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Comparative Analysis of Computer Literacy's Effect on Employee Competency at Rwanda Environmental Authority and The New Times Newspaper in Kigali, Rwanda

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COMPARATIVE ANALYSIS OF COMPUTER LITERACY’S EFFECTS ON EMPLOYEE COMPETENCY AT RWANDA ENVIRONMENTAL MANAGEMENT AUTHORITY AND THE NEW TIMES NEWSPAPER IN KIGALI, RWANDA

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ABSTRACT
Employees at Rwanda Environmental Management Authority (REMA) – a government agency and The New Times Newspaper, Kigali, Rwanda – a private company, were compared by sampling 44 employees out of 60 from REMA as well as 61 employees out of 80 from The New Times, respectively. Yamane’s formula was used to determine sample sizes for questionnaire and interview guide administration. Statistical Package for Social Science (SPSS) version 18 was used for frequencies, percentages, weighted means, standard deviations and t-test. Multiple regressions, helped to determine relationships between the independent and dependent variables. Majority (89%) of REMA middle level employees used computers for video conferencing and printing (89%). At the New Times, all (100%) their counterparts used computers mainly for printing and video conferencing (86.7%). All (100%) the REMA operational employees regularly used computers, whereas majority (95%) of their counterparts at the New Times did the same. For REMA, the Correlation Coefficient R was 0.851. This meant a strong, positive, correlation between computer literacy and employee competency. The Coefficient of Determination $R^2=0.724$ meant that 72.4% of the variation in employee competency at REMA resulted from the stochastic model developed, with 27.6% unexplained. Similarly, for The New Times, R was 0.767, also signifying a strong, positive, correlation between the variables. $R^2=0.588$ meant that 58.8% of the variation in employee competency was attributed to the model. The remaining 41.2% was unexplained. With $p<0.05$, the correlations differed significantly, probably due to organizational differences. Recommendations included: hands-on employee orientation on basic computer skills and regular, in-service, computer skills-enhancement. In the long term a Government - private sector partnership, to continually upgrade employee computer literacy skills was recommended.

Keywords/Descriptors: Computer literacy; Employee competency; Rwanda Environmental Management Authority; The New Times Newspaper; Kigali
INTRODUCTION

The Rwanda Environment Management Authority (REMA) is a Rwanda Government institution mandated to facilitate coordination and oversight of the implementation of national environmental policy and the subsequent legislation. The Rwanda Environment Management Authority (REMA) is responsible for environmental affairs and includes units focused on research, environmental planning & development; environmental education & mainstreaming; environmental regulation & pollution control; climate change & international obligations. REMA produces Rwanda's State of the Environment Report and various National Climate Change and Low Carbon Development Strategy (NCCLCDS) documents. (REMA, 2014).

The New Times is a national, English language newspaper in Rwanda. It was established in 1995 shortly after the end of 1994 Rwanda genocide. It is privately owned, with two shareholders. The company also has a Rwandan local language (Kinyarwanda) weekly version called Izuba Rirashe. The New Times Newspaper is published daily in Kigali every Monday through Saturday; with its sister paper The Sunday Times appearing on Sundays, respectively. The New Times online was launched in 2006. The New Times conveys topical coverage of current events in Rwanda. (The New Times, 2014)

Statement of the Problem

Udo & Edoho (2000); Wallsten (2001); Bruno (2003) identified several factors that hinder ICT growth in Africa are identified, among them: infrastructure, the high cost of computers and telephones, business environment (financial, legal), social factors (such as poverty, illiteracy, urbanization level), educational factors, cultural environment and poor governance.

According to Farrell, (2007), creating access to ICT infrastructure is at the heart of Rwanda’s Vision 2020. The Government of Rwanda has been widely recognized and applauded for the achievements since the promulgation of its ICT policy and plans. However, there remain plenty of challenges: the extent and quality of ICT infrastructure and access to the Internet varies widely, computer hardware is in short supply, the skilled resource pool is small, and financial resources are scarce. Many organizations have recognized the urgent need to automate their operations and have spent lots of funds to achieve the same. However, much less efforts are invested in proper and continuous training of the employees in order to reap maximum benefits. In Rwanda, once an employee undergoes induction training to use a certain technology often there is very little follow-up or continuous training to maintain the employee’s competency. It was therefore not easy to know how employees are able to cope with the ever changing technologies at their respective work places and how it affects their competency and ultimately, their productivity. After reviewing the available literature it was concluded that there is a dearth of information about computer literacy and how it affects employee competency in various sectors in Rwanda. Therefore, the study sought to comparatively assess how employee competency at Rwanda Environmental Management Authority and The New Times Newspaper in Kigali, Rwanda, are affected by computer literacy efforts in the respective organizations.

