

Success of a Registration Information System: The Case of the University of Belize

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Abstract

While a lot of research has been directed on data frameworks achievement models, there is minimal done on the Success of Xenegrade at the University of Belize. This study provides an empirical test of an adaptation of De Lone and McLean's IS success model in the context of Xenegrade Information System. The model consists of seven dimensions: information quality, system quality, service quality, use, user satisfaction, and perceived net benefit. Another construct was added, complementary asset quality, which was added due to the fact that Belize is a developing country. The Xenegrade system being used by the University of Belize is a web-based system that allows students to register for their individual courses, monitor their grades and keep track of their overall progress towards completion. This research sought to determine the success of the Xenegrade System at the University of Belize. Questionnaires were answered by 60 participant Students and the primary focus of this research is to determine the net benefit Xenegrade provides. This paper concludes by discussing the results, which should be addressed in future research.

Keywords: Xenegrade, Innovations, Data, ICTs

Introduction

In this information age and knowledge based society, information system has become a driving force. Private and public sector institutions use information system as a primary driver to increase profits and enhance service delivery. The presentation of internet based applications such as information system applications has particularly impacted communications among individuals in their personal lives and within the workplace environment. With the ease of internet connections and access in the workplace,

organizations benefit from enhanced business operations. Management Information Systems (MIS) does not only include software systems, but the entire set of business processes and resources that are used to pull together information from functional or tactical systems. Data is then presented in a user-friendly and timely manner so that mid and upper-level managers can use it to take the right decisions. The entire system is designed so that the organization will meet its strategic goals. This study will seek to determine whether the students at the University of Belize think their registration system xenegrade useful and reliable. The use of information system in the workplace has become more and more important in everyday business. Since Information Systems networks have had a measurable impact on workplace activities, management policies have had to be adjusted to keep pace. Although the University of Belize has developed policies to help increase student satisfaction, these policies are either not implemented or properly monitored. An important aspect of this technology is customization. Depending on the capabilities of the software, users can customize information systems to their needs. There are a number of positive aspects to information systems, and it is useful to examine its impact on the productivity of organization and its profitability. This study will seek to determine whether xenegrade contribute to student satisfaction at the University Of Belize.

Literature Review

There are many information systems used by different business in terms of their operations and usage, as technology continues to evolve old information systems become obsolete while new systems are being introduced which improves many system factors. As indicated by Raymond McNulty (2014 p. 2) the K-12 instructive framework was the best on the planet, paying little heed to its prosperity there was still a few lessons it could take from the business administration's disappointments. This would have the capacity to help enhance the K-12 in feeble ranges. Similarly just like the principle worry of engineers to this k-12 framework their most exceedingly bad reasonable came through, when this framework all of a sudden was not performing to its desire and the American understudy who were its primary clients fell behind. There was the usage of another program which was being utilized as a part of nations, for example, Korea, Finland and Hong Kong just to specify a couple. These nations were utilizing the Program for International Student Assessment (PISA). This institutionalized examination was measuring how understudies far and wide was embracing and realizing who were scholastically to be on a similar level. Again with progression in innovation and the instructive framework thought of yet another program to profit understudy and help them, this program is National Assessment of Educational Program (NSEAP) this specific framework then noticed that understudies were playing out the poorest in science over the different nations (Raymond McNulty, 2014, p. 2). As much as the instructive board was attempting to institutionalize all instructive offices, to guarantee everybody was on a similar scholastic level and guarantee progression with innovation, some organization felt that they were not being allowed to be inventive at their particular foundation and their educators were being constrained and not exceeding expectations to their maximum capacity and convey their understudies along. The instructive centres attempted their best to achieve a concurrence with these schools as to not confine understudies and organizations but rather additionally to guarantee that both understudy and instructors were exceeding expectations together and utilizing new innovations to aid this procedure (Raymond McNulty, 2014, p.3). With the ascension being up held instructors needed to think contrastingly which would permit development for all gatherings included, being inventive presenting new thoughts and utilizing the actualized new advancements to aid this procedure. What's more, as per Bober (2001) the enthusiasm for MIS increments because of its long-run reparation of frameworks which enhances locales and area administration. MIS likewise energizes staffs from each level and increments both school and locale's obligations of understudy's records. MIS with the utilization of data frameworks builds proficiency and brisk basic leadership since school directors have the right and avant-garde data. (Christopher, 2003) Therefore, educators may know how much understudies enrolled for their classes. The framework is accessible day in and day out so the data is accessible at anything. This may likewise be useful to understudies since they get the chance to discover which classes are full and can look for others in supplant. As per Granville et al. (2005), he found that notwithstanding decreasing the measure of work done and making it less demanding, ICT helps the bother when taking participation. This may likewise

