

Competencies, Attitudes, Acceptance and Their Impact on ICT Diffusion in Educational Institutions in Bulawayo, Zimbabwe

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Abstract

Despite the fact that information and communication technology (ICT) utilisation has been seen to enhance organisational effectiveness and efficiency, the human feature has been identified as the most important contributor to the success or failure of ICT's full implementation. In order to ensure the success of information and communication technology's full implementation in organisations, it is critical that the users possess the requisite competencies, have the right attitudes towards ICT utilisation, and accept the use of ICT as necessary for organisational effectiveness and efficiency. These attributes were accessed among a sample of 220 secondary school administrators consisting of school heads, deputy school heads and heads of departments by using a questionnaire as an instrument of data collection for a quantitative research design study. An overall 94 per cent response rate was achieved in this study. The results indicated that public schools' administrators possessed moderate ICT competencies; their attitudes towards the utilisation of ICT were indifferent, leading to low levels of acceptance of ICT utilisation among the education institutions in Bulawayo. The results also revealed that there is a significant relationship between the administrators' ICT competencies and acceptance and ICT utilisation among the secondary schools in Bulawayo, with ICT competencies and acceptance contributing 52.5 per cent of the variance in the utilisation or diffusion of ICT among the secondary schools in Bulawayo.

Keywords: information and communication technology; ICT competencies; attitudes; ICT acceptance; ICT utilisation or diffusion

Introduction

In the current information age, educational institutions are expected to play a crucial part in creating an appropriate learning environment and as the engine for knowledge generation. In this regard, information and communication technology (ICT) becomes the vital means to facilitate these tasks. ICT has become an essential part of our everyday life; accordingly, its integration in education is inevitable and cannot be avoided. This is because using ICT in education has become one of the most effective factors influencing school improvement (Tosun and Baris 2011) not only for the purpose of teaching and learning, but also for administrative use. ICT applications can be used by administrative staff to do their daily responsibilities faster and more accurately. Administrative staff use different types of tools to handle, for instance, financial work, sustain communication, maintain records, process documents and collect data. By using ICT applications, they can handle these responsibilities more effectively and efficiently. Besides these tasks, using ICT applications can help them record school financial documents such as balance sheets, payslips, audit reports, non-salary grants, and stocktakes as well as student evaluation reports and overall student records for future references (Kawade and Kulkarni 2012).

Oboegbulem and Ugwu (2013) carried out studies to identify the function of ICT in school administration and the extent of its use by secondary school principals in the administration in south-eastern states of Nigeria. Their findings showed that the use of ICT in school administration is a necessity and a worthwhile venture, especially in this era of globalisation. However, it can be argued that the uptake of ICTs in secondary schools is very slow as school administrators are incompetent in handling such facilities for effective administration. Makewa et al. (2013) investigated whether there was a considerable difference between teachers' and administrators' views on the importance of information and communications technologies (ICT) in secondary school administration and assessed the extent to which administrators used ICT. The results showed that administrators rated the importance of using ICT in the supervision of instruction and in student administration more highly. In addition, there was a significant difference between the perceptions of teachers and administrators on the importance of ICT use in the following areas of secondary school administration: student administration, general administration and supervision of instruction (Lawler, Porter, and Vroom 2009).

In spite of all the benefits of using new technology, a vast number of researchers attest to the fact that people have developed a resistance towards the use of modern technology in accessing information. Kim and Kankanhalli (2009) recognised resistance to information systems as a major reason for the failure of acceptance of new technology. In the opinion of Siegel (2008), resistance and little incentive to utilise new technology pose a chief dilemma that persists among many experts all over the world. Siegel (2008) also holds that resistance to technology illustrates a reluctance to embrace an initiative, view, idea or

action or being opposed to problematic situations. Therefore, it is important for any organisation to understand the reason for individuals' resistance in order to comprehend resistant behaviour and find a way out. A possible solution is to offer appropriate instruction and training on the use of technology and its application to real-life situations geared towards overcoming the cause of resistance. Mburu (2008) notes that the successful implementation of any education programme depends on users' acceptance of it, which in turn is influenced by users' attitudes. Attitude has been found to be a predictor of the adoption of new technologies such as computers. The successful integration of technology and the push to make education more relevant in the 21st century require teachers with the right competencies, values and attitudes (Chang et al. 2007; Chen and Fang 2008).