General Objective

The general objective of this study was to assess the relationship between computer literacy and employee competency in Rwanda Environmental Management Authority and The New Times Newspaper Kigali, Rwanda, respectively.
Specific Objectives

i. To examine how employees in Rwanda Environmental Management Authority and The New Times Newspaper in Kigali use computers and related technology at their respective work places.
ii. To assess the competency of employees in Rwanda Environmental Management Authority and The New Times Newspaper in Kigali, in using computers and related technology.
iii. To compare effects of computer literacy on the competency of employees in Rwanda Environmental Management Authority and The New Times Newspaper in Kigali, respectively.

REVIEW OF RELATED LITERATURE

Information literacy is a phenomenon that comprises at least seven (7) distinct components, as depicted in Figure 1. It is made up of Computer literacy – the ability to possess the knowledge, skills and understanding of computer technology and their operations; Media literacy – the ability to decode, analyze, evaluate and produce communication in a variety of forms; Library literacy – the ability to use libraries and information centers both in physical, digital and other platforms; Traditional literacy – the ability to read, write, calculate, understand and communicate in a given language by means of script, numerals or the combination of the same; Cultural literacy – the ability to understand and participate fluently in a given culture; Network literacy – the basic knowledge and skills required to participate in a modern, networked society; and Visual literacy – the ability to interpret, negotiate and make meaning from information that is presented in the form of images (Lapuz, 2010).

![Dimensions of Information Literacy](image)

Figure 1: Dimensions of Information Literacy
Mihailidis and Diggs (2010)

Evidently, from Figure 1, computer literacy is just but one of the seven (7) components that make up information literacy. Computer literacy is generally understood to be the ability, comfort and proficiency with which one is able to use computers and related technology efficiently, by demonstrating a range of practical skills, from elementary use to programming and advanced problem solving using computer technology. Specifically, computer literacy touches on aspects such as: Computer-related terminology; hardware and software basics; basic operation system functionalities; personal computer operations; computer-based file management; e-mail communication; word processing; spreadsheets; presentation
software; groupware; database access; using the Internet and understanding related issues; basic digital photo capturing and processing as well as the requisite productivity applications that are relevant to one’s place of work. Computer literacy is considered to be a crucial skill to possess in most organizations and institutions. Employers want their workers to have basic computer skills because organizations are getting ever more dependent on computer technology to automate their processes, thereby making everything faster, cheaper, more interactive and secure.

Davis, Bagozzi & Warshaw (1989) first introduced the Technology Acceptance Model (TAM) as a theoretical extension of the Theory of Reasoned Action (TRA). TRA congregates beliefs, attitudes, norms, intentions, and behaviors of individuals and asserts that these are all linked. According to this model, a person’s behavior is determined by his/her behavioral intention of performing it. This intention is itself determined by the person’s attitudes and his/her subjective norms towards the behavior. For instance, the TAM (Figure 2) proposes that there are three main factors predicting computer use: Perceived Usefulness, Perceived Ease of Use, and Intention to Use (Miller, Rainer & Corley, 2003). Perceived usefulness is a belief that if a person uses a certain technology, this will help increase his/her job performance. This is grounded on the proposition that people would tend to utilize an application when it is useful in performing his/her tasks. Perceived ease of use refers to both intrinsic and extrinsic motivations towards using technology. People with high intrinsic motivations towards using a technology may underestimate the difficulties that the usage of a certain technology entails (Fagan, Neill, & Wooldridge, 2008). TAM suggests a causal relationship between perceived usefulness (PU), perceived ease of use (PEU), attitude towards computer use (ATCU), and behavioral intention (BI) to use computers. Perceived usefulness and perceived ease of use together lead to intention to use, and it results in usage behavior.

