THE LEVEL OF ICT USAGE AND ITS EFFECT ON HRM FUNCTIONS IN EDUCATIONAL INSTITUTIONS IN ABHA – SAUDI ARABIA: AN EMPLOYEES' PERSPECTIVE

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ABSTRACT

The present study aimed to identify the level of Information and Communication Technology (ICT) usage and the effect of ICT dimensions on Human Resources Management (HRM) functions in educational institutions in Abha according to employees’ point of view. To achieve these goals, the study developed a questionnaire designed for this purpose. Convenient sample was selected consisting of (160) employees working in educational institutions in Abha. The results were as follows: There is a statistically significant effect at (0,05) level for "databases" and "software" on HRM functions. The level of agreement with the statements measuring ICT dimensions' usage is medium for all ICT dimensions. The study provided some recommendations according to study results, among them: Make more efforts to improve both (databases and software) as dimensions of ICT since these two dimensions significantly affect the functions of HRM. Educational management must improve the usage levels of ICT to realize the added value of ICT tools.

Keywords: ICT Usage, Human Resources Functions, Databases, Software, Hardware, Internet.

1. INTRODUCTION

Organizations are witnessing a vast growth of size and diversification of its activities as a result of the rapid developments in the surrounding environments, especially the technological environment.

The organizations have been facing a new form of competition, not known before; where such status resulted in the need for providing qualified and effectively managed human resources in order to meet the requirements of a technology-led organizations.

This will enhance the maximization of positive impacts of new technologies which will help the management of human resources to maximize its added value through re-engineering of these resources in a way that fits the new conditions created by Information and Communication Technology (ICT) [1].

In the light of these conditions, the need for distinctive human resources increased, to adapt to the high skills needed by the market and to overweigh the competitors. Therefore, the practices of Human Resources Management (HRM) have changed to fit the new age requirements to become more integrated with the organization strategies through an interactive and integrated relationship.

Many studies have concluded that ICT leads to improving the functions of human resources and performance in the company [2][3][4][5][6]. [7] called for the necessity to reformulate the policies of human resources to include the factors related to the technological revolution. The scarcity of the available studies within the context of Saudi organizations and the growing concern in IT investments have provided a motivation to conduct this particular study.

Accordingly, the idea of this study has been ignited to recognize the degree of ICT usage (databases, hardware, software, and internet) and its impact on the functions of HRM (job analysis, human resources planning, recruiting, training, wages and compensations, assessment of performance, and managing the relations with employees), in education institutions in Abha-Saudi Arabia as perceived by the employees.

In the next sections, the problem of the study is explained leading to the objectives, hypotheses, and the proposed research model. In addition, a review of the available literature and previous studies is
presented. The research methodology (sampling, data instrument) is also outlined. Then, analysis of data, discussion and implications and finally some recommendations are discussed.

2. PROBLEM OF THE STUDY

The modern times witnessed unprecedented and rapid developments in all aspects of life. The most prominent developments was the dynamic changes in technology especially in information processing and transmission. This technology has become the main approach that people depend upon increasingly to manage their activities. Such technology is expected to dominate more activities in the near future.

This new situation has imposed new challenges against organizations. These challenges take different forms and contents than before. These challenges are more intensive against the developing than developed countries due to the less advanced technology in the developing countries especially in the field of ICT.

However, this doesn't mean that the developing countries, including Arab countries, haven't been influenced by the results of such technology in the business. Arab managers including HRM are obliged to bear the responsibility for adaptation and applications of ICT in developing the procedures and measures of the management. The potential impact of the application of ICT must however be investigated in order to identify the nature of interaction and the important concerns that must be considered to maximize the added value of ICT applications with regards to HRM practices. Accordingly this study seeks to answer the following main questions:

1. What is the level of ICT usage (Databases, hardware, software and internet) within the research context from the employees' perspective?

2. What is the impact of ICT (Databases, hardware, software and internet) on the functions of HRM as perceived by the employees of educational institutions in Abha-Saudi Arabia?

