERATURE REVIEW AND RESEARCH BACKGROUND

From the view of semantics, technology is composed of two Greek words “Tekhnê” and “Logia”. Tekhnê means profession, tool, art and skill and Logia means science and knowledge. Thereby technology refers to applied science and knowledge in relation with tools, skills and professions. Or in other words, it’s a concept which makes interaction among knowledge, skills and professions (Mahmoodi, 2007, p.226). Technology is an important inside organizational issue. There is an appropriate communication between organizational technology and managerial process. In fact determining management style is based on organizational technology, or technology is a determinant of theories, principles and organizational structure. So it should be consider in organization.

Technology is a set of knowledge, information, equipment, methods and operations which are used in converting raw materials to products (converting input to output). Based on this definition, organizations or even different organizational units have different technology and it demands that various methods used to manage them. Based on the Contingency theory we cannot use one method for managing all organization with different technologies (Zareimatin, 2001, p.155).

Information Technology is a set of tools and methods which is used to producing, processing and transferring information to user (Issue.3, MCB University Press).

IT refers to mechanisms which are integrator and guider and also provider of conditions in which data are applicable, update and develop by microprocessors. Information Technology contain studying, designing, developing, implementing, supporting and managing information systems especially software and hardware. Table1 shows the components of each element. An important issue is that IT turns data to information by using storing, processing and exchanging information (Hadizade, Bahadori, 2009).

Table1: IT components

Human	Human resource, concept and think, innovations
Mechanisms	Rules , regulations, procedures, improvement and growth mechanisms, Valued and financial mechanisms
Tools	Software, hardware, Networking and Communications
Structure	Organizational, ultra-organization, Global

3.1. Work engagement

The word “engagement” translated into commitment, obligation; betrothal, period of employment; battle and fight. In the literature of social science, this concept refers to role theory and especially to Irwin Kaufman’s work (1960). He believes that people adopt different roles in society and defines engaging in a role as spontaneous attachment to role and attention and effort for doing works (Mello, Wildermuth & Pauken, 2008, p.210).

With a review of studies conducted in the past in the field of industrial approach, Vance (2006) believes that we can categorize the definitions of researchers and experts about engaging in work in ten issues which present below:

1. The proud of employees on their employer
2. Employees’ satisfaction of their employer
3. Job satisfaction
4. Opportunities for better performance at work and having a challenging job
5. Appreciate and positive feedback for contribution
6. Receiving personal support from supervisor
7. Effort beyond the minimum

8. Understanding the relationship between the job and the organization's mission
9. Hope for progress with an employer
10. Tend to stay with an employer

In organizational literature and what we purpose in this paper; the world engagement is used as personal engagement (Kahn, 1990), engagement/ burnout (Maslach and Leiter, 1997), job / work engagement (Schaufeli et al, 2002, p.81) and employee Engagement (Harter, Schmidt & Hayes, 2002, p.272) (Simpson, 2008, p.7).

Schaufeli et al (2002) stated that although engagement and assimilate are related to each other but have different meanings. In their viewpoint these two concepts are not the opposed side of a continuum but are independent concepts which should be measured by different tools. Thereby it cannot be necessarily said that there is a high level of engagement for a person who is not assimilated. They use this phrase "engagement in work" in their model and described it as positive state of mind for the completion of work. From this perspective, engaging in work has three dimensions as follows:

1. Vigor in work

It means having high level of energy and mental enduring at work and willingness to expend the effort at work despite its hardness.

2. Dedication to the job

It refers to deep attachment to the work and feeling important, serious and challenging at work.

3. Absorbing in work

It refers to intense focus on a work, getting satisfaction from doing that work and happiness at work in which time is passing quickly and getting off from work is hard (Schaufeli et al, 2002, p.74).

In this approach; engaged employees have a high level of energy and enthusiasm and interested in their work. Also they are absorb in their work in such a way that they don't feel passing time. Researches show that these energy and enthusiasm are stable outside of organization in form of sports, entertainment and voluntary works. The engaged employees are not superman. They feel tired after much work but this is nice because the work is done and completed. They are not workaholic, they don't work because of an intense and uncontrollable inner desire but the work is an entertainment for them and they enjoy doing it (Bakker, Demerouti, 2008, p.212).

3.2. The components affect engaging in work

Mello et al (2008) categorize the components, which affect engagement in work, into four categories include the environment of organization, characteristics of leaders, job characteristics and personal characteristic of employees.

