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Relationship Between Organisational Factors and Adoption of New Technology in Kenya: A Case of CEMASTEА

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Abstract

This research evaluated the relationship between organisational factors and adoption of new technology in education support organisations in Kenya based on the case of Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА). The research design adopted for this study was descriptive correlational design. The study population was 214 employees of CEMASTEА. A stratified sample of 64 participants was drawn from the different departments within the institution. A structured questionnaire was developed for data collection. Data was analysed using descriptive statistics and regression analysis in SPSS. An R-Square of 0.749 with the standard error of estimate being 0.235 was found, implying that for any variation in adoption of new technology by one-unit, organisational factors explained 74.9% of such variation. This was a demonstration that organisational factors were a salient determinant of technology adoption success. Government and all relevant authorities should also formulate and implement policies that will assist organisations adopt and adapt to new technologies in a favourable and user-friendly environment.

Keywords: Organisational Change, Organisational Factors, Technology Adoption, New Technology

Introduction

The introduction of new technology can trigger organisation-wide change spanning from production and operation processes to product and services offered, quality levels and even change in supplier relationships. Implementation success is therefore contingent on a multiplicity of organisational factors and what they portend for new technology adoption. While public institutions generally recognise the significance of technology in orchestrating positive transformation, extant literature suggests that organisational factors often get in the way of technology adoption success. This is especially the case in higher learning institutions which have been characterised by challenges in acceleration of ICT adoption in the delivery of education services.

Success in dynamic organisational contexts require openness to constant change in order to stay relevant (Dearing & Cox, 2018). Through transformation, adaptation and self-reinvention, organisations are able to gain and sustain competitiveness (Macharia, 2015). One way in which transformation manifests in organisations is through adoption of technology (Sérgio, 2013). Information and communication technology (ICT) is especially a key driver of organisational sustainability in the modern business environment most notably due to increased efficiency and effectiveness along with associated benefit accruals such as cost reduction, revenue growth etc. Technology adoption also reduces dependence on human labour and memory and therefore, not only leads to error reduction, but also frees human resources for other uses (Ghavifekr & Rosdy, 2015). Besides service automation and standardisation, investment in decision support systems also foster quality decision making in organisations (Susanto et al., 2016). This empowers critical people at various levels of the organisation to make sound decisions (Susanto et al., 2016). As such, adoption of new technology is fundamental to organisational success (Milgrom & Roberts, 2002).

The many benefits of ICT adoption have been recognised by the government of Kenya as documented in Vision 2030 which aims among others, to prioritize the implementation of ICT in primary and high schools, colleges and universities (GOK, 2007). However, despite the government's vision of increased implementation of ICT in schools, research shows that while other countries have achieved over 41% implementation of ICT in colleges, Kenya is lagging behind its regional counterparts ((Laaria, 2013).

Typically, the introduction of new technology can trigger organisation-wide change spanning from production and operation processes to product and services offered, quality levels and even change in supplier relationships (Schumpeter, 2008). Implementation success is therefore contingent on a multiplicity of organisational factors and what they portend for new technology adoption. While public institutions generally recognise the

significance of technology in orchestrating positive transformation, extant literature suggests that organisational factors often get in the way of technology adoption success (Nispen, 2016). This is especially the case in higher learning institutions which have been characterised by challenges in acceleration of ICT adoption in the delivery of education services (Ghaznavi et al., 2011).

Andiema (2015) carried out a research on challenges of adoption of ICT on teaching and learning in public pre-schools in the North Rift region of Kenya and observed that schools lacked funds and other facilities needed in adoption of IT. Kilpimaa (2006) did research on factors influencing successful change management in IT outsourcing from a transferred personnel point of view and noted that poor leadership contributed to ICT adoption failure. Omariba (2013) studied challenges facing teachers and students in the use of instructional technologies in Kisii County, Kenya and reported that lack of training made the use of new technology hard. Fagan (2019) in his research on factors influencing student acceptance of mobile learning in higher education observed that, indeed the use of technology is not optional anymore but it was the only means to impart knowledge in such situations where physical classrooms were not possible. Skoumpopoulou et al. (2018) in their research on factors that affect acceptance of new technologies in the workplace noted that, an introduction of new IT application within an organisation represented change and the acceptance of such change started with individual end users because they were the owners of the technology.

