A study on the success of Abacus at Ecumenical College, Stann Creek

Nia Sabal
Faculty of Management and Social Sciences
University of Belize
2018118418@ubstudents.edu.bz

Oliver Torres
Faculty of Management and Social Sciences
University of Belize
2017115770@ubstudents.edu.bz

Shanice West
Faculty of Management and Social Sciences
University of Belize
2018119155@ubstudents.edu.bz

Abstract

Abacus is a simple but effective student information system, where students access grades online and and monitor progress for each subject. Monitoring the success of information systems are important for management and administrations. Past researchers have proved that user satisfaction, system use and performance are factors of information system success. This research provides an analysis on the adaptation of De Lone and McLean's IS success model in the framework of Abacus JC information system. The model consist of seven dimensions: information quality, system quality, service quality, use, user satisfaction, and perceived net benefit. Abacus JC is a web based system that is used by students to keep up to date with their grades and their class attendance. The research aim is to determine the success level of Abacus system used at Ecumenical College (ECU). Questionnaires were given to 30 participants to determine the net benefit the Abacus student information systems provides to the students at Ecumnical College. This research established results, which should be concentrated in future research.

Keywords: Abacus, Student Information System, Administration, Net Benefit

Introduction

The use of information technology in educational management has rapidly increased due to its efficiency and effectiveness. There is always a challenge faced by researchers when evaluating the "success" of information systems. In the initial stages of its development, management information systems (MIS) main purpose and usage was to improve the efficiency of school office activities. New conditions which are changing quite rapidly in the turbulent environment of information systems require new methods and applications. Since most organizations today are dependent on their information systems, measuring performance and efficiency in computer science increasingly gains significance.

The purpose of this study it to measure the success of Abacus system at Stann Creek Ecumenical College, how effective and reliable the system is for the students. Allowing them to monitor their grades as well as ways in which the system can be improved to increase the perceived net benefits to the students attending Ecumenical College. In the working environment the use of Information System has become significant in every business process. Since Information Systems has a measurable impact in the working environment performance, management policies have adjusted to keep up with the growth of these systems. Independence Junior College has also adjusted its policies to help increased student satisfaction. There are several positive aspects to information systems, and it is useful to examine its impact on the efficiency of organization and its productivity.

The main goal of this research is to analyze how efficient and successful this system is and find ways on how to improve it at Ecumenical College. A basic research method was used with the development of questionnaires to gather information from the students attending Ecumenical College, Stann Creek. The analysis of the data collected is represented via tables, chart and other formats to display our findings.

Literature Review

Management Information System or MIS is a central data repository capable of not only gathering, organizing and storing data but also processing and analyzing it and generating various reports from it. This is MIS in a broader sense. There have been large amount of investment in the introduction of information and communication technology (ICT) in schools,

including hardware, software, networking and personnel development. This initiative will be considered worthwhile if there is evidence that it has had a corresponding impact on school performance and efficiency. Education Management Information System (EMIS) is specially designed to monitor the performance of education programs offered by the institute and to manage the distribution and allocation of educational resources. Of course, in the field of education, EMIS has specific roles to help an educational institution grow. (Korde 2018)

The Abacus student information system incorporated at the Stann Creek Ecumenical College, is one of the many investments on student information systems (SIS). School Management Information Systems are digital tools that are being used in schools to support a variety of administrative tasks such as monitoring attendance, assessment records,reporting, financial management, and resource and staff allocation (Forrester 2019). School management information systems are also useful to digitize data, facilitate communication between teachers, administrators, parents, and other stakeholders, and provide easy access to data about student performance, thereby increasing administrative efficiency and reducing educator's workload. The Abacus is used to keep a count of student-related activities such as keeping records of tests or examinations conducted, attendance, appraisal on performance including details of marks scored, particulars of everyday school detentions and merits, and all other institution-related activities. According to (Bisaso & Visscher, 2005), Information technology (IT) in educational administrations is a fairly new field that not only needs in-depth studies on systems utilization in schools of developing countries but also on their effects on the school processes and maybe outcomes. These studies can better assist schools within developing countries such as Belize to understand the use and need of IS to better engage students, parent and teachers in a long lasting academic journey of success.