Bakker and Demerouti (2008) consider three components affecting engaging in work which are Job demands, Job Resources and Personal resources.

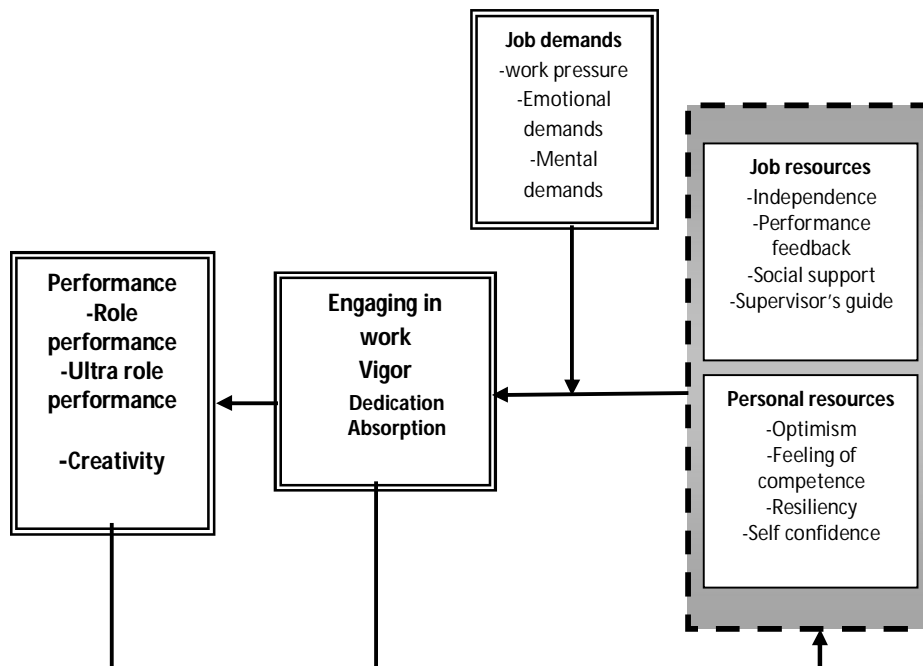


Figure1: The Bakker and Demerouti's model of engaging in work

4. Research background

There are different researches about the effect of information technology such as the paper of Dr. Seyed Hamed Wareth with the title of “Creating a comprehensive model to illustrate the impact of information technology on organizational structure” (2001) in journal of Management Massage and also the M.A thesis of Seyed Reza Razavi Saidi with the title of “Pathology of construction and formation (the trustee organization) of Cadastral plan from the view of technology”.

Kahn was the first person who conducts a research about engaging in work. His study referred to situation of engaging and non-engaging. The statistical sample was a group containing 16 consultants and planners of an architecture firm. Data collection tools were deep interview and theoretical orientation. The most important findings were meaningfulness of work, security and mental access which are three prerequisites of engagement. May (2004), Schaufeli & Bakker (2004), Salanova, Agut, Peiro (2005), Koyuncu et al(2006),Kim (2009), Harter (2002) and Saks (2006) have studies about engaging in work. The M.A thesis of Hadi Ahmadi Azarm was about investigating the relationship among organizational justice and engaging in work.

5. Research Hypotheses

The main hypothesis

-There is a significant relationship among IT and employee’s engagement, in agriculture organization of Qom.

Sub hypotheses

- There is a significant relationship among IT and Vigor in work
- There is a significant relationship among IT and Dedication to the job
- There is a significant relationship among IT and Absorbing in work

6. METHODOLOGY

This is a descriptive and correlating survey. The Statistical population of this study was all employees of Agriculture organization of Qom which contain 275 persons. In order to determining sample size; the limit population formula was used which shows the sample size is 160 persons. We use questionnaire for collecting data. It contains 25 questions and also 5 demographic questions. In order to measuring the variable “information technology”, the questionnaire which is provided by Moghimi is used. In order to measuring the variable “employee engagement” the 17 index of work engagement suggested by Salanova et al (2002)are used. The experts confirm the validity and in order to measuring reliability the Cronbach’s alpha is used. The 6 options spectrum was used to measuring IT and Likert’s spectrum for engagement.