The study proceeds by outlining the following: the problem statement, the conceptual framework, the aims and objectives, the literature review, the research methodology and design, the target population and sampling, the data collection procedure, and the research instrument, before moving on to the data analysis, results and discussion. The conclusions and recommendations are presented at the end of the article.

Statement of the Problem

Despite the fact that ICT utilisation has been seen to enhance organisational effectiveness and efficiency, the human feature has been identified as the most important contributor to the success or failure of the full implementation of ICTs (Wahdain and Ahmad 2014). The use of ICT is one of the fundamental elements of organisational effectiveness and efficiency (Ministry of Education Malaysia 2010). Liew (2007) proposes that one of the main factors that might hinder the implementation of an ICT programme is administrators' resistance to the acceptance and use of this new technology in schools and this causes the huge investments that have been made within the arena of ICT to be wasted. In Zimbabwe, it has been observed that in the past 10 years, the level of ICT usage in the education sector, particularly in the secondary and primary levels, is much lower compared to other countries in the region. This low level of ICT usage has been attributed largely to low levels of ICT literacy or competencies, attitudes towards ICT usage and the acceptance of ICT usage (Benba Sat and Barki 2007). The Zimbabwean government has reiterated that the low ICT literacy levels is one factor that still affects the diffusion and usage of ICT within the country's education sector. This situation has prompted the various stakeholders to put in place measures that seek to ameliorate the problem and ensure that ICT facilities are put to full utilisation to improve the efficiency and effectiveness of secondary and primary school administrators. Therefore, this study sought to investigate the administrators' ICT competencies, attitudes towards ICT utilisation and ICT acceptance relative to the utilisation or the diffusion of ICT in the public secondary schools in Bulawayo, Zimbabwe.

Conceptual Framework

To address the study's objectives the researchers sketched the following conceptual framework (Figure 1). The conceptual framework depicts the three key factors and

variables that define the educational institutions' administrators' disposition towards the use of ICT. The factors are the following: the school administrators' ICT competencies, their attitude towards ICT usage, and their ICT acceptance. The study conceptualises that these factors have a causal effect or impact on the level of ICT usage and diffusion in the education sector.

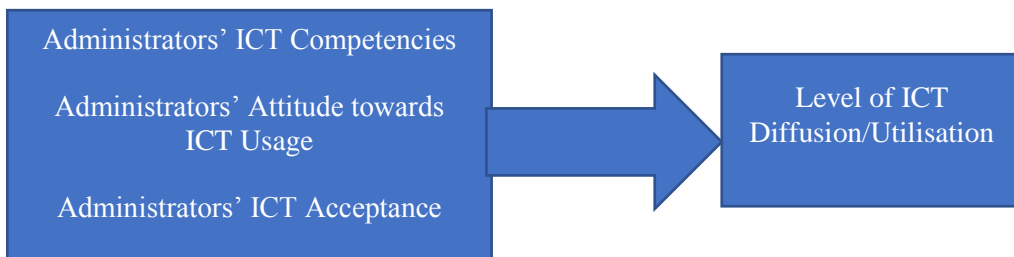


Figure 1: Factors influencing the use of ICT in the education sector

The Study's Aim and Objectives

The aim of this research was to investigate the administrators' information and communication technology competencies, attitudes and acceptance relative to the utilisation of ICT in the public secondary schools in Bulawayo, Zimbabwe.

The following research questions guided the study:

- What is the level of ICT utilisation by secondary school administrators in Bulawayo?
- What are the administrators' dispositions towards ICT in terms of the following:
 - ICT competencies,
 - attitudes towards the usage of ICT, and
 - acceptance of ICT usage?
- Is there a significant relationship between administrators' ICT competencies, attitudes, acceptance and its utilisation in Bulawayo secondary schools?

Theoretical Framework and Literature Review

The following section reviews the related literature on the levels of ICT utilisation by the administration, the administration's ICT competencies, their attitudes towards the usage of ICT and their acceptance of ICT usage in public secondary schools in Bulawayo.