Similarly, Anakwe, et al. (1999) stated that many studies on IS implementation success have been undertaken but few have concentrated on least developed countries. Interestingly, studies found that of the SIS being used across these developing countries, are locally developed either by commercial software vendors, school staff, or individuals with knowledge in computer programming (Bisaso & Visscher, 2005). Abacus is a locally developed SIS created by Maurice Rogers whose vision was to engage activity from students, parents and teachers not only at

Independence Junior College but currently serves the same purpose of tracking academic performance to over thirteen other schools within Belize (Rogers, 2018).

Demir (2006) further supports this argument stating that although there are many studies on the role of information systems on class and teaching, few studies have been done on the use of them in educational administration and their effects on the educational management. A review of the literature depicts that despite the constraints on research regarding the use of IS in developing countries, the importance and benefits of IS to society and to future prospects is clear within the educational literature. This research project will therefore attempt to bridge the gap in the literature between the Information System utilization and IS success factors for its use in a university context of developing countries such as Belize.

Methodology

Many Students at the Ecumenical College use Abacus system to view their performance within the semester to assist them in improving. To collect the data we conducted a simple random sampling method amongst the students attending Ecumenical College, whereby we gave out 30 questionnaires randomly within the students of the facility. We collected the questionnaire the same day we distributed them. With the questions asked, it can help students test and see how well Abacus system has helped or will be able to assist them more. A sample of the survey using these instruments were based on information quality, system quality, complementary technology quality, service quality, user satisfaction, use and the perceived net benefits.

Hypothesis:

H1. Complementary technology quality will positively impact system quality.

H2. System quality will positively impact user satisfaction.

H3. Information quality will positively impact user satisfaction.

H4. Service quality will positively impact user satisfaction.

H5. Use will positively impact user satisfaction.

H6. Information quality will positively impact use.

H7. System quality will positively impact use.

H8. Service quality will positively impact use.

H9. User satisfaction will positively impact perceived net benefit.

H10.Use will positively impact perceived net benefit.
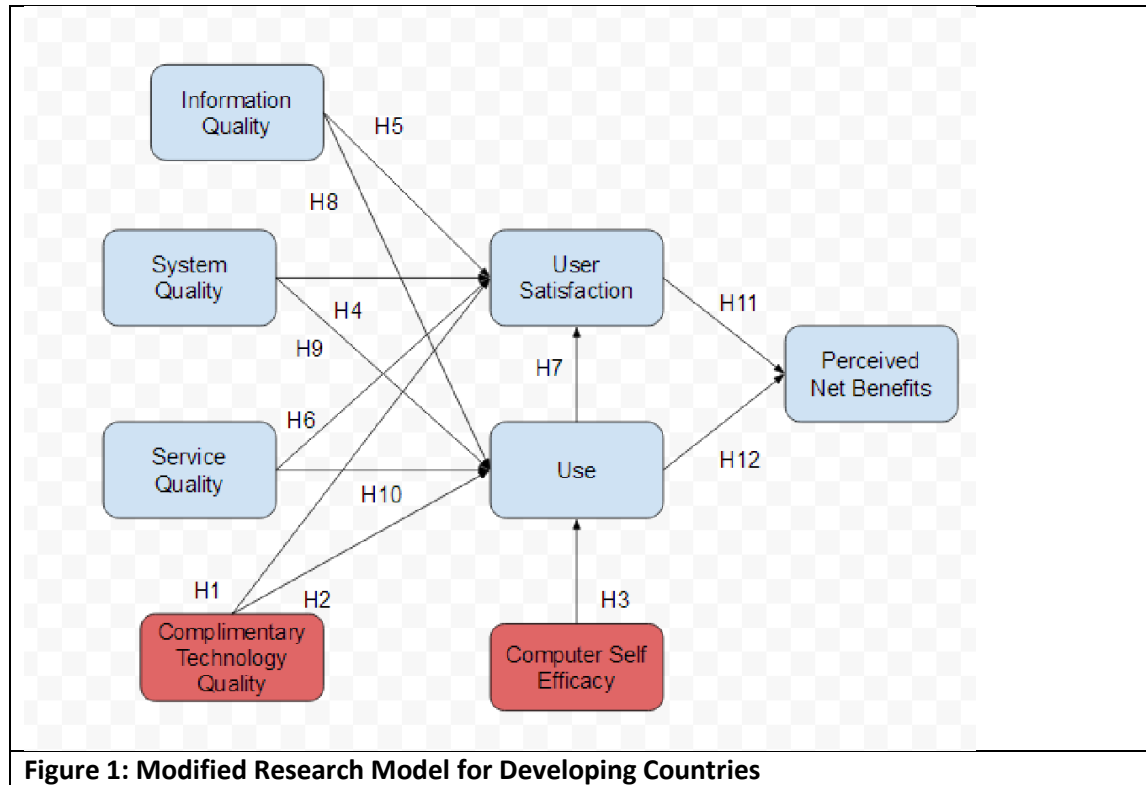
Figure 1: Modified Research Model for Developing Countries