![Figure 2: Technology Acceptance Model (TAM)](image)

Source: (Davis, 1989: Cited in Timothy, 2009)

In 2000, TAM2 was developed by Venkatesh and Davis (2000) on the basis of TAM. It was an extension of the original TAM model to explain perceived usefulness and usage intentions in terms of social influence processes and cognitive instrumental processes. Thus, two key processes, namely Social Influence Processes (Subjective Norm, Voluntariness, and Image) and Cognitive Instrumental Processes (Job Relevance, Output Quality, Result Demonstrability, and Perceived Usefulness), were integrated into the previous model. The two processes were considered to be crucial to the study of user acceptance. Davis et al. (1989) developed TAM to explain why users accept or reject innovative information systems (Figure 3).
**Figure 1: Technology Acceptance Model 2 (TAM 2)**
Source: Venkatesh and Davis (2000)

**INDEPENDENT VARIABLES**

**VARIABLE**

(Computer Literacy)

Competency

1. Word processing skills
2. Internet skills
3. File management skills
4. Security/privacy skills
5. Programming skills
6. Spreadsheet skills
7. PowerPoint presentation skills
8. Database application skills

**INTERVENING VARIABLES**

- Perceived Usefulness (U)
- Attitude Toward Using (A)
- Behavioral Intention to Use (Bi)
- Actual System Use

**DEPENDENT**

Employee competency

- Government laws
- Organizational policies and procedures
- Employee educational level and training

**Figure 4: Conceptual Framework**
Nyiraneza (2015)

**RESEARCH METHODOLOGY**

This study was based on a comparative case study research design. The study endeavoured to compare the effect of computer literacy on employee competency at Rwanda Environment Management Authority (REMA) – a government institution and The New Times Newspaper – privately owned organization, respectively.
The target population of this study was 140 employees. Out of this population, REMA had 60 employees whereas The New Times Newspaper had 80 employees. Using stratified random sampling, 105 respondents (44 from REMA and 61 from The New Times Newspaper) were selected from the target population to participate in the study.

Questionnaire and interview instruments were used to collect data. The questionnaires, consisting of a set of closed and open-ended questions were distributed to the middle level management and operational level, whereas interviews were conducted with top level management. To ensure reliability and validity of the data collection instruments pilot testing was of the same was carried out using 10 employees of the Rwanda Utility Regulatory Authority (RURA) in Kigali City. According to Tavakol and Dennick (2011), Cronbach’s Alpha coefficients determined for the three (3) thematic sections of the questionnaire were all found to have values above 0.70 thereby rendering the instrument to be reliable for use in data collection (See Table 1).

**Table 1: Cronbach’s Alpha Coefficients**

<table>
<thead>
<tr>
<th>Thematic areas</th>
<th>Cronbach’s Alpha Values</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of computers and related technology</td>
<td>0.789</td>
<td>4</td>
</tr>
<tr>
<td>Levels of competency</td>
<td>0.824</td>
<td>10</td>
</tr>
<tr>
<td>Challenges</td>
<td>0.814</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Preliminary interpretation

Quantitative data was collected through questionnaires. Statistical Package for Social Sciences (SPSS) version 18 software was used to analyse and present the ensuing data using means, standard deviations, frequencies, percentages, weighted means, t-test and multiple regression analysis. Interview guides were analyzed qualitatively using content analysis. The respondents were assured of confidentiality of their responses and that information obtained during the study was for the academic purposes only.

**RESEARCH FINDINGS AND DISCUSSION**

**Objective (i):** To examine how employees in Rwanda Environmental Management Authority and The New Times Newspaper in Kigali used computers and related technology at their work places.

(a) Middle Level Employees Usage of Computers

Majority of the REMA middle level employees used computer and related peripheral devices for video conferencing on the web (89%), processing and printing documents (89%), moving files from hard drive to CD/DVD drive, USB flash drive, network or Internet (89%), scanning disks for viruses (89%) and locating files with the help of search engines (89%). However, they use computer technology to a lesser extent in changing the brightness, contrast and resizing of photographs (56%).

Conversely, at the New Times Newspaper, the largest proportion of the middle level employees used computers and related peripheral devices to process and print documents (100%), write files on CD/DVDS, USB flash drive (100%), video conferencing on the web (86.7%), and move files from the hard drive to a USB drive, local area network or Internet (93%). However, to a minimal extent (15%), the middle level employees were involved installing software programs.

(b) Operational Level Employees Usage of Computers

It was however noted that all the operational level employees at REMA had regular access to the computer (100%), had an email account (100%), had ease in learning new applications practically from
computer screen (100%), and 94% had access to computers having Internet connectivity, as tools within their respective offices.

Conversely, majority of the operational level employees at the New Times Newspaper used computers and related peripherals at their workplaces and all of them found it easy to process information using computers. All of the operational employees at the New Times Newspaper had an email account. Majority (95%) had regular access to computers, 94% had access to computers having Internet in their offices and 93% of them understood basic components of computer hardware.