Theoretical Framework

The following section outlines the theoretical framework of the study.

ICT Competencies

According to Almiron-Roig (2007), ICT competence, i.e. mastering ICT utilisation techniques, enhances the efficiency and effectiveness of staff in the performance of their duties. It is generally accepted that the secondary school administrators' ICT competencies do not only enhance their ability to utilise ICT, but enable them to become effective and efficient change agents in any venture that is undertaken by their schools. As agents of change, the school administrators form an important link between the administration and the entire staff. Their effectiveness in areas of supervision and evaluation of staff members will earn them the necessary respect from members of staff. It is also clear that the principal or administrators' ICT competence improves their efficiency and effectiveness in the discharge of their duties. It is generally accepted that a competent and effective administrator who performs his/her duties diligently is more respected than one who is incompetent and lazy (Almiron-Roig 2007; Carter, Schaupp, and McBride 2011).

As leaders in their respective capacities, administrators as facilitators in the integration and utilisation of ICT need to be well equipped with ICT skills and knowledge. They can only lead effectively if they are knowledgeable about ICT, as they will act as role models to their subordinates in technology integration in school administration and management (Carter, Schaupp, and McBride 2011). If administrators are not familiar with ICT, and are incompetent in the use of ICT, it will be difficult for them to initiate and facilitate the integration of ICT in school administration as they lack the technological knowledge to do so. This will ultimately affect their confidence and ability to handle their staff, especially if their juniors are more competent than they are.

Attitude Towards the Usage of ICT

The term "attitude" has been defined in a number of ways. Karim (2012) defines attitude as "a general and enduring positive or negative feeling about some person, object or issue." In other words, an attitude refers to how we think about something in particular and whether we lean toward the positive or negative in our appraisal of it. A positive attitude implies a way of thinking that is predominantly positive and optimistic. The opposite inclination, a negative attitude, is predominantly pessimistic (Oboegbulem and Ugwu 2013; Osakwe 2011).

Some of the relevant literature that relates to people's views about technology is expressed in terms of attitudes to technology or attitudes to change (Adeyinka 2009). Positive attitudes are understood to be essential to the acceptance, implementation and success of new technologies. For ICT systems to be successful, school administrators need to avoid their reluctance to change and absorb a positive attitude towards technology. According to Kavagi (2010), studies show that among educational administrators, a positive attitude

towards the use of computers is strongest when the role of computers in school management is made clear. The attitude of school administrators towards ICT usage determines the speed, spread and depth of ICT utilisation and diffusion in the education sector (Kavagi 2010; Oboegbulem and Ugwu 2013; Osakwe 2011). School administrators also perceive the introduction of computers as boosting the institution's image and prestige as a modern school (Asogwa 2013).

Effective leadership is important in coordinating and supporting ICT implementation in schools. As key leaders of school transformation, school head teachers can facilitate and support the idea of implementing ICT in their schools. To achieve this, school head teachers need to appreciate that the idea to implement ICT is not only about ICT usage, but also about the transformation of learning, teaching and the management of their schools (Mburu 2008). By being role models in ICT usage, visionary, planners and custodians of ICT infrastructure, school head teachers should be committed to, champion and have interest in the implementation of ICT in their schools. They should lead the transformation of the school through being passionate, active and enthusiastic (Mburu 2008). They should be involved with and supervise the whole process through promoting staff professional development, sharing decision-making with other teachers, delegating responsibilities and maintaining a clear vision of the school.

ICT Acceptance

The following section discusses the tenets for ICT acceptance.

Performance Expectancy

Many studies have established that performance expectancy plays a major part in the intention to accept information technology (Carter, Schaupp, and McBride 2011; Siegel 2008). If an individual believes that the use of a given technology will greatly improve their performance, the likelihood that they will use the technology is very high. The opposite is equally true. If an individual believes that the use of a given technology will not improve their performance, they are likely not to use such a technology. Therefore, an administrator who believes the use of ICT will have no impact on his/her job performance will be reluctant to use it. However, other factors will also hinder their willingness to use technology, such as lack of training in ICT and access to ICT facilities (Ibara 2010; Mulder 2018; Wahdain and Ahmad 2014).