This is a hypothesized relationship between the Abacus system and how successful it is using the success dimension; it will only be based on theoretical work reported by DeLone and McLean (2003). As they suggest, the success model needs further development and validation before it could serve as a basis for the selection of appropriate IS measures. According to the study of the hypothesis it showed these eight were tested:

Description of Participants

The participants are students enrolled at the Ecumenical College, they are approximately a little over six hundred (600) students enrolled. Research data will be collected from five percent of the students enrolled from first form through fourth.

Sample Size and data collection

To conduct this research, we decided to issue questionnaires to students via a simple random sample method. We issue 30 questionnaires to students from all forms and was successful at retrieving all 30, thus giving us a 100% response rate.

Construct Measurement

To ensure research validity and reliability, the researcher used the measurement scales for the quantitative data collection of the eight (8) constructs from Bailey and Person (1983), which was modified to the context of Abacus. All the items were measured using a 7-point Likert Scale with anchors ranging from strongly agree (7) to strongly disagree (1). As seen in appendix A. All survey questions in the instruments have been validated in previous studies. Thus, the study focuses on the Ecumenical College students by using the seven IS successes which are: service quality, complementary quality, system quality, system use, perceived net benefits, user satisfaction and information quality.

Characteristics	Amount	Percentage
Gender		
Male	15	50%
Female	15	50%
Age		
< 15	23	77%
From 16 to 18	6	20%
> 19	1	3%
Form Level:		
First Form	12	40%
Second Form	10	33%
Third Form	5	16%
Fourth Form	3	10%
Computer Experience		
Low	10	33%
Medium	15	50%
High	5	17%

Data Analysis and Results

The data was gathered from 30 students of Ecumenical Junior College. We did not assess the Model, nor did we test the hypothesis. Therefore, we are using the applied research methodology. We will present 8 histograms and an average of the histograms. The response varies from 1 which is strongly disagreeing to 5 which is strongly agree.

