Measuring the Success of Open Education Management Information System (OpenEMIS) implemented by the Education Department of Belize

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Abstract

The rapid expansion of technology has created the need to evaluate information system performance. This study makes use of the DeLone and McLean's Information System success model to evaluate the success of the Open Education Management Information System (OpenEMIS) implemented by the Department of Education in Belize City. The purpose of this investigation is to analyze the overall usefulness and quality of the implemented OpenEMIS software and to determine how successful the software has been in improving the decision making within the Education Department. This research was facilitated by a use of a 50 question survey which was distributed to 30 employees at the Education Department. Results indicated that the usage of the OpenEMIS system within the department has contributed to increase employee performance, better decision making and superior goal achievement of the organization. Thus, OpenEMIS system has proven to be useful to the education sector as it improves effectiveness and efficiency, subsequently, supporting the initial hypothesis.

Keywords: technology, efficiency, operational success, decision making, education sector, information system success, management, OpenEMIS

Introduction

The Government of Belize has financed many information systems throughout the country. Education has always been a priority that government places high emphasis on and every investment brings empowerment to the Educational Sector. Education Sector Strategy (ESS) was introduced in 2011-2016 and this was to specifically transform the educational system (Mundy & Menashy, 2012).

The primary objectives include, joining the gaps between the rural and urban areas within the district of Belize to ensure that high quality of education is distributed evenly throughout the country (STRATEGY, 2012). Other initiatives include, providing quality education at different levels of education and improving management skills so leaders can operate more effectively and efficiently in delivering services to the country of Belize. It also serves to increase impartial access at all levels of education by improving the quality and relevance of education, targeting all levels of children, especially those with special educational needs and also serves to strengthen authority within the educational sector.

Open EMIS supports the Ministry of education by collecting necessary data and information that is vital for the improvement of the education system. Significant data is being collected in a timely manner by the system with technical support from the Community Systems Foundation. In 2015 the system brought awareness to 105,979 students and 615 principals in 615 schools, exploiting Open EMIS across the country generate students and teacher profiles that entail organizing classes, managing staff and most recently to complete their annual education survey.

The ESS is well grounded in its second stage where the Ministry of Education Belize, launched the Belize Education Sector Reform Program in 2016. This was when Open EMIS was introduced and implemented as a flexible open foundation to information management within the education sector (Wako, 2003). Open EMIS was officially organized in 2014 and has been in operation with examining, gathering, distributing and increased evidence - based planning within the education sector.

Open EMIS offers reliable access to key education performance indicators. It monitors individual students and staff, it gives timely access to data by planning, it reduces the use of papers by all members of Ministry of education and finally it tracts key performance indicators in the region to inform social policy formulation and child development programs (Foundation, 2016).

Open EMIS has been successful in the education system of Belize. The main purpose of this study is not only to bring awareness to everyone in the education sector such as, the education department, principals, teachers and students, but also to highlight the achievements of Open EMIS. First, we evaluate the advancement of Open EMS. Second, according to previous studies, a complete hypothesis is recommended. Thirdly, the technique used measures and outcomes of the study are presented. Lastly, speculative and decision-making are debated for future research.

Literature Review

The main purpose of the literature review is evaluate the success of implementing Information System in the education sector and how these information systems in developed countries are compatible with the constructs developed by DeLone and McLean (2003) and other researchers. The OpenEMIS Information System is a special type of information system that is used in the education sector, its main purpose is to collect, analyze, and report data related to the management of educational activities. Therefore, in this section we establish the theoretical foundation and conceptualization of OpenEMIS success based on prior information system success studies.

Research surveying the accomplishment of Information Systems (IS) has been continuous for about three decades and its determinants have long been considered a critical field of information system (Bailey and Pearson, 1983). Early endeavors to characterize data framework achievement were badly characterized because of the mind boggling, related, and multi-dimensional nature of IS achievement. To address this issue, DeLone and McLean (1992) played out a survey of the exploration distributed amid the period 1981– 1987, and made a scientific classification of IS achievement dependent IS success. In their 1992 paper, Delone and McLean arranged existing proportions of progress into six major constructs IS success factors known as the system quality; the output known as information quality; the usage frequency known as the use; user's reaction towards the system known as the user satisfaction; the behavior of the user

known as the individual impact; and also, what effects does the IS has on the performance of the organization known as the organizational impact (Delone & McLean, 1992)

In recent years, whether education decisions are centralized or decentralized, democracy has encouraged more stakeholders to ask more questions about decisions made in the education sector (Moses, 2000) and this has contributed to the increased demand for information and greater transparency in the decision-making process. Information technology has facilitated work processes and expanded the provision of information. According to Lewis, Agarwal and Sambamurthy (2003, p. 658) 'organizations increasingly depend on information technology for the execution of a variety of operational, tactical, and strategic processes. However, it is not the single computer that enhances the educational service; it is the entire information sharing system with all elements of networking, software, hardware elements, and application used in the process that creates a common framework of operations.