Effort Expectancy

Many researchers have found that effort expectancy has a significant influence on the intention to adopt new technology (Chang et al. 2007; Kavagi 2010). Yet, Carter, Schaupp, and McBride (2011) found that the effort expectancy has no positive impact on the intention to adopt information technology. The supposed degree of effortlessness associated with technology has a great influence on the utilisation of technology. If an administrator feels that a given technology is difficult to operate, they will not show willingness and intent to

use it. If they perceive a given technology to be easy to operate, they are more likely to show willingness and intent to use it (Maki 2008).

Social Influence

Adeyinka (2009) found that simply being exposed to a person, even for a brief period without any interaction, substantially increased compliance with that person's request. The comparatively young science of social influence can trace its roots to the Second World War, when a social psychologist named Carl Hovland was contracted by the U.S. Armed Forces to bolster the morale of soldiers. President Roosevelt was concerned that Americans would lose the will to fight after their victory in Europe. It was Hovland's job to motivate soldiers to continue to fight against Japan. Since World War II, social influence has become a vastly expanded field of study devoted to discovering the principles that determine our beliefs, create our attitudes, and move us to action (Burger et al. 2011).

Facilitating Conditions

Adeyinka (2009, 26) defined facilitating conditions as "factors that are present in the environment that put forth an influence over a person's aspiration to execute an assignment." In this vein, the necessary technical infrastructures such as hardware, software, networks and facilities have to exist in order for a given ICT system to be used. Therefore, school administrators are only expected to put to use ICT when these conditions are made available. The absence of any of the above mentioned could result in the underutilisation of ICT and ultimately causing frustration for the school administrators about the continued use of the technology (Burger et al. 2011; Tosun and Baris 2011). Furthermore, as facilitating conditions, the administrators in schools not only require the infrastructures for the utilisation of ICT, they also require financial resources that will be used to purchase physical facilities such as computers and supporting software. They also need technical support in case of breakdowns in the system so that there are fewer interruptions. The internet connectivity also needs to be stable and reliable for efficient utilisation of the technology (Federal Republic of Nigeria 2001; Razaee, Elam, and Sharbatoghlie 2009).

Literature Review

The following section discusses the literature reviewed for the purposes of this study.

Administrative Function

The administrative functions of administrators include decision-making, planning, organising, communicating, coordinating and evaluating (Asogwa 2013). These responsibilities are applied in the areas of curriculum development, instructional supervision, staff and student personnel administration, guidance and counselling, finance, community relations, construction and maintenance of facilities and special services. These tasks are very complex, nebulous and time consuming. For the school administrators to

function efficiently and effectively in the present computer age as observed by the researcher, the school administrators must rise to the challenge of adopting new technological resources and services in the management of the school (Bertot, Jaeger, and Grimes 2010).

ICT Utilisation by Administrative Staff

In order to do their daily responsibilities faster and more accurately administrative staff can use ICT. Administrative staff use different types of tools to handle financial work, maintain communication records, process documents and collect data. By using ICT applications, they can handle these responsibilities more effectively and efficiently.

Many ICT application tools have been widely used in education administration and management. The available ICT applications for education administrative purposes include, for example, internet websites and hardware such as scanners, printers, photocopying machines and computers (Kawade and Kulkarni 2012; Kazi 2012; Mwalongo 2011). The internet is the most dominant enabler of a better, faster and cheaper approach in operating administrative and management daily tasks such as information processing, transferring, storing and retrieving (Sushmita 2006). Thus, school administrators ought to pay attention to the uses of the internet in order to impart knowledge regarding information access via internet-based educational applications and tools to all academic and non-academic staff.

Administrative Software Applications

School administrators and management tend to use various software applications for their administrative purposes. The most frequently used application by school administration and management were office tools such as Microsoft Office (Word, Excel and PowerPoint) (Mwalongo 2011). As Higgins (2007) noted, administrators are familiar with a range of software that handles information, particularly spreadsheets and databases. Although this will be time consuming, databases potentially offer much more efficient and effective ways to manage information than most schools currently use.