Figure 2

Abacaus Information Quality

■	Disagree
■	Nuetral
▨	Agree
☐	Strongly Agree

37% 7% 16% 40%
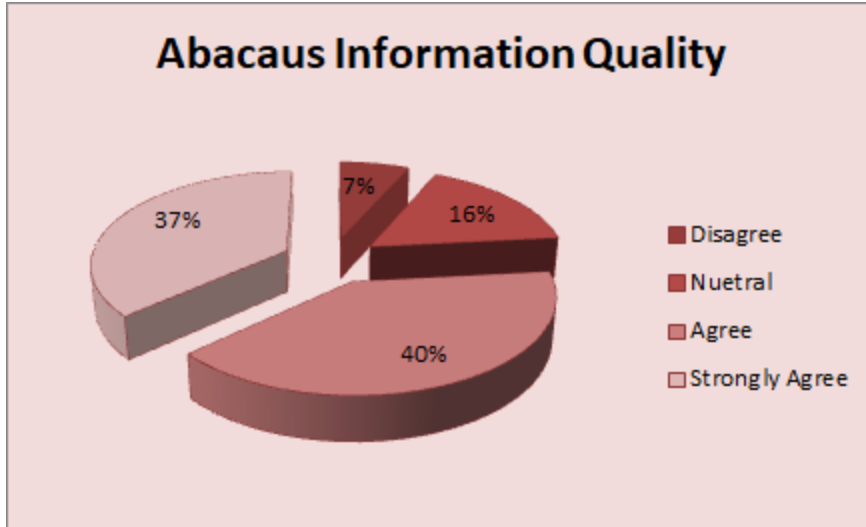
Based on the graph above, it is evident that the service quality of Abacus system is up to par. 40% of respondents being the majority are in agreement that Abacus system service provides necessary information, 37% strongly agrees while 16% are neutral and lastly 7% disagrees being the minority of correspondents. Overall, Abacus System users satisfy their needs as an online communication tool.

Abacus System Quality

■ Easy To Use   ■ User Friendly

	Disagree	Nuetral	Agree	Strongly Agree
Easy To Use	1	4	10	15
User Friendly	0	5		25
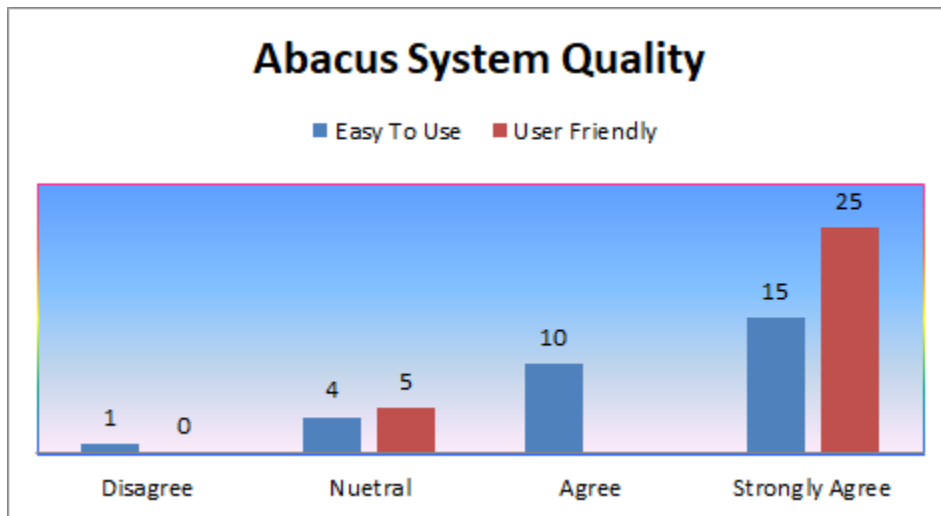
Figure 3

Most users agreed that the system quality of Abacus system is great 25 of the 30 respondents agreed the system is very user friendly. Moreover, the majority of respondents agreed that the system is easy to use.
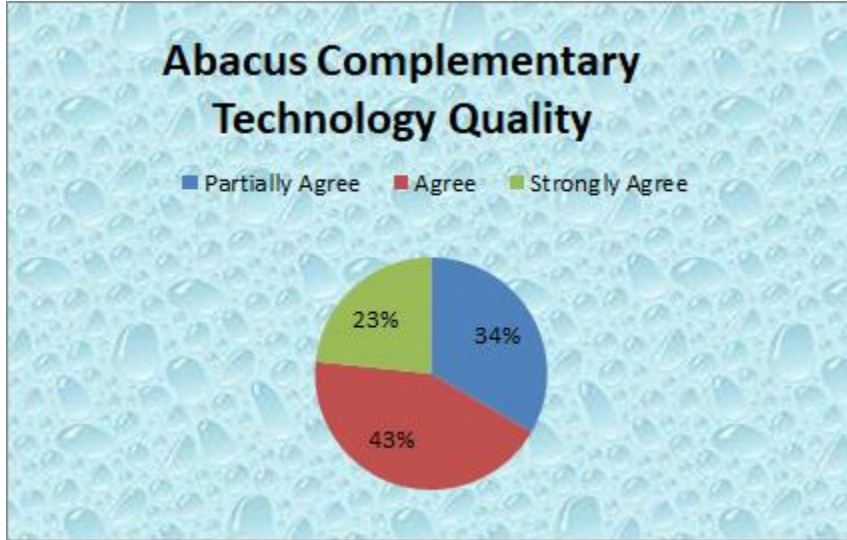
Figure 4