3. THE IMPORTANCE OF THE STUDY

This study obtains its theoretical importance from the variables included in the study, either for ICT which plays a great role in formulating the present and future as well as building a developed society, where such technology has become a basic requirement in all aspects of life in general and in HRM in specific as the latter is the most important resource that is able to achieve the targeted levels of performance, especially in the highly competitive environment of today.

This study may also contribute to provide an accurate description of ICT and HRM and to clarify the level of ICT usage and its impact on the functions of HRM. The study provides a description of the state of the art concerning the level and value of ICT in relation to HRM functions within the context of educational institutions of Abha-Saudi Arabia, to enable decision makers to know the existing status of ICT and to determine the shortcomings to eliminate them through suitable plans and programs.

4. OBJECTIVES OF THE STUDY

This study seeks to achieve the following two objectives:

1. Identify the impact of ICT dimensions (databases, hardware, software, and internet) on the functions of HRM as perceived by the employees of educational institutions in Abha-Saudi Arabia.

2. Identify the level of using ICT (databases, hardware, software, and internet) as perceived by the employees of educational institutions in Abha-Saudi Arabia.

5. STUDY MODEL AND HYPOTHESES:

Based on the above discussion, the research conceptual model is shown in figure (1) below.

![Figure 1: The study model](image)

To test this model, the following hypotheses were proposed:

\( H_0 \): There is no statistically significant impact for ICT dimensions (databases, hardware, software, and internet) on the functions of HRM as perceived by the employees of
educational institutions in Abha-Saudi Arabia.

**Ho2:** The level of using ICT (databases, hardware, software, and internet) is low as perceived by the employees of educational institutions in Abha-Saudi Arabia.

6. **THEORETICAL FRAMEWORK**

The rapid technological growth and the need for rapid achievement and desire of people to obtain services in an accurate and timely manner, with the weakness of the classical management to meet the requirements and needs of clients, a review of the current systems and approaches of services has become a necessity.

Therefore, organizations began to search for ICT tools as the answer for their questions and concerns to compete and survive in a technology-led environment. ICT can greatly contribute to the reduction of production costs, improvement of the price levels; decrease the time for production, improvement of competitive capability and survival [8]. Moreover, technological revolution had paved the road for the transition process from industrial to informational society. Such revolution began to make footprints in economy, society and culture and proved its impacts on the modern society. The basis for ICT revolution is the integration of hardware, software and telecommunication technologies. During the late decades of 20th century these technologies had witnessed huge and rapid advancement that offered speedy and more effective performance[9]. Therefore, investment in ICT has become one of production elements, since it increases the productivity and provides more opportunities for employment.

In this sense, the knowledge economy depends mainly on the efficiency of organization in collecting and using knowledge to increase productivity, generate new products and services that are distributed by the knowledge network in which the information is changed continuously in rapid rates.

Therefore, the relationship between organizational development and ICT usage has become clear, hence the investment in ICT has created a new source of cost economies and raised the production efficiency[10].

**ICT Dimensions and HR Functions**

The components of ICT are linked together and provide the organization with the best results [11][12]. These components are detailed as follows:

1. Databases: where large amount of data can be stored to be used for different purposes.
2. Devices (Hardware): These are the devices used for input, processing, and output of data.
3. Software: These are programs prepared for different purposes such as operating systems, processing, and applications for different purposes. These programs communicate with computers through the operating systems.
4. Telecommunications: This component is a result of technological infrastructure, which helped transmitting the data and information through cables, wireless and satellite data transfer protocols.
5. Networks: These are integrated technologies either locally (LAN) or widely (WAN) or internet.
6. Internet: which links millions of computers and users together in a dedicated environment that serves all purposes of clients and producers.

Many researchers assure that the application of ICT tools affect all activities of organization including HRM. This study will clarify the impact of ICT on some selected HR functions including: job analysis, HR planning, recruiting, training, performance assessment, and managing employees' relations.

