

The Effect of Electronic Human Resource Management (E-HRM) On Organizational Effectiveness through Employee's Personal Traits

An Applied Study on an EPC Company

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Abstract

This study aimed at investigating the effect of Electronic Human Resource Management (E-HRM) on Organizational Effectiveness through the Employees Personal Traits as mediator.

For the purpose of the Study a Questionnaire was adopted based on previous studies. The questionnaire was close-ended questions and respondents were asked to rank their agreement with the statements indicated through 5-Likert scale to measure the Study variables; E-HRM (E-Recruitment and E-Selection, E-Training and E-Development, E-Performance Appraisal, E-Compensation), Organization Effectiveness and Employees' Personal Traits with a second questionnaire to determine to which personal traits each employee belongs to. Respondents represent employees of an EPC Company in Egypt using the Oracle applied in the HRM system. The population size of the company is 740 employees and accordingly 450 questionnaires are to be distributed randomly in the EPC Company. The questionnaires collected back were 372 and were used in the statistical analysis of the Study.

As per the statistical analysis it has been proved that E-HRM has a significant statistical impact on organizational effectiveness, also employees' personal traits mediate the relationship between Electronic Human Resource Management (E-HRM) & organizational effectiveness.

Keywords: E-HRM, Organizational Effectiveness, Employees' Personal Traits

1. Introduction

E-HRM is the mean of reshaping the corporate world, as they create new internet-based technologies with implications for society in general. Though E-HRM explains the process of converting analog and noisy information into electronic information, it is used to explain any adjustments in the organization due to their increasing use of electronic technologies to improve both performance of the company and its scope. Egypt's vision by 2030 is to be positioned as one of the 50 most technological countries. Most big companies have recently used web-based recruiting systems and web-based training programs as well, attempting to implement E-HRM system (Rachinger et al., 2018).

Few researches have been made to examine the impact of E-HRM on the employees' productivity and its effect on the employees perception of organization trust. As E-HRM does not only contribute to the organization but also on the employees' attitude and accordingly the employees' trust in the organization (Iqbal et al, 2019).

New technology becomes a global issue that organizations are exposed to every now and then. Organizations are always supposed to adopt with such new technologies to be able to achieve Organizational Effectiveness. Employees' Personal Traits hasn't been always considered as a critical issue that could have great impact in many organizations now to affect its performance and effectiveness. With the new technology of introducing Oracle in the HR system of EPC company, the organization is supposed to be more effective, meanwhile, employees in the organization seem to resist the new technology and prefer to stay on the old systems (Iqbal et al,2019).

This research problem can also be summarized in the following research question:

“To what extent does Electronic Human Resource Management (E-HRM) influence the Organizational Effectiveness through Employee's Personal Traits?”.

The current research conceptual framework is illustrated in figure3.1, where research variables are Electronic Human Resource Management (Independent variable) Organizational Effectiveness (Dependent variable DV), and Employee's Personal Traits (Mediator).