Objective (ii): To assess the competencies of employees in Rwanda Environmental Management Authority and The New Times Newspaper in Kigali, in using computers and related technology.

(a) Employee Competencies in Word Processing Skills

The competencies of middle level employees in using word processing software showed that majority of the middle level employees at REMA had between Very good and Excellent skills, with a weighted average of 4.56. However the standard deviation of 0.527 (SD=0.5) indicated a few divergent views. Conversely, it was found that the majority of the middle level employees at The New Times Newspaper had between Very good and Excellent skills in using word processing software, with a weighted average of 4.14. However the standard deviation of 0.77 (SD=0.5) indicated the presence of a number of divergent views. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s middle level employees in their competencies in applying word processing skills (p<0.05).

Concerning operational level employees at REMA, analysis of their competencies in using word processing software showed that majority of them fell between Very good and excellent, with a weighted average of 4.78. The corresponding standard deviation of 0.42 (SD<0.5) indicated that their responses were unanimous. Conversely, majority of the operational level employees at The New Times Newspaper had between Very good and Excellent skills in using word processing software, with a weighted average of 4.48. However the standard deviation of 0.671 (SD>0.5) indicated that a few responses were divergent. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in their competencies in applying word processing skills (p<0.05).

(b) Competences in Internet Skills

The competencies of middle level employees in using Internet skills showed that majority of the middle level employees at REMA fell between Very good and Excellent, with a weighted average of 4.77. The standard deviation of 0.441 (SD<0.5) indicated that their responses were unanimous. It was also revealed that the majority of The New Times Newspaper’s middle level employees’ competencies in using Internet skills fell between Very good and Excellent, with a weighted average of 4.61. However the standard deviation of 0.65 (SD>0.5) indicated that their responses were somewhat divergent. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s middle level employees competencies in using Internet skills (p<0.05).

Also, the competencies of operational level employees showed that majority of the operational level employees at REMA fell between Very good and Excellent, with a weighted average of 4.44. However the standard deviation of 0.5 (SD=0.5) indicated that their responses were unanimous. It was revealed that the majority of the operational level employees at The New Times Newspaper fell between Very good and Excellent, with a weighted average of 4.19. However the standard deviation of 0.671 (SD>0.5) indicated that their responses were divergent. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in using Internet skills (p<0.05).
(c) Competences in File Management Skills

The competencies of middle level employees in using file management skills showed that majority of the middle level employees at REMA fell between Very good and Excellent, with a weighted average of 4.55. However the standard deviation of 0.726 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the middle level employees at The New Times Newspaper fell between Good and Very good, with a weighted average of 3.85. However the standard deviation of 1.027 (SD>0.5) indicated that their responses were divergent. There was a significant difference between the weighted averages for REMA and The New Times Newspaper’s middle level employees in using file management skills (p<0.05).

In addition, the competences of operational level employees in using file management skills showed that majority of operational level employees at REMA fell between Good and Excellent, with a weighted average of 3.31. However the standard deviation of 0.762 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the operational level employees from The New Times Newspaper fell between Very good, with a weighted average of 3.64. However the standard deviation of 0.83 (SD>0.5) indicated that their responses were dispersed away from the mean. There was a significant difference between the weighted averages for REMA and The New Times Newspaper’s operational level employees in using file management skills (p<0.05).

(d) Competencies in Computer Security/Privacy Skills

The competencies of middle level employees in applying computer security/privacy skills showed that majority of the middle level employees at REMA were good, with a weighted average of 4.00. However the standard deviation of 1.118 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the middle level employees at The New Times Newspaper fell between Good and Very good, with a weighted average of 3.21. However the standard deviation of 1.311 (SD>0.5) indicated that their responses were divergent. There was a significant difference between the weighted average for REMA middle level and the New Times Newspaper’s middle level employees in applying security/privacy skills (p<0.05).

Also, the competencies of operational level employees showed that majority of the operational level employees from REMA fell between Very good and excellent, with a weighted average of 3.53. However the standard deviation of 0.554 (SD>0.5) indicated that their responses were somewhat divergent. It was revealed that the majority of the operational level employees at The New Times Newspaper fell between good and Very good, with a weighted average of 3.26. However the standard deviation of 6.05 (SD>0.5) indicated that their responses were divergent. There was no significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in applying security/privacy skills (p>0.05).

