
Building a Climate For Organizational Innovation Through Human Resource Practices: An Empirical Study

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Abstract-

Organizational innovation has been viewed as an essential weapon for organizations to compete in this competitive business environment. The aim of this study is to explore how human resource Practices (HRP) will enable firms to be innovative. It also aims to develop a theoretical framework and conduct an empirical study across pharmaceutical sector to investigate the relationship between Human Resource Practices and organizational innovation.

The research utilizes causality models and suggests a conceptual schema subsequent to a comprehensive analysis of the literature linked to organizational innovation field.

A sample of 120 managers and employees of Algerian pharmaceutical company is used. The SEM is used to analyze and approve the proposal of the conceptual schema. The Results of the empirical research show that Human Resource Practices is positively and significantly related to organizational innovation.

Keywords: Human Resource Practices, Organizational Innovation, Pharmaceutical Industry.

I. INTRODUCTION

The background of the study lies on the facts that there are several research gaps, among others, the Differences of the research results regarding the effect of Human Resource Practices on organization innovation as stated by Al-bahussin and El-garaihy (2013) show that Human Resource Practices gives positive significant effect on organization innovation. Meanwhile, Ling (2010) states that Human Resource Practices does not give positive significant effect on organization innovation. In fact, there are only a few researches that have addressed innovation from the perspective of Human Resource Practices.

Against this backdrop, this study aims to analyze the importance of Human Resource Practices and examine empirically whether Human Resource Practices (performance appraisal, career management, training, reward system, Recruitment) positively affects Organizational Innovation (Organizational Process Innovation and Technological Process Innovation) within the Algerian manufacturing industry. The research model and hypothesized relationships are empirically tested by using the structural equation modeling (SEM) approach, supported by AMOSS software. This study has two different implications. First, analyze the importance of Human Resource Practices, and second, examine empirically whether Human Resource Practices positively and significant affects Organizational Innovation or not.

II. LITERATURE REVIEW AND HYPOTHESES

A. The theoretical foundation of the research variables

1) *Organizational innovation:* The existing literature on organizational innovation is diverse and scattered. There is no consensus on a definition of the term “organizational innovation”, which remains ambiguous Lam, (2005). Different areas of research are developing their own approaches to try and understand the Complex phenomenon of organizational innovation (Mohamed Abdiaziz and Shikh Ali, 2014).

Innovation researchers have a main distinguished among many typologies of innovation, but the best known is the distinguished innovation in the product and innovation in the process. Product innovation is the development of new products and services within the organization, whereas innovation in the process includes the introduction of improvements in the production process (Evan, 1966).

According to Edquist et al (2001), divides process innovations into two categories: technological process innovations (TPI), and organizational process innovations (OPI) which is defined as new tools and devices in throughput technology that mediate between inputs and outputs. This process innovation type operates in the technical system of the organization and is related to the organization’s primary work activity (Edquist et al, 2001).

Organizational process innovation is defined as a new way to organize work or by which a new organizational form is introduced (Edquist et al, 2001). It encompasses new management practices, process, policies, structures of tasks and units (Armbruster et al, 2008), (Birkinshaw et al, 2008), (Damanpour, 1987). It operates in the social system of the organization and contains no technological elements as such Edquist & al., 2001; Meeus & Hage, 2006. It has to do with the coordination of human resources and other organizational systems (Damanpour and Aravind, 2011).

Based on the above, the organizational innovation is part of a non-technological processes innovation.

Consequently, Organizational innovation is a non-technological processes innovation, including applications, mechanisms, organizational structures, and new principles and techniques in business management, which aims to improve the efficiency and effectiveness of internal organizational processes.

Reichstein & Salter (2006), Guanday & al(2011), consider that it is difficult to distinguish between organizational processes innovation and technological process innovation. As for Schmid & Rammer (2007) suggested the combination of the two types within process innovation (Ramilo and Bin Embi, 2014).

In addition, Bocquet et al (2013) consider that technological and organizational process innovations share several common characteristics.

Both TPI and OPI have internal focus and aim to increase the efficiency and effectiveness of the organizational process, for that reason, several authors have considered that technological and organizational process innovations are two dimensions of the same phenomenon (Bocquet et al, 2013).

This research intends to examine the organizational innovation from the perspective of complementarily relationship between it and the technological process innovation.

2) Human Resource Management Practices: HRM is a distinctive approach to employment management which seeks to achieve competitive advantage through the strategic development of a highly committed and capable work force using an integrated array of cultural, structural and personnel techniques.

Beer and al (1984), defined HRP as a strategic approach to the management of human resources that involves all management decisions and actions that affect the relationship between the organization and employer (*Fajana and al, 2011*).