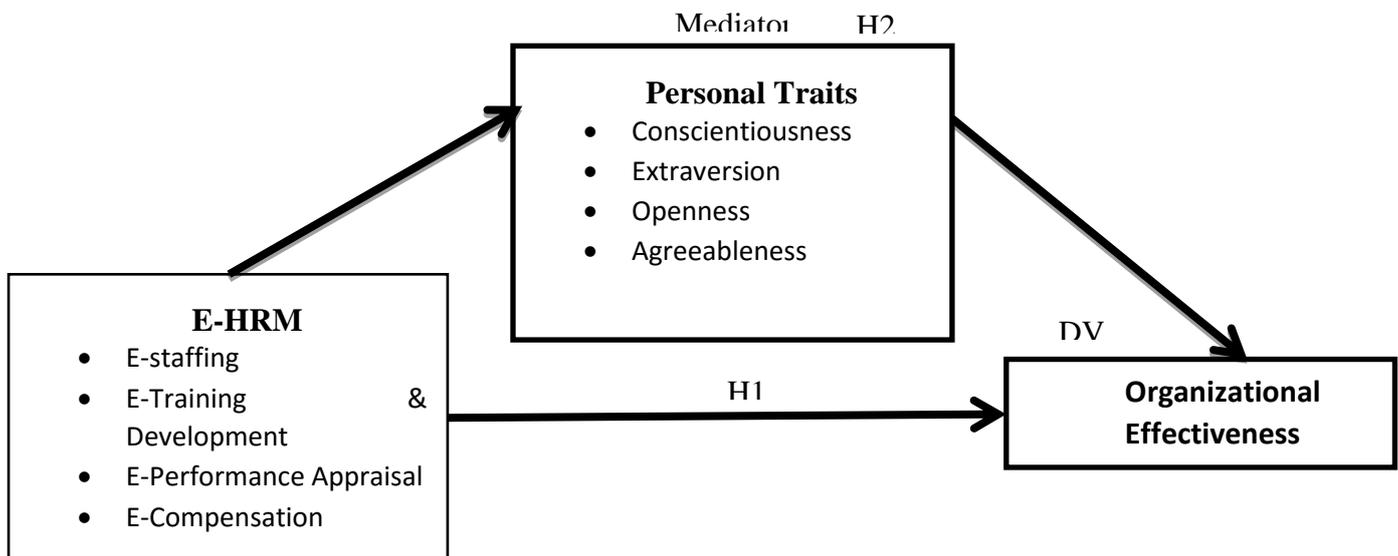


Figure 1- 1: Research Framework
(Developed by researcher based on previous studies)

Accordingly, the study hypotheses could be stated as follows:

H₁: E-HRM practices have a positive significant statistical effect on Organizational Effectiveness (OE).

H_{1.a}: E-Staffing has a positive significant statistical effect Organizational Effectiveness.

H_{1b} E-Training & Development and Organizational has a positive significant statistical effect on organizational Effectiveness.

H_{1.c}: E-Performance Appraisal has a positive significant statistical effect on organizational effectiveness.

H_{1.d}: E-Compensation has a positive significant statistical effect on organizational effectiveness.

H₂: Personal traits (PT) mediates the relationship between E-HRM and Organizational Effectiveness

1.1 Methodology & Approach

This study presents the results of a quantitative research being applied at a single company with the aim of determining the impact of E-HRM practices on the organizational effectiveness through the mediating effect of employee's personal traits.

The data were collected from Sewedy electronics in Egypt. Data were collected using a questionnaire administrated and applied on the study sample.

The population size of the company is 740 employees and accordingly 450 questionnaires are to be distributed randomly in the EPC Company. The questionnaires collected back were 372 and were used in the statistical analysis of the Study.

The gathering of the data was accurately to achieve the Study's objectives. The Study population were employees from different levels and from different departments in the organization.

Sample size was calculated from the following equation:

$$n = \left(\frac{Z}{2m} \right)^2$$

Where:

Z: Standardized value corresponding to a known significance level (e.g. Z = 1.96 for significance level $\alpha = 0.05$).

m: Marginal error: expressed as a decimal mark (e.g. 0.04)

Using equation (1), the sample size equals:

$$n = \frac{(1.96)^2}{(2 \times 0.04)^2} = 600$$

The sample size can be modified in case of limited population through the following equation:

$$n_{\text{modified}} = \frac{nN}{N+n-1}$$

Where:

N: represents the population size

Using $n = 600$ and $N = 740$ in equation (2), we find that the modified sample size is equal to:

$$n_{\text{modified}} = \frac{600 \times 740}{740 + 600 - 1} = 332$$

For the purpose of this study, a questionnaire has been adopted from Attalah (2016). The questionnaire was close-ended questions and respondents were asked to rank their agreement with the statements indicated through 5-Likert scale to measure the Study variables; E-HRM (E-Recruitment and E-Selection, E-Training and E-Development, E-Performance Appraisal, E-Compensation), Organization Effectiveness and Employees' Personal Traits with a second questionnaire to determine to which personal traits each employee belongs to. Respondents represent employees of an EPC Company in Egypt using the Oracle applied in the HRM system. The population size of the company is 740 employees and accordingly 450 questionnaires are to be distributed randomly in the EPC Company. The questionnaires collected back were 372 and were used in the statistical analysis of the Study.