(e) Competences in Programming Skills

The competencies of middle level employees in applying programming skills showed that majority of the middle level employees at REMA fell between Good and Very good, with a weighted average of 3.56. However the standard deviation of 0.882 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the middle level employees at The New Times Newspaper fell between Fair and Good, with a weighted average of 2.29. However the standard deviation of 0.994 (SD>0.5) indicated that their responses were divergent. There was no significant difference between the weighted average for REMA and the New Times Newspaper’s middle level employees in applying programming skills (p>0.05).

Also, the competencies of operational level employees in applying programming skills showed that majority of the operational level employees at REMA fell between good and excellent, with a weighted
average of 3.94. However the standard deviation of 0.84 (SD>0.5) indicated that their responses were dispersed away from the mean. It was revealed that the majority of the operational level employees at The New Times Newspaper fell between Fair and Good, with a weighted average of 2.48. However the standard deviation of 1.082 (SD>0.5) indicated that their responses were divergent. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in applying programming skills (p<0.05).

(f) Competences in Spreadsheet Skills

The competencies of middle level employees in using spreadsheet skills showed that majority of the middle level employees at REMA fell between Good and Very good, with a weighted average of 3.88. However the standard deviation of 0.928 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the middle level employees from The New Times fell between Fair and Good, with a weighted average of 2.78. However the standard deviation of 1.051 (SD>0.5) indicated that their responses were divergent. There was a significant difference between the weighted average for REMA middle level and the New Times Newspaper’s middle level employees in using spreadsheet skills (p<0.05).

Also, the competencies of operational level employees in using spreadsheet skills showed that majority of the operational level employees at REMA was Very Good, with a weighted average 4.00. However the standard deviation of 0.88 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the operational level employees from The New Times Newspaper fell between Good and Very good, with a weighted average of 2.78. However the standard deviation of 1.131 (SD>0.5) indicated that their responses were divergent. There was no significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in spreadsheet skills (p>0.05).

(g) Competences in PowerPoint Skills

The competencies of middle level employees in using PowerPoint skills showed that majority of the middle level employees at REMA fell between Very Good and Excellent, with a weighted average of 4.55. However the standard deviation of 0.726 (SD>0.5) indicated that their responses were divergent. It was revealed that the majority of the middle level employees at The New Times Newspaper fell between good and very good field, with a weighted average of 3.78. However the standard deviation of 1.122 (SD>0.5) indicated that their responses were dispersed. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s middle level employees in using PowerPoint skills (p<0.05).

In addition, the competencies of the operational level office workers in using PowerPoint skills showed that majority of the operational level employees at REMA fell between Very Good and Excellent, with a weighted average of 4.28. However the standard deviation of 0.924 (SD>0.5) indicated that their responses were divergent. It revealed that the majority of the operational level employees at The New Times fell between Fair and Good, with a weighted average of 2.83. However the standard deviation of 0.813 (SD>0.5) indicated that their responses were divergent. There was no significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in using spreadsheet skills (p>0.05).

(h) Competences in Database Management Skills

The competencies of middle level employees in using database management skills showed that majority of the middle level employees at REMA was very good, with a weighted average of 4. However the standard deviation of 0.866 (SD>0.5) indicated that their responses were divergent. It revealed that the
majority of the middle level employees at The New Times Newspaper fell between fair and good, with a weighted average of 2.42. However the standard deviation of 1.089 (SD>0.5) indicated that their responses were divergent. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s middle level employees in using database management skills (p < .05).

In addition, the competences of operational level employees in using database management skills showed that majority of the operational level employees from REMA fell between very good and excellent, with a weighted average of 4.25. However the standard deviation of 0.558 (SD>0.5) indicated that their responses were close to the mean. It revealed that the majority of the operational level employees from The New Times Newspaper fell between Very good and Excellent, with a weighted average of 4.16. However the standard deviation of 0.762 (SD>0.5) indicated that their responses were dispersed away from the mean. There was a significant difference between the weighted average for REMA and the New Times Newspaper’s operational level employees in using database management skills (p < 0.05).

Objective (iii): To compare effects of computer literacy on the competency of employees in Rwanda Environmental Management Authority and The New Times Newspaper in Kigali in using computer and related technology.