A few years ago, the administrative work of schools, especially in Zimbabwe and many Third World countries, was print/analogue based. In other words, various documents were kept in the form of manual-based records. These records showed information on the past, present and predictable future activities of the school, including relevant information from the external environment, which aided decision-making. The information kept encompassed the areas of instructional programmes and activities, records of staff and student personnel, physical facilities, finance, supervision and interaction with stakeholders outside the school. A school administrator could not perform his/her administrative duties without accurate, timely, sufficient and relevant information. The deficiencies associated with the storage, preservation and presentation of large volumes of information in paper form made managerial processes very cumbersome. Consequently, alternative methods

provided by information and communication technology (ICT) became imperative (Chang et al. 2007).

Research Methodology

This section discusses the study's research design, the population of the study and the sample and sampling techniques employed for the purposes of this study.

Research Design

The researchers employed a quantitative research design (Burns and Bush 2014) and made use of descriptive statistics of the mean, the standard deviation, stepwise regression as well as an analysis of variance methods of regression. This type of research design allowed for testing of the purported relationship between the dependent and independent variables.

Target Population and Sample

The target population for the study was 220 secondary school administrators in the Bulawayo Metropolitan from 27 public secondary schools. The population consisted of 27 school headmasters, 27 deputy headmasters and 166 heads of departments. A non-probability and purposive-sampling technique (Cohen, Manion, and Morrison 2011) was employed to select the participants in the study. The total population sampling technique was applied in which the whole population (220 administrators) was used for the purposes of the study. Because of the small size of the population, the researchers chose to use the entire population as the sample for the study. The response rate on each category varied. There was a 93 per cent (25) response rate with respect to school headmasters, an 82 per cent (22) response rate with respect to deputy headmasters and a 96 per cent (159) response rate with respect to the heads of departments.

Data Collection Procedure

Data was collected using a structured questionnaire, which was delivered directly to the participants and collected later. The researchers obtained a letter of authorisation for data collection from the department of education at uMhlahandlela in Bulawayo, which helped to give confidence and assurance to the respondents that the data collected was only intended for academic purposes.

Research Instrument

The research instrument was divided into two sections, A and B. Section A catered for the demographic profile of the respondents, while section B covered the study's variables, which consisted of closed-ended matrix item questions. Seven item questions in the instrument measured the construct "competence," seven item questions measured the construct "attitude," and another seven measured the construct "acceptance." A Likert scale comprising of five responses was used for the matrix item questions. A Likert scale is a rating that requires the subjects to indicate their degree of agreement or disagreement with

the item statements or questions (Thatcher 2010). In this type of questionnaire, the respondents were given five choices. These options served to quantify the participants' agreement or disagreement on each item question. The researchers sought to validate the extent to which the instrument of the questionnaire measured what it was intended to measure (Thatcher 2010) by subjecting the instrument to a pilot study and testing for the reliability of the instrument as well by using Cronbach's alpha coefficient. The pilot study assisted to eliminate any ambiguities from the item questions in the questionnaire. The Cronbach's alpha reliability value for the instrument was 0.938, which was above the 0.7 benchmark. The researchers were satisfied that the instrument was reliable for the purposes of conducting the study.

Data Analysis

Data was analysed using the computer software Statistical Package for the Social Sciences (SPSS version 25). SPSS is one of the most widely used statistical packages that allows for a broad range of statistical procedures to be performed. The software package allows the researchers to summarise data, for example by computing means and standard deviations, and to determine whether there are any significant differences between groups, for example by making use of a t-test, an analysis of variance and also examining relationships among variables (e.g. correlation, multiple regression and the group results).

Results and Discussion

This section deals with the discussion of the results as represented in statistical tables depicting the measures of central tendency or descriptive statistics and the inferential statistics employed in the analysis of the data.

