FACTORS AFFECTING SUCCESS OF ICT PROJECT IN RWANDA: A CASE OF ONE LAPTOP PER CHILD PROJECT IN PRIMARY SCHOOL, KICUIRO DISTRICT

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Abstract: Research on integration of technology in education prior to launching large-scale laptop projects is scarce, not just in Rwanda but in other implementing countries as well. The dearth of research disadvantages one to-one computing projects manifold: governments are ignorant to public demands even as they spend large amounts of taxpayers" money, while stakeholders are not sure what exactly to expect from these projects and how to contribute. Without research, both government and citizens lack the necessary knowledge about the intricacies and complexities of projects of such magnitude, and may find it difficult to initiate and sustain them. The general objective of the study was determined the factors affecting success of ICT project in Rwanda. Cross sectional descriptive research design was adopted in this study. The total target populations are 190 respondents. The study was adopted cluster sampling to pick the head teachers, ICT teacher and the finance officer in each school with OLPC programme in Kicukiro District. The overall significance of the regression estimation model. It indicates that the model is significant in explaining the relationship between factors affecting ICT success and success of ICT project at 5% level of significance. This study proves the rule of Thumb the R^2 is (0.762). In this study the rule of thumb is that, usually an R square of more than 50% is considered as better. Analysis of Variance shows that f-calculated is greater that f – critical that is 5.221>0.00. Effective project management which includes; monitoring and evaluation, skills development and availability of electricity are critical and helps in achieving project goals, thus the need for project managers to remain aware and anticipate change as re-planning is necessary throughout the project. The Researcher recommends that the OLPC project should pay more attention to the factors influencing the implementation of ICT projects particularly in the primary school as it directly relates the justification and the potential significant of education benefits and values to all stakeholders. On the ICT project Team and Composition, there is a need to equip the team with the necessary trainings in order foster team work. The team composition should also be knowledgeable and skilled for the delivery of the project, and should be all inclusive and representative of all key stakeholders.

Keywords: ICT project, OLPC project, stakeholders.

1. INTRODUCTION

1.1 Background of the Study:

All over the world, over the last three decades, the role of technology in education reform has received increasing attention. The recent advances in information and communication technologies and their relative affordability continue to stoke the flame of technology-enabled education reforms. Particularly, the laptop computer as a tool or means of education reform has generated a lot of debate. The One Laptop per Child (OLPC) program was one of the most ambitious educational reform initiatives the world has ever seen (Duncan, 2012). The program has developed a radically new low-cost laptop computer and aggressively promoted its plans to put the computer in the hands of hundreds of millions of children around the world, including in the most impoverished nations. The One Laptop Per Child (OLPC)

project was an initiative that seeks to expand the use of computer technology, especially for school children, from the richer and industrial areas of the world, to the poorer and more rural areas. Not only does the OLPC project seek to narrow the "digital divide", the project also seeks to improve educational opportunities for underprivileged children overall, by providing resources for these kids to be proactive and engaged in their own learning, through use of an internet-connected laptop.

Information and Communication Technology (ICT) is an effective educational technology tool which promotes dramatic changes in teaching and learning processes (Brittain, 2011). The use of ICT offers powerful learning environments and can transform the learning and teaching process so that students can deal with knowledge in an active, self-directed and constructive way. Friedman (2010) posits that present ICT is considered as an important means to promote new methods of instruction (teaching and learning). It should be used to develop students' skills for cooperation, communication, problem solving and lifelong learning (Voogt, 2013). Like many educational reform efforts, the introduction of technology in schools has been less than successful. Over the last century there were several waves of massive investment in technology to improve education, but none has had significant lasting impact on education (Sheldon & Byers, 2012). Despite the generous investment in, and increased presence of computers in schools computers have been found to be unused or underused in most schools. Through evaluations of several educational technology initiatives, especially the Boulder Valley Internet Project in America, Sherry (2009) found that teachers generally go through four distinct stages as they develop expertise with the Internet and the World Wide Web: a learning and adoption trajectory. In other words, a cyclic process in which teachers evolve from learners to adopters of educational technology, to co-learners and, finally, to a reaffirmation or rejection decision.

The One Laptop Per Child (OLPC) project, launched out of MIT's Media Lab in 2005, is a non-profit organization that seeks to provide laptops to children in poorer and more remote areas of the globe. The vision of OLPC is to allow children who might otherwise not have access to quality educational opportunities to use the laptops to access knowledge and provide them the opportunity to engage their own capacity for learning, regardless of their physical location or financial limitations (Cattagni & Farris, 2011).