Multiple regression analysis was used to find out the strength of the relationship between the variables. For both the REMA and the New Times Newspaper the respective stochastic multiple regression models developed were expressed as:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon \]

Where \( \beta_i \) were Independent variables; \( Y \) was the dependent variable; \( \beta_i \) were coefficients and \( \varepsilon \) the error term. In particular, \( X_1 \) represented Word Processing skills; \( X_2 \) represented Internet skills; \( X_3 \) represented File Management skills; \( X_4 \) represented Security/Privacy skills; \( X_5 \) represented Programming skills; \( X_6 \) represented Spreadsheet skills; \( X_7 \) PowerPoint skills and \( X_8 \) represented Database Management skills, respectively.

It found that as far as the employees at REMA were concerned, the independent variables had a strong, positive correlation with the dependent variable, evidenced by the correlation coefficient \( R = 0.851 \). This meant that the more employees gained a combination skills in word processing, Internet, file management, security/privacy, programming, spreadsheet, PowerPoint and database management, the higher their competency at work became. As evidenced by the coefficient of determination \( R^2 = 0.724 \), the multiple regression model obtained for the employees at REMA could explain over 72.4% of the variation in the dependent variable (employee competency) while the remaining 27.6% was attributed to unknown factors beyond the control of the research. Since the p-value, 0.000 was less than 0.05 level of significance and the observed \( F \) was large (\( F = 9.919 \)), it meant that word processing skills, internet skills, file management skills, security/privacy skills, programming skills, spreadsheet skills, power point skills and database skills collectively were significant predictors of the competence variable for the REMA employees. Thus:

Employee competency at REMA = 1.381 - 0.11 word processing skills + 0.244 Internet skills - 0.724 file management skills + 0.176 security/privacy skills + 0.495 programming skills + 0.078 spreadsheet skills - 0.195 PowerPoint skills + 0.194 database management + 0.223.

Similarly, at the New Times Newspaper, the independent variables had a strong positive correlation with the dependent variable, as evidenced by the correlation coefficient \( R = 0.767 \). This meant that the more employees mastered a combination of skills in word processing, Internet, file management, security/privacy, programming, spreadsheet, PowerPoint and database management, the higher their
competency at work became. The coefficient of determination $R^2=0.588$ meant that the multiple regression model could explain 58.8% of the variability in employee competency at the New Times Newspaper, whereas the remaining 41.2% was due to unexplained factors beyond the control of the research. Since $p$-value, 0.000 was less than 0.05 level of significance and the observed $F$ is large ($F=8.369$), it meant that word processing skills, internet skills, file management skills, security/privacy skills, programming skills, spreadsheet skills, power point skills and database skills were collectively significant predictors of the competency variable for the New Times Newspaper employees. Thus:

Employee competency at The New Times Newspaper = 1.036 + 0.12 word processing skills -0.065 Internet skills + 0.009 file management skills - 0.048 security/privacy skills + 0.015 programming skills – 0.028 spreadsheet skills – 0.092 PowerPoint skills + 0.24 database management + 0.304.

RECOMMENDATIONS

In short term, the study recommended that Employees should provisional train and carryout workshops in basic computer skills this would help in the acquisition of computer skills.

In the medium term, the study recommended the following: The organizations should provide regular practical orientation, hands-on-computer in-service programmes for all employees. In addition, the organizations should provide computers and ensure that all employees have access to computers and regular access to internet. They should also regularly upgrade their computer knowledge and skills to be able to function effectively in the wake of changing information technology.

In the long term, the study recommended the following: A supportive policy environment should be introduced and that government should intervene to reduce the cost of acquiring computers. Also, the Government of Rwanda and the private sector should partner together not only to introduce the use of computers to the employees but also provide the manpower required to impart progressively improved skills in computer usage, provide access to the internet and computers and to encourage the use of ICT in generally processing information and knowledge. The Government of Rwanda should put policies in place to the effect that usage of computers could be introduced at the basic education level to ensure that children get conversant with the use of computer from an early age and progressively continue with the same to tertiary levels.

Further, a more broad-based study should be carried out in the future, in the area of assessment of computer literacy among employees in Government and private organizations throughout Rwanda in order to improve their efficiency. In addition, another study should be carried out on how training in the usage of computers in the workplace evolves with the continuous changes in technology. This should also cover the entire country so that a more general picture can be developed about competency needs in a constantly changing technological environment.

CONCLUSION

The competency levels of the employees at REMA and the New Times Newspaper were found to have been significantly different since $p<0.05$. However in general, it was established that in both organizations, employee competency was greatly influenced by a combination of computer literacy skills, regardless of whether it was in a government agency or a privately owned organization.
REFERENCES