ICT can play a great role in providing facilities for preparing the forecasting plans depending using computer and some dedicated programs especially the statistical packages. In addition, organizations receive large amounts of job applications that are difficult for processing manually and such effort will be very hard and time consuming process. The computerized information systems allow the processing and following up the applications in a short time and less cost taking into consideration the criteria for selecting the suitable candidates. There are several applications for selecting the suitable candidates who meet the requirements of job, hence the organization will avoid any bias or discrimination among candidates where the computers select the best candidate based on scores for each criterion with high credibility, and less cost. These systems provide updated information about all jobs available as well as candidates.
ICT can also support the development of human competencies as one of the functions of HRM, where some scholars and practitioners focus on this point as the core function of HRM. The programs of development utilize the information system in reviewing the activities and capabilities of employees and find the best methods for training development.

Previous Studies

Through reviewing the previous studies relating to this study variables, the researchers found many similar studies but with different focus. Appendix 1 provides an outline for the most relevant and recent studies.

The previous studies indicated that ICT has impact on the functions of HRM, like the study of Mouasher and Al-Khasabah (2006), which showed a statistically significant impact for technology factors on the organizational and administrative factors; the study of Altimiyat (2007), which indicated a statistically significant relationship between using IT and the efficiency of HRM; and Saghior study (2009), which indicated a positive impact for IT on all activities of HRM.

This study is focused on exploring the level of ICT usage and its impact on the functions of HRM in the educational institutions in Abha-Saudi Arabia, as perceived by its employees. The distinction is related to the nature of study population and the importance of recognizing the level of ICT usage in a large sector, the education.

7. METHODOLOGY

This study used the descriptive-analytical methodology, by the questionnaire as the instrument for data collection. The descriptive-analytical methodology focuses on studying the variables and phenomena in real situation. The topic of this study tries to describe and analyze the impact of ICT on HRM functions in order to forecast the possible impact of ICT. The study depended on two types of data:

1. Secondary Data: This data includes textbooks, journals and review of the literature relating to the topic.
2. Primary Data: The study collected the primary data from a sample of the study through the questionnaire. The returned questionnaires were analyzed to measure the variables of the study and to test the hypotheses.

Table 1: Characteristics of the Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Classification</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>35</td>
<td>23.2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>116</td>
<td>76.8</td>
</tr>
<tr>
<td>Age</td>
<td>Less than 25</td>
<td>23</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>57</td>
<td>37.7</td>
</tr>
<tr>
<td></td>
<td>35-45</td>
<td>51</td>
<td>33.8</td>
</tr>
<tr>
<td></td>
<td>45 +</td>
<td>20</td>
<td>13.2</td>
</tr>
<tr>
<td>Qualification</td>
<td>Less than Bachelor</td>
<td>43</td>
<td>28.5</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>97</td>
<td>64.2</td>
</tr>
<tr>
<td></td>
<td>Masters</td>
<td>11</td>
<td>7.3</td>
</tr>
<tr>
<td>Experience</td>
<td>Less than 5</td>
<td>54</td>
<td>35.8</td>
</tr>
<tr>
<td></td>
<td>5-9</td>
<td>26</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>10-14</td>
<td>24</td>
<td>15.9</td>
</tr>
<tr>
<td></td>
<td>14 +</td>
<td>47</td>
<td>31.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>151</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1 indicated that female employees out weighted male employees, while the age range 25-34 years was the highest percentage. It also shows that bachelor holding employee’s had the highest percentages, while the experience of less than 5 years was the highest percentage in the sample.

Data Collection Instrument

A questionnaire was designed for collecting the primary data based on review of the previous studies. Face and contents validity of the questionnaire were initially judged by professionals and academics in the topic in order to assure its validity. The questionnaire contents were a mended according to the advices of judges.

The questionnaire consisted of several items in three dimensions. The first one was related to the basic data of sample members, and focused on gender, age, experience and qualifications. The
second dimension measured the independent variable: the aspects of ICT including hardware, software, databases and internet. The third dimension measured the dependent variable: the functions of HRM including job analysis, the planning of human resources, recruiting, training, wages and compensations, performance assessment, and managing relations with employees. The questionnaire adopted Likert five point scale to measure responses (ranging from 1= greatly disagree to 5= greatly agree).

Cronbach’ alpha as a reliability measure for survey items was used as shown in table 2 and table 3.