Rwandan government has collaborated with the One Laptop per Child (OLPC) association, a non-profit US-based organization focused on the creation of educational tools for use in the developing world. Together they have initiated a project to deploy "low-cost, low-power, connected laptops with content and software designed for collaborative, joyful, self-empowered learning" in primary schools around Rwanda. As of 2013, the project had distributed over 115,000 computers in primary schools across the country and with the aim of having half a million of the laptops distributed, and at least one million by 2017. One Laptop per Child (OLPC) founder Nicholas Negroponte has constantly fought against the perception that poor countries have no business investing heavily in laptops. Negroponte strongly believes that the OLPC program is essential to bridge the yawning digital divide existing between the developed and developing world, and children should not be denied an opportunity to interact with technology due to their economic status (Valiente, 2010).

 One Laptop per Child projects from other countries, especially developing countries with conditions almost similar to Rwanda, hold valuable lessons on how to successfully implement, what challenges to expect and how to tackle them. Therefore, there is a vibrant need to assess the importance of OLPC project affecting success of ICT project in Rwanda. Hence this research will be focused on factors influencing implementation of one laptop per child project in public primary schools in kicukiro District, Rwanda.

1.2 Statement of the Problem:

Access to educational opportunities is not only important for adopting and adapting ICTs to promote economic growth and economic development, but ICTs can also improve the quality of education a country provides. The education sector in Rwanda has undergone a major transformation due to amongst other factors, changing patterns of curriculum delivery and technological innovations. One of such initiatives is the IT curriculum implementation to primary schools which is a key development pillar in line with Vision 2020. The introduction of one laptop per child in public primary schools in Rwanda where OLPC pilot project was officially launched in the country in 2008. The Government of Rwanda embarked on a One-Laptop-Per-Child (OLPC) ICT program which was one of the initiatives in their 'Vision 2020' blueprint. They envisioned a Rwanda with every child in school having a laptop and enriching its new generation with ICT skills. The OLPC project in Rwanda, being one of the largest ICT projects to date in the country, inevitably faced many challenges.

Rolling out of laptops in primary schools require training of teachers and students, skills to supply a technical infrastructure, and maybe most importantly, an ability to support and maintain these on a continued basis. There are questions about the viability of the project about availability of electricity, security of the laptops, teacher's capacity, and the educational impact of the computers in terms of improved test scores by school children, of which many doubts have been raised borrowing examples from other countries.
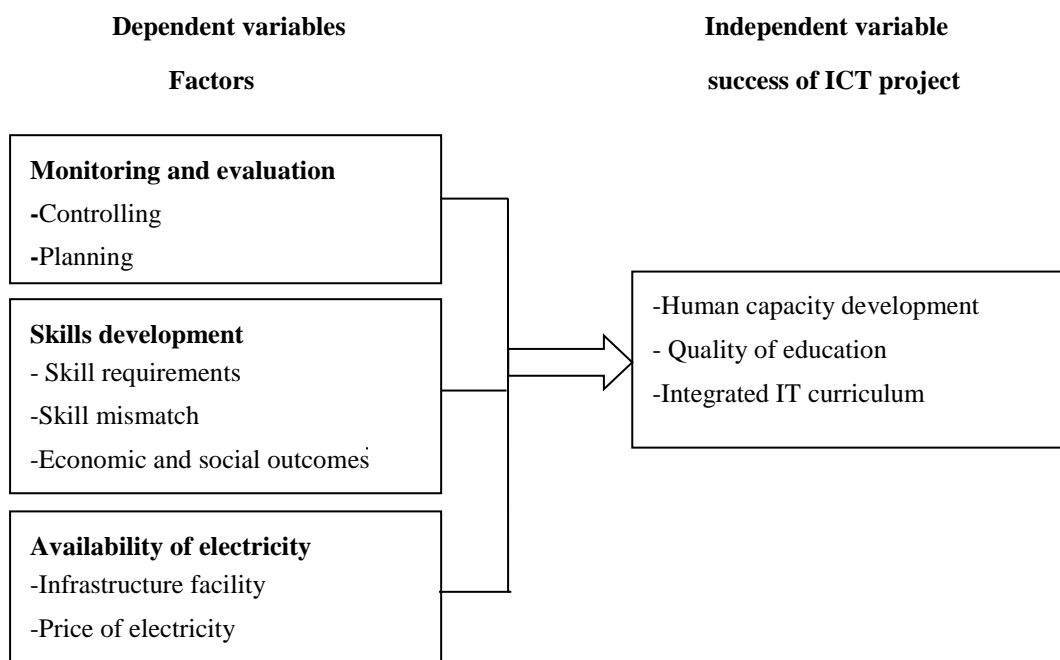
To be successful, the one laptop per child (OLPC) experiment cannot end at the distribution of the laptops to the countries. There is a myriad of further logistical problems, as well as implementation and adoption hurdles to overcome. From a purely logistical view, the laptops must be transported within the country to the students, probably using existing textbook distribution methods. The "bitfrost" security features on the laptop require some effort (and ideally Internet connections) to activate the laptops, but this hinders mass theft of the machines (Buchele, 2009).