These foregoing studies provide pointers to the factors potentially at play in the ICT adoption equation. However, they do not adequately examine the gamut of organisational factors influencing ICT adoption in public institutions in the higher learning space. It is against this backdrop that the present study sought to investigate the relationship between organisational factors and ICT adoption at CEMASTE A, a public institution with a history that dates back to the year 2003 when it was established as a government agency that coordinates in-service education and training for practising teachers of mathematics and science in Kenya (CEMASTE A, 2012).

Objective of the Study

The study was guided by the following objective: To establish the relationship between organisational factors and the adoption of new technology at-CEMASTE A.

Research Question

The study sought and answered the following research question: How are organisational factors related to adoption of new technology at CEMASTE A.

Research Hypothesis

The study tested the following research hypothesis:

H0: There is no statistically significant relationship between organisational factors and adoption of new technology at CEMASTE A

Literature Review

Organisational factors can easily prevent an organisation from recognizing the need to change and properly put changes into action. Organisations must provide facilitating conditions to allow adoption of technology (Talukder, 2012). Organisational factors typically span leadership, communication, employee involvement, human resource development and associated costs.

Gaylor (2001) in his study on the factors affecting resistance to change noted that, organisational leadership is very important for the success of any organisational change process. Betz (2000) found that ICT can only be implemented in schools if the leaders of those schools are actively supportive and learn the new technology as well. He noted that good leadership will provide adequate professional development and support for his/her employees in the process of radical change in technology for teaching/learning from the traditional pedagogical approach. Anderson and Dexter (2005) carried out a study on technology leadership behaviour of school principals and found that 'although technology infrastructure is important, technology leadership is even more necessary for effective utilization of technology in schools. Tong (2005) also did an investigation on the investment in ICT for enhancing formal and non-formal education systems and essential for school improvement. We can safely conclude that good leadership is very important in successful adoption of a technology in an organisation.

One of the essential leadership traits required for an organisation to adopt technology is sensitivity towards development of current technology. Raman and Shariff (2017) state that among the indicators that show an organisation's willingness to adopt technology is approval of the improvement of the ICT facilities including provision of ICT equipment (Raman & Shariff, 2017). The leadership must also be willing to train its employees on the use of technology.

Seyal (2015) examined the Role of Transformational Leadership in Technology Adoption: Evidence from Bruneian Technical & Vocational Establishments (TVE) which looked at only one value of organisational factors. The research showed that transformational leadership is very important in adoption of a new technology. Rosnah et al. (2005) did a journal on Barriers to Advanced Manufacturing Technologies Implementation in the Small and Medium Scale Industries of a Developing Country. Their findings were; organisation as a whole plays a key factor in the success of a new

technology. Talukder (2012) on the other hand did research on determinants of the adoption of technological innovation by individual employees within an organisational context in Australia. The findings were; the factors affecting adoption of a new technology are; training, managerial support, incentive, perceived usefulness, personal innovativeness, image and prior experience. Kinyangi (2014) did research on Factors influencing the adoption of agricultural technology among smallholder farmers in Kakamega north sub-county, Kenya. The findings from his research were; education level, age and working experience influenced the way the farmers adopted new technology.

Several authors have highlighted the necessity of good communication between the employees and the management during the process of change. Applebaum et al. (1999) noted that an open communication policy works best during any organisational change. The employees are able to air their concerns, dislikes and likes. The management also gets feedback through this mode of communication. Peckham (2003) in her research on organisational factors that can affect employee acceptance of new information technology stated that, communication during the process of change must be regular and different channels must be used to ensure effectiveness.

Elving (2005) states that communication during organisational change prevents resistance to change or at least reduces resistance. Resistance to change slows the change process by hindering its implementation and increasing costs. Change may lead to deep resistance in employees making it difficult to implement the change process. Employees mostly resist the change process when they are uncertain about the expected results (Christensen, 2014). In an organisational environment where resistance to change is low, there is a higher effectiveness of the change efforts. Since the performance of an organisation is dependent on the actions of its employees, change can only be effective if members change their behaviour and perception of the new change. Communication leads to giving information about the change and creating a sense of community within the organisation before and after the change. The information given by the organisation about the proposed technology adoption comes from the management (Elving, 2005). When such information is communicated clearly and employees are given the reasons for the proposed changes, they are likely to accept the technology.