Sphar(1999) stated that "Human Resource Management(HRM) is the utilization of human resources to achieve organizational objectives"(Wang,2006).

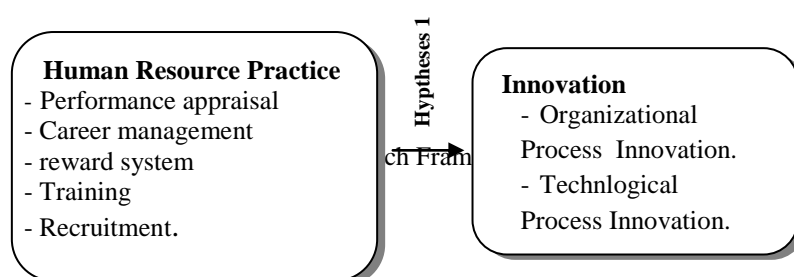
Buchanan and Huczynshi(2004) defined HRM as" A managerial perspective which argues the need to establish an integrated series of personnel policies to support organizational strategy"(Zhai, 2010).

The term HRM practices is defined as the pattern of planned human resource deployment and activities that help organizations attract evaluate, motivate and develop people with the appropriate behaviors and competencies to meet current and future needs (Zhai, 2010).

Shipton and al (2005) commonly agreed on five HRM practices: encompassing performance appraisal, career management, reward system, training and recruitment (Ling and Nasurdin, 2010).

These studies focused on the extent or level of implantation of these practices.

B. Conceptual framework and hypotheses:



According to the literature review of main constructs, the conceptual framework and associated hypotheses are illustrated in figure 1.

Several researches have the same view point indicating that HRP has an effect on innovation (Al-bahussin and El-garaihy, 2013).

According to Jimenez-Jiminez and Sanzvala (2005), a stronger effect on organizational innovation can be expected through the adoption of a set of complementary HRM practices. Their study revealed that there is a significant relationship between the adoption of HRP and organizational innovation.

Ling and Nasurdin (2010), suggest that the training had a direct relation with innovative product, innovative procedure and innovative administration.

Therefore, based on the literature review above, the following hypothesis is proposed:

H₁: Human Resource Practice has a positive and significant effect on Organizational innovation.

III-RESEARCH METHODOLOGY

A. Data collection tool

The purpose of the field study is to explore the relationships between HRP and organizational innovation in the Algerian pharmaceutical company. For the purpose of testing the above stated hypotheses a questionnaire was designed, including an innovation scale adapted from previous studies which have been used and validated for studies in innovation management comprising 16 items. This questionnaire was tested in a pilot study on 20 managers in SAIDAL GROUP, and it was revised according to the feedback obtained from these 20 managers and the experts of the group.

B. Data analysis tool

Data obtained through questionnaires was analyzed through the SPSS version 22.0 and AMOS version 22.0 SPSS was used to analyze the preliminary data, and AMOS for Structural Equation Modeling (SEM) for the measurement model analysis and structural model to test the proposed hypothesized model. Selected statistical methods were employed to analyze data and achieve the research objectives.

C. Sample of the study

The revised version of the questionnaire was used in the field study which was conducted through 150 questionnaires Distributed to the employees SAIDAL GROUP. This sample was derived from a population of 4000 employee. A total of 120 questionnaires were obtained and found to be valid for the analysis. This sample in total represents 03% of the Algerian pharmaceutical company.

D. Characteristics of the sample

The answers to the questions mentioned in the survey questionnaire indicated that respondents represent:

- A variety of age categories.
- The majority of respondents have a university level (Bachelor, Master).
- Most of them are top and middle management because of the nature of the organization.
- Most of them have a long experience.

TABLE I CHARACTERISTICS OF THE SAMPLE

	Moyenne	Ecart type	Variance
	Statistiques	Statistiques	Statistiques
AGE	3.1417	.91022	.829
NIVEAU	4.0083	.49359	.244
ANCIENNETE	3.5333	1.35308	1.831
FONCTION	3.0833	.44122	.195

IV. RESULTS OF STCUCTUREL EQUATION MODELING (SEM)

The structural equation modeling (SEM) is used to test the hypothesized causal relationships in the theoretical model by using AMOS 22.0. The two-stage approach of SEM analysis (the measurement model and the structural model) recommended by (Hair el al, 2010) was adopted. In the measurement model (first stage), this analysis specifies the causal relationships between the observed variables and the underlying theoretical constructs by using confirmatory factor analysis (CFA). Following this, the structural model (second stage) was conducted to specify the causal relationships between the underlying exogenous constructs and endogenous constructs. Exogenous constructs included HRP whereas endogenous constructs covered OI. Analyses and results of these two stages are further discussed next.