Decision-making is often identified with a choice, which is the selection of a specific course of action from among two or more alternatives in order to maximize the expected value of a decision. Modern society values knowledge and information as one of its most important assets, in order to make important decisions, organizations search for and evaluate information. Sack and Saidi (1997) noted that decisions are made by well-trained people on the basis of a reliable and adequate amount of information that is communicated in a timely manner.

A research conducted by Esther Chitolie-Joseph (2011) confirmed that an Education Management Information System (EMIS) can be used to facilitate the storing of and access to accurate, timely and reliable data/information for effective management, policy formulation and decision-making process in the education sector.

Developing countries, including those within the Caribbean region are dependent on external aid because of their inability to meet all their financial needs. These countries are heavily dependent on financial aid from regional and international agencies such as the European Union, Caribbean Development Bank (CDB) and the World Bank for their educational development. But dependence is not measured only in terms of financial terms; it is also expressed through the capacities to conduct research. The lack of a strong resource base for local research in the region causes educators to depend on research done by developed countries, the recommendations of which can be expensive to implement. According to Louisy (2001, p. 430) the 'small states of the Caribbean have limited institutional capacity at the national level to carry out the research needed in respect of issues Caribbean, hemispheric and global, therefore IS can help facilitate in the accessing of reliable data to help support educational research within the region".

The new millennium heralded rapid technological advancements, which have impacted the management process, practices, decision making. The use of EMIS in the education sector is rapidly gaining ground in the world, (Brooks and Young, 2006) asserted that the use of EMIS in the school management level can better assist school managers in accomplishing their administrative task. According to Zain, Atan and Idrus, studies done in Malaysia on the use of EMIS at the school management level revealed positive changes including better accessibility to information, more effective administration and higher utilization of school resources both human and financial. The EMIS has lessoned the work load and made the management process to be more efficient, for example EMIS has reduced the time used to check attendance and has enable attendance data to be entered onto report cards; this in return has increased student supervision and other process business processes at the school level.

Methodology

The research intends to evaluate the success of the information system OpenEMIS (Open Education Management Information System) implemented in the Education Department. The IS Success Model developed by William H. DeLone and Ephraim R. McLean in 1992 will be used to assess the current success of OpenEMIS. The research project will be carried in a quantitative research form. This is a correlational research designed to investigate if OpenEMIS has improved the decision making and performance of the Education Department.

Data will be gathered by developing a forty-eight question survey to be filled out by the employees from the Education Department (Service Areas) in Belize City. Firstly, we will petition participation from the staff of the Education Department by contacting the Chief Education Officer. After they have accepted to

participate, questionnaires will be taken to the service areas office upon which the staff has been allotted one week to answer the surveys. Proceeding, data will be analyzed through the use of Google Sheet; All relevant findings will be displayed using tables, bar charts and histograms to properly display the analysis of the data collected.

Theoretical foundation: Information System Success

The DeLone & McLean model has also been found to be a useful framework for organizing IS success measurements. The model has been widely used by IS researchers for understanding and measuring the dimensions of IS success. The relevant DeLone & McLean IS Model focuses its results on experienced benefits to explain the success or failure of the implemented information system. Ten years after the first publication of the DeLone & McLean IS Model in 1992, the model was reviewed and updated. The model determines the success of such systems through the factors of presence or absence of system, information and service quality as they affect users' intention to use, actual use and user satisfaction. These are further analyzed through how actual use and user satisfaction of the system deliver net benefits to the organization. This DeLone & McLean IS Model set the standard hypothesizes to be tested as depicted in Figure 1.