Al-Gahtani et al. (2007) advised that one can never expect one hundred percent support from another person who was never involved in formulating a change, which had an impact on his/her work. Individuals do not mind change so long as they get used to the idea of a new technology and have the opportunity to have an impact on the direction the change is taking. It is important to involve the users that will use the new technology in its implementation right from the first step so that they can fully embrace it without resistance.

Further, employee engagement is a predictor of employee performance in areas of application of intelligence and added efforts of the employees leading to realization of organisational objectives. Engaged employees perform well in their work and are loyal to the organisation hence easily accept change. Research work by Shaw et.al (1998) determined that employee engagement is a prerequisite for upgrading knowledge and skills of employees and is essential in delivering the expected level of work performance (Shaw & Delery, 1998). Therefore, the organisation's engagement with employees made it easy for change implementation.

Organisations also need to recognize the essence of training in meeting business challenges and giving the organisation a competitive advantage. Strategic training and development is essential in organisational change. Training and development help employees to acquire skills necessary to cope with the emerging changes (Gil et al., 2015). During ICT implementation, there is a possibility that the employees are not well versed with the new ways of doing things. The result is that some of the employees may not have the competence to work with the new ICT systems. Such employees are likely to be anxious about the new work methods and are likely to resist changes (Amoah-Mensah & Darkwa, 2016). Training and development makes employees familiar with the working methods and are more likely to accept the new system.

According to Gambatese and Hallowell (2011), the cost of technology plays a crucial role in making a decision on technology adoption (Gambatese & Hallowell, 2011). The cost of technology comprises the hardware, the personnel, software and space. The hardware entails all equipment that is used for data input, processing, communication and archiving. Other equipment that comprises hardware are those that are used in ensuring system reliability such as battery backup system (Nyagar et al., 2017). Software includes all the programs the organisation will require. The personnel include all the individuals required to keep the system working while space reflects the cost of purchasing and maintaining real estate to house the personnel and equipment.

A survey by Baldwin and Lin (2002) among Canadian manufacturers identified that cost was one of the main impediments to adopting new technology. Further, Walczuch et.al (2010) in a study of reasons for small organisations' failure to adopt internet-based technology identified that high cost was one of the main reasons. Majority of the businesses cited lack of financial resources and skills as the main impediments to ICT adoption. Businesses face pressure to cut cost of operation in the midst of escalating energy, labour and material costs (Nyagar et al., 2017). Therefore, organisations must critically consider the cost implications of technology before adopting it.

Theoretical Framework

This study adopted the Diffusion of Innovation theory (DOI). According to Rogers (2003) diffusion is the process through which an innovation is communicated through certain means of communication for over a period of time amongst the members of a social system. The theory has four stages, which include; awareness, interest, evaluation and the adoption stage. In the first stage, which is the awareness stage, the employees are exposed to the new technology but they lack complete information about it. The following stage, which is the interest or the information stage, the employees become interested in this new idea of technology introduction and therefore seek more information about it in terms of skill development and its use. At the evaluation stage, the employees mentally apply the new innovation to their current working environment and anticipate forthcoming situations. In the last stage of the trial, the employees make full use of the innovation and finally at the adoption stage, the employees decide if the new innovation is good or not or if it is a must for them to adopt it fully (Dearing & Cox, 2018).

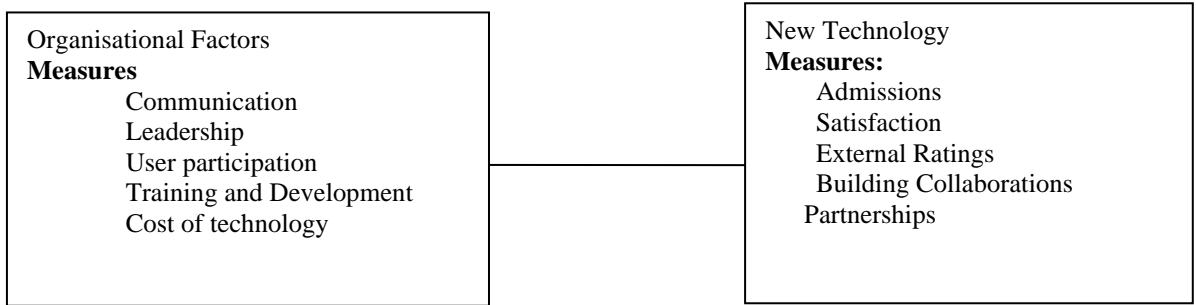
Activity theory was also used in this study. Activity theory was first founded by Vygotsky (1978) and having many other reviews including those of Ilyenkov (1977) and Leont'ev (1978) and recently by Engeström (1987) is a concept that is based on cultural-historical school of Russian psychology. Over the years, activity theory has become very important in understanding change and development in work and social activities. Activity theory concentrates on understanding the work practices and the human activity. An activity theory is believed to present us with the design and introduction of new technology in an organisation. An activity theory can effectively be used in the study of organisational, personal and external factors influencing adoption of new technology in an organisation. Several benefits are experienced when an activity theory is used in the introduction of a new technology. A new technology will present its users with a better way of improving their productivity, making work easier; users will also be presented with an opportunity for relevant applications and content. A new technology will help in improving the products that the user is offering thus improving customer satisfaction. The activity theory offers an approach of conceptualizing the connection between the communities, individuals, activities and technologies. The theory helped the study in the mastering of the process of development and looked at the content as the dynamic systems in the mediation with the artefacts of the culture, Tatnall (2011). This theory was appropriate for my study as it effectively helped in analysing diffusion of adoption of new technology in CEMASTE.A.