Table2: The Cronbach’s alpha of research components

Number of questions	Cronbach’s alpha	Variables
8	0.946	Information Technology
17	0.899	Involving in work
6	0.845	Vigor in work
5	0.723	Absorbing to work
6	0.690	Dedicating to work

7. Findings and Discussion

The Statistical population of this study was all employees of Agriculture organization of Qom which contain 275 persons and the size is 160 persons. We distribute 180 questionnaires which 163 questionnaires were collected.

Table3: The results of descriptive analysis of demographic variables

Results						variable				
Male			Female			Gender				
68.7%		112 persons		31.3%		51 persons				
Don’t stated		M.A and higher		Bachelor		Under graduate				
		Diploma and lower				Education				
1.8%	3 persons	15.3%	25persons	50.9%	83 persons	20.9%	34 persons	11%	18 persons	
Don’t stated		More than 15 years		10 to 15 years		5 to 10 years		Less than 5 years		Experience

2.5%	4 persons	3.1%	5 persons	8%	13 persons	24.5%	40 persons	62%	101 persons
Don't stated		single			married			Marital status	
1.8%	3 persons	31.3%	51 persons		66.9%	109 persons			
Contract			formal				Employment Type		
62%	101 persons		38%			62 persons			

The first sub-hypothesis: There is a significant relationship among IT and Vigor in work

Table4: The first sub-hypothesis test

Result	Correlation	Description	Hypothesis title
Accept	0.384	There is a significant relationship among IT and Vigor in work	First sub-hypothesis

Findings show that there is a significant relationship among "information technology" and "vigor in work" and the correlation coefficient is 0.384. Thereby we can state that 38.4% of changes in "vigor in work" follow the changes in IT. So if IT changes 1 unit, the "vigor in work" changes 0.384 units.

The second sub-hypothesis: There is a significant relationship among IT and Absorbing in work

Table5: The second sub-hypothesis test

Result	Correlation	Description	Hypothesis title
Accept	0.327	There is a significant relationship among IT and Absorbing in work	Second sub-hypothesis

Findings show that there is a significant relationship among "information technology" and "absorbing in work" and the correlation coefficient is 0.327. Thereby we can state that 32.7% of changes in "absorbing in work" follow the changes in IT. So if IT changes 1 unit, the "absorbing in work" changes 0.327 units.

The third sub-hypothesis: There is a significant relationship among IT and Dedicated to work

Table6: The third sub-hypothesis test

Result	Correlation	Description	Hypothesis title
Accept	0.412	There is a significant relationship among IT and Dedicated to work	Third sub-hypothesis

Findings show that there is a significant relationship among "information technology" and "Dedicating to work" and the correlation coefficient is 0.412. Thereby we can state that 41.2% of changes in "Dedicating to work" follow the changes in IT. So if IT changes 1 unit, the "Dedicating to work" changes 0.412 units.

The main hypothesis: There is a significant relationship among IT and employee's engagement, in agriculture organization of Qom

Table7: The main hypothesis test

Result	Correlation	Description	Hypothesis title
Accept	0.44	There is a significant relationship among IT and employee's engagement, in agriculture organization of Qom	The main hypothesis

Findings show that there is a significant relationship among "information technology" and "Engaging in work" and the correlation coefficient is 0.44. Thereby we can state that 44% of changes in "Engaging in work" follow the changes in IT. So if IT changes 1 unit, the "Engaging in work" changes 0.44 units.

Providing a model of IT effects on "employees' engagement in work" based on Bakker and Demerouti's model:

Based on analyses of hypotheses, the affecting of IT on engagement in work has been proved. Now we aim to provide a model which shows these effects on engagement of employees. This model is retrieved from Bakker and Demerouti's model.