Levels of Utilisation of ICT by Secondary School Administrators in Bulawayo, Consisting of Headmasters, Deputy Headmasters and Heads of Departments

Table 1: Levels of ICT utilisation

<i>N=159</i>	<i>Mean</i>	<i>Standard Deviation</i>
I use computers to evaluate teachers' performance	3.210	1.152
I use computers to store all the data regarding staff members	3.250	1.176
I use computers to prepare departmental budgets and financial reports	3.110	1.194
I use computers to keep records of departmental stock	2.860	1.232
I use computers for preparation of agendas and minutes for meetings	3.330	1.014
I use ICT tools (e.g. email) to communicate with staff members	3.480	1.137
I use ICT tools to search for work-related information	3.530	1.223
Utilisation average	3.251	0.804

Source: own elaboration

It was also observed that most secondary schools had computer laboratories and almost all the departments are furnished with scanners, desktop computers and printers. There was also evidence of the government's programme of increasing the levels of ICT competencies being implemented through the more practical-oriented curriculum as observed in most departmental rooms and offices. In a number of schools, it was noticed that each department had a laptop, at least one or two desktop computers and an overhead projector, which were seen being utilised by members of staff for typing and other activities (Siegel 2008; Thatcher 2010).

Levels of Administrators' Disposition towards ICT

Table 2: Levels of administrators' disposition towards ICT

<i>N=159</i>	<i>Mean</i>	<i>Std. Deviation</i>
Competence average	3.225	0.899
Attitudes average	3.3653	0.701
Performance average	3.269	0.758
Effort average	3.231	0.757
Social average	2.856	0.541
Facilitating average	3.471	0.739

Source: own elaboration

Table 2 above shows an average mean value of 3.225, which indicates that the administrators' ICT competency levels are moderate. The average standard deviation of 0.899 indicates homogeneity or similarity of responses among administrators. This implies that all respondents are generally competent in ICT, albeit at moderate levels. Oboegbulem and Ugwu (2013) assert that school administrators in Nigeria are incompetent in handling ICT facilities for effective administration. In the case of secondary school administrators in Bulawayo, it was observed that their competency levels in ICT were moderate, contrary to the above literature. There was also evidence of ICT competencies as most of the documents associated with activities such as timetables, duty rosters and other notices on the boards of most of the schools were computer generated, which was a direct confirmation of ICT competence among administrators.

The results indicate that administrators have an indifferent attitude towards the use of ICT, as evidenced by a mean score average of 3.365 (SD=0.701). The average mean of 3.365 shows that respondents have an indifferent attitude towards the use of ICT and the standard deviation of 0.701 indicates homogeneity in responses by school administrators. According to the study by Kavagi (2010), the attitudes of school administrators towards ICT usage determines the speed, spread and depth of computer usage in the education sector. The indifferent attitude by school administrators in Bulawayo Metropolitan towards the usage of ICT does not mean that there is no ICT usage but that the level of usage is moderate.

The average mean value of 3.269 shown in Table 2 above indicates that there is a moderate ICT usage acceptance level among administrators in terms of performance expectancy. The average standard deviation of 0.758 indicates that there was homogeneity or similarity among respondents. According to Carter, Schaupp, and McBride (2011), performance expectancy plays a significant role in the intentions to accept and utilise ICT. It was also observed that the usage of ICT and other associated software enables administrators to perform tasks such as timetabling and the preparation of important documents more efficiently and effectively. This positively confirms the fact that personal ambitions and work aspirations among school administrators do have a role to play in ensuring that there is ICT acceptance, as evidenced by the study.

The mean average value of 3.231 shown in Table 2 indicates medium levels of effort expectancy among respondents while the standard deviation of 0.757 shows homogeneity of responses among the administrators. Carter, Schaupp, and McBride (2011) found that effort expectancy had no positive impact on the intention to adopt information technology. However, results from this study indicate that effort expectancy has an influence on administrators' usage of ICT in Bulawayo. Most of the administrators are unwilling to make use of ICT tools because of the difficulties in operation associated with computers and other ICT tools.

The results also reveal an average mean value of 2.856 which shows that there was a medium influence from society experienced by respondents that prompted them to make

use of ICT. The standard deviation of 0.541 indicates homogeneity among secondary school administrators in Bulawayo in terms of social influence. Burger et al. (2011) found that simply being exposed to a person, even for a brief period without any interaction, substantially increased compliance with that person’s request. This positively supports the findings that social influence has an effect on a person’s adoption and acceptance of technology.