Conceptual Framework

The conceptual framework gives a sketch of the perfect approach to a thought or idea. It helps in making conceptual distinctions and in the organisation of ideas by showing the connection between independent and dependent variables. Independent variable that was investigated was Organisational factors and the measures considered included communication, leadership, user participation, training and development and cost of technology. The dependent variable that was considered was New technology and was measured by; admissions, satisfaction, external ratings, building collaborations and partnerships.

Independent Variable

Dependent Variable



Research Methodology

Research design

The research design adopted for this study was descriptive correlational design. The study population was 214 employees of CEMASTE A. A stratified sample of 64 participants was drawn from the different departments within the institution. A structured questionnaire was developed for data collection. The first few questions were designed to be simple and factual to allow the respondent to be at ease with the process, and to reduce anxiety on the part of the respondent. These questions were used in section one of the questionnaire, through which demographic and other contextual factor data was collected. For organisational factors, a likert scale of five (5) was used with strongly agree = 5, Agree = 4, don't Know = 3, Disagree =2 and Strongly Disagree = 1.

Cronbach's Alpha was used in order to test the reliability of the instruments. In accordance with Copper and Schindler (2011), Cronbach's alpha measures how closely a set of a group is connected together i.e. internal consistency. The alpha value has a range of 0 and 1 of which reliability increases with an increase in value. Most of the time, the coefficient of 0.6-0.7 is usually accepted rule of thumb that shows acceptable reliability and 0.8 or higher shows good reliability. To determine the validity of the research

instrument, expert opinion was sought from organisational research mentors. This helped the researcher in improving the validity of the questionnaires. The opinions of the experts helped the researcher in making the necessary adjustment of the research instruments and thus making it more valid. Questionnaires were dropped to the respondent's workplace and picked after they had been filled.

Cleaning of data was done and the questionnaires were arranged and coded. The researcher then analysed data using descriptive statistics and regression analysis using Statistical Package for Social Sciences (SPSS). Once the data was analysed, results were presented using tables, bar graphs, histograms and pie charts.

Ethical protocols were adhered to throughout the data collection and analysis process. This included seeking permission to use CEMASTEAs as a case study and informed consent from the participants. Confidentiality and anonymity was assured so that the participants could give their responses freely.

Study Population

In accordance with Ngechu (2004) a population is a set of people, services, events, and elements, group of things or households that is well defined and is being investigated. In statistics, a target population is a specific population whose information is desired. The study targeted the entire population of CEMASTEAs comprising 214 employees. The respondents came from the different departments in that institution.

Sample size

This research used 30% of the total population which is justified by Babbie (2010) with her affirmations that, if 30% of the target population is well selected, it gives very reliable results to the researcher. Mugenda and Mugenda (2003) also recommend a 30% sampling of the population. The researcher therefore sampled 64 people out of the 214 of the total population.

Data Collection and administration

After requesting and receiving permission to conduct the research from CEMASTEAs, the researcher formulated and used questionnaires to collect information from the employees. There were also informal telephonic discussions with respondents who called in for further explanations of terms. Roopa and Satya (2012), note that a researcher should design a questionnaire using the objectives as a guide.