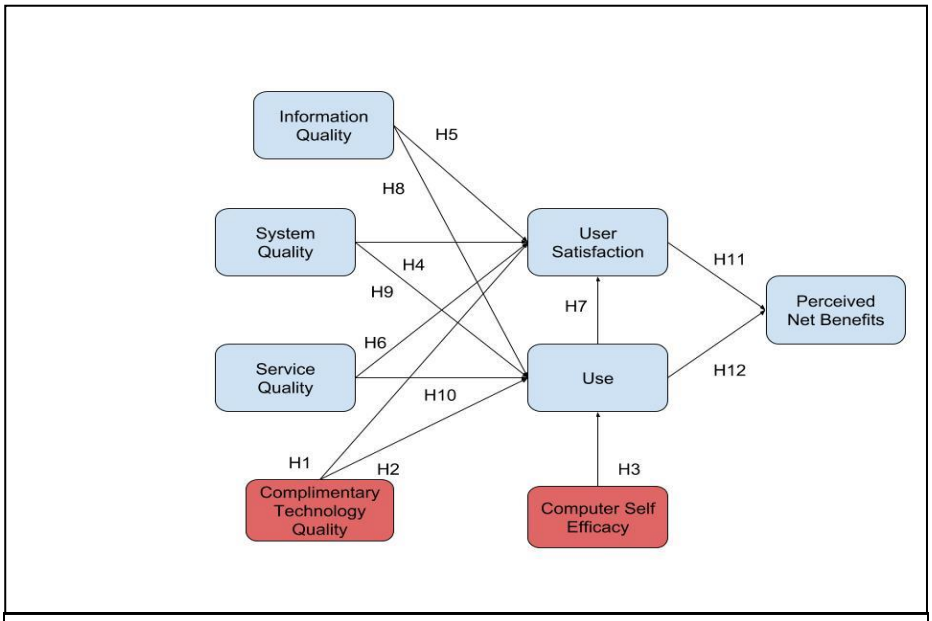

Figure 1. Delone and Mcleane IS Success Model

Figure 1. illustrtates the six dimensions of the DeLone and McLean model in addition to the Complementary Technology Quality and Computer Self – Efficency used to validate this research.

Hypothesis

The hypothesized relationship between OpenEMIS system success variables are based on the theoretical and empirical 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. Accordingly, the study hypothesized the following nine hypotheses tested:

H1. Complementary technology quality will positively impact user satisfaction.

H2. Complementary technology quality will positively impact system use.

H3. Computer self-efficacy will positively impact system use.

H4. System quality will positively impact user satisfaction.

H5. Information quality will positively impact user satisfaction.

H6. Service quality will positively impact user satisfaction.

H7. Use will positively impact user satisfaction.

H8. Information quality will positively impact use.

H9. System quality will positively impact use.

H10. Service quality will positively impact use.

H11.User satisfaction will positively impact perceived net benefit.

H12.Use will positively impact perceived net benefit.

Construct Instrument

The DeLone & McLean IS Model does not specify how collection of data must be carried; therefore, for the purpose of the study we develop a survey with questions focusing on the eight dimensions. In order to preserve content validity of the quantitative data collected, the scales used to determine the success of the information system were merely extracted from instruments that were used in previous researches.

The information quality construct was measured through a seven-item scale from Bailey and Person (1983), which was modified to focus on the context of the Open education management Information System. The Bailey and Pearson's instrument is widely accepted and has become a standard construct in the IS field as it has been tested for reliability and validity through various researches. Likewise, instruments used by Alshibly (2011) were modified to evaluate the system quality construct through a four-item scale. In addition, the Service quality construct was evaluated using a modified two-item scale adopted from the Chang et al (2009) instrument. The Use construct was measured through a four-item scale adapted from previous studies (Balaban et al., 2013; Rai et al., 2002). In this research, User Satisfaction was defined as the evaluative judgement and affective attitude towards the use of the Government Integrated Cashiering System. This construct adopted from Seddon and Yip (1992) was measured with a four-item scale. Furthermore, the perceived net benefits were defined as an achievement of the firm's objective as well as the end user related objectives. This element was evaluated by a six-item scale adopted from Alshibly, (2011) and Tansley et al (2001). The Computer Self-Efficacy element developed by Compeau, D. R., & Higgins, C. A. (1995) was included to observe user's ability to use the system. This element was measured through a ten-item scale. Moreover, the Complementary Technology Quality adopted from Teece, D. J. (1988) which was evaluated by a three-item scale was included to assess if the available technology aided the success of the information system, and this element is measured through a four -item scale. These items were evaluated using a 7- point Likert Scale ranging from strongly disagree (1) to strongly agree (7). Table 1 presents the research model constructs and related items used for the evaluation of each of these constructs. The actual survey used is attached in the appendix.

