PRINT: ISSN 0975-1122 ONLINE: 2456-6322
Int J Edu Sci, 7(3): 579-586 (2014)
DOI: 10.31901/24566322.2014/07.03.18

Performance Expectancy and Usage of Information Systems and Technology: Cloud Computing (PEUISTCC)

Nceba Nyembezi[1] and Anass Bayaga[2]

[1]University of Fort Hare, South Africa
E-mail: nyembezi.n@gmail.com
[2]University of Zululand, South Africa
E-mail: bayagaa@unizulu.ac.za

KEYWORDS Performance Expectancy. Cloud Computing. Adoption. Educational Technology

ABSTRACT The objective of the paper was to determine the effect of performance expectancy on the learners' intention to adopt and use Cloud computing. The Unified Theory of Acceptance and Use of Technology (UTAUT) model is used as the basis of this paper, and the data was collected using questionnaires. The questionnaires were analysed for correlation, significance and variance, to study Cloud computing adoption and use based on performance expectancy. The results of the paper revealed that, out of the ten sub-variables, 'Mobile devices are also mediums for learning' made the largest contribution, with 62.1 percent agreeing to the statement. There was a relatively strong positive correlation between the feeling of increased interest in studying using internet devices, and Cloud computing adoption and use. All the sub variables for performance expectancy contributed positively, and they reached the statistical significance of $p<0.01$ in terms of contribution.

INTRODUCTION

The term Cloud computing describes the software applications or other resources, that exist online and are available to multiple users via the Internet, rather than being installed on a particular user's local computer (Behrend et al. 2011). Another way to think of Cloud computing is to consider one's experience with email (Chan Gong et al. 2008). "One's email client, if it is Yahoo!, Gmail, Hotmail, and so on, takes care of housing all of the hardware and software necessary to support a person's personal email account" (Walz and Grier 2010: 4).

Cloud computing is becoming increasingly popular as a way to deliver technology to secondary and higher education environments and other organisations. According to a survey conducted among large institutions, half of the respondents in developing countries either had not heard of or did not know what Cloud computing meant (Burt 2009). Cloud computing is explained as a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (for example, external links in applications, mobile connections, open systems network mechanisms, applications interconnectivity and multi-protocol support). All these can be provided rapidly and released with minimal management effort or service provider interaction (Walz and Grier 2010).

Cloud Computing is the latest innovation used to describe improvement from clogged up computers and saving files directly to the internet. Essentially, instead of saving files to a hard disk or using software on a computer that is directly installed, the Cloud offers the ability to quickly and easily access these files using an Internet connection (Taneja 2013). Services that offer Cloud storage can provide schools with the storage space that they would not otherwise have access to. As storage is provided using a vast remote server, schools can pay a relatively small amount of money compared to the relevant cost of physical hardware, to receive a phenomenal amount of storage space.

In this new model, the ICT systems rarely fail. Introducing new curriculum software applications into the classroom could be a simple and speedy process. When the school principals see ICT as an integral element of teaching and not a necessary evil, then the journey towards using Cloud Computing in education can be led knowledgeably from the top (Cross 2014).

Cross (2014) accepts that before technology has a chance to really benefit schools, there has to be a fundamental shift in thinking. Technology vendors and service providers must work to reposition ICT within the mind-set of the professionals working in the education sector. ICT departments or county ICT advisers must educate the school principals and teachers by dem-

onstrating the tangible benefits of Cloud Computing to the school system, from a budgetary standpoint and from the ways it improves the educational experience of learners, teachers and parents.

Problem Statement

Cloud computing answers for schools are not evident and fully explored in school contexts than in business environments. Though research is clear that integration of disparate systems is critical in improving initiatives of business organisations, Cloud computing is not developed enough as a platform in South African schools.

Rationale for the Study

The present paper is motivated by a need to better understand the use of information and communication technology (ICT) in rural and impoverished areas, particularly in cases where previous exposure to technology has been nonexistent. While some people are skeptical about their direct contribution to poverty alleviation, there are signs that ICT can contribute to sustainable development when used properly. Proper use is crucial and is based on local needs and circumstances. Proper use requires actions to enhance the connectivity of schools, to ensure that Cloud Computing tools are accessible, and to foster and develop suitable content for learners. The understanding gained from this research will assist in the customization of future Cloud Computing content, and inform the researchers as to the effectiveness of unassisted- and peer-assisted learning paradigms.