The questionnaire was structured to exhaustively collect information on organisational, personal and external factors influencing adoption of new technology in education support systems in Kenya. The first few questions

were designed to be simple and factual to allow the respondent to be at ease with the process, and to reduce anxiety on the part of the respondent. These questions were used in section one of the questionnaire, through which demographic and other contextual factor data was collected, and section two collected data with regard to organisational, personal and external factors influencing adoption of new technology. A likert scale of five (5) was used with strongly agree = 5, Agree = 4, don't Know = 3, Disagree = 2 and Strongly Disagree = 1.

Validity and reliability of the Instrument

Somekh and Cathy (2005) argued that validity of a research instrument is the extent to which the sample of the items that are being tested represents the total value of the content that the test is made to measure. On the other hand, Mugenda and Mugenda (2012) stated that validity of research instruments is enhanced by looking at expert's opinions and comments in regard to the research instruments. To find out the validity of the research instrument, the researcher undertook a pre-test and a post-test after which he compared the responses for consistency. The researcher further looked for opinions from the experts in the field of study, mostly the lecturers. This helped the researcher in improving the validity of the questionnaires. The opinions of the experts helped the researcher in making the necessary adjustment of the research instruments and thus making it more valid.

Data presentation Method

Data was presented by use of figures and tables which was a clear representation of the Relationship between Organisational Factors and Adoption of New Technology in Kenya: A Case of CEMASTE A.

Data analysis

In this study, quantitative data was collected. Descriptive statistical procedures were used in analysis of this data. Kothari (2011) describes descriptive analysis as the process in which a mass of data is transformed into tables, charts with frequency distribution and percentages. After the researcher collected the data, cleaning of data was done and the questionnaires were arranged and coded. The researcher then analysed data using descriptive statistics and regression analysis using Statistical Package for Social Sciences (SPSS). Once the data was analysed, results of descriptive statistics were presented using tables, bar graphs, histograms and pie charts.

Results of the Study

Relationship Between Organisational Factors And Adoption Of New Technology In Kenya: A Case Of CEMASTEVA

Descriptive Statistics

Organisational factors analysed included training, employees' participation during implementation of new technology, communication, leadership/management as well as the cost of the new technology. Mean was used to indicate the prevalence of factors with mean close to 5 showing great influence of the factor on adoption of new technology. The opposite was true for those factors closer to 1. Standard deviation, on the other hand, was used to show the extent of dispersal of responses from the mean. Deviations closer to zero (0) depicted harmony in responses while those from zero indicated disharmony in responses.

From the findings, good training highly helps employees to adapt easily to a new technology as indicated by mean of 4.2 and standard deviation of 0.6. Other significant factors highly influencing adoption of new technology include participation of employees in implementation of a new technology which makes them adapt fast (mean = 4.2, standard deviation = 0.7); communication of the new technology to the employees (mean = 4.2, and standard deviation = 0.9); Interviewed employees also noted that, good leadership influences adoption of new technology (mean = 4.1, Standard deviation = 0.9). Respondents, nonetheless, gave a moderate score on the contention that cost of a new technology determines if their organisation will buy it or not (mean = 3.1 and standard deviation = 1.0). The composite mean index for the influence of organisational factor on adoption of new technology was 4.0 with standard deviation of 0.8. These findings show that organisational factors played a vital role for an effective adoption of new technology.

Table 1: Mean and Standard Deviation of Organisational Factors

Item	Mean	Std. Dev.
Good training helps employees to adopt easily to a new technology	4.2	0.6
When I participant in implementation of a new technology, I adapt fast	4.2	0.7
How a new technology is communicated to me affects how I adapt to it?	4.2	0.9
Leadership of our management affects the way I adapt to a new technology	4.1	0.9
The cost of a new technology determines if our organisation will buy it or not	3.1	1.0
Composite score	4.0	0.8

Inferential Statistics

Inferential statistics on the relationship between organizational factors and adoption of new technology by CEMASTEIA entailed coefficient of determination (R-Square), analysis of variance (ANOVA) as well as the model coefficient matrix. Test for autocorrelation was also performed.