Table 1. The OpenEMIS Survey Construct

Construct	Survey Questions	Source
Information Quality	IQ1: The Open EMIS system provides information that is exactly what you need? IQ2: The Open EMIS system provides information you need at the right time? IQ3: The Open EMIS system provides information that is relevant to your work? IQ4: The Open EMIS system provides	Bailey and Person (1983).

	sufficient information? IQ5: The Open EMIS system provides information that is up to date? IQ6: The Open EMIS system provides up-to-date information? IQ7: The Open EMIS system provides sufficient information?	
System Quality	SQ1: The Open EMIS system is easy to use? SQ2: The Open EMIS system is user-friendly? SQ3: The Open EMIS system provides high-speed information access? SQ4: The Open EMIS system provides interactive features between users and the system?	Alshibly, (2011).
Complementary Technology Quality	CTQ1: The software on the device (desktop computer, laptop, mobile) used to access Open EMIS system is adequate? CTQ2: The device hardware (desktop computer, laptop, mobile device) used to access Open EMIS system is adequate? CTQ3: The speed of the internet connection used to access the Open EMIS system is adequate? CTQ4: The reliability of the internet connection used to access the Open EMIS System is adequate?	Teece, D. J. (1988).
Computer Self Efficiency Measure	CSE1: If there was no one around to tell you what to do as you go along? CSE2: If you had never used an information system likes this before? CSE3: If you only had the information system manuals for reference? CSE4: If you had seen someone else using the information system before trying it yourself? SCE5: If you could call someone for help if you got stuck? CSE6: If someone else had helped you to get started? CSE7: If you had a lot of time to complete the job for which the information system was provided? CSE8: If you had just the built in help facility for assistance? CSE9: If someone showed me how to do it first? CSE10: If you had used similar information systems before this one to do the same job?	Compeau, D. R., & Higgins, C. A. (1995).
Service Quality	SV1: The support staff keeps the Open EMIS System software up to date? SV2: When users have a problem the Open EM System	Chang et al., (2009).

	support staff show a sincere interest in solving it? SV3: The Open EMIS System support staff respo promptly when users have a problem? SV4: The Open EMIS System support staff tell users exactly when services will be performed?	
User Satisfaction	US1: Most of the users have a positive attitude of OpenEMIS System? US2: You think that the utility of the Open EMIS System is high? US3: The Open EMIS System has met your expectations? US4: You are satisfied with the Open EMIS System?	Seddon and Yip (1992).
Use	U1: Your frequency of use of the Open EMIS System is high? U2: You depend upon the Open EMIS System? U3: You were able to complete a task using the Open EMIS System even when there was no one around to tell you what to do? U4: You have the knowledge necessary to use the Open EMIS System?	Balaban et al., (2013) Rai et al., (2002).
Perceived Net Benefits	NB1: The Open EMIS System helps you improve your academic performance? NB2: The Open EMIS System helps students save costs? NB3: The Open EMIS System helps you achieve your academic goals? NB4: Using the Open EMIS System improves assessment and training? NB5: Using the Open EMIS System at school increases your academic productivity? NB6: Overall, using Open EMIS enhances teacher performance?	Alshibly, (2011).

Table 1. Measurement Items for the Questionnaire

Sampling and Data Collection

The data was gathered from a sample from the Ministry of Education offices located in Belize City. The research sampling used was quota sampling which focused on gathering 30 employees from the Education Department to complete and return the survey. The 30 surveys were distributed, fortunately all 30 surveys were collected making it 100% response rate. A 7-point Likert Scale was used ranging from strongly agree (7) to strongly disagree (1). The respondent's characteristic is shown in Table 2. The table shows that most of the participants were females being 73% of the total respondents, while the males comprised of only 27% of the total respondents. The results indicated that 80% of the respondents were over the age of 25 years. 33% of the respondents held an Associate Degree, while 80% of the respondents have been working for more than 5 years. Moreover 54% of the respondents were individual who held secretarial positions and clerical positions.

T**able 2. Characteristics of respondents**		
Characteristics	**Number**	**Percentage**
Gender		
Male	8	27%
Female	22	73%
Total	**30**	
Age		
Less than 25	6	20%
From 25 to 35	10	33%
From 36 to 45	9	30%
From 46 to 55	5	17%
More than 55	0	
Total	**30**	
Work Experience		
Less than 5 years	6	20%
From 5 to 10 years	12	40%
From 11 to 15	8	27%
Over 15 years	4	13%
Total	**30**	
Education		
High School Diploma	5	17%
Associate Degree	10	33%
Bachelor's Degree	3	10%
Master's Degree	7	23%
Doctoral Degree	5	17%
Total	**30**	
Substantive Post		
Clerical	8	27%
Secretarial	8	27%
Adminstrative	7	23%
Technical	7	23%

Total	**30**	

Table 2. The Respondents Characteristics Summary Presentation

This research will analyzed the results as applied research utilizing histogram and bar chart due to the lack of responses.

