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Evaluation of Rural E-Learning Strategy on Organization Performance: Case of Intel's Rusinga Technology Classroom, Kenya.

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ABSTRACT:
E-learning is a creative innovation of learning and is emerging as a credible alternative to traditional educational delivery techniques because it saves on organizations' training costs and travel time, enables organizations to become increasingly more market-oriented and competitive, it facilitates better training and attracts more students thereby generating diversified revenue streams. Intel's Rusinga technology classroom is a solar powered mobile computer lab which provides an interactive e-learning program to learners in Rusinga Island, Kenya. The selection of this technology classroom was done based on the learners' preference to it rather than the conventional modes after a preliminary survey. The entire study was carried out between February 2014 and May 2014. The main objective of the study was to evaluate rural e-learning strategy on the performance of Intel's Rusinga technology classroom. The quantitative method approach was used in handling this research problem. The research techniques used to collect data were questionnaires to teachers. Data was collected from 10th April to 24th April 2014 in Rusinga Island. Data analysis was conducted using Statistical Package for Social Sciences version 17, which was used to generate cross-tabulation in order to demonstrate the combined distributions of variables in a contingency table in matrix format. The findings of this study were analyzed quantitatively. Quantitative data analysis was used to extract descriptive and inferential statistic where as chi-square test and correlation coefficient were used to test the hypotheses. The findings of the study are as follows; Resourcing/financing indicated a positive impact on performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance, Collaboration/outsourcing indicated a positive impact on performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance and selecting technology indicated a positive impact on performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance. This evaluation showed that resourcing/financing, collaboration/outsourcing and selecting technology have an effect on the performance of organizations. It is therefore important that these factors are considered appropriately in the investment of e-learning in organizations.

1.0 BACKGROUND INFORMATION

1.1 E-learning strategy:

According to Mintzberg et al. (1998) strategy is one of the responses organizations employ to respond to a changing environment. An old definition by Chandler (1962) is that strategy is the determination of long-term goals and objectives of an enterprise and adoption of courses of action and the allocation of resources necessary for carrying out these goals. More recently, Mintzberg et al. (1998) reckoned that strategy requires not one but five particular definitions related to strategy: strategy as a plan, pattern, position, perspective and ploy" to mean a direction, consistency, location in the environment, fundamental way of doing things and a specific maneuver respectively (p.9).

Boezerooiy (2006) argued that it is difficult to find a commonly accepted definition. Yet again, according to Oblinger and Hawkins (2005) there is even no common definition. Therefore, a common e-learning definition is difficult to identify because authors describe e-learning as offering only complete on-line courses whereas others include web-supplemented and web-dependent services for the delivery of educational and support services. Therefore, for the purposes of this study, in this study, the definition of e-Learning as described by the OECD (2005 is used but with 'tertiary' replaced with 'any level', in which e-Learning refers to "the use of information and communications technology (ICT) to enhance and/or support learning to any level of education".

Wang et al (2005) points out that e-learning strategies have been used to impact on organizations' performance by saving on training time and costs and not only from the increasing cost of travel but also from the rising cost of being unproductive while attending a class. Frank (2007) and Jennifer (2005) did agree that e-learning has

been used to enable organizations cope with the ever changing workplace dynamics and the organizations internal and external environment which affects training of employees and customers. In that regard issues such as mobile workforces, globalization of companies, and faster product evolution challenge training organizations with concepts such as just-in-time training, localization and mobile learning. Frank (2007) did reckon that the influence of e-learning as a technology into any profession facilitates better train of employees and clients.

Zhang (2002) and Zhang & Nunamaker (2003) pointed out that many companies have adopted e-learning technology solutions such as Dell Learning, CISCO E-Learning, and HP Virtual Classroom for their corporate training and access to various on-line databases and tools that help them find solutions for work-related problems. In Africa as Wagdy (2013) asserted, the rapid adoption of self paced e-learning (academic digitization programmes and booming enrolment in online higher education) has made Africa the most dynamic e-learning market in the world- with Senegal 30.4% growth rate in the first place followed by Zambia 27.9, Zimbabwe 25.1 and Kenya 24.9. The overall growth rate for self paced e-learning in Africa is 15%.Self-paced e-learning revenues in Africa reached US$ 250.9 million in 2011. Africa has the highest growth rates in the world for four out of the five self-paced e-learning products and services including packaged content, custom content development services, cloud based authoring tools and learning platform services.

Wagdy (2013) further pointed out that The African Virtual University (AVU), a Pan-African intergovernmental organization based in Nairobi and was founded in 1997 as a World Bank-funded project to address the need for quality tertiary education in Sub-Saharan Africa. Later, to stay relevant, AVU shifted its paradigm towards collaboration with African universities in order to enhance their capacity to use open, distance and other e-learning methodologies.

The University of Dar-es-Salam has used e-learning to expand its nascent distance education provision by establishing several open, distance and e-learning centers in different towns. In Uganda, Makerere and Kampala International University have established open and distance learning program in East Africa with the same aim. Wachira (2013) adds that the Open University of Tanzania established in 1992 is the only stand-alone distance learning University in the region and through e-learning is able to offer undergraduate and postgraduate studies in a wide range of disciplines. It also seeks to provide affordable and high quality education. This University has established learning nodes in Kenya at Egerton University in Nakuru and KCA University in Nairobi.

In Kenya according to Wachira (2013), it is mostly institutions of Higher learning that fund, collaborate with each other and select appropriate technologies to improve their performance even though a number of corporate organizations have been known to also use e-learning. The University of Nairobi as early as 1967, it recently launched degree programmes to be offered by its College of Education and External Studies via distance and E-learning modes. Robust e-learning has also been going in Kenyatta University for the past 15 years. The university rebranded its institute of Open learning to become the Institute of Open, Distance and E-learning. This came along with interactive platforms which enable students and lecturers to hold discussions in the form of e-debates, e-tutorials, e-workshops and e-conferencing. Although Kenyatta and Nairobi Universities are ahead of other local universities in e-learning, Wachira (2013) adds that Moi University, Mt. Kenya University and Maseno University use school based programmes that target more students especially teachers interested in studying for undergraduate or postgraduate degrees on part time basis.