1.2 Findings/Results

Regression analysis is a collection of statistical techniques that serve as a basis for drawing inferences about relationships among interrelated variables. Since these techniques are applicable in almost every field of study, including the social, physical and biological sciences, business and engineering, regression analysis is now perhaps the most used of all data analysis methods..

Most models will use more than one independent variable to explain the behavior of the dependent variable. The linear additive model can be extended to include any number of independent variables:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \dots + \beta_p X_{ip} + i$$

The subscript notation has been extended to include a number on each X and β to identify each independent variable and its regression coefficient. There are p independent variables and, including β_0 , $p + 1$ parameters to be estimated.

In recent study the researcher used multiple linear regression to estimate the relationship between two or more independent variables and one dependent variable. (Berner,2012).The analysis results revealed the following:

H1: E-HRM practices have a positive significant statistical effect on Organizational Effectiveness (OE).

To test the 1st main hypothesis, secondary hypothesizes testes by conducting regression analysis and the test results revealed the following:

H1.a: E-Staffing has a positive significant statistical effect Organizational Effectiveness.

Table 1-: Summary of Linear Regression for the impact of E-staffing on Organizational Effectiveness-(N=372)

Variable	<i>B</i>	<i>S</i> <i>E B</i>	<i>β</i>
(Constant)	- 0.962	0. 517	
E-staffing	1.095	0. 155	0.344
<i>R</i> ²	0.119		
(2,372) <i>F value</i>	49.791**		
*p-value<.005,**p-value<0.001			

As mentioned in table (1) E-staffing have direct positive significant impact on organizational effectiveness (B=1.095***, p-value<0.05), which reveals the acceptance of the 1st secondary hypothesis. On the other hand, the R square is 0.119, which means that E-staffing explains 11.9% of the variation in organizational effectiveness.

H1b: E-Training & Development has a positive significant statistical effect on organizational Effectiveness.

Table 2: Summary of Linear Regression for the impact of E- Training & Development on Organizational Effectiveness-(N=372)

Variable	B	SE B	β
(Constant)	0. 601	0.21 9	
E-training & development	0. 878	0.09 1	0.449
R2	0.202		
Fvalue(1,372)	93.639**		
*p-value<.005,**p-value<0.001			

As mentioned in table (2) E- training & development have a direct positive significant impact on organizational effectiveness (B=0.878***, p-value<0.05), which reveals the acceptance of the 2nd secondary hypothesis. On the other hand, the R square is 0.202, which means that E- training & development explains 20.2 % of the variation in organizational effectiveness.

H_{1.c}: E-Performance Appraisal has a positive significant statistical effect on organizational effectiveness.

As mentioned in table (3) E- performance appraisal have a direct positive significant impact on organizational effectiveness (B=1.294***, p-value<0.05), which reveals the acceptance of the 3rd secondary hypothesis. On the other hand, the R square is 0.551, which means that E- performance appraisal explains 55.1 % of the variation in organizational effectiveness.

Table 3:

Variable	B	SE B	β
(Constant)	- 0.518	0.1 53	
E-performance appraisal	1.294	0.0 61	0.7 42
R2	0.551		
F value(1,372)	453.987**		
*p-value<.005,**p-value<0.001			

Summary of Linear Regression for the impact of E- performance appraisal on Organizational Effectiveness-(N=372)

H_{1.a}: E-Compensation has a positive significant statistical effect on organizational effectiveness.

As mentioned in table (4) E-Compensation has a direct positive significant impact on organizational effectiveness (B=1.283***, p-value<0.05), which reveals the acceptance of the 4th secondary hypothesis. On the other hand, the R square is 0.84, which means that E-Compensation explains 84% of the variation in organizational effectiveness

Table 4: Summary of Linear Regression for the impact of E-Compensation on Organizational Effectiveness-(N=372)

Variable	B	S E B	β
(Constant)	- 0.518	0. 153	
E-compensation	1.2 83	0. 061	0. 742
R2	0.84		
F value(1,372)	1295.508**		
*p-value<.005,**p-value<0.001			

In the recent study the researcher used stepwise regression analysis Stepwise regression is a semi-automated process of building a model by successively adding or removing variables based solely on the t-statistics of their estimated coefficients. Properly used, the stepwise regression option in all state packages) puts more power and information at your fingertips than does the ordinary multiple regression option, and it is especially useful for sifting through large numbers of potential independent variables and/or fine-tuning a model by poking variables in or out. Improperly used, it may converge on a poor model while giving you a false sense of security. It's like doing carpentry with a chain saw: you can get a lot of work done quickly, but it leaves rough edges and you may end up cutting off your own foot if you don't read the instructions, remain sober, engage your brain, and keep a firm grip on the controls. It is not a tool for beginners or a substitute for education and experience.