Context of the Paper and Theoretical Framework

Performance expectancy is the degree to which using technology will provide benefits to the users in performing certain activities such as completing assignments from home instead of staying after school to use school computers (Venkatesh et al. 2003).

The major benefit for any end user is that, Cloud computing can be used simply whenever one needs it (Kunze et al. 2008). It is a pay-as-you-go system. The user school has no physical room necessary for all the hardware to install. Furthermore there are no maintenance costs for all the hardware (Velte et al. 2009). Besides the hardware, it is the applications that provide benefits. The cloud is filled with applications that are ready to use, and more important the data used in this application is always accessible at any place in the world (Vecchiola et al. 2009).

Another important benefit is that, the data centres are usually placed at strategic chosen places that lower the costs of maintenance. This would be beneficial for low wages countries (Vecchiola et al. 2009). Scalability is one of the major benefits. When a school is expecting a peak in its IT use, they simply acquire more IT services from the Cloud. This is also the beauty of it, it is very simple. When schools invest in Cloud computing, the users can also expect a certain degree of security (Velte et al. 2009).

Cloud computing allows schools to scale down or upgrade their resource use as the IT conditions change, and thus endows schools with a "high degree of strategic flexibility" (Jlelalty and Monzer 2012:16). It facilitates space and time savings, remote implementation, mobile business, and is more user-friendly compared to grid systems (Jlelalty and Monzer 2012). Space savings result from lower physical space requirements since the adoption of Cloud computing translates to less floor space or fewer racks to accommodate machines, servers, and other hardware (Behrend et al. 2011).

The UTAUT Model

A number of theoretical models have been proposed to facilitate the understanding of factors impacting the acceptance of information technologies (Davis 1989; Chau 1996; Venkatesh and Davis 2000). Among these studies, the Technology Acceptance Model (TAM) is one of the most influential and robust in explaining information technology (IT) adoption behaviour. The key purpose of TAM was to provide a basis for discovering the impact of external variables on internal beliefs, attitudes, and intentions. The TAM assumes that beliefs about usefulness and ease of use are always the primary determinants of information technologies adoption among the users. According to TAM, these two determinants serve as the basis for attitudes toward using a particular system, which in turn determines the intention to use, and then generates

the actual usage behaviour. Perceived usefulness is defined as the extent to which a person believes that using a system would enhance his or her job performance. Perceived ease of use refers to the extent to which a person believes that using a system would be free of mental efforts (Davis 1989).

However, the original TAM model was created to examine IT adoption in business organisations. The model's suitability for predicting general individual acceptance, especially in high schools, needs to be explored. Venkatesh et al. (2003) developed the UTAUT model to consolidate previous TAM related studies. In the UTAUT model, performance expectancy was used to incorporate the constructs of perceived usefulness in the original TAM study.

Aim of Research

The study attempts to investigate the determinants of Cloud computing adoption and application by high school learners in the East London district.

Specific Objective

The paper addresses the following objective:

- To determine the effect of performance expectancy on the learners' intention to adopt and use Cloud computing.

Research Hypotheses

Based on the statement of the problem and research objective, the following alternative hypothesis (H_a) and null hypothesis (H_0) are stated:

H_o: Performance expectancy will affect learners' intention to use Cloud computing.

H_a: Performance expectancy will not affect learners' intention to use Cloud computing.

METHODOLOGY

To have a quantitative approach, the paper used a survey as a method of collecting, processing and analysing data. The nature of predictor variables did not allow manipulation; hence the variables in the paper were investigated in retrospect (Panneerselvam 2008). A descriptive study is used to outline and present circumstances and relationships concerning the research problem. This involves collecting data in order to answer research questions. Data collected through questionnaires was analysed using statistical analysis to answer the research question and verify the null hypothesis. The reported ICT literacy levels were analysed and correlated with each other. The socio-demographic characteristics of the learners included gender, age, grade, residential area, the kind of Internet devices they have, and major subjects studied.

The study targeted a population of one thousand and twenty high school learners in the Eastern Cape Province of South Africa, because learners are at the forefront of Cloud computing technology. White (2002: 80) suggests that "with any form of research such as surveys, it is usually impossible to question every member of the target population", hence the need for sampling. For the purposes of this study, random sampling was used (Saunders et al. 2007) to examine the determinants of Cloud computing adoption and use by high school learners. A total of 286 questionnaires were distributed to high school learners, and a total of $n = 116$ useful responses were received, yielding 40.6 percent response rate. The purpose of selecting such a sample was aimed at answering the research questions and meet study objectives.