1.2 E-learning in Rusinga Island:

IT news Africa (2009) pointed out that Intel Corporation was funding a project in Rusinga Island, Kenya to help rural schools with no electricity to close the digital gap by training thousands of pupils on how to become computer literate and in turn gain valuable skills that will assist them in improving lives now as well as in the future. The technology classroom known as Kageno's solar powered mobile computer lab was rolled out all around the island through a mobile solar computer classroom. It adds that Intel targets local NGO's which it collaborates with in rolling out its e-learning strategies e.g. Kageno Kenya Trust now Rusinga Island Trust in Rusinga Island. According to Jacques van Schalkwyk, Intel General Manager in South and Sub Saharan Africa:

-"Intel wants to harness the combined potential of high speed connectivity, technology and education to speed up the gains for the poor in rural communities. This project introduces these young people to 21st century skills which will ultimately give them an edge in the knowledge economy".

1.3 **Intel's Rusinga Technology classroom:**

According to IT News Africa (2009), Intel's Rusinga technology classroom is an initiative which will help acquire ICT skills while simultaneously be conserving the environment. It comprises of a sports utility vehicle, also known as a 'computer-lab on wheels' is powered by solar panels and stocked with Intel powered classmate PCs and will travel from school to school setting up a mobile lab through a wireless network that connects the PC's remotely. The e-learning software, developed by Intel in this venture, allows for a range of skills to be learned. They include allowing a combination of remote interactions between the learners and the

instructors/teachers thereby creating an interactive e-learning system such as instant chat messages, demonstrations through PC's, sharing computer resources between teachers and students, and monitoring sessions of the same programs through surveillance of individual learners activities, freezing learners activities, shutting down learners computers and so on and so forth. Intel also does provide the digital content and resources for training the students. IT News Africa (2009) adds that Intel collaborated and outsourced their resources, manpower and skills to come up with such a technology which is one of its own kinds. For example, Mustek East Africa provide the complete technical solution which included: mounting solar panels provided by Kenital ltd on the car, connection to inverters and batteries, mounting classmate PCs in a custom built cabinet, wireless connectivity and on-site technical training on the classmate PC model in an e-learning environment will also be provided.

The present study aims to evaluate the performance/success of the e-learning strategy adopted by Intel's sponsored Rusinga technology classroom.

1.4 Statement of the problem

E-learning systems and (IS) success models have experienced much attention, consideration and use among researchers but little research has been conducted to assess the performance success or effectiveness of such e-learning systems in an organizational context. Such explicit consideration and use of e-Learning includes e-learning for different target groups and new student markets such as female rural learners and deaf learners. Therefore, there exists a strong need to evaluate the performance of such e-leaning strategies and determine if the strategy is a success or failure. This underscores the motivation to further explore the performance success of the rural e-learning strategy employed by Intel's Rusinga technology classroom.

2.0 LITERATURE REVIEW

2.1 Organizations and E-learning:

Khwaldeh (2011) and Mintzberg (1983) pointed out that learning institutions more so Higher learning organizations are shifting from traditional model of professional bureaucracies towards a more corporate management style of 'managed university'. Alongside the new academic experts and changing patterns of decision-making, Fulton (2003) added that new managers are to be found in higher education institutions. No longer it is just the administrators-bureaucrats (e.g. Vice- Chancellors and Pro-Vice-Chancellors), but quality managers, finance directors and fund-raisers.

Boezerooiy (2006) stated that organizations and learning institutions more so universities across the world are embracing e-learning strategies especially a world campus strategy, in order to improve performance by attracting more students and generate diversified revenue streams to fund their primary and secondary processes. Also, through this strategy these higher education institutions get better prepared to respond to an environment that is becoming increasingly more market-oriented and competitive.

Mintzberg (1983) and Boezerooiy (2006) suggested that the link between the organization and the environment is strategy. To cope with a changing environment, in which it is expected that institutions of learning and organizations need to improve their performances by competing in new student markets in order to generate revenue, save on time and cut on costs, the use of e-Learning strategies within such institutions can be seen as an approach such institutions can employ.

Therefore in a view of tackling the research question i.e. an evaluation of rural e–learning strategy on organizational performance, this research would review both the independent and dependent variables in this study.

2.2 E-learning strategy:

Kevin (2007) asserted that the e-Learning strategy lives through the learning strategy, which, in turn, is deeply embedded in the organizational strategy. Higgins and Prebble (2008) summarized e-learning strategy under six variables which are the areas that require strategic direction from the most senior levels of their institutions. According to them the themes of e-learning strategy include: Structure, Resourcing, Decision-making, Collaborating/outsourcing and selecting technologies. Jennifer (2005) identified the elements of an e-learning strategy as technology Content, Administration and Support, Communication and Financial analysis.

For the purpose of this study, the researcher will look at the most common and important variables of an e-learning strategy.

2.3 Resourcing/financial analysis:

Jennifer (2005) and Higgins and Prebble (2008) stated that this aspect of e-learning strategy concerns itself with how resourcing and financing the strategy would impact on the organization's performance. It includes the costs and the return on investment. Early adopters are normally supported by targeted grants and e-Learning support

services are made available to teaching units generally without charge; as usage grows, these units have to start rationing their provision of support.

Jennifer (2005) reckons that the financial analysis of the e-learning strategy should include: Costs for technology, authoring tools, course development, support and administration, suggested course prices (should be multiplied by expected purchases to provide revenue expectations on a quarterly basis), calculation on duration for a break-even and the yearly return on investment after the costs are recovered. Implementing e-Learning strategies is a business decision and so there should be an anticipatable profit from the investment for the organization or a significant reduction in cost that offsets the investment.