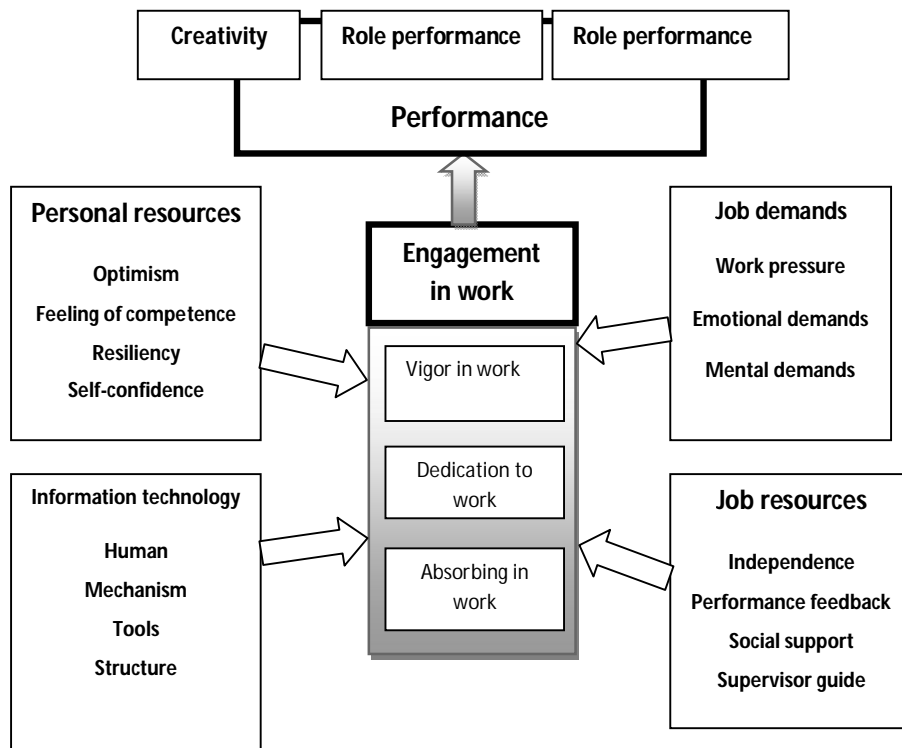


Figure2: Conceptual model

- Job demands

Job demands are social, physical and organizational aspects of a job which required a fixed amount of personal efforts. The effect of job demands on “engaging in work” is negative and after finishing energy, it cause to wear and breakdown of individuals. Workload, job stress, time pressure, physical environment and constant contact with customers are some samples of job demands.

- Job resources

Job resources refer to physical, social and organizational aspects of jobs which:

- Reduce job demands and are associated with physiological costs.
- Have a vital role in achieving job goals.
- They are stimulus for personal learning and growth.

Resources cause to engagement by a motivational process. Job resources have internal motivational role because they accelerate personal learning and growth. Also they have external motivational role because they are some tools for achieving goals. Job resources provide and satisfy the fundamental needs such as independence, dependence and competence. Recent studies show that there is a positive relationship among engaging in work and job resources such as social support of supervisors and colleague, performance feedback, diversity of skills, independence and learning opportunity (Bakker, Demerouti, 2008). For example appropriate feedback cause to quick learning and thereby cause to feelings of job competence. Also freedoms in decision-making and social supports satisfy the needs of independence and belonging.

- Personal resources

Personal resources are the positive self-assessments which are related to resiliency and refer to ability and individual control over environment. Previous researches show that positive self-assessments have a great influence on achieving goals, motivation, performance, life and job satisfaction, career ambition and other favorable results. The most important personal resources include optimism, self-efficacy, self-esteem and resiliency (Bakker, Demerouti, 2008, p.212).

The forth component which we add to this model is information technology. Based on the result of analyzing hypotheses IT has a significant influence on employees’ engagement. The components of information technology are:

- Human
- Mechanism
- Tool
- Structure

Bakker and Demerouti (2008) show that how “employees’ engagement” can affects employees’ performance and organizational efficiency.

They believe that there is four reason for why engaged employees increase performance and efficiency.

1. The engaged employees often experience positive emotions in work. They are happier than other and more sensitive to use opportunity. They are more confident and optimism and help others.
2. The engaged employees has higher level of health. Based on previous research these employees have less mental problem thereby they have higher level of efficiency and performance in comparison with depressed employees.
3. Engaged employees can provide resources for themselves. Engaging in work cause to achieving positive result. This leads to reinforce of self-confidence, optimism, feeling of competence and other personal resources. Also it leads to more colleagues’ supports and supervisor’s appreciation which result in more engagement and better performance.
4. Finally the engaged employees transfer their experiences and emotions to other employees. It means engaging in work is a condition which can be transmitted to others.

Based on the results; IT affect engaging in work, vigor and dedication to work. And also the engaged employees increase organizational performance.

In following we provide some proposals in order to better use of information technology for more engaging in work by employees.