help data framework since like Xenegrade, data is gotten from the data framework which hold a record of understudy's participation, grades and so forth. Along these lines while enlisting, you can monitor all classes including the one you passed and bombed keeping in mind the end goal to not get confounded. Additionally, as indicated by Zain, Atan, and Idrus (2004) they directed an examination of how administration are affected by ICT. Their examinations found positive outcomes, for example, builds culture of ICT, accessibility of data, and efficient organization.

Data frameworks help to reduce the measure of work overseers need to finish since its abatements time spent on superfluous work or ventures in preparing information. Likewise, with the utilization of data framework, MIS enhances the level and nature of the work done by administration and heads. What's more, as the staffs are acquainted with the framework and turn out to be more comfortable with the framework it helps them to create ICT gifts, capacities, and confirmation in utilizing the advancements. In this way they acquire encounters and this abatements their workload. (Condie et al., 2007; Cunningham et al., 2004) When school heads get comfortable with the framework and advancements, this abatements their workload before they can move speedier which leaves time to check over other work or be free. As indicated by Avgerou (2003) the expanding perceivability and significance of ICTs in creating nations is reflected to some degree by a development in the data frameworks (IS). Heeks, R. (2002) in created nations, analysts have demonstrated broad reviews to set up educational hypotheses to best execute data frameworks. There had been some talk with respect to whether data frameworks and data and correspondence innovations (ICTs) were critical to creating nations, yet this discourse has been settled the appropriate response is yes. Mann, C.L. (2004) Information and correspondence advancements have high potential incentive over all segments, in both open and private ventures, and at various levels, from programming organizations in urban regions. The use of ICTs has not generally been fruitful to date, and in reality there are numerous cases of disappointment or halfway disappointment. In creating nations confront a great deal of difficulties concerning ICTs, it is to address issues of the "computerized partition" between those individuals with access to the advancements and the capacity to utilize them viably, and those without Madon, S. (2005). The wide issues of the commitment of ICTs to advancement, here and there with regards to a particular nation. Madon (2000) inspected the utilization of the web in parts, for example, wellbeing and instruction, and in areas, for example, monetary efficiency and manageable improvement. She drew from the advancement contemplates writing to characterize these last ideas. She determined a few conclusions for government mediation, including the essential part of go-between organizations in connecting the nearby to the worldwide. Avgerou (2003) likewise problematized the idea of advancement, and specifically scrutinized the talk that ICTs are an instrument for monetary and social increases just inside the setting of a market administration. She drew from a talk investigation of writing produced by advancement help associations, and contended for the essential part, in her view, of the institutional setting of ICT utilize. As per Sauer, C. in the 1990s across the board access to electronic administrations from any working environment and from home came to be underestimated in cutting edge economies. A significant part of the IS writing, for example, on IT-empowered plans of action, based on the presumption of all-inclusive access to the web and openness of PCs with an arrangement of shared applications. As needs be, concern was raised that the colossal lion's share of the populace in creating nations are not associated and thusly barred from the advancing e-business open doors as well as from present day society's data channels for instruction and wellbeing. Neediness in many created nations are chiefly in the country areas, prohibits the dispersion of ICT and media transmission network to any degree similar to that of cutting edge economies.

Methodology

The research paper gathered its information from the University of Belize student body, mainly students from the Faculty of Management and Social Sciences. The researchers tested the overall Information System (IS) qualities of Xenegrade by using the IS Success Model implemented by DeLone and McLean in 1992. The Xenegrade system success was determined by evaluating the relationship between information systems on the six dimensions of the model focusing on information quality, system quality, service quality, usage intentions, user satisfaction and perceived net benefits (Delone & McLean, 2003). Due to Belize's lack of proper access to technology such as affordable and reliable internet and devices which is

used to operate Xenegrade, the researchers added questions which addressed complementary technology and self-efficacy to grasp a better understanding why or why not the system is successful. The researchers also added background information questions to know their participants even more.