2.4 Collaboration and outsourcing:

According to Higgins and Prebble (2008), an e-learning strategy, more than any other teaching modes lend itself to collaboration with other institutions or outsourcing to contracted service providers with a view of improving the organization's overall performance. Collaboration and outsourcing enables institutions to provide new services plan and control their costs more reliably, buy in services that lie outside their 'core business all in a bid to impact on the organizations performance. They furthered added that, an institution in order to excel and perform might collaborate with another entity to support its e-Learning activities in a number of ways: To gain access to specialist expertise, knowledge, systems, courseware, networks or hardware; To expand the visibility and market reach of an institution's teaching programme; To take advantage of the regional footprint and support services of an institution in another region; To achieve economies of scale by increasing the size of the student market and the institutions' combined capacity to meet this market; and to comply with an external policy, regulatory or funding requirement for such collaboration.

Finally, downsides of such relationships may include: a loss of direct control over the processes; a disinclination to develop these services in-house; some alienation from the contracted services and the service provider; and the high cost of managing such relationships.

2.5 Selecting appropriate ICT technologies:

According to Higgins and Prebble (2008), this involves decision making about purchasing or upgrading ICT systems (which are often very high-cost items in terms of both capital and recurring costs). Managers do need to have a reasonable understanding of the fit between the strategic needs of their institution and this particular 'solution' of technology selection. The management should ensure that the technology selected is suitable for the overall strategy. They should be aware of its implications on staff development, its impact on the market, of its financial repercussions and its relevance in technological trends of learning.

2.5.1 D and M models

According to Wang et al (2005) the D and M models were updated in other researches in light of the dramatic changes in IS practice, especially the emergence and consequent explosive growth of Internet-based applications and through empirical validation developed an e-learning system success construct. Thus, this validated model consisted of six dimensions: (1) information quality, (2) system quality, (3) service quality, (4) system use, (5) user satisfaction and (6) net benefits and as DeLone and McLean (2002,2003) had theorized, Wang et al (2005) reckoned that it is imperative for managers to put emphasis on them as the performance/success levels or indicators.

Wang et al (2005) further stated that establishing strategies to improve only one performance variable is an incomplete strategy if the effects of the others are not considered. Therefore e-learning strategy managers need to include all six measures of Information Quality, System Quality, Service Quality, System Use, User Satisfaction, and Net Benefit into their present evaluation techniques of e-learning systems success. This model will be useful to researchers in developing and testing e-learning strategy systems and theories, as well as to organizations in implementing successful e-learning systems. The generality of this proposed instrument by Wang et al (2005) is applicable across a broad spectrum of information systems and provides a common framework for the comparative analysis of results from various researches. Therefore, the D and M models can be used to highlight the success measures of an e-learning strategy in an organization's performance.

Khwaldeh (2011) established that Moodle was a suitable e-learning environment and LMS to be adapted in Jordan for use by primary deaf children to improve learning of mathematics. She asserted that primary schools more so in developing countries despite the challenges faced in such settings through adequate funding, collaborating and selection of appropriate technologies can also advance towards integrating e-learning into their curricular through e-learning strategies and enhance the students' performance.

Lating (2011) stated that Hybrid E-learning with the main delivery platform being the CD-ROM. as a strategy should be used in rural girls' secondary schools in Uganda to improve the performance of female students of advanced level in Physics and Mathematics.

2.6 The Research gap

Although various scholars and professionals have carried out research on the use of e-Learning strategy for different target groups, very little studies have examined the performance success of e-learning strategy in Kenya more so rural area such as Rusinga Island. To the best of the researcher's knowledge no comprehensive study has been done on the sectors current performance dynamics. Despite the great potential of the Intel's Rusinga technology classroom in implementing rural e-learning in remote Rusinga Island, there is no study which has been done to get more insight into performance of the rural e-learning strategy practices.

3.0 Methodology

3.1 Research Design

The quantitative method approach was used in handling this research problem. Anderson and Taylor (2009) observed that quantitative research uses numerical analysis and in essence reduces the data into numbers. Such researches employ numerical indicators to ascertain the relative size of a particular phenomenon. Therefore, a quantitative method was suitable in providing a high level of measurement precision and statistical power necessary for evaluating the performance of the e-learning strategy in Intel's Rusinga technology classroom and ensured high levels of reliability of gathered data. Borg and Gall (2006) defined target population as all members of a real or hypothetical set of people, events or objects to which an investigator wishes to generalize the results of a research study. The e-learning program consists of over 500 learners from four primary schools and one secondary school, fifteen teachers.

This research targeted mainly the teachers because given the education level and tender age of the learners; it would not be possible to effectively administer questionnaires to them. The sample size in this research was the entire teacher population of fifteen. Mugenda and Mugenda (2003) suggested that at times when targeted populations are small it is advisable to have the entire population as the sample size. Therefore, the research's sample size was drawn from the population of teachers from schools in which the technology classroom targets in Rusinga Island. There are fifteen teachers engaging and taking the over 500 learners from four primary schools and one secondary school through e-leaning process. The analysis of data required a number of closely related operations such as establishing categories so that mass of raw data collected is systematically organized in a manner that facilitates analysis. The findings of this study were analyzed quantitatively. This analysis was based on the responses obtained from the respondents. After the data collection had been completed, data analysis was conducted using software called SPSS (Statistical Packages or Social Sciences) version 17, which is used in the social sciences to generate cross-tabulation in order to demonstrate the combined distributions of variables in a contingency table in matrix format. Quantitative data analysis was used to extract descriptive and inferential statistics where as Chi-square and correlation coefficient was used to test the hypotheses.

4.0 Findings& Discussions

4.1 Evaluating E-learning strategy on Intel's Rusinga technology classroom performance.

E-learning strategy evaluation looks at the relationships of the factors affecting the organization performance.

4.1.1 Relationship between Resourcing/financing and organization performance.

Chi-square test and correlation was used to determine relationship between resourcing/financing aspect of e-learning strategy and each of the six IS performance indicators advocated for by McLean and DeLone (2002, 2003).

i) Resourcing/financing and Information Quality Test.

Table 1. Financing Resourcing on Information Quality Cross tabulation

		Information Quality		
		Agree	Strongly Agree	Total
Financing Resourcing	Neutral	1	0	1
	Agree	6	3	9
	Strongly Agree	0	5	5
Total		7	8	15

Table 2: Chi-square tests on Resourcing /financing and information quality

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.964[a]	2	.031
Likelihood Ratio	9.270	2	.010
Linear-by-Linear Association	6.247	1	.012
N of Valid Cases	15		

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is .47.