The score count for the complementary technology quality has a wide variance, 23% of users agrees that the quality is very good, while 34% partially agrees and 43% of user simply agrees that the complementary technology is okay. Based on the figures, users agree that the complementary technology needs improvement especially in areas such as reliability and speed in accessing Abacus system.
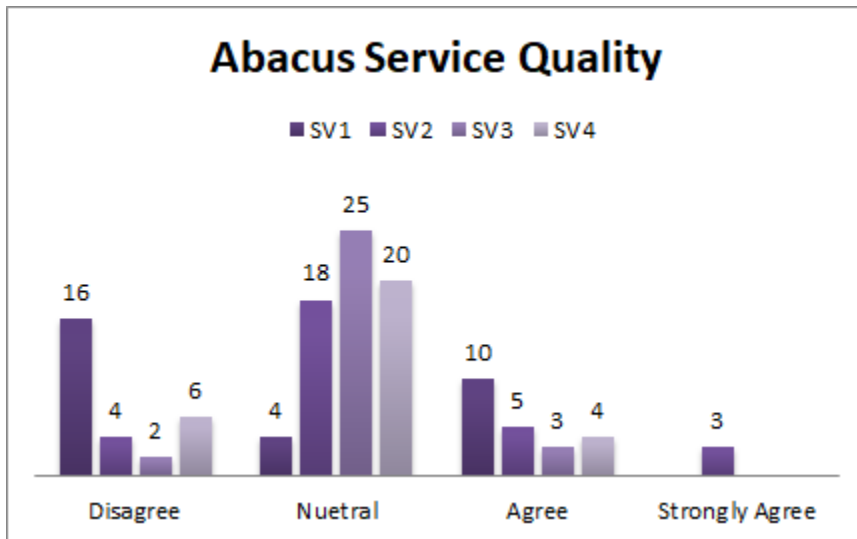

Figure 5

Users agreed that if they need assistance with Abacus system, they were not able to seek assistance from support staff as soon as needed. Also, users believe that they would perform better if there were properly trained to use the software from the beginning. Overall, users agreed

that Abacus system needs to provide support to better assist them. Based on the service quality graph, it is evident that Abacus system has to improve service quality.
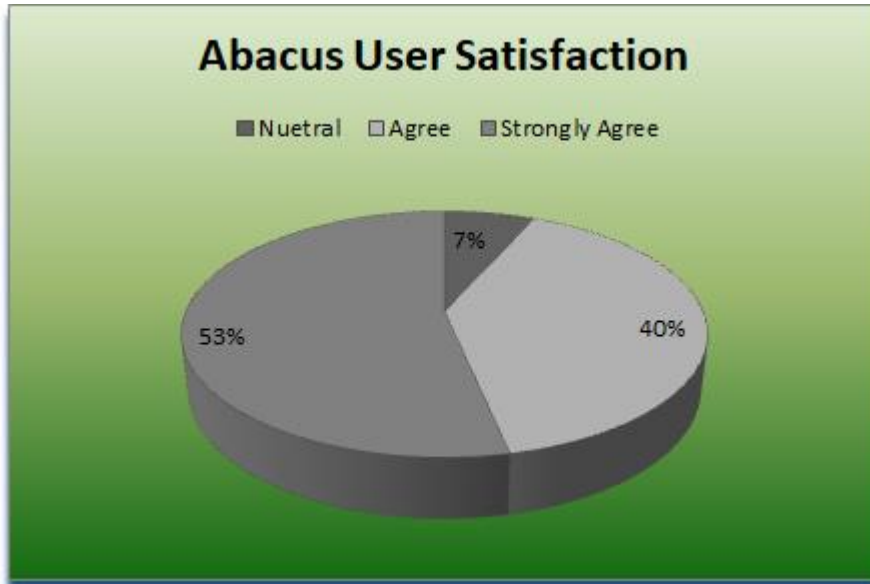