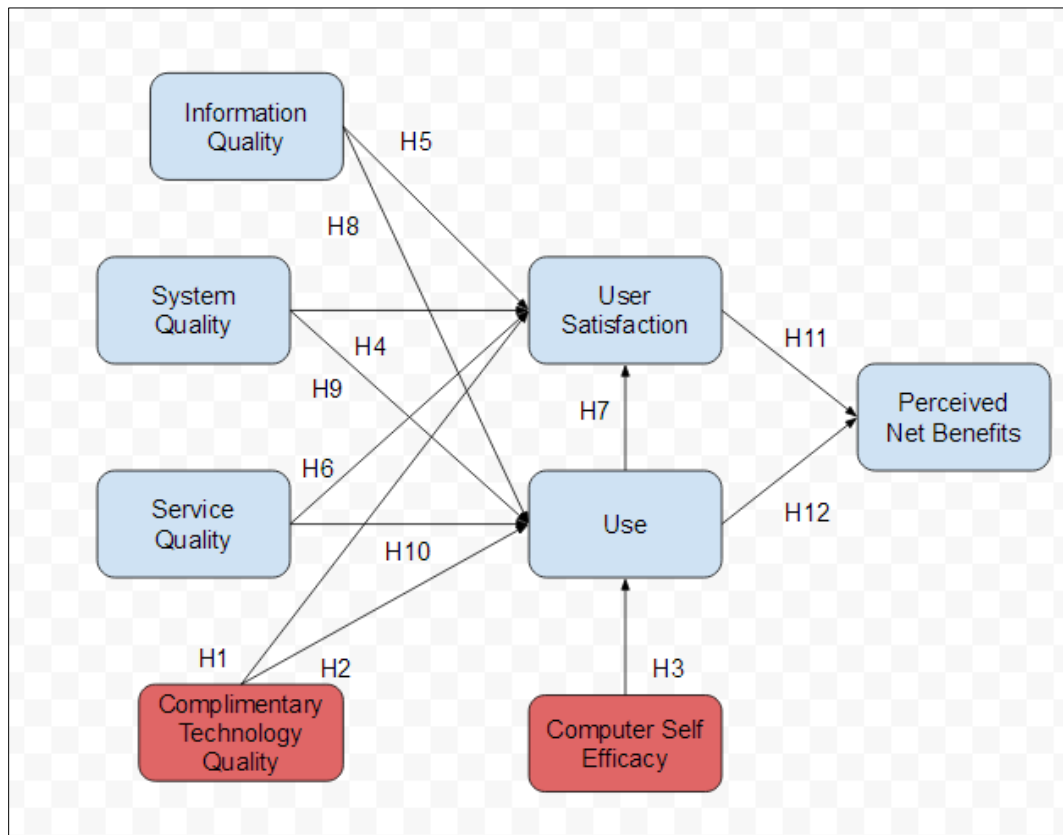


Figure 1. Modified Research Model

Figure 1. Illustrates the six constructs of the DeLone and Mclean model inclusive of the additional constructs, Complimentary Technology Quality and Self Efficacy used to validate this research study.

Hypothesis

The hypothesized relationship between Xenegrade 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 ten hypotheses tested:

H1. Complimentary 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 benefits

Description of Participants

The University of Belize has approximately over four thousand (4,000) students and over one hundred (100) teachers. The study was carried out with participants who are students from the Faculty of Management and Social Science (FMSS) that is located in Belize City.

Sample Size and data collection

To conduct this research we decided it was best if we kept the sample size to a minimum but enough to get a proper overview of the population, so we issued 60 questionnaires to students from the Faculty of Management and Social Science (FMSS), and was successful at retrieving all 60, thus giving us a 100% response rate. The questionnaires were distributed through convenient sampling.

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 Xenegrade. 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.

Table 1. Measurement items for questionnaires		
Construct	Survey questions	Source
Information n quality	IQ1: Xenegrade provides information that is exactly what you need. IQ2: Xenegrade provides information you need at the right time. IQ3: Xenegrade provides sufficient information. IQ4: Xenegrade provides information that is relevant to your studies. IQ5: Xenegrade provides information that is easy to understand. IQ6: Xenegrade provides up-to-date information	Bailey and Person (1983).