Table 3: Correlation of resourcing/financing on information quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.668	.109	3.236	.006[c]
Ordinal by Ordinal	Spearman Correlation	.679	.121	3.331	.005[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between resourcing/financing and information quality. The results in Table 3 indicated that resourcing/financing resourcing information quality. The results were supported by a Chi-square statistic (χ^2=6.964, P=0.031 ≤ 0.05). This indicated the existence of a relationship between resourcing/financing and information quality of e-learning in the school.

A correlation analysis was conducted to support this finding as shown in the Table 3 above. Correlation figures indicated that there is a positive correlation between resourcing/financing and information quality. This is supported by a correlation coefficient (r = 0.668).

ii) Resourcing/financing and Systems Quality test

Table 4 Financing Resourcing on Systems quality Cross tabulation

		Systems quality			
		Neutral	Agree	Strongly Agree	Total
Financing Resourcing	Neutral	1	0	0	1
	Agree	0	5	4	9
	Strongly Agree	0	2	3	5
Total		1	7	7	15

Table 5 Chi-square tests of Resourcing/financing on systems quality

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.333[a]	4	.004
Likelihood Ratio	7.661	4	.105
Linear-by-Linear Association	2.919	1	.088
N of Valid Cases	15		

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .07.

Table 6 Correlation of Resource/financing and Systems quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.457	.254	1.851	.087[c]
Ordinal by Ordinal	Spearman Correlation	.355	.264	1.369	.194[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between resourcing/finance and systems quality. The results in Table ***5*** indicated that resourcing/finance affected systems quality. The results were supported by a Chi-square statistic (χ^2=15.333, P=0.004 ≤ 0.05). This indicated the existence of a relationship between resourcing/financing and systems quality.

A correlation analysis was conducted to support this finding as shown in the Table above. Correlation figures indicated that there is a positive correlation between resourcing/financing and systems quality. This is supported by a correlation coefficient (r = 0.457).

iii) Resourcing/financing and Service Quality test

Table 7 Financing Resourcing on Service quality Cross tabulation

		Service quality			
		Neutral	Agree	Strongly Agree	Total
Financing Resourcing	Neutral	0	1	0	1
	Agree	1	7	1	9
	Strongly Agree	0	0	5	5
Total		1	8	6	15

Table 2: Chi-square test on resourcing/financing and service quality

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.528[a]	4	.021
Likelihood Ratio	14.162	4	.007
Linear-by-Linear Association	7.154	1	.007
N of Valid Cases	15		

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .07.

Table 3: Correlation on Resourcing/financing and service quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.715	.115	3.686	.003[c]
Ordinal by Ordinal	Spearman Correlation	.790	.120	4.646	.000[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between resourcing/outsourcing and service quality. The results in Table 8 indicated that resourcing/financing affected service quality. The results were supported by a Chi-square statistic (χ^2=11.528, P=0.021 ≤ 0.05). This indicated the existence of a relationship between resourcing/financing and service quality. A correlation analysis was conducted to support

this finding as shown in Table above. Correlation figures indicated a positive correlation between resourcing/financing and service quality. This is supported by a correlation coefficient ($r = 0.715$).

iv) Resourcing/financing and Systems Use Test

Table 10 Resourcing/financing on Systems use Cross tabulation

		Systems use		
		Agree	Strongly Agree	Total
Financing Resourcing	Neutral	1	0	1
	Agree	6	3	9
	Strongly Agree	0	5	5
Total		7	8	15

Table11 Chi-square tests on Resource/financing on systems use

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.964[a]	2	.031
Likelihood Ratio	9.270	2	.010
Linear-by-Linear Association	6.247	1	.012
N of Valid Cases	15		

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is .47.

Table 12: Correlation of resourcing/financing and systems use

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.668	.109	3.236	.006[c]
Ordinal by Ordinal	Spearman Correlation	.679	.121	3.331	.005[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between resourcing/financing and systems use. The results in Table 11 indicated that resourcing/financing affected systems use. The results were supported by a Chi-square statistic (χ^2=6.964, P=0.031 $\leq$ 0.05). This indicated the existence of a relationship between resourcing/financing and systems use in the Intel's Rusinga technology Classroom.

A correlation analysis was conducted to support this finding as shown in Table 12. Correlation figures indicated that there is a positive correlation between resourcing/financing and system use. This is supported by a correlation coefficient ($r = 0.668$).

v) **Resourcing/financing and User Satisfaction test**

Table 13 Financing Resourcing on User satisfaction Cross tabulation

		User satisfaction		
		Agree	Strongly Agree	Total
Financing Resourcing	Neutral	1	0	1
	Agree	9	0	9
	Strongly Agree	1	4	5
Total		11	4	15

Table1 4 Chi-square tests of resourcing/financing on user satisfaction

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.909[a]	2	.004
Likelihood Ratio	12.393	2	.002
Linear-by-Linear Association	8.324	1	.004
N of Valid Cases	15		

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .27.

Table15: Correlation of Resourcing/financing and user satisfaction

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.771	.127	4.367	.001[c]
Ordinal by Ordinal	Spearman Correlation	.806	.129	4.907	.000[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between resourcing/financing and user satisfaction. The results in Table 14 indicated that resourcing/financing affected user satisfaction. The results were supported by a Chi-square statistic (χ^2=10.909, P=0.004 $\leq$ 0.05). This indicated the existence of a relationship between resourcing/financing and user satisfaction. A correlation analysis was conducted to support this finding as shown in Table 15 above. Correlation figures indicated that there is a positive correlation between resourcing/financing and user satisfaction. This is supported by a correlation coefficient (r = 0.771).

vi) Resourcing/financing and Net Benefits Test

Table 16 Financing Resourcing on Net benefits Cross tabulation

		Net benefits			
		Neutral	Agree	Strongly Agree	Total
Financing Resourcing	Neutral	0	1	0	1
	Agree	1	8	0	9
	Strongly Agree	0	1	4	5
Total		1	10	4	15

Table 17 Chi-square test of Resourcing/financing and net benefits

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.133[a]	4	.025
Likelihood Ratio	12.816	4	.012
Linear-by-Linear Association	6.604	1	.010
N of Valid Cases	15		

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .07.