Table 5: Summary of Stepwise Regression for E-HRM practices predicting the variation in Organizational Effectiveness-(N=372)

Variable	B	SE B	B
Constant	.205	0.09	
E_ Compensation	1.515	0.056	-.160-
E_ Performance	.335	0.07	0.122
R2	0.849		
F value(1,372)	1040.921**		
*p-value<.005,**p-value<0.001			

As mentioned in table (5) a significant regression equation was found ($f(1,372)=1040.921, p<0.01$, with R^2 of 84.9% ,the results revealed that only : E_ Compensation ($B=1.515^*$, $p\text{-value}<0.05$) & E_ Performance appraisal ($B=.335, p\text{-value}<0.05$) positively affects the organizational performance (OP),while other practices neglected , the regression equation can be presented as follows:

$$OP = .205 + 1.515(E_ Compensation) - .335 (E_ Performance)$$

H2: Personal traits (PT) mediates the relationship between E-HRM and Organizational Effectiveness

As mentioned in Table (6) the results indicates that there is a direct significant effect of the E-HRM on organizational performance ($B= -.967$, 95% C.I. (-1.197 , $-.764$), $p\text{-value}= .003$),also the indirect effect of the E-HRM through personal traits (PT) was significant ($B= .022$,95% C.I.($.001, .035$), $p\text{-vale}= .045$, therefore the personal traits partially mediates the relationship between the E-HRM and organizational performance, which leads to accept the 3rd hypothesis

Conclusion

The study results revealed that the electronic human resources management (E-HRM) have a direct positive effect on EPC company organizational effectiveness. The recent results agreed with the previous studies results.

Also the results revealed that the most powerful E-HRM practices predicting the change in organizational effectiveness were: E-performance appraisal and E-compensation. This result may be due to the Egyptian culture of work environment which concern about the salaries and benefits.

The study results analysis revealed the existence of the mediation effect of employee's personal traits between E-HRM & organizational effectiveness.

Scientific Contribution: This research is a further contribution to the EPC sector, since there have been lots of researches that studied E-HRM and Organizational Effectiveness did not study it through Employees' Personal Traits in Egypt. Therefore, the current research fills the gap and enhances the literature by testing these variables in the Egyptian context in particular to see if it would have the same results and findings and then comes up with a conclusion.

Practical Contribution: This research has contributed practically to explore and identify the effect of Electronic Human Resources Management (E-HRM) on Organizational Effectiveness through Employees' Personal Traits to support the EPC sector in Egypt. Using E-HRM would provide the private AND PUBLIC sector investor with an enhanced program to enhance the work environment needed.

The Study discusses the effect of applying new technology which is Electronic Human Resource Management (E-HRM) on Organizational Effectiveness through Employees' Personal Traits, while the independent variable is the Electronic Human Resource

Management (E-HRM) taking Employees' Personal Traits as a moderator. Other Studies should develop this framework to include other factors that might affect the model and could adopt it in other circumstances and compare the results.

The basic expectations are that the use of Electronic Human Resource Management (E-HRM) will reduce costs, enhance the organizational effectiveness, improve the level of HRM service and give the HR department room to become a strategic important partner. Also, the organization managers and decision makers should give great attention to new technologies and applying Electronic Human Resource Management (E-HRM). The current Study examines that expectations throughout the study.

As all researches, this research has several limitations through the study handled. First, the researcher collected the data from one company in Egypt. It is suggested to collect data from companies within the same field and compare the results and determine if the impact of the different variables are going to be similar or does it reflect all company within the sector. Second limitation for this research not having a comparative study among the same field in other countries that have used the same variables in their researches. Also the recent study focused only on the 4 personal traits ,the future research should be directed toward examining the five personal traits.

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