Table 2: for the Relationship between Organizational Factors and Adoption of New Technology

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.865a	0.749	0.744	0.235	2.305

a Predictors: (Constant), Organizational factors
 b Dependent Variable: Adoption of New Technology

Results in Table 2 above show an R-Square of 0.749 with the standard error of estimate being 0.235. This implies that for any variation in adoption of new technology by one unit, organizational factors explain 74.9% of such variation. The remaining 25.1% represent a composite score of other variables not considered in the current study and that do influence adoption of new technology. The researcher also tested for autocorrelation using the Durbin Watson statistic which is always between 0 and 4. A *rule of thumb* is that, test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. For the current study, Durbin Watson statistic was 2.305 which falls within the relatively-normal range and therefore there was no autocorrelation in the residuals from regression analysis.

Table 3: ANOVA for the Relationship between Organizational Factors and Adoption of New Technology

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	8.889	1	8.889	160.714	.000b
Residual	2.987	54	0.055		
Total	11.876	55			

a Dependent Variable: Adoption of New Technology
 b Predictors: (Constant), Organizational factors

As shown in Table 3 above, F-Calculated (1, 54) = 160.714 which is greater than F-Critical (1, 54) = 4.019 at 2-tail test and 95% confidence level. Results also show that p-value = 0.000 < 0.05. This further confirms that organizational factors significantly do influence adoption of new technology. Given the p value did not exceed 0.05, the researcher therefore rejected the null hypothesis and accepted the alternative hypothesis thus concluding that, there is a relationship between organization factors and adoption of new technology.

Table 4: Model Coefficients the Relationship between Organizational Factors and Adoption of New Technology

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.575	0.284		2.028	0.047
Organizational factors	0.866	0.068	0.865	12.677	0.000

a Dependent Variable: Adoption of New Technology

Findings presented in Table 4 above show that when organizational factors are held constant, adoption of new technology will remain at 0.575. At the same time, an increase in organizational factors by one unit leads to an increase in adoption of new technology by 0.866 units with a p-value of $0.000 < 0.05$. This can be summarized by the following model:

$$Y = 0.575 + 0.866 + \epsilon$$

Where Y represents change in adoption of technology with X representing organizational factors. The findings agree with those of Peckham (2003) who in her research on organizational factors that can affect employee acceptance of new information technology stated that communication during the process of change should be regular and different channels should be used to ensure effectiveness. (Talukder, 2012) cited employees' participation as key during adoption of new technology and advised that one can never expect one hundred percent support from another person who was never involved in formulating a change, which had an impact on his/her work. Over and above, good leadership will provide adequate professional development and support for his/her employees in the process of radical change in technology for teaching/learning from the traditional pedagogical approach. Betz (2000) emphasized this.

Discussion

The findings agree with those of Peckham (2003) who in her research on organisational factors that can affect employee acceptance of new information technology stated that, communication during the process of change must be regular and different channels must be used to ensure effectiveness. (Talukder, 2012) cited employees' participation as key during adoption of new technology and advised that one can never expect one hundred percent support from another person who was never involved in formulating a change, which had an impact on his/her work. Over and above, good leadership will provide adequate professional development and support for his/her employees in the process of radical change in technology for teaching/learning from the traditional pedagogical approach.

From the findings, good training highly helps employees to adapt easily to a new technology as indicated by mean of 4.2 and standard deviation of 0.6. When employees are trained well, they easily recognize the essence of the new technology. The results corroborated the findings by Gil et al. (2015) who identified strategic training and development as essential for organisational change. They explained that since training and development helps employees to acquire skills, the employees are comfortable with the resulting changes. The results are also in concurrence with those of Amoah-Mensah and Darkwa (2016) who explained that since employees resist change for lack of requisite skills, training and development increases their level of comfort with changes such as introducing new elements of ICT.

Another significant factor highly influencing adoption of new technology include participation of employees in implementation of a new technology which makes them adapt fast (mean = 4.2, standard deviation = 0.7). The findings were in line with Al-Gahtani and Wang (2007) findings that employees do not mind change if they are given the opportunity to interact with the new changes and impact the directions the changes are shaping. The authors warn that employers must not expect hundred percent support from employees who were not involved in making decisions about the proposed changes. Ahmer (2013) concur with the results and add that employee engagement is a predictor of accelerated adoption of new technology when considering application of intelligence. When employees are involved, the findings show that it is easy to implement change.