Table18: Correlation on resourcing/financing and net benefits

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.687	.131	3.407	.005[c]
Ordinal by Ordinal	Spearman Correlation	.751	.141	4.101	.001[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between resourcing/financing and net benefits. The results in Table 17 indicated that resourcing/financing affected net benefits. The results were supported by a Chi-square statistic (χ^2=11.133, P=0.025 ≤ 0.05). This indicated the existence of a relationship between resourcing/financing and net benefits.

A correlation analysis was conducted to support this finding as shown in correlation Table above. Correlation figures indicated that there is a positive correlation between resourcing/financing and net benefits. This is supported by a correlation coefficient (r = 0.687).

4.1.2 Relationship between Collaboration/outsourcing and organization performance

I. Collaboration/outsourcing and Information quality test

Table 19 Collaboration/Outsourcing on Information Quality Cross tabulation

		Information Quality		
		Agree	Strongly Agree	Total
Collaboration Outsourcing	Agree	4	2	6
	Strongly Agree	1	8	9
Total		5	10	15

Table20 Chi-square tests of Collaboration/outsourcing and Information quality

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.000[a]	1	.025		
Continuity Correction[b]	2.813	1	.094		
Likelihood Ratio	5.178	1	.023		
Fisher's Exact Test				.089	.047
Linear-by-Linear Association	4.667	1	.031		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.00.

b. Computed only for a 2x2 table

Table21Correlation of Collaboration/outsourcing and information quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.577	.215	2.550	.024[c]
Ordinal by Ordinal	Spearman Correlation	.577	.215	2.550	.024[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between collaboration/outsourcing and information quality. The results in Table 20 indicated that collaboration/outsourcing affected information quality. The results were supported by a Chi-square statistic (χ^2=5.000, P=0.025 ≤ 0.05). This indicated the existence of a relationship between collaboration/outsourcing and information quality in Intel's Rusinga technology classroom.

A correlation analysis was conducted to support this finding as shown in Table 17. Correlation figures indicated that there is a positive correlation between collaboration/outsourcing and information quality. This is supported by a correlation coefficient (r = 0.577).

1. Collaboration Outsourcing and Systems Quality test

Table 22 Collaboration Outsourcing on Systems quality Cross tabulation

		Systems quality		
		Agree	Strongly Agree	Total
Collaboration Outsourcing	Agree	4	2	6
	Strongly Agree	1	8	9
Total		5	10	15

The study used Pearson's Chi-square test to examine the relationship between collaboration/outsourcing and systems quality. The results in Table 18 below indicated that collaboration/outsourcing affected systems quality. The results were supported by a Chi-square statistic (χ^2=5.000, P=0.025 ≤ 0.05). This indicated the existence of a relationship between outsourcing/resourcing and systems quality in Intel's Rusinga technology classroom.

Table23 Chi square test of collaboration/outsourcing and systems quality

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.000[a]	1	.025		
Continuity Correction[b]	2.813	1	.094		
Likelihood Ratio	5.178	1	.023		
Fisher's Exact Test				.089	.047
Linear-by-Linear Association	4.667	1	.031		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.00.

b. Computed only for a 2x2 table

Table 24 correlation on collaboration/outsourcing and systems quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.577	.215	2.550	.024[c]
Ordinal by Ordinal	Spearman Correlation	.577	.215	2.550	.024[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

A correlation analysis was conducted to support this finding as shown in Table 19. Correlation figures indicated that there is a positive correlation between collaboration/outsourcing and systems quality. This is supported by a correlation coefficient (r = 0.577).

II. Collaboration/Outsourcing and Service Quality

Collaboration Outsourcing * Service quality Cross tabulation

		Service quality		
		Agree	Strongly Agree	Total
Collaboration Outsourcing	Agree	5	1	6
	Strongly Agree	1	8	9
Total		6	9	15

Table 4: Chi-square tests of collaboration/outsourcing on service quality

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.824[a]	1	.005		
Continuity Correction[b]	5.104	1	.024		
Likelihood Ratio	8.505	1	.004		
Fisher's Exact Test				.011	.011
Linear-by-Linear Association	7.302	1	.007		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.40.

b. Computed only for a 2x2 table

5: Correlation on Collaboration/outsourcing and service quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.722	.183	3.765	.002[c]
Ordinal by Ordinal	Spearman Correlation	.722	.183	3.765	.002[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between collaboration/outsourcing and service quality. The results in Table 20 indicated that collaboration/outsourcing affected service quality. The results were supported by a Chi-square statistic (χ^2=7.8424, P=0.05 ≤ 0.05). This indicated the existence of a relationship between collaboration/outsourcing and service quality in Intel's Rusinga Technology classroom.

A correlation analysis was conducted to support this finding as shown in Table 21. Correlation figures indicated that there is a positive correlation between collaboration/outsourcing and service quality. This is supported by a correlation coefficient (r = 0.722).

III. Collaboration Outsourcing and Systems Use

Collaboration Outsourcing on Systems use Cross tabulation

		Systems use		
		Agree	Strongly Agree	Total
Collaboration Outsourcing	Agree	4	2	6
	Strongly Agree	1	8	9
Total		5	10	15

Table 6: Chi-square tests of Collaboration/outsourcing on Systems use

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.000[a]	1	.025		
Continuity Correction[b]	2.813	1	.094		
Likelihood Ratio	5.178	1	.023		
Fisher's Exact Test				.089	.047
Linear-by-Linear Association	4.667	1	.031		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.00.

b. Computed only for a 2x2 table

Table 7: Correlation on collaboration/outsourcing and systems use

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.577	.215	2.550	.024[c]
Ordinal by Ordinal	Spearman Correlation	.577	.215	2.550	.024[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between collaboration outsourcing and systems use. The results in Table 22 indicated that finance resourcing affected systems use. The results were supported by a Chi-square statistic (χ^2=5.000, P=0.02 ≤ 0.25). This indicated the existence of a relationship between collaboration/outsourcing and systems use.