- ✓ Empowering employee to use information efficiently and to achieve organizational mission and goals
- ✓ Providing training courses for information technology
- ✓ Providing a good relationship between executive directors and IT managers

REFERENCES

1. Ahmadi Azarm, Hadi, (2009), A survey on the relationship between organizational justice and employees' engagement, M.A thesis, University of Tehran, Qom campus, Management faculty.
2. Jamali, Gholamreza, Hashemi, Mehdi, Evaluating the relationship among components which affect the IT project risk in Melat bank of Buser based on Dimtel, IT management, (2011), (9)3, 21-40
3. Zareimatin, Hassan, (2003), Fundamental of organization and management (contingency approach), University of Tehran publication
4. Mahmoodi, Seyed Mohammad, (2007), Management Information System, University of Tehran publication
5. Hadizade, Neda, Bahadori, Mohammadreza, (2010), The IT role in reengineering of organizational processes (BPR), the first annual conference of management, Innovation and entrepreneur, (2010).
6. Badescu M & Ayerbe C.G. The impact of information technologies on firm productivity: Empirical evidence from Spain. *Technovation* 2009; 29: 22–129.
7. Badescu M & Ayerbe C.G. The impact of information technologies on firm productivity: Empirical evidence from Spain. *Technovation* 2009;
8. Bakker Arnold B. Demerouti Evangelia (2008) “Towards a model of work engagement” *Career Development International* .Vol. 13, No. 3, pp. 209-223
9. Dewhurst F.W et al. An initial assessment of the influence of IT on TQM: a multiple case study. *International Journal of Operations & Production Management* 2003; 23(4): 348-374.
10. Ganapathy, Lakshmy & Salke, Vitthal”*Information TechnologyIndex*”(2008) Infosys, July
11. Harter, J.K., Schmidt, F.L., Hayes, T.L., (2002). “Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis”. *Journal of Applied Psychology* Vol.12, No.2, 268–279.
12. Issue.3, MCB University Press.
13. Kahn, W.A., (1990). “Psychological conditions of personal engagement and disengagement at work. *Academy of Management*”, *Journal of Organizational Change Management*, Vol.33,No.4, pp,692–724.

14. Kim Hyun Jeong, Shin Kang Hyun , Swange Nancy (2009), “Burnout and engagement:A comparative analysis using the Big Five personality dimensions” , *International Journal of Hospitality Management* Vol.8 ,No.2, pp, 96–104
15. Koyuncu, M., Burke, R.J. and Fiksenbaum, L. (2006), “Work engagement among women managers and professionals in a Turkish bank: potential antecedents and consequences”,*Equal Opportunities International*, Vol. 25,No.6, pp. 299-310
16. Maslach, C., Leiter, M., 1997. *The Truth about Burnout*. Jossey-Bass, San Francisco
17. May, D.R., Gilson, R.L. and Harter, L.M. (2004), “The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work”, *Journal of Occupational and Organizational Psychology*, Vol. 77, No.6, pp.11-37.
18. Mello Cristina de, Wildermuth e Souza and PaukenA Patrick David (2008) "perfect match: decoding employee engagement – Part II: engaging jobs and individuals". *Industrial and Commercial Training* Vol. 40, no. 4, pp. 206-210.
19. Mello Cristina de, Wildermuth e Souza and PaukenA Patrick David (2008) "perfect match: decoding employee engagement – Part I: Engaging cultures and leaders". *Industrial And Commercial Training* Vol.
20. Saks, A. M. (2006). “Antecedents and consequences of employee engagement”. *Journal of Managerial Psychology*, Vol.21, No. 7, 600-619.
21. Salanova, M., Agut, S. and Peiro´, J.M. (2005), “Linking organizational resources and work engagement to employee performance and customer loyalty: the mediation of service climate”, *Journal of Applied Psychology*, Vol. 90, No. 8, pp. 121-127.
22. Schaufeli, W.B., Salanova, M., Gonzalez-Roma, V., Bakker, A.B.,(2002). “The measurement of engagement and burnout: a confirmative analytic approach”. *Journal of Happiness Studies* Vol.9, No. 3, pp.71–92.
23. Simpson, M.R.(2008), *Engagement at work: A review of the literature*, *Int J Nurs Stud*, doi:10.1016/j.ijnurstu.2008.05.003
24. Vance, R. J. (2006). *Employee engagement and commitment: A guide to understanding, measuring and increasing engagement in your organization*. Alexandria, VA: SHRM Foundation.
25. Welbourne, T. (2007), “Engagement: beyond the fad and into the executive suite”, *Leader to Leader*, Vol. 44, No.9, pp. 45-51.