The average mean of 3.471 indicates that the availability of facilitating conditions for the effective acceptance of ICT among secondary school administrators is moderate and the average standard deviation of 0.739 shows homogeneity in the responses concerning facilitating conditions among respondents. This does imply that the environment is conducive for administrators to fully adopt the usage of ICT. However, these facilitating conditions are only available to a moderate level.

Teo, Lee, and Chai (2008) defined facilitating conditions as “factors that are available in the environment that exert an influence over a person’s aspiration to perform a task” and stated that the facilitating conditions greatly influence an individual’s usage of technology. Our study’s results are therefore in conformity with the findings of the study by Teo, Lee, and Chai (2008) that facilitating conditions play a huge role in ensuring the acceptance of ICT in school administration. It was also observed that not all the schools were equipped with internet connectivity despite having ICT infrastructure such as computers.

The Relationship between Administrators’ ICT Competencies, Attitudes, Acceptance and ICT Utilisation in Bulawayo

Table 3: Model summary of administrators’ ICT competencies, attitudes, acceptance and ICT utilisation

<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
1	.702 ^a	0.493	0.489	0.57517
2	.724 ^b	0.525	0.517	0.55912

Source: own elaboration

a. Predictor: (constant) utilisation

b. Predictor: (constant) competence, acceptance average

The model summary in Table 3 above shows an R-value of 0.702, indicating a high correlation between the administrators’ ICT competencies and the utilisation of ICT, while the R-value of 0.724 shows a high correlation between ICT competencies, acceptance and the utilisation of ICT. The second model (R=0.724) shows that there is a high correlation between competence, acceptance and the utilisation of ICT. The adjusted R-squared (0.489 or 48.9%) reflects a total variance in the utilisation of ICT as explained by competencies and acceptance levels. Combined, administrators’ ICT competencies and their ICT acceptance levels account for a (0.525 or 52.5%) variance in the utilisation of ICT.

Table 4: ANOVA: the significance of the relationship between competence, acceptance and ICT utilisation

<i>Model</i>	<i>Sum of Square</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1. Regression	37.94	1	37.943	114.7	.000 ^b
Residual	39.04	118	0.331		
Total	76.98	119			
2. Regression	40.41	2	20.201	64.62	.000 ^c
Residual	36.58	117	0.313		
Total	76.98	119			

Source: own elaboration

a. Dependent variable: utilisation average,

b. Predictor: (constant) competence average

c. Predictors: (constant) competence, acceptance average

The ANOVA in Table 4 (model 1) shows that administrators' ICT competencies are a significant predictor of ICT utilisation ($F=114.7$, $p=0.000$). Model 2 shows that administrators' ICT competencies and their ICT acceptance levels combined are significant predictors of ICT utilisation ($F=64.62$, $p=0.000$). The non-significant predictor (attitudes) was excluded. The results indicate that there is a significant relationship between the administrators' ICT competencies, ICT acceptance levels and ICT utilisation among secondary school administrators in Bulawayo.

This does confirm the fact that there is a significant relationship between the competency levels of secondary school administrators and their levels of utilisation of ICT. The more competent they are the higher their ICT utilisation levels are. Furthermore, a high ICT competence among administrators also enhances their commitment to work and increases their motivation, enjoyment and interest, self-esteem, and their independence and confidence.

Table 5: Coefficients^a: stepwise multiple regression measuring the correlation between competence, acceptance and ICT utilisation

<i>Model</i>		<i>Unstandardised Coefficients</i>		<i>Standardised Coefficients (Beta)</i>	<i>T</i>	<i>Sig.</i>
		<i>B</i>	<i>Std. Err</i>			
1	(Constant)	1.226	0.196		6.246	0
	Competence	0.628	0.059	0.702	10.71	0
2	(Constant)	0.45	0.336		1.338	0.183
	Competence	0.533	0.066	0.596	8.031	0
	Acceptance	0.338	0.12	0.208	2.805	0.006