An instrument which gives trustworthy and dependable results is considered reliable (Saunders et al. 2007). The Cronbach's Alpha test was used to test the reliability of the research instrument ($\alpha = 0.878$), to confirm that they concurred with study objectives (Bell 2005). Responses from the pilot study were analysed for accuracy of meaning and objectivity. An instrument which measures accurately what the researchers expect to measure is valid. A pilot survey was used to test instruments against criterion and content validity benchmarks. There was a need to test the content validity of the research instruments as this ascertained that the items produced the relevant responses from the sample (Mugenda and Mugenda 2003). The thesis supervisor assessed the relevance of the content in the instruments developed and this advice was incorporated in the revised data collection instrument.

The responses of the learners were analysed using Pearson correlation to determine the effect of performance expectancy on the learners' intention to use Cloud computing. The hypothesis was tested using a one way analysis of variance (ANOVA).

RESULTS

The following results represent the learners' responses to questions that relate to performance expectancy. Based on research hypotheses, performance expectancy was measured using the following ten sub variables and responses given on a 4-point Likert scale ranging from strongly agree to strongly disagree.

The results show a large positive relationship (n =116, r = +0.988, p = 0.000) between the use of Internet for learning purposes which would save the respondents a lot of time, and more interest in studying because of the use of Internet devices (see Table 1).

There is a large positive relationship found [r(116) = +0.989, p< 0.05] between the respondents' knowledge that Internet use for learning purposes would enhance the effectiveness of their learning, and more entertainment in studying when Internet devices are used.

The results portray a large positive correlation (n = 116, r =+0.960, p< 0.05) between the mobility which enables the learners to accomplish tasks quickly and more desire to use mobile devices as a way of learning.

There is a moderate positive relationship found [r(116) = +0.638, p< 0.05] between the respondents' knowledge that mobile devices are also mediums for learning and the use of Internet for learning purposes which would save them a lot of time.

The results showed a large positive correlation (n = 116, r =+0.954, p< 0.05) between the fixing of unexpected problems at the first time of using Internet devices, and more desire to use mobile devices as a way of learning.

There is a large positive relationship found [r(116) = +0.988, p< 0.05] between the learners' interest in studying if they could use Internet, and the use of Internet for learning purposes which would save them a lot of time.

A large positive relationship was found [r(116) = +0.985, p< 0.05] between the ease of the learners' learning associated with studying anytime and anyplace, and the entertainment in studies when Internet devices are used.

The results revealed a large positive correlation (n = 116, r =+0.983, p< 0.05) between learners' encouragement to learn more if they could access learning materials anytime, anywhere via mobile devices, and the use of Internet for learning purposes in enhancing the effectiveness of their learning.

The results show a large positive relationship (n = 116, r =+0.960, p< 0.05) between more desire that learners would have to use mobile devices as a way of learning, and the mobility which enables the learners to accomplish tasks quickly.

In Table 2, a one-way analysis of variance (ANOVA) between groups was conducted to compare the effect of the respondents' use of

Table 1: Correlations for performance expectancy (n= 116)

		PE1	*PE2*	*PE3*	*PE4*	*PE5*	*PE6*	*PE7*
PE1	Pearson Correlation	1	.884**	.740**	.638**	.815**	.988**	.889**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
PE2	Pearson Correlation	.884**	1	.890**	.846**	.924**	.891**	.989**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
PE3	Pearson Correlation	.740**	.890**	1	.958**	.921**	.759**	.873**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
PE4	Pearson Correlation	.638**	.846**	.958**	1	.894**	.658**	.827**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
PE5	Pearson Correlation	.815**	.924**	.921**	.894**	1	.824**	.909**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
PE6	Pearson Correlation	.988**	.891**	.759**	.658**	.824**	1	.895**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
PE7	Pearson Correlation	.889**	.989**	.873**	.827**	.909**	.895**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
PE8	Pearson Correlation	.894**	.984**	.864**	.803**	.890**	.903**	.985**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
PE9	Pearson Correlation	.859**	.983**	.904**	.866**	.929**	.881**	.971**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
PE10	Pearson Correlation	.750**	.926**	.960**	.929**	.954**	.774**	.906**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000

*[1] Correlation is significant at the 0.01 level (2-tailed).