A. Confirmatory Factor Analysis

The process of CFA to assess a latent constructs includes two steps:

1) *Measurement model:* The measurement model was measured by using the Maximum Likelihood (ML) estimation techniques. Table II shows fit indices that assess the specification of the model. Results revealed that the values of some indices are not consistent with the recommended values of the fit indices, indicating the need for further refinement of the model.

Then, in order to improve the overall fit, the modification index (MI) is checked, which indicates high error covariance between Item (OI5) and (OI6) (MI = 24.774). So, it is meaningful to reestimated with the covariance between errors of OI5 and OI6 (e31 and e32) specified as a free parameter, refer to revised model 1. Similarly, revised model 2 was reestimated with the covariance between errors of OI1 and OI2 (e27 and e28, MI = 18.412) specified as a free parameter. Then, the model three was reestimated by using the standardized residual values and modification indices. The Goodness-of-fit indices of revised model 3 in the fifth row of Table II show the statistics improvement and the acceptable model fit to data.

TABLE II GOODNESS OF FIT INDICES FOR MEASUREMENT MODEL

Model	Initial	Revised Model(1)	Revised Model(2)	Revised Model(3)	Levels Of Acceptable Fit
N° Of Observed Items					
χ^2	344,98	147,910	16,206	19,08	
Df	27	14	08	13	
χ^2/df	12,77	10,565	02,026	01,468	$01 < \chi^2/df < 03$
SRMR	00,03	00,041	00,014	00,01	$\leq 0,10$
RMSEA	00,31	00,284	00,093	00,06	$\leq 0,10$
GFI	01,630	00,748	00,963	00,965	$\geq 0,90$
AGFI	00,383	00,496	00,872	00,877	$\geq 0,90$
CFI	00,808	00,818	00,989	00,996	$\geq 0,90$
IFI	00,809	00,820	00,989	00,996	$\geq 0,90$
TLI	00,745	00,727	00,979	00,990	$\geq 0,90$
AIC	380,98	175,910	56,206	43,08	Lowest Possible
CAIC	449,15	228,934	131,956	104,28	Lowest Possible

2) *Reliability and validity assessment of the refined measurement model:*

Following the identification of the reliability and the validity of the constructs were measured prior to testing the structural model. The reliability was assessed by using three types of reliability: crambach's alpha, reliability for the composite of measures of a latent variable (CR) and average variance extract (AVE) from a set of measures of a latent variable.

The validity was assessed by using convergent validity, discriminate validity and nomological validity.

The value of crambach's Alpha for all constructs exceeded the suggested level of 0, 70 (Hair, 2010), and the values of CR were quite high (greater than 0, 60) (Hair, 2010). Similarly, the measures of AVE suggested satisfactory reliability (greater than 0, 50) (Hair, 2010).

Therefore, as showed in TABLE III Cranbach's Alpha, CR and AVE indicated an acceptable level for the reliability of underlying constructs.

As for validity, the convergent validity was supported by AVE of each factor is ' $> 0, 50$ '. Also, discriminate validity was achieved because the AVE for each construct is higher than the square of correlations between it and any other constructs in the model (see TABLE IV).

Finally, nomological validity was supported because the correlation between the constructs is positive and significant (see TABLE V).

Therefore, the results indicated that the validity of the model was well accepted

TABLE III RELIABILITY AND CONVERGENT VALIDITY OF CONSTRUCTS

Construct	Itmes	Standarised	C.Alpha	CR	AVE
HRP	HRP 1	,816	,968	,953	,775
	HRP 2	,895			
	HRP 3	,943			
	HRP 4	,772			
	HRP 5	,921			
	HRP 6	,903			
	HRP 7	,992			
	HRP 8	,880			
	HRP 9	,799			
OI	OI 1	,822	,976	,880	,654
	OI 2	,849			
	OI 3	,746			
	OI 4	,841			
	OI 5	,783			
	OI 6	,782			
	OI 7	,835			

TABLE -IV- AVE AND THE SQUARE OF CORRELATION FOR DISCRIMINANT VALIDITY

	HRP	OI
HRP	,772 ^a	
OI	,359	635 ^a

Note: ^a. Indicate average variance extraction, numbers below

The diagonal represent the square of construct correlations

TABLE –V- CORRELATION BETWEEN MODEL FACTORS FOR NOMOLOGICAL VALIDITY

	HRP	OI
HRP	1,000	
OI	,599	1,000

B. Structural Model

Following the validation and acceptable level of all constructs in measurement model, the structural model was conducted to examine the hypotheses and to specify the relationships among latent constructs in the research model.