Research on integration of technology in education prior to launching large-scale laptop projects is scarce, not just in Rwanda but in other implementing countries as well. The dearth of research disadvantages one to-one computing projects manifold: governments are ignorant to public demands even as they spend large amounts of taxpayers" money, while stakeholders are not sure what exactly to expect from these projects and how to contribute. Without research, both government and citizens lack the necessary knowledge about the intricacies and complexities of projects of such magnitude, and may find it difficult to initiate and sustain them. Therefore, this study seeks to establish the factors affecting success of ICT project of one laptop per child project in public primary schools in Kicukiro District, Rwanda.

1.3 Objective of the Study:

-To determine the influence of monitoring and evaluation to the success of one lap top per child in Kicukiro District.

2. CONCEPTUAL FRAMEWORK

Dependent variables   Independent variable

Factors   success of ICT project

Monitoring and evaluation
-Controlling
-Planning

Skills development
- Skill requirements
-Skill mismatch
-Economic and social outcomes

Availability of electricity
-Infrastructure facility
-Price of electricity

-Human capacity development
- Quality of education
-Integrated IT curriculum

3. RESEARCH DESIGN

Cross sectional descriptive research design was adopted in this study. Descriptive research design is concerned with describing the characteristics of a particular individual or group of people.

3.1 Population of the Study and Sample Size:

The total target populations of this study are 190 respondents, from primary schools teachers, A sample size of respondents determined from a total population of 190 individuals using the formula by Yamane.

4. RESEARCH FINDINGS AND DISCUSSIONS

Regression Analysis:

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.426[a]	.786	.622	211
Predictors: (Constant), Monitoring and evaluation, skills development and availability of electricity.				

Table 1 presents the coefficients of model fitness on how factors affecting the success of ICT project in Rwanda. Success of ICT in Rwanda explained by monitoring and evaluation, skills development and availability of electricity.

Factors affecting success of ICT project in Rwanda have an overall correlation with success of ICT. 0.786 is significant at 5%. These indicate good fit of the regression equation used. The rule of Thumb said that, usually an R square of more than 50% is considered as better. This study proves the rule of Thumb the R^2 is (0.762). In this study the rule of thumb is that, usually an R square of more than 50% is considered as better.

Table 2: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.412	3	6.401	5.221	.000[a]
	Residual	.742	125	.010		
	Total	22.455	128			
a. Predictors: (Constant), Monitoring and evaluation, skills development and availability of electricity.						
b. Dependent Variable: Success of ICT project.						

Table 2 shows the overall significance of the regression estimation model. It indicates that the model is significant in explaining the relationship between factors affecting ICT success and success of ICT project at 5% level of significance. Analysis of Variance shows that f-calculated is greater that f – critical that is 5.221>0.00. This implies that the regression equation was well specified and therefore the co-efficient of the regression shows that there is a strong relationship between two variables**.** The analysis of variance of the predictors of the model is significance at 0.000.

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.142	.071		1.728	.000
	Availability of electricity	**.**643	.031	.833	22.050	.000
	Skills development	.564	.043	.052	1.631	.000
	Monitoring and evaluation	.736	.012	.014	.122	.000
a. Dependent Variable: Financial performance						

From Table 4.14, the regression model therefore becomes:

Y=0.142+0.643x1+0.564x2+0.736x3+ ε

On Table 3 the regression coefficients of the predictors (factors influencing success of ICT project in Rwanda) are presented. Results indicate that monitoring and evaluation is the most significant in explaining the success of ICT project with a significance at 0.000 which is less that a p-value of 0.05 and beta value is 0.736. Monitoring and evaluation is positively related to the success of ICT project and therefore a unit increase of monitoring and evaluation would lead to an increase in the success of ICT project. However, this is significant at 5% level of confidence.

5. CONCLUSION

Effective project management which includes; monitoring and evaluation, skills development and availability of electricity are critical and helps in achieving project goals, thus the need for project managers to remain aware and anticipate change as re-planning is necessary throughout the project.

6. RECOMMENDATIONS

The Researcher recommends that the OLPC project should pay more attention to the factors influencing the implementation of ICT projects particularly in the primary school as it directly relates the justification and the potential significant of education benefits and values to all stakeholders. There is a need for proper leadership and management in all areas to in order to support the project throughout the project cycle.

On the ICT project Team and Composition, there is a need to equip the team with the necessary trainings in order foster team work.

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