Table 2: ANOVA results for performance expectancy (n = 116)

Variables		*Sum of squares*	*Df*	*Mean square*	*F*	*Sig*
To use Internet for learning purpose would enhance the effectiveness of my learning.	Between groups	169.818	3	56.606	150.697	.000
	Within groups	42.070	112	.376		
	Total	211.888	115			
Mobility enables me to accomplish tasks quickly.	Between groups	102.795	3	34.265	53.156	.000
	Within groups	72.197	112	.645		
	Total	174.991	115			
Mobile devices are also mediums for learning.	Between groups	74.650	3	24.883	28.863	.000
	Within groups	96.557	112	.862		
	Total	171.207	115			
Unexpected problems could be fixed at the first time of using internet devices.	Between groups	127.765	3	42.588	75.638	.000
	Within groups	63.062	112	.563		
	Total	190.828	115			
I would feel more interested in studying if I could use Internet devices.	Between groups	245.522	3	81.841	2274.670	.000
	Within groups	4.030	112	.036		
	Total	249.552	115			
I would be entertained in my studies by using Internet devices.	Between groups	172.383	3	57.461	149.919	.000
	Within groups	42.927	112	.383		
	Total	215.310	115			
It would ease my learning because it allows me to study anytime, anyplace.	Between groups	188.542	3	62.847	169.963	.000
	Within groups	41.415	112	.370		
	Total	229.957	115			
I would be more encouraged to learn if I could access materials anytime anywhere via mobile devices.	Between groups	189.208	3	63.069	131.825	.000
	Within groups	53.585	112	.478		
	Total	242.793	115			
It would be more desirable to use mobile devices as a way for learning.	Between groups	139.568	3	46.523	56.859	.000
	Within groups	91.639	112	.818		
	Total	231.207	115			

Internet for learning purposes which would enhance the effectiveness of their learning on the intention to use Cloud computing.

There was a significant influence of the respondents' use of Internet for learning purposes which would enhance the effectiveness of their learning, on the intention to use Cloud computing [$F(3, 112) = 150.697$, $p < 0.05$].

There was a significant influence of mobility which enables the respondents to accomplish tasks quickly, on the intention to use Cloud computing [$F(3, 112) = 53.156$, $p < 0.05$].

There was a significant influence of respondents' knowledge of mobile devices as devices for learning, on the intention to use Cloud computing [$F(3, 112) = 28.863$, $p < 0.05$].

There was a significant influence of fixing unexpected problems at the first time of using Internet devices, on the intention to use Cloud computing [$F(3, 112) = 75.638$, $p < 0.05$].

There was a significant influence of more interest to study among learners because of using Internet devices, on the intention to use Cloud computing [$F(3, 112) = 2274.67$, $p < 0.05$].

There was a significant influence of the learners' feeling of being entertained in their studies when using Internet devices, on the intention to use Cloud computing [$F(3, 112) = 149.919$, $p < 0.05$].

There was a significant influence of the ease of learning because of studying anywhere and in, on the intention to use Cloud computing [$F(3, 112) = 169.963$, $p < 0.05$].

A significant level of influence of being more encouraged to learn if they could access materials anytime anywhere via mobile devices, was found on the intention to use Cloud computing [$F(3, 112) = 131.825$, $p < 0.05$].

There was a significant influence of more desire to use mobile devices as a way for learn-

ing, on the intention to use Cloud computing [$F(3, 112) = 56.859, p < 0.05$].

DISCUSSION

The results successfully brought out the answer to the research question that the present paper attempted to investigate and explore. The question was as follows: What is the effect of performance expectancy (benefits derived) on the learners' intention to adopt and use Cloud computing? On the other hand, all the *p* values for performance expectancy were significant at $p < 0.05$ under the correlation and analysis and the one way ANOVA. The strength and direction of the statistical relationship imply that performance expectancy is closely associated with the intention to use Cloud. On this basis, the paper failed to reject the first alternative hypothesis that 'Performance expectancy will affect learners' intention to use Cloud computing'.

The results obtained from the one-way ANOVA (see Table 2) show that performance expectancy as a construct from the UTAUT model, has a considerable influence on the intention of the respondents to adopt and use Cloud computing, and these are in line with what has been discovered by other researchers (Dulle and Minishi-Majanja 2011). An examination of the coefficients and correlation matrix analysis was able to indicate that the coefficients of performance expectancy will be significant and contribute to accurate prediction of Behavioural Intention if a larger sample size is investigated.

Other challenges, such as delivering data outside of the physical network in a secure way to allow pupils access to files for homework, are now fairly standard in Cloud computing. This may sound like a private cloud, but these "clouds" often provide just the required data for learning (Cross 2014).