A correlation analysis was conducted to support this finding as shown in Table 23. Correlation figures indicated that there is a positive correlation between collaboration/outsourcing and system use. This is supported by a correlation coefficient (r = 0.577).

IV. Collaboration/Outsourcing and User Satisfaction

Collaboration Outsourcing on User satisfaction Cross tabulation

		User satisfaction		Total
		Agree	Strongly Agree	
Collaboration Outsourcing	Agree	5	1	6
	Strongly Agree	0	9	9
Total		5	10	15

Table 8: chi-square tests of collaboration/outsourcing on user satisfaction

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.250[a]	1	.001		
Continuity Correction[b]	7.813	1	.005		
Likelihood Ratio	13.689	1	.000		
Fisher's Exact Test				.002	.002
Linear-by-Linear Association	10.500	1	.001		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.00.

b. Computed only for a 2x2 table

Table 9: correlation on collaboration and user satisfaction

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.866	.121	6.245	.000[c]
Ordinal by Ordinal	Spearman Correlation	.866	.121	6.245	.000[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between collaboration/outsourcing and user satisfaction. The results in Table 24 indicated that collaboration/outsourcing affected user satisfaction. The results were supported by a Chi-square statistic (χ^2=11.250, P=0.01 $\leq$ 0.05). This indicated the existence of a relationship between collaboration/outsourcing and user satisfaction of e-learning.

A correlation analysis was conducted to support this finding as shown in Table 25. Correlation figures indicated that there is a positive correlation between collaboration/outsourcing and user satisfaction. This is supported by a correlation coefficient (r = 0.866).

V. Collaboration/Outsourcing and Net Benefits Test

Collaboration/Outsourcing on Net benefits Cross tabulation

		Net benefits		Total
		Agree	Strongly Agree	
Collaboration Outsourcing	Agree	5	1	6
	Strongly Agree	2	7	9
Total		7	8	15

Table 10: Chi-square tests of collaboration/outsourcing on net benefits

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.402[a]	1	.020		
Continuity Correction[b]	3.225	1	.073		
Likelihood Ratio	5.786	1	.016		
Fisher's Exact Test				.041	.035
Linear-by-Linear Association	5.042	1	.025		
N of Valid Cases	15				

a. 4 cells (100.0%) have expected count less than 5. The minimum expected count is 2.80.

b. Computed only for a 2x2 table

The study used Pearson's Chi-square test to examine the relationship between collaboration/outsourcing and net benefits. The results in Table 26 indicated that collaboration/outsourcing affected net benefits. The results were supported by a Chi-square statistic (χ^2=5.402, P=0.02 $\leq$ 0.05). This indicated the existence of a relationship between collaboration/outsourcing and net benefit of e-learning in the technology classroom.

11: correlation on collaboration/outsourcing and net benefits

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.600	.205	2.705	.018[c]
Ordinal by Ordinal	Spearman Correlation	.600	.205	2.705	.018[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

A correlation analysis was conducted to support this finding as shown in Table 27. Correlation figures indicated that there is a positive correlation between collaboration/outsourcing and net benefits. This is supported by a correlation coefficient ($r = 0.600$).

4.1.3 Relationship between selecting ICT technology and organization performance

I. Selecting ICT Technology and Information Quality Test

Selecting ICT technology on Information Quality Cross tabulation

		Information Quality		
		Agree	Strongly Agree	Total
Selecting technology	Agree	7	1	8
	Strongly Agree	1	6	7
Total		8	7	15

Table 12: Chi-square tests of selecting ICT technology on information quality test

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.040[a]	1	.005		
Continuity Correction[b]	5.368	1	.021		
Likelihood Ratio	8.958	1	.003		
Fisher's Exact Test				.010	.009
Linear-by-Linear Association	7.504	1	.006		
N of Valid Cases	15				

a. 4 cells (100.0%) have expected count less than 5. The minimum expected count is 3.27.

b. Computed only for a 2x2 table

Table 13: Correlation on Selecting ICT technology and information quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.732	.176	3.875	.002[c]
Ordinal by Ordinal	Spearman Correlation	.732	.176	3.875	.002[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between selecting ICT technology information quality. The results in Table 28 below indicated that selecting ICT technologies affected

information quality. The results were supported by a Chi-square statistic (χ^2=8.040, P=0.005 ≤ 0.05). This indicated the existence of a relationship between selecting ICT technologies and information quality.
A correlation analysis was conducted to support this finding as shown in Table 29. Correlation figures indicated that there is a positive correlation between selecting ICT technology and information quality. This is supported by a correlation coefficient (r = 0.732).

II. Selecting ICT Technology and System Quality Test

Table30 Selecting technology/on Systems quality Cross tabulation

		Systems quality			
		Neutral	Agree	Strongly Agree	Total
Selecting technology	Agree	1	6	1	8
	Strongly Agree	0	0	7	7
Total		1	6	8	15

The study used Pearson's Chi-square test to examine the relationship between selecting ICT technology and system quality. The results in Table 31 below indicated that selecting ICT technologies affected systems quality. The results were supported by a Chi-square statistic (χ^2=11.484, P=0.003 ≤ 0.05). This indicated the existence of a relationship between selecting ICT technologies and system quality of the e-learning in Intel's technology classroom.

Table31: Chi-square tests of selecting ICT technologies on system quality

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.484[a]	2	.003
Likelihood Ratio	14.699	2	.001
Linear-by-Linear Association	9.116	1	.003
N of Valid Cases	15		

a. 6 cells (100.0%) have expected count less than 5. The minimum expected count is .47.

Table32: Correlation on Selecting ICT technologies and system quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.807	.107	4.926	.000[c]
Ordinal by Ordinal	Spearman Correlation	.854	.109	5.916	.000[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

A correlation analysis was conducted to support this finding as shown in Table 32. Correlation figures indicated that there is a positive correlation between selecting ICT technology and systems quality. This is supported by a correlation coefficient (r = 0.807).