Source: own elaboration

a. Dependent variable: utilisation average

Furthermore, a look at the coefficients in the stepwise multiple regression in Table 5 above shows that ICT competence and acceptance have a positive correlation with the utilisation of ICT. Competencies with a standardised (beta) coefficient of 0.596 have the greatest effect on the utilisation of ICT, followed by acceptance levels with a standardised (beta) coefficient of 0.208. This simply means that a change in one standard deviation in administrators' ICT competencies will result in a change of 0.596 in ICT utilisation and a change in one standard deviation in ICT acceptance levels will result in a change of 0.208 in ICT utilisation. This makes sense as it is highly expected that a more competent administrator would frequently spend much more time utilising ICT facilities than one less competent and would most likely have high levels of ICT acceptance. This is so because increased ICT competencies lead to increased motivation, enhanced interests, greater commitment to work and further increase independence and confidence among secondary school administrators.

Conclusion

With respect to research question one (What is the level of ICT utilisation by secondary school administrators in Bulawayo?), the study concludes that there is a moderate level of ICT utilisation by the administrators in secondary schools in Bulawayo. The administrators do make use of ICT in their various administrative duties, with a much lower usage of ICT in record-keeping for the schools' departmental stocks. The descriptive statistical results of the measures of the central tendency, i.e. the mean and standard deviation as reflected in Table 1 above, indicated a reasonable degree of homogeneity or similarity in responses among the secondary school administrators. These results contradicted the results of the

study by Makewa et al. (2013) whose study indicated that administrators rated the importance of using ICT in the supervision of instruction and in student administration more highly. The study suggests that the moderate level of ICT utilisation among the secondary school administrators in Bulawayo could be attributable to lack of adequate training in ICT usage and competencies, despite the fact that most of the secondary schools have computer laboratories and almost all the departments are furnished with scanners, desktop computers and printers in line with the government's programme of increasing the levels of ICT competencies among school administrators (Siegel 2008; Thatcher 2010). Training in ICT usage is not mandatory in almost all the teacher training colleges and universities across the country. Teachers, for example, tend to acquire such ICT skills by making use of their own private arrangements to undergo training, while others acquire such skills during in-service training at their organisations. However, this situation might be corrected soon as the Zimbabwean government is embarking on a programme to make computer studies a compulsory subject in public schools.

Research question two was about the administrators' dispositions towards ICT usage in terms of their ICT competencies, their attitude towards ICT usage and their ICT acceptance levels. Research question three addressed the premised relationship between administrators' ICT competencies, attitudes, and acceptance and the level of ICT utilisation in Bulawayo secondary schools. The following findings were drawn from the study's results with respect to research questions two and three. The study concludes that ICT competencies among secondary school administrators in Bulawayo affect the utilisation of ICT in the schools' administration. As a result, the levels of utilisation or diffusion of ICT in the public secondary schools' administration are significantly influenced by the administrators' ICT competencies and their ICT acceptance levels. ICT competencies have the greatest effect on the utilisation of ICT in secondary schools in Bulawayo, followed by ICT acceptance, levels of performance expectancy, effort expectancy, social influence and facilitating conditions. This implies that the higher the level of ICT competencies and acceptance of ICT, the greater the utilisation or diffusion of ICT in secondary schools in Bulawayo. However, attitudes have proved not to be predictors of ICT utilisation by school administrators in Bulawayo. Despite the indifferent attitudes depicted by the schools' administrators, they still utilise ICT moderately in their administrative duties.

Recommendations

Based on the research findings, the study proffers the following recommendations. The government needs to put in place a deliberate policy towards mandatory ICT competencies training in all teacher training colleges and universities in the country. The government needs to ensure that all public secondary schools in the country are well equipped with ICT tools such as internet connectivity and computer hardware. The study also recommends that the government should speed up the implementation of compulsory ICT training programmes in all secondary schools in the country. These are recommendations with managerial implications. The study recommends further future research as well. Similar studies in the future are recommended to be conducted in other towns in Zimbabwe. Similar

research should also be carried out in primary schools as well in Bulawayo or any other towns in the country. There is also a need to carry out similar research in private secondary schools in other towns within Zimbabwe.

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