Figure 6

The satisfaction rate of Abacus is very high, 53% of the respondents strongly agreed to having positive attitudes towards Abacus and also agreed that is very helpful. The majority of respondents revealed that Abacus met their expectations and only few of 7% disagreed with using Abacus.
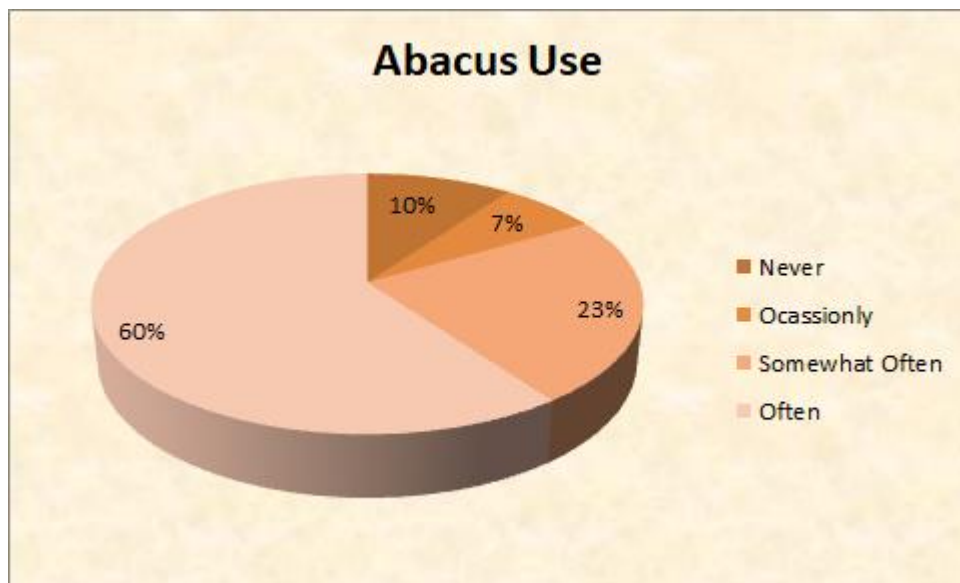

Figure 7

The chart above displays a high use of Abacus system. In addition, the majority of respondents strongly agreed that they have high dependency for Abacus system, being a percentage of Sixty (60%). Also users seem to be able to complete their task on Abacus system without assistance, which proves that its user-friendly. On the other hand a small percentage of only 7% of respondents have never logged into the system.
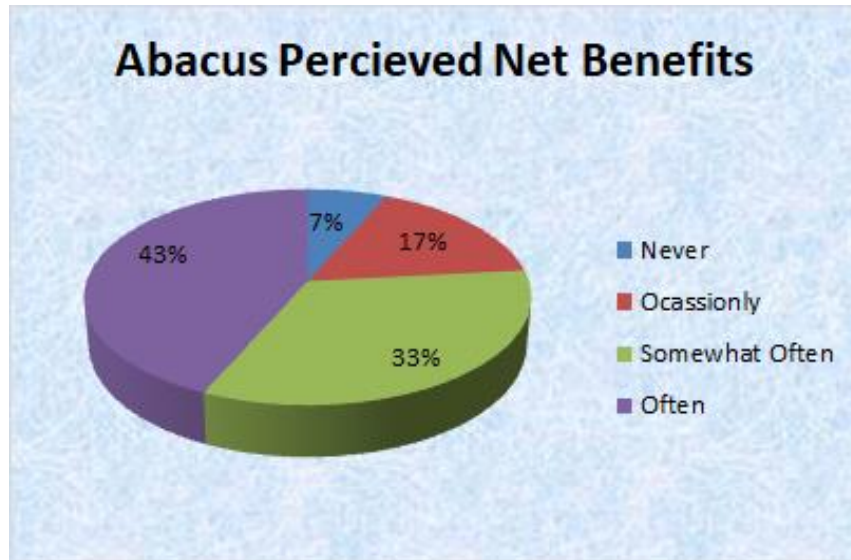
Figure 8