III. Selecting ICT Technologies and Service Quality Test

Table33 Selecting ICT technology on Service quality Cross tabulation

		Service quality		
		Agree	Strongly Agree	Total
Selecting technology	Agree	8	0	8
	Strongly Agree	2	5	7
Total		10	5	15

The study used Pearson's Chi-square test to examine the relationship between selecting ICT technologies and service quality. The results in Table 34 below indicated that selecting ICT technologies affected service quality. The results were supported by a Chi-square statistic (χ^2=8.348, P=0.009 ≤ 0.05). This indicated the existence of a relationship between selecting ICT technologies and service quality of the e-learning in Intel's Rusinga technology classroom.

Table34: Chi-square tests of selecting ICT technologies on service quality

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.571[a]	1	.003		
Continuity Correction[b]	5.658	1	.017		
Likelihood Ratio	10.720	1	.001		
Fisher's Exact Test				.007	.007
Linear-by-Linear Association	8.000	1	.005		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.33.

b. Computed only for a 2x2 table

Table 35: Correlation on Selecting ICT technologies and service quality

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.756	.141	4.163	.001[c]
Ordinal by Ordinal	Spearman Correlation	.756	.141	4.163	.001[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

A correlation analysis was conducted to support this finding as shown in Table 33. Correlation figures indicated that there is a positive correlation between selecting ICT technologies and service quality. This is supported by a correlation coefficient (r = 0.472).

IV. Selecting ICT Technology and Systems Use Test

Selecting technology on Systems use Cross tabulation

		Systems use		
		Agree	Strongly Agree	Total
Selecting technology	Agree	6	2	8
	Strongly Agree	0	7	7
Total		6	9	15

The study used Pearson's Chi-square test to examine the relationship between selecting ICT technology and systems use. The results in Table 34 below indicated that selecting ICT technologies affected systems use. The results were supported by a Chi-square statistic (χ^2=8.750, P=0.003 ≤ 0.05). This indicated the existence of a relationship between selecting ICT technologies and system use of e-learning in the school.

Table 14: Chi-square tests of selecting ICT technologies on system use

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.750[a]	1	.003		
Continuity Correction[b]	5.904	1	.015		
Likelihood Ratio	11.193	1	.001		
Fisher's Exact Test				.007	.006
Linear-by-Linear Association	8.167	1	.004		
N of Valid Cases	15				

a. 4 cells (100.0%) have expected count less than 5. The minimum expected count is 2.80.

b. Computed only for a 2x2 table

Table 15: Correlation on selecting ICT technologies and systems use

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.764	.137	4.266	.001[c]
Ordinal by Ordinal	Spearman Correlation	.764	.137	4.266	.001[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

A correlation analysis was conducted to support this finding as shown in Table 35. Correlation figures indicated that there is a positive correlation between selecting ICT technologies and system use. This is supported by a correlation coefficient ($r = 0.764$)

V. Selecting Technology and User Satisfaction

Table 36 Selecting technology on User satisfaction Cross tabulation

		User satisfaction		Total
		Agree	Strongly Agree	
Selecting technology	Agree	8	0	8
	Strongly Agree	2	5	7
Total		10	5	15

Table 16: Chi-square of selecting ICT technology on user satisfaction

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.571[a]	1	.003		
Continuity Correction[b]	5.658	1	.017		
Likelihood Ratio	10.720	1	.001		
Fisher's Exact Test				.007	.007
Linear-by-Linear Association	8.000	1	.005		
N of Valid Cases	15				

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is 2.33.

b. Computed only for a 2x2 table

Table 17: correlation on selecting ICT technologies and user satisfaction

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.756	.141	4.163	.001[c]
Ordinal by Ordinal	Spearman Correlation	.756	.141	4.163	.001[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between selecting ICT technologies and user satisfaction. The results in Table 36 indicated that selecting ICT technologies affected user satisfaction. The results were supported by a Chi-square statistic (χ^2=8.751, P=0.003 ≤ 0.05). This indicated the existence of a relationship between selecting ICT technologies and user satisfaction in e-learning.
A correlation analysis was conducted to support this finding as shown in Table 37. Correlation figures indicated that there is a positive correlation between selecting ICT technologies and user satisfaction. This is supported by a correlation coefficient (r = 0.756).

VI. Selecting Technology and Net Benefits Test

Table38 Selecting technology on Net benefits Cross tabulation

		Net benefits		Total
		Agree	Strongly Agree	
Selecting technology	Agree	7	1	8
	Strongly Agree	0	7	7
Total		7	8	15

Table39: Chi-square tests of selecting ICT technologies on net benefits

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.484[a]	1	.001		
Continuity Correction[b]	8.238	1	.004		
Likelihood Ratio	14.699	1	.000		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	10.719	1	.001		
N of Valid Cases	15				

a. 4 cells (100.0%) have expected count less than 5. The minimum expected count is 3.27.

b. Computed only for a 2x2 table

Table40: Correlation on selecting ICT technologies and net benefits

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	.875	.113	6.517	.000[c]
Ordinal by Ordinal	Spearman Correlation	.875	.113	6.517	.000[c]
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

The study used Pearson's Chi-square test to examine the relationship between selecting ICT technologies and net benefits. The results in Table 39 above indicated that selecting ICT technologies affected net benefits. The results were supported by a Chi-square statistic (χ^2=11.484, P=0.001 ≤ 0.05). This indicated the existence of a relationship between selecting ICT technologies and net benefits of e-learning in the Intel's Rusinga technology classroom.

A correlation analysis was conducted to support this finding as shown in Table 40. Correlation figures indicated that there is a positive correlation between selecting ICT technologies and net benefits. This is supported by a correlation coefficient (r = 0.875).

4.2 Organization Performance analysis.

The objective of the study was to find out if Intel's Rusinga technology classroom is impacted by resourcing/financing, collaboration/outsourcing and selecting ICT technologies. These factors were analyzed through Chi-square tests and correlation coefficient.