The paper also confirmed previous technology acceptance studies regarding the strength (high *r* values) of the performance expectancy construct in predicting behavioural intention (Louho et al. 2006; Al-Shafi and Weerakkody 2009). In other words, high school learners are likely to adopt Cloud computing only if they clearly understand the benefits of this mode over the traditional scholarly communication system.

Within the UTAUT model, the Innovation Diffusion Theory suggests trial ability, which means that, the Internet devices should be user friendly in order to be adopted more quickly than innovations that are not divisible. Through this ease of use, learners would be able to gather information within the required time from many sources as possible.

Recent literature by Lynch (2014) confirms the benefits of Cloud Computing for secondary school classrooms as claimed by previous studies:

Parents can log in from anywhere (including their phones or tablets) and instantly know how their kids are progressing. Teachers can post important messages and keep an archive of completed work in one spot. Depending on the school, cloud forums may even allow parents and learners to contribute in the application for a two-way dialogue.

Schools collect a lot of information on their learners and that data impacts decisions and the well-being of the kids. It takes a lot of time to build student databases and maintain them. If a man-made or natural disaster threatened the physical location of school records, whether hard copies or stored on servers, it could mean a disaster when it comes to student information. Using cloud computing ensures that student records are secure and accessible, no matter what happens to the physical school building.

Cloud platforms are able to bring together data pools that were previously unconnected so that teachers and administrators have everything they need in one spot. Since there is no physical equipment that schools must purchase to get started with cloud computing, there is also a pay-as-you-go mentality. Schools do not need to pay upfront for infrastructure and can add cloud storage as their needs increase. It saves money, space, time and other resources.

If one has ever experienced a server crash on a personal or professional level, it can be a long time while he or she waits for the information to come back. Cloud-based businesses recover data quickly and often handle any technical issues that might arise in a "crash" situation. A word that is often associated with all cloud applications is "redundancy" because the technology eliminates any chance of single-point failure (Lynch 2014).

Processes such as group projects, assignment submission, or even shared lesson plans with other teachers, are streamlined and protected by the cloud. Learners and teachers can confidently collaborate through a shared knowledge-

base in real-time and with the most up-to-date information (Sescon 2014).

CONCLUSION

This paper found performance expectancy to be significantly influential on behavioural intention, with p values < 0.05. This means performance expectancy has a positive influence on the behavioural intention of the learners to adopt and use cloud computing in their day-to-day learning. Secondly, the hypothesis which states that, performance expectancy will affect learners' intention to use Cloud computing was not rejected.

The results of this paper confirm the previous technology acceptance studies regarding the strength of the performance expectancy construct in predicting behavioural intention. The results of this paper are therefore contrary to those indicating the insignificance of performance expectancy on behavioural intention of technology adoption. In a nutshell; the results indicate that the adoption of Cloud Computing among learners is based on technology features which can make their daily activities easier.

RECOMMENDATIONS

These conclusions suggest that Cloud computing adoption and application may be enhanced through educating teachers and learners on the potential benefits of Cloud computing in improving the accessibility and dissemination of scholarly content.

To live in an information age, requires one to be familiar with and being able to use Information and Communication Technologies (ICTs) to meet daily needs. To live effectively in this age, understanding of the basic concepts, principles and application of Internet Technology has become necessary for everyone. In other words, knowledge of basic concepts and applications of Cloud computing is inevitable.

Learners could be benefitted from Cloud computing only when they are taught to use computers efficiently. The school is a good place to begin to acquire such skills because it is the largest centre of learning for learners, this will therefore necessitate that teachers should be trained in ICT. For that to happen effectively, it is necessary that the training of teachers who are the key agents to achieving the objectives and goals of Cloud computing education be considered. This could go a long way in ensuring that teachers would not just go back to their traditional methods of teaching after such a huge investment in technology has been made.

RECOMMENDATIONS FOR FUTURE STUDIES

According to the scope and the limitations of this study, there are many opportunities for further research using the "Unified Theory of Acceptance and Use of Technology" and the questionnaire in a wider scope. The wider scope of further research may include (1) a number of high schools in one district, or (2) all high schools in a particular district.

In addition, further research could concentrate more on moderators including gender, age, education, academic position, and experience of teachers. Such different forms of samples may generate different results compared to this paper. When considering the results of descriptive statistics, further research may be needed to find out why teachers still use the Internet less in teaching than in other tasks. The concentration of further research in teaching may provide evidence why this is the case, and may directly indicate the rationale behind the lack of usage in teaching in more detail. It would be useful for further researches to find out about the scope of training and the type of training that would be suitable for teachers in order to promote their Internet usage.