Respondents strongly agree that overall Abacus System helps to boost their productivity and assist in monitoring overall performances in various classes. The majority agreed that Abacus has helped with academic performance as well as helping Ecumenical High School to be efficient and effective. Majority of the respondents strongly agree that Abacus has assisted them in increasing their academics performance and productivity.

Conclusion and Recommendation

The main purpose of this research was to ascertain if the student information system for Ecumenical College provides user satisfaction and how the system can be improved. A Sample of 30 Students from the Ecumenical College was surveyed. The main findings of this study indicated that it is helpful to the students, and influences them to improve their grades. The system makes information easier to access, keeps information confidential and every user have their own personal security to access their information. However, many of the respondents stated that the system needed improvement with consistency and being able to learn how to use the system quickly and effectively. Based on remarks from students, it is believed that most students will be able to increase their school performance if the system is updated with information and speed.

Furthermore, this research contributes to the testing of the Abacus IS Success Model. By using an established IS theory, our study is an attempt to apply severe research to a practical, highly relevant problem. In order to increase user perceived net benefit, Ecumenical College must update their information system with better information quality, system quality, and service quality, which, in turn, will increase user system usage and satisfaction evaluation, and boost corresponding perceived net benefit.

Limitations

Limitations for this research includes limited resources, we did not have authority to use the system and view how it works to see how improvement can be done. Another limitation is the fact that the samples gathered does not represent the entire population of the students, it approximately samples about 5% of the student body. Lastly we were denied approval to research three different organizations and had to recreate websites and draft literature reviews each time, not much time was allocated to this research due to our rejections.

Despite these limitations, the present study provides valuable insights into the study, it provides a structure for understanding the Abacus system and its quality on user satisfaction, and perceived net benefit. This provides a foundation for future research. For future research we recommend researchers to test the hypothesis and include a greater portion of the population.

References

Anakwe, U. P., Anandarajan, M., and Igbaria, M. (1999). *Information technology usage dynamics in Nigeria:* An empirical study. Journal of Global Information Management, 7(2): 1321.

Bisaso, R., & Visscher, A. (2005). *Computerized school information systems usage in an emerging country -Uganda*. In A. Tatnall, J. Osiorio, and A. Visscher (Eds.) Information technology and educational management in the knowledge society (pp. 81–98). New York: Springer.

Condie, R., Munro, B., Seagraves, L., & Kenesson, S. (2007). *The impact of ICT in Schools - A landscape review*. Coventry: Becta. Available at: http://webarchive.nationalarchives.gov.uk/20101007124443/http://partners.becta. org.uk/page_documents/research/impact_ict_schools.pdf

Learning T. (2018). *Student Information Systems*. [Online] TechLearningMagazine. Available at: https://www.techlearning.com/news/student-information-systems [Accessed 13 Nov. 2018].

Rogers, M. (2018). *About - Abacus*. [online] Abacus.bz. Available at: https://www.abacus.bz/about.html [Accessed 13 Nov. 2018].

Bailey, J.E. and Pearson, S.W. (1983) Development of a Tool for Measuring and Analyzing Computer User Satisfaction. Management Science, 29, 530-545.

"Impact of Management Information Systems (MIS) on School Administration: What the Literature Says." Procedia - Social and Behavioral Sciences, Elsevier, 11 Mar. 2014, www.sciencedirect.com/science/article/pii/S1877042814006764.