4.2.1 Resourcing/financing and organization performance

Resourcing/financing as an independent variable was analyzed to see whether it impacts organization performance in Intel's Rusinga technology classroom, in Rusinga Island. From the analysis that was done, resourcing/financing has a positive impact on organization performance or Intel's technology classroom.

The Chi-square analysis of the indices of organization performance had P values of less than 0.005 and a positive correlation coefficient. This meant that teachers who experienced resourcing/financing in Intel's Rusinga technology classroom were able to respond positively to information quality, systems quality, service quality, systems use, user satisfaction and net benefits. These performance indices were analyzed with resourcing/financing and both analysis methods indicated a positive relationship between resourcing/financing and organization performance.

These findings concur with the study done by Higgins and Prebble (2008) in their study Taking the lead: Strategic Management for e-Learning and Jennifer (2005) in her study E-Learning Strategy: A Framework for Success which showed importance of resourcing and financing to performance of e-learning organizations.

4.2.2 Collaboration/outsourcing and organization performance.

Collaboration/outsourcing by e-learning organizations as an independent variable was also analyzed using the Chi-square method and correlation coefficient to determine its impact on organization performance. The results from the Chi-square test and correlation coefficient analyses indicated a positive impact on performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance. These findings also do concur with the study done by Higgins and Prebble (2008) and Jennifer (2005).

4.2.3 selecting ICT technologies and organization performance

The impact of selecting ICT technologies on the performance of Intel's technology classroom was analyzed through the indices of information quality, systems quality, service quality, systems use, user satisfaction and net benefits. In all these performance indices, there was a positive relationship through Chi-square values of less than 0.05 and positive correlation coefficients showing that selecting ICT technologies had an effect on the performance/success of Intel's technology classroom. The findings on selecting ICT technologies concur with various studies which show that selecting technologies impact on the organizations performance.

4.3 Summary

The data was analyzed using Chi-square tests and correlation coefficient analyses to test the effects of resourcing/financing, collaboration, outsourcing and selecting technology and it showed positive impact by all these factors on organization performance. Independent variables showed relationship with organization performance using Chi-square and positive correlation using correlation coefficient.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1Conclusions:

I. Hypothesis 1: *Resourcing/financing does not affect the performance of Intel's Rusinga technology classroom.*

II. Resourcing/financing indicated a positive impact on organization performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance. This hypothesis is rejected

III. Hypothesis 2: *Collaboration/outsourcing does not affect the performance of Intel's Rusinga technology classroom.*

IV. Collaboration/outsourcing indicated a positive impact on organization performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance. This hypothesis is rejected.

V. Hypothesis 3: *Selecting technology does not affect the performance of Intel's Rusinga technology classroom.*

VI. Selecting technology indicated a positive impact on performance indices with P values less than 0.05 and positive correlation coefficients, indicating the positive impact on organization performance. This hypothesis is rejected.

5.2 Recommendations:

This research has provided basis for evaluating the performance of Intel's Rusinga Technology classroom whilst pupils and students learn computer basic skills. This could be used for further research in other areas of rural education in Kenya and third world countries. Furthermore, Intel's rural e-learning strategy has increased awareness of such systems in Rusinga Island and expectantly demonstrates how this could be used in other contexts with similar conditions in the future. Therefore, in this section, the researcher points out some ideas for future work.

This document could be adopted by the Ministry of Education in Kenya and also within Universities to enhance rural education more so in their quest of improving distance learning programs in remote or rural areas. Research projects could be carried out in the following areas:

5.2.1Developing A Rural E-learning centre:

Due to the high cost of resourcing and financing a solar powered mobile computer lab (Intel's Rusinga technology Classroom) private organizations and public institutions can build on the findings of this research to develop rural e-learning centers powered by renewable energy to enable access of cutting edge technology to rural and marginalized people within all levels of education.

5.2.2 Higher Education in rural Kenya:

Universities in Kenya can build on the findings of this research to deliver e-learning to rural students at the undergraduate and postgraduate levels. This will increase the access of such technology within higher education for rural and marginalized people.

Such universities can include the use such systems in their preparation programs. This will improve the universities capacity in delivering distance and e-learning programs in rural and marginalized areas thereby tapping in more students and generate more revenue.

5.2.3 Advancement of specialized Rural E-learning Systems:

Teaching of special needs pupils in rural areas in Kenya such as deaf pupils can be achieved through specialized e-learning systems that are geared towards meeting their specific demands. This can enable organizations and higher learning institutions tap in extra students from special needs category thereby generating more income

5.2.4 The development of a Digital learning content:

This could be very important in the government of Kenya's free laptop per pupil program. A digital learning content could be developed in order to be incorporated into pupils' learning curriculum towards teaching other subjects such as mathematics and science and not just computer literacy skills. This could result to a generalized curriculum for normal students for covering other subjects and a specialized curriculum for special needs students. Furthermore, the accessibility of learning content could be improved because such resources can be shared easily amongst users or e-learning.

5.2.5 Establishment of an Institutional body:

The Kenyan government aims to provide laptops to pupils joining primary school. Since rural areas constitute large parts of the country, the Kenyan government should establish an institutional body with the aim of providing the necessary skills and education to support lifelong vocational and educational training, incorporating e-learning to rural learners in Kenya. Such an institutional body could make use of the approach used in this research in order to deliver appropriate training and rural education.

5.2.6 Replicating and extending in Kenyan curriculum:

This research sets the stage for reproducing the research in different subjects such as Mathematics, English, Science and other subjects for different levels for rural education in Kenya and in other similar contexts. Furthermore, the research could be extended to deliver university training programs for rural learners in higher education.

The research also sets the stage for the adoption of similar e-learning systems and LMS's into mainstream education in Kenya and other contexts on school and higher education levels.

Finally, as mentioned before, there is lack of research into the use of rural e-learning. The originality of this research comes from the fact that it is the only research that has been carried out in terms of delivering an

interactive e-learning program for rural learners in Rusinga Island, Kenya. To the best of the researcher's knowledge there is no research published in this area. Yet another originality of this research comes from the fact that this research has covered an area that is severely under-studied, especially in developing countries and Kenya in particular, but also across the world in general, as shown by the literature review.

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