Data Analysis and Results

The results from the data gathered at the Ministry of Education on the success of the OpenEMIS are displayed in 9 Histograms and 1 Bar Chart based on the averages. This particular research study does not test the validity of the research model used. It mostly focuses on an applied research methodology to test the average responses and see if the hypothesis tested were supported.

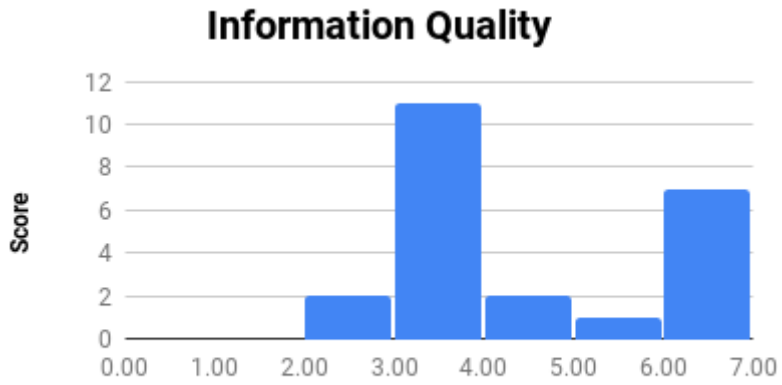

Figure 2. Histogram on Information Quality

Figure 2. The histogram illustrates that most of the employees at the Education Department agree that OpenEMIS provides information that is complete, sufficient and accurate to carry out the tasks that it was intended.

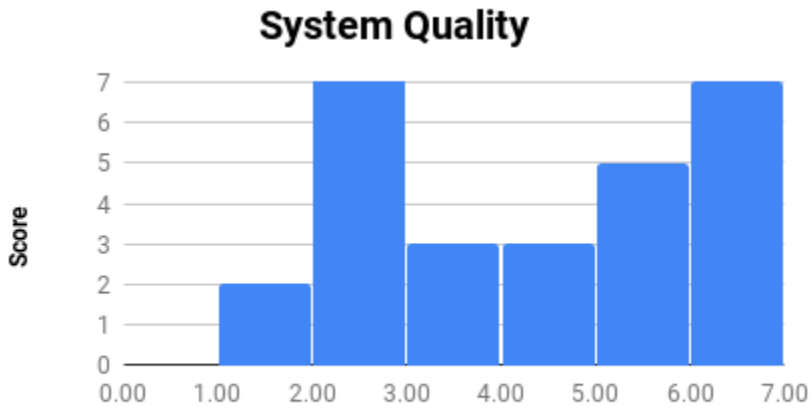

Figure 3. Histogram on System Quality

Figure 3. The results indicate that a total of 8 participants which comprised of (26.67%) of the data collected disagreed that. The users acknowledged that the implemented system is not easy to use and does not have the Open Management Information System (EMIS) has a competent system quality as they would have expected a good performance as expected. While surprisingly 7 participants comprising of (23.33%) of the data collect agreed that the system had enough features that allowed for easy and friendly user interaction.

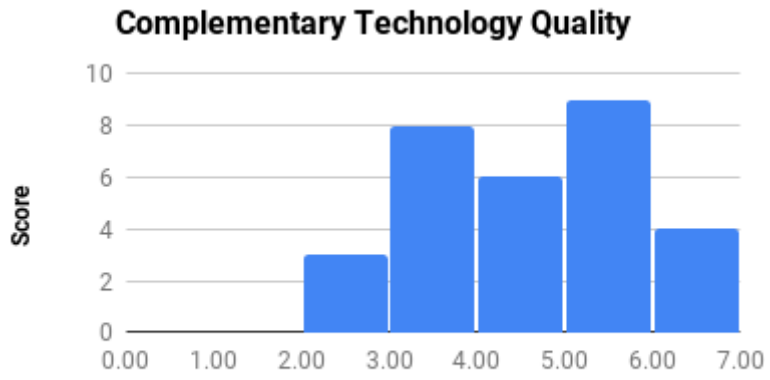

Figure 4. Histogram Complementary Technology Quality

Figure 4. Based on the results obtained from the participants, it is noticeable that 30%, of all respondents, agreed that the software and hardware at the Ministry of Education is competent to allow the Open Education Management Information System to run adequately. While a total of (26.67%) were at neutral.