Further, the findings show that communication of the new technology to the employees (mean = 4.2, and standard deviation = 0.9) influences ICT adaptation. The findings collaborate research by Buabeng-Andoh (2012) stating that open communication policy is essential in organisational change. Buabeng-Andoh (2012) explains that communication is essential since employees get the opportunity to communicate their likes and dislikes for the new change. At the end, the technologies are implemented in the manner the employees consider most favorable for them and they have a way of giving feedback. The results also agree with Peckham (2003) who stated that regular communication using different channels ensures effective change management. Elving (2005) supports the results and further gives information that communication during organisational change leads to reduction of resistance to change. The 4.2 mean shows a high level of influence of communication and as identified by Christensen (2014), organisational resistance can be reduced by communication because employees stop being insecure about the intended changes within the organisation. Instead, proper communication at CEMASTEVA resulted in the creation of a sense of community among the employees.

Good leadership was also indicated as one of the influencers of adoption of new technology (mean = 4.1, Standard deviation = 0.9) which showed that it was a critical factor when determining success of adaptation of technology. This was in line with the research by Gaylor (2001) showing that organisational change process and the leadership in the organisational change were vital for the organisation's likelihood of adopting ICT. The resistance of employees in this case is both for those in leadership positions and the employees in lower positions. The essence of leadership acceptability of the proposed changes was highlighted by Anderson and Dexter (2005) who showed that when school principals do not resist change, there is a higher level of utilization of technology in the schools. Further, the results are in line with Raman and Shariff (2017) finding on the traits of leadership that lead to effective adaptation of technology. Specific indicators of acceptability of technology as identified in their research include steps towards purchasing the equipment and placing it in the specific areas that must be utilized in the organisation.

However, the cost of technology was not identified as a strong factor with a mean of 3.1. The results differ from the conclusion by Mutula and Brakel (2006) who opined that the cost aspect of technology is a critical factor when determining the technologies to be adopted. In the ICT sector, Nyagar et.al (2017) states that the costs of elements such as software, hardware, personnel and space must be considered. However, the respondents in this case did not place cost as one of the major factors in their choice of adopting ICT. This is unlike research by Baldwin and Lin (2002) showing that for Canadian manufacturers, cost was one of the barriers to implementing certain technologies. The lack of financial resources was also identified by Walczuch et.al (2010) as an impediment. However, the fact that the respondents did not consider cost as a major factor may mean that either they have the required financial resources or that they have not invested in expensive ICT equipment.

Conclusion and Recommendation

New technology generally has exerted a great influence on improvements of organisations. In this respect, it has highly enhanced the effectiveness and efficiency of work organisations even though it is yet to ensure improved accountability in the process. Organisational factors mainly influence adoption of new technology by improving the communication to affected parties, having great leadership, good communication between the leaders and the employees, employees' involvement and the cost of new technology. New technology has improved flexibility and services awareness to the target customers and thus the high enrolment at CEMASTEVA. New technology has the capacity to increase productivity and create more cost effective output with the same or less inputs and second; development of

technological applications for business use alter the approach organisations function and eventually, improve their services as well as products.

Organisations need to be keen in communicating and involving their employees and other stakeholders during the adoption of new technologies and how it will affect all the parties. This will make the new technology effective and ensure little or no resistance is witnessed during the adoption. The findings showed that communication is essential both at the organisational factors level and in creating effective partnerships with other organisations for the benefits of CEMASTEА. Effective communication is going to occur when the organisation defines the communication needs of different departments and the expected results of the communication. The research indicated that within the organisation, good communication during introduction of new technology ensured that the employees utilized the information when making decisions. The result of proper communication is employee empowerment throughout the organisation. The creation of important partnerships and collaborations was identified in the research as one of the benefits arising from the implementation of ICT. However, the research did not delve into the implications of technology improvement in ensuring that stronger partnerships are kept. Effective communication harmonize stakeholders and provides consumers, who in this case are the students, with timely and relevant information. Already, CEMASTEА has improved its collaboration efforts in e-learning. Therefore, the organisation can go further in identifying new areas within the organisation where communication improvement using ICT may benefit it in achieving its overall goals.

Training and development were identified as critical for employees' acceptance of technology. However, the training must be tailor-made for the needs of the employees. The research shows that among the employees, there are different needs based on their age, beliefs and perceived usefulness of the technologies that are applied. Therefore, when identifying the appropriate training needs, it is essential to conduct a survey of the employees and ensure that the training conducted is based on their various needs. Proper training for all the employees will provide them with skills and change their attitude towards technology. It will improve their concept of issues such as the ages of employees and what they consider as being appropriate technology.

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