Tables 2 and 3 show that all Cronbach-Alpha coefficients for all items of ICT dimensions are less than Cronbach-Alpha coefficients for each dimension except item 2 for dimension of hardware. Therefore, item 2 was omitted so the coefficients of ICT dimensions are: 0.75, 0.84 0.79 and 0.89 for hardware, internet, software and databases respectively.

Table 3 shows that all coefficients of Cronbach-Alpha for all items of HRM functions are less than Alpha coefficient for each dimension. Therefore, the coefficient values of Cronbach-Alpha for HRM functions are as shown in table 3: 0.88; 0.86; 0.81; 0.82; 0.89; 0.76; 0.90 respectively.

8. HYPOTHESES TESTING

Results of the First Hypotheses

Ho1: There is no statistically significant impact for ICT dimensions (databases, hardware, software, and internet) on the functions of HRM as perceived by the employees of educational institutions in Abha-Saudi Arabia.

Multiple and stepwise regression analysis methods were used to test our proposed model and hypotheses. Table 4 and 5 show the results.

Table 4: Results of Multiple Regression

Table 5: Results of Stepwise Regression Analysis

Tables 4 and 5 shows a statistically significant impact at (α<0.05) for the dimensions of Performance Training Relations with Emp.
ICT on the functions of HRM. Such impact was represented in two regression models where the second model (as in table 6) was more comprehensive and consisted of "Databases" and "Software" as dimensions for ICT as independent variables and the functions of HRM as dependent variables.

Table 5 shows that the value of \( R^2 \) was 0.329 in the regression model which means that databases and software, as dimension of ICT could explain 32.9% of the variation in the depended variable (functions of HRM). This assures the explaining ability of regression model in terms of statistical analysis.

We conclude that both databases and software have significant and positive impact on the functions of HRM.

These findings agree with the study of Mouasher and Al-Khasabah (2006) which indicated statistically significant impact for technological factors on the organizational and administrative factors. They also agree with Altimiyat study (2007) which indicated a statistically significant relationship between using IT and the efficiency of HRM. The study of Saghier (2009), also indicated a positive impact for IT on all activities of human resources.

**Results of the Second Hypotheses**

\( H_0^2 \): There is a high level of ICT usage as perceived by the employees of educational administrative in Abha-Saudi Arabia.

To test this hypotheses, the researchers calculated means and standard deviations for the dimension of ICT by using SPSS package. Table 6 shows the classification of the means values.

<table>
<thead>
<tr>
<th>Segment*</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2.49</td>
<td>Low</td>
</tr>
<tr>
<td>2.50-3.49</td>
<td>Medium</td>
</tr>
<tr>
<td>3.50-5.00</td>
<td>High</td>
</tr>
</tbody>
</table>

If the means value of the variable is more than or equal to 3.5, then the level of agreement with the statements measuring the certain variable is high. If the mean value of the variable ranges between 2.5 and 3.49, then the level of agreement with the statements measuring the certain variable is medium. If the means value of the statement is equal to or less than 2.49, then the level of agreement with the statements measuring the certain variable is low. Table 7 shows the means and standard deviations for each dimension of ICT.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Classification of mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>2.59</td>
<td>0.70</td>
<td>Medium</td>
<td>4</td>
</tr>
<tr>
<td>Internet</td>
<td>2.66</td>
<td>0.79</td>
<td>Medium</td>
<td>2</td>
</tr>
<tr>
<td>Software</td>
<td>2.65</td>
<td>0.67</td>
<td>Medium</td>
<td>3</td>
</tr>
<tr>
<td>Database</td>
<td>2.75</td>
<td>0.85</td>
<td>Medium</td>
<td>1</td>
</tr>
</tbody>
</table>

The table shows that the level of agreement with the statements measuring ICT dimensions usage is medium for all ICT dimensions. This indicates the need to improve the level of ICT usage in the educational institutions.

9. **RECOMMENDATIONS**

In the light of the results achieved, the study can recommend the following:

1. Make more efforts to improve both (Databases and software) as dimensions of ICT since these two dimensions significantly affect the functions of HRM.
2. Educational management must improve the usage levels of ICT to realize the added value of ICT tools.
3. Provide training programs in the field of ICT for employees in the educational institutions in Asser region to develop their skills in this field.
4. More studies are needed to explore some other relevant concerns. Particularly, the study suggest investigation of the impact of ICT application on other organizational functions.