Complementary technology quality	<p>CTQ1: The device hardware (desktop computer, laptop, mobile device) used to access Xenegrade is adequate.</p> <p>CTQ2: The device software (desktop computer, laptop, mobile device) used to access Xenegrade is adequate.</p> <p>CTQ3: The device (desktop computer, laptop, mobile device) used to access Xenegrade has an adequate internet connection in regards to speed and reliability.</p>	Teece, D. J. (1988).
Computer Self-Efficacy Measure	<p>I COULD COMPLETE THE JOB USING XENEGRADE...</p> <p>CSE1: if there was no one around to tell me what to do as I go.</p> <p>CSE2: if I had never used an information system like it before.</p> <p>CSE3: if I had only the information system manuals for reference.</p> <p>CSE4: if I had seen someone else using the information system before trying it myself.</p> <p>CSE5: if I could call someone for help if I got stuck.</p> <p>CSE6: if someone else had helped me get started.</p> <p>CSE7: if I had a lot of time to complete the job for which the information system was provided.</p> <p>CSE8: if I had just the built-in help facility for assistance.</p> <p>CSE9: if someone showed me how to do it first.</p> <p>CSE10: if I had used similar information systems before this one to do the process.</p>	Compeau, D. R., & Higgins, C. A. (1995).
System quality	<p>SQ1: Xenegrade system is easy to use.</p> <p>SQ2: Xenegrade system is user-friendly.</p> <p>SQ3: Xenegrade system provides high-speed information access.</p> <p>SQ4: Xenegrade provide interactive features between users and system</p>	Alshibly,(20 11).
Service quality	<p>SV1: The support staff keep the Xenegrade software up to date.</p> <p>SV2: When users have a problem, the Xenegrade support staff show a sincere interest in solving it.</p> <p>SV3: Xenegrade support staff respond promptly when users have a problem.</p> <p>SV4: Xenegrade support staff tell users exactly when services will be performed.</p>	Chang et al., (2009).
User satisfaction	<p>US1: Most of the users bring a positive attitude or evaluation towards Xenegrade.</p> <p>US2: You think that the perceived utility about Xenegrade is high</p> <p>US3: Xenegrade has met your expectations.</p> <p>US4: You are satisfied with Xenegrade.</p>	Seddon and Yip (1992).

Use	U1: The frequency of use with Xenegrade is high. U2: You depend upon Xenegrade. U3 I was able to complete a task using Xenegrade even if there was no one around to tell me what to do as I go. U4: I have the knowledge necessary to use Xenegrade.	Balaban et al., al., (2013) Rai et al., (2002).
Perceived net benefits	NB1: Xenegrade helps you improve your registration process. NB2 Xenegrade helps the students save cost (transportation, time, money) NB3: Xenegrade helps you register for the courses you need when you need them. NB4: Xenegrade improves my ability to take courses in sequence. NB5: Using Xenegrade increases my chances of graduating on time. NB6: Overall, using Xenegrade enhance the registration process and accessing student records(grades, course sequence)	Alshibly,(20 11); Tansley et al, (2001).

Table 1. Measurement items for questionnaires

Data Analysis and Results

Table 2. Characteristics of Participants (Students A.K.A. End-users)		
Characteristics	Amount	Percentage
Gender		
Male	24	40%
Female	36	60%
Age		
Less Than 18	7	11.7%
From 18 to 20	11	18.3%
From 21 to 25	22	36.7%
From 26 to 36	14	23.3%
Older than 36	6	10%
Education		
Bachelors	44	73.3%
Associates	13	21.7%

Other	3	5%
Computer experience		
Less than 5 years	12	20%
5-10 years	19	31.7%
10-15 years	15	25%
More than 15 years	14	23.7%

Table 2. Characteristics of Participants (Students A.K.A. End-users)

Histograms

Below are Histograms showing the results of the questionnaires collected from the respondents concerning the success of the Xenegrade system. The questions were based on Information Quality, System Quality, Complementary Technology Quality, Self-Efficacy, Service Quality, User Satisfaction, Use and Perceived Net Benefit.