LIMITATIONS OF THE STUDY

The readers of this research paper should be aware that the population was drawn from a selected number of high school learners in one school. Therefore, the results cannot be generalized to the entire population of South Africa. We hope this study serves as a first step in interest of inquiries towards the adoption of Cloud Computing among highs school learners.

NOTES

[1]PE1 = The use of Internet for learning purposes would save the me a lot of time. PE2 = The use of Internet for learning purposes would enhance the effectiveness of the my learning. PE3 = Mobility enables me to accomplish tasks quickly. PE4 = I know that mobile devices are also mediums for learning. PE5 =

Unexpected problems could be fixed at the first time of using Internet devices. PE6 = I would feel more interested in studying if I could use Internet devices. PE7 = I would be entertained in my studies by using Internet devices. PE8 = Owning an Internet device would ease my learning because it would allow me to study anytime, anyplace. PE9 = I would be more encouraged to learn if I could access materials anytime anywhere via mobile devices PE10 = I would have more desire to use mobile devices as a way for learning.

REFERENCES

Al-Shafi S, Weerakkody V 2009. Understanding Citizens' Behavioural Intention in the Adoption of E-Government Services in the State of Qatar. From <http://www.ecis2009.it/papers/ecis2009-0420.pdf/> (Retrieved on 12 January 2014).

Bell J 2005. *Doing Your Research Project*. 4th Edition. Buckingham: Open University Press.

Behrend TS, Wiebe EN, London JE, Johnson EC 2011. Cloud computing adoption and usage in community colleges. *Behaviour and Information Technology*, 30: 231-240.

Chau PYK 1996. An empirical assessment of a modified technology acceptance model. *Journal of Management Information Systems*, 13: 185-204.

Cross A 2014. Cloud Computing in Education: How Moving to The Cloud Can Help Schools. From <http://www.techtarget.com/contributor/andrew-cross> (Retrieved on 26 September 2014).

Davis FD 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 13: 319–340.

Dulle FW, Minishi-Majanja MK 2011. The suitability of the Unified Theory of Acceptance and Use of Technology (UTAUT) model in open access adoption studies. *Information Development*, 27: 32-45.

Jlelaty M, Monzer Y 2012. *Factors in Cloud Computing Adoption.* Sweden, Lund: University.

Kunze M, Wang L, Laszewski G, Younge A, He X, Tao J, Fu C 2008. Cloud computing: A perspective study. *New Generation Computing*, 28: 137-146.

Louho R, Kallioja M, Oittinen P 2006. Factors affecting the use of hybrid media applications. *Graphic Arts in Finland*, 35: 11-21.

Lynch M 2014. Cloud Computing and K-12 Classrooms. From <http://www.huffingtonpost.com/matthew-lynch-edd/cloud-computing-and-k-12_b_4407567.html> (Retrieved on 29 September 2014).

Mugenda AG, Mugenda OM 2003. *Research Methods: Quantitative and Qualitative Approaches.* Nairobi: ACTS Press.

Panneerselvam R 2008. *Research Methodology*. 6th Edition. New Delhi: Prentice Hall of India Private Ltd.

Saunders M, Lewis P, Thornhill A 2007. *Research Methods for Business Students*. 4th Edition. England: Prentice Hall.

Sescon K 2014. Benefits of Cloud Computing in Education System. From <http://community. trapponline. com/benefits-cloud-computing-education-system/#comments> (Retrieved on 28 September 2014).

Taneja P 2013. Benefits of Cloud Computing. From <http://cloudcomputing.syscon.com/node/2596172> (Retrieved on 27 September 2014).

Vecchiola C, Pandey S, Buyya R 2009. High-Performance Cloud Computing: A View of

Scientific Applications. *Pervasive Systems, Algorithms, and Networks (I-SPAN 2009, IEEE CS Press, USA), Kaohsiung, Taiwan, December 14-16, 2009.*

Velte T, Velte J, Elsenpeter R 2009. *Cloud Computing: A Practical Approach.* USA: McGraw-Hill.

Venkatesh V, Davis FD 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46: 186-204.

Venkatesh V, Morris MG, Davis GB, Davis FD 2003. User acceptance of information technology: Toward a unified view. *MIS Quarterly,* 27: 425-478.

Walz J, Grier D 2010. Time to Push the Cloud. *IT Professional*, 12: 14-16.

White B 2002. *Writing your MBA Dissertation*. London: Thompson Learning.