Figure 5.Computer Self Efficiency Measure

Figure 5. Results indicate that 43.33% of the personnel at the Ministry of Education disagree about the easiness of using the system on their own. The system appears to be complicated for the users to freely use without guidance. Moreover, a total of 33.33% of the participants agree that they did not needed any guidance on how to go about using the Open Education Management Information System as the other participants.

Figure 6. Histogram on Service Quality

Figure 6. Based on the data gathered, the majority of the participants held a neutral stand that the Open Education Management Information System was adequately kept up to date and that the Central Information Technology Office responded promptly to any issues arisen from the system.

Figure 7. Histogram on User Satisfaction

Figure 7. Given the response displayed on the Bar Chart above, 53.33% of the users seem to have a neutral stand when it comes to user satisfaction. The participants using the system do not believe that said Open EMIS met their expectations fully. The users are not satisfied and as such the perceived utility is average.

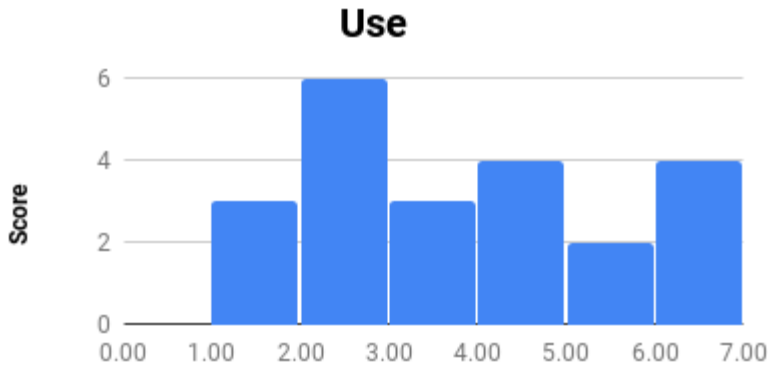

Figure 8. Histogram on Use

Figure 8. Results of the data collected revealed that the entire Ministry of Education is somewhat dependent on the system comprising (23.33%)of the participants. The Open Education Management Information System is a system that is frequently being used within all departments. All of this is being represented by the participants who either agreed or strongly agreed to the system.

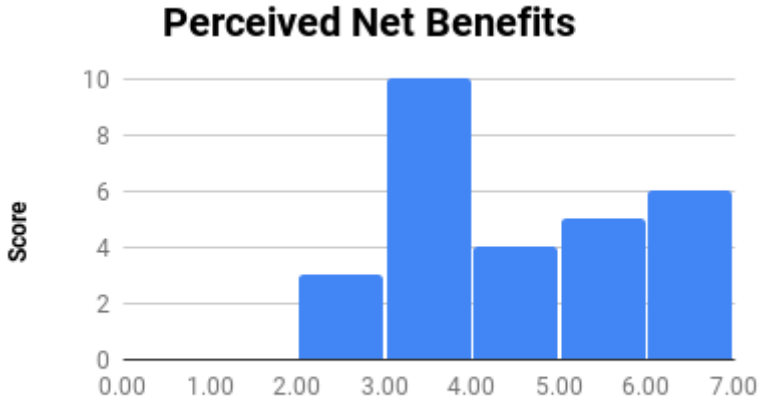

Figure 9. Histogram on Perceived Net Benefits

Figure 9. Even though the users were not satisfied with the system personally, they acknowledge that the Open Education Management Information System has helped them improve their individual performance as well as increase the overall productivity. 33.33% of the users agree that the system has ultimately helped in achieving the Ministries' objectives.

Discussion and Implications, Limitations and Future Research

Discussion:

The research that was conducted focused on measuring the success of the Open Education Management Information System (OpenEMIS) used and implemented by the Ministry of Education. For the purpose of measuring the IS Success of OpenEMIS, an already existing model developed by DeLone and McLean (2003) was adopted. This IS Success Model studies various constructs that contribute to a high-grade system implementation. The analysis of the results shows that information quality, system quality, complementary technology quality, system use and perceived net benefit are well-founded constructs that properly measure the success of Open EMIS.