1) Goodness-of-fit indices of structural model: Goodness-of-fit indices and other parameter estimates were examined to assess the Hypothesized structural model. The fit indices show that the hypothesized structural Model provided acceptable fit with the data. The absolute fit measures and the incremental fit measures indicate goodness-of-fit of the model. Table VI shows the goodness-of-fit statistics of the structural model.

TABLE -VI- GOODNESS OF FIT INDICES FOR STRUCTURAL MODEL

Model	initial	Levels Of Acceptable Fit
N° Of Observed Items		
χ^2	01,852	
Df	01	
χ^2/df	01,852	$01 < \chi^2/df < 03$
SRMR	00,003	$\leq 0,10$
RMSEA	00,080	$7 \leq 0,10$
GFI	00,992	$\geq 0,90$
AGFI	00,923	$\geq 0,90$
CFI	00,998	$\geq 0,90$
IFI	00,998	$\geq 0,90$
TLI	00,988	$\geq 0,90$
AIC	19,852	Lowest Possible
CAIC	53,939	Lowest Possible

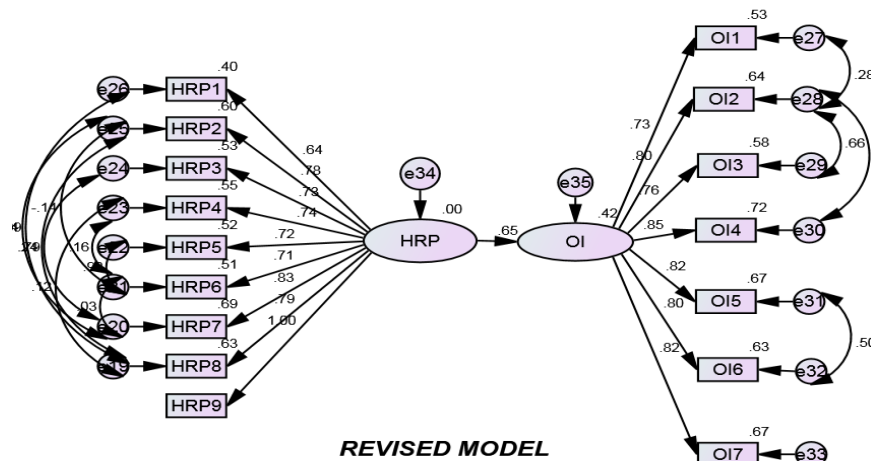


Fig 2 Structural Model

2) Hypothesis Testing: the results of testing the structural model indicated that the hypothesized path is a positive and significant. The standardized estimate for hypothesis is statistically significant and show support for the hypothesis.

Accordingly, hypothesis was accepted. These results are presented in Table VII.

TABLE –VII- RESULTS OF HYPOTHESIS TESTING

Hypotheses	Path	Path Coefficient	t-Value	Assessment
H ₁	HRP → OI	.648	6.813 ***	Supported

Note: *** significant at P < 0.001

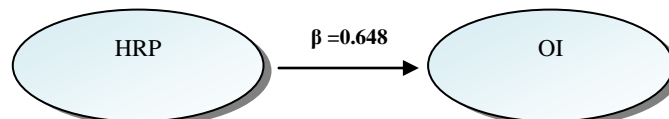


Fig 3: SEM Specification and Relevant Hypotheses

3) Results Analysis:

The assessment of the validity, reliability and goodness-of-fit of the hypothesized model of this study showed the following results:

- Confirmatory Factor Analysis (CFA) was conducted and the results showed that constructs used in the revised measurement model three possessed adequate reliability, convergent, discriminant and nomological validity.
- The structural model (Figure 2) was assessed; the results revealed that the standardized estimate for hypothesis; H₁ is statistically significant and show support.
- The results demonstrated that HRP has a strong and positive significant effect on OI ($\beta = 0.648$).

V.CONCLUSION AND IMPLICATIONS

This study provides empirical evidence for the importance of HRP on the process of organizational innovation; it is supportive of many studies in the literature. The results show that this factor has a positive impact on the organizational innovation. We reach conclusion as below:

- The results revealed strong support for hypothesis H₁. This demonstrates that HRP has a positive and significant effect on organizational innovation. This resultant is consistent with the research (Al-bahussin and El-garaihy ,2013).

Eventually, it could be argued that the main contributions to the current study are in:

- This study provided a new conceptual framework with a set of strong Overarching themes concerning the relationship between HRP and organizational innovation.

- This study is distinguished from the existing empirical work by providing a model that examines the relationships between HRP and OI in pharmaceutical industry.

- This study used sophisticated statistical tools (structural equation modeling with AMOS) in testing measurement and structural models, which have been limited in previous literature.

- The findings give fruitful insights to managers, decision-makers inside SAIDAL GROUP.

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