Considering the limitations of this particular in terms of its focus on one organizational context as well as one methodological approach, the study suggest that future studies should extend the sample to include different types of organizations using qualitative research approach. The study also suggests that Saudi organizations must provide more concern to establish an alignment between its overall strategies including HRM strategy and ICT strategies which seems necessary to increase the value of ICT investments.
REFERENCES:


### APPENDIX (1) Summary Of The Previous Studies

<table>
<thead>
<tr>
<th>Author/ Year</th>
<th>Title</th>
<th>Objectives</th>
<th>Instrument</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alfarsi 2006[14]</td>
<td>The impact of HRM functions on achieving the organizational change in the Central Ministries, in Oman (Field Study)</td>
<td>Recognize the impact of HRM functions on achieving the organizational change in the Central Ministries in Oman.</td>
<td>Questionnaire</td>
<td>There is a statistically significant impact for HRM functions on achieving the organizational change.</td>
</tr>
<tr>
<td>3. Alkhawaldah and Alhnaiti 2008[15]</td>
<td>The impact of using IT on the administrative creativity in the public organizations, Jordan</td>
<td>Recognize the impact of using IT on the administrative creativity in the public organizations, Jordan</td>
<td>Questionnaire</td>
<td>There is a statistically significant relationship among the following dimensions (using IT and nature of used programs, extent of the suitability of system information; information integration; productivity of used IS, training) and administrative creativity.</td>
</tr>
<tr>
<td>4. Saghior 2009[7]</td>
<td>The impact of ICT on the functions of HRM</td>
<td>Recognize the impact of ICT on the function of HRM</td>
<td>Investigation &amp; Questionnaire</td>
<td>There is a positive impact of ICT on all activities of HRM.</td>
</tr>
<tr>
<td>5. Alibrahim 2010[16]</td>
<td>The relationship between administrative doctrines and ICT role in taking administrative decisions; a field study on the manages and officers of vocational training centers in Jordan</td>
<td>Explore the relationship administrative doctrines and ICT role in taking administrative decision by the managers and officers of vocational training centers.</td>
<td>Questionnaire</td>
<td>The highest means of managers’ responses were to the favor of behaviorism. The use of IT by managers and officers, provide their decisions with transparency and clarity.</td>
</tr>
<tr>
<td>6. Bouhassan 2011[1]</td>
<td>The actual impacts of using ICT on the applications of HRM in the institution, a case study on Mobiles and Nedjima, Dasanteena</td>
<td>Attempt to study the modern topics that are related to ICT and methods of utilizing it in HRM.</td>
<td>Questionnaire</td>
<td>The usage of ICT has a great impact especially on HRM, where this technology contributes to minimizing efforts and time thus reducing the work burden to facilitate access the information quickly.</td>
</tr>
<tr>
<td></td>
<td>Authors</td>
<td>Title</td>
<td>Methodology</td>
<td>Findings</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Footah and Alqotob 2013[17]</td>
<td>The impact of HRM practices on learning and growth of employees in Jordan Commercial Banks</td>
<td>Clarification of exist and nature of HRM practices in the banking sector. Clarification of the importance of performance card dimensions in measuring the performance of organization.</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>8</td>
<td>AlHazzani 2013[18]</td>
<td>Challenges of information technology in the Organizations of Higher Education as perceived by the administrative and academic leaderships at King Saud University</td>
<td>Recognize the challenges of IT in the Organizations of High Education as perceived by the administrative and academic leaderships at King Saud University.</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>9</td>
<td>Mouasher and Al-Khasabah 2006[19]</td>
<td>The impact of organizational and Technical Factors on the Applications of MIS, Applied Study, Banking Sector, Jordan</td>
<td>Recognize the impact of organizational and technical factors on the applications of MIS in banking sector, Jordan.</td>
<td>Questionnaire</td>
</tr>
</tbody>
</table>