This research provides several important implications for the success and management of OpenEMIS. Based on the DeLone and McLean Model construct, perceived net benefits are appraised to be the most important construct to determine the success of implementing OpenEMIS over any of the other constructs. If the perceived net benefits are to be high, it is argued that system use and user satisfaction constructs must then be properly regulated. Thus, the most important implications towards the success of OpenEMIS lie in the user satisfaction and system use. Hence it is recommended that the Ministry of Education invest more in these two constructs, which can then increase the success of OpenEMIS.

However, the results from the research indicates that information quality, system quality, complementary technology quality, system use and perceived net benefit contracts received more rating than those constructs of computer self-efficacy, service quality and user satisfaction constructs. For there to be an increase in perceived net benefits, it is important that the Ministry of Education must put more focus and development into the constructs of information quality, system quality, and complementary technology quality, which in turn, ought to improve user system usage and service quality behavior which in return will consequently increase perceived net benefit. It is also believed that higher investment in complementary technology quality will have a more positive influence on system use, user satisfaction, and perceived net benefit. Moreover, it is advised for the ministry to put more focus on the computer self-efficiency measure construct as it received the lowest rating according to this study. Proper evaluation into their abilities may be needed to decide if staff requires better guidance into using the system. This, in turn, might change perception and increase user satisfaction.

While the ministry seeks ways to continue improve the success of OpenEMIS, attention must be immediately given to the three constructs that received the lowest rating. It is recommended for the Ministry of Education to have the technicians to provide more staff training, provide system manuals, update the information and respond quickly to the concern and problems staff members have when utilizing the system. Ensuring that measures such as having manuals, system update and quicker response and the show of sincere interest to staff problems will then increase user satisfaction. With a higher user satisfaction rate, employees will then have a positive attitude towards the system which will then have a positive impact on the perceived net benefit.

In addition, there is still room for improvement even though the system has been successfully implemented, more than (53%) agreed on the information quality is adequate, this indicates that there is a need for the information to be audited and filtered so that all employees are able to access the information relevant to their needs. 69.2% percent of the user's was satisfied with the system quality; however there is still room for improvement in regards to user interface making the 21.8% that are neutral to the decision be satisfied. It is important to note that more than 75% agreed that having available technology can aid the success of the information system , More over 50% of participants either do not agree or are neutral, while the remaining 50 % of the participants are satisfied with the user's ability of the system , which contributes to a lower success rate. As recommended earlier, this requires more research and attention on the issue.

Furthermore, 50% of the sample either do not agree or are neutral on the service quality. It becomes noteworthy that the participants want faster reaction time towards the system issues and also desire for the system to be upgraded. As recommended, the participants level of system skills need to be evaluated and if they are not sufficient, there must be training sessions implemented to help increase their capability as well as the usage factor. The evidence indicates that complimentary technology received one of the highest rating. This is important, because it indicates that Ministry has equipped the departments with the necessary physical tools, resources and equipment to access, perform and work with the system. It must be taken into consideration that more staff training in regards to use of the system and software update and maintenance must be done. This in return will increase affect the perception of the user towards the system. Despite all of these key areas, 63.7% of users see the system as being beneficial to their work as well as the department.

Limitations

One of the greatest limitations of this study was time. We understand that this was not a primary obligation of the personnel at the Education Department as they deal with much larger aspects, fortunately there was a response rate of 100% of total questionnaires handed out. Nevertheless, the study

still provided insight into the Ministry of Education successful implementation of the Open Education Management Information System (OpenEMIS). All in all, this study provided a structure to understand the implementation success of OpenEMIS and explored the impact of both the system quality and user satisfaction, use and perceived net benefits. However, this research study of the Open Education Management Information System provides a foundation for further research. For future research, we recommend researchers to try to get a 100% response rate of a larger sample base as it may give a more accurate picture of the implementation success. In addition, we recommend researchers to use a longer version of the survey as it may provide better results.

Conclusion

In our study, users still found OpenEMIS be useful to themselves and to the Education Department. The constructs of information quality, system quality and complementary technology quality were generally on the same standard; users agreed that this made the system useful and helped them work effectively. However, the computer self-efficacy measures and service quality quality sto be significantly improved. Based on the average responses, we concluded that the ministry's technicians has not done an adequate job at implementing and servicing the system. All the same, further instruction into the usage of the system is required to ultimately increase self-efficacy and, subsequently, user satisfaction. The DeLone and McLean model assisted in properly analyzing the success implementation of the Open Education Management Information System. The eight constructs allowed us to determine the state in which the information system is at presently and how it can be improved for better performance in the future

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Appendix

Purpose: This research is required for the CMPS3012 MIS course at University of Belize University. This questionnaire asks for information about yourself and how often you use the Open Education Information System (Open EMIS). The data gathered will be analyzed to determine the success of Open EMIS at the Ministry of Education.

Please answer each question based on your use of Open EMIS. Your individual responses to the questionnaire will be strictly confidential and used solely for this research.

Instructions: This is a survey, not a test; there is no right or wrong answer. Please tick the boxes to mark your answers.

1. Background Information	**Answers:**
Please indicate your gender:	Male ☐ Female ☐
Please indicate your age:	<25 ☐ 25-35 ☐ 36-45 ☐ 46-55 ☐ >55 ☐
Please indicate your working experience:	< 5 ☐ 5-10 ☐ 11-15 ☐ >15 ☐
Please indicate your level of education:	High School ☐ Associate☐ Bachelor☐ Master ☐ Doctoral
Please indicate your substantive post:	Clerical☐ Secretarial ☐ Administrative ☐ Technical☐

Indicate your agreement with each statement by rating it from (1) strongly disagree to (7) strongly agree.

2. Information Quality	**Disagree ----------Agree**
IQ1: The Open EMIS system provides information that is exactly what you need?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ2: The Open EMIS system provides information you need at the right time?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ3: The Open EMIS system provides information that is relevant to your work?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ4: The Open EMIS system provides sufficient information?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ5: The Open EMIS system provides information that is up to date?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ6: The Open EMIS system provides up-to-date information?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ7: The Open EMIS system provides sufficient information?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
3. System Quality	**Disagree ----------Agree**
SQ1: The Open EMIS system is easy to use?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SQ2: The Open EMIS system is user-friendly?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SQ3: The Open EMIS system provides high-speed information access?	1 ☐ 2 ☐ 3 ☐ 4☐ 5 ☐ 6 ☐ 7 ☐
SQ4: The Open EMIS system provides interactive features between users and the system?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

4. Complementary Technology Quality	**Disagree ----------Agree**
CTQ1: The software on the device (desktop computer, laptop, mobile) used to access Open EMIS system is adequate?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CTQ2: The device hardware (desktop computer, laptop, mobile device) used to access Open EMIS system is adequate?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CTQ3: The speed of the internet connection used to access the Open EMIS system is adequate?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CTQ4: The reliability of the internet connection used to access the Open EMIS System is adequate?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
5. Computer Self Efficiency Measure	**Disagree ----------Agree**
CSE1: If there was no one around to tell you what to do as you go along?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE2: If you had never used an information system likes this before?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE3: If you only had the information system manuals for reference?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE4: If you had seen someone else using the information system before trying it yourself?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SCE5: If you could call someone for help if you got stuck?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE6: If someone else had helped you to get started?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE7: If you had a lot of time to complete the job for which the information system was provided?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE8: If you had just the built in help facility for assistance?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE9: If someone showed me how to do it first?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE10: If you had used similar information systems before this one to do the same job?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
6. Service Quality	**Disagree ----------Agree**
SV1: The support staff keeps the Open EMIS System software to date?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SV2: When users have a problem the Open EMIS Syste support staff show a sincere interest in solving it?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SV3: The Open EMIS System support staff respond promp when users have a problem?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SV4: The Open EMIS System support staff tell users exac when servic will be performed	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
7. User Satisfaction	**Disagree ----------Agree**
US1: Most of the users have a positive attitude of Open EM	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

System?	
US2: You think that the utility of the Open EMIS System high?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
US3: The Open EMIS System has met your expectations?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
US4: You are satisfied with the Open EMIS System?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
8. Use	**Never ----------Often**
U1: Your frequency of use of the Open EMIS System is high?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
U2: You depend upon the Open EMIS System?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
U3: You were able to complete a task using the Open EMIS System even when there was no one around to tell you what to do?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
U4: You have the knowledge necessary to use the Open EMIS System?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
9. Perceived Net Benefits	**Never ----------Often**
NB1: The Open EMIS System helps you improve your academic performance?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB2: The Open EMIS System helps students save costs?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB3: The Open EMIS System helps you achieve your academic goals?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB4: Using the Open EMIS System improves assessment and training?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB5: Using the Open EMIS System at school increases your academic productivity?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB6: Overall, using Open EMIS enhances teacher performance?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Please return this survey to the person who gave you the form.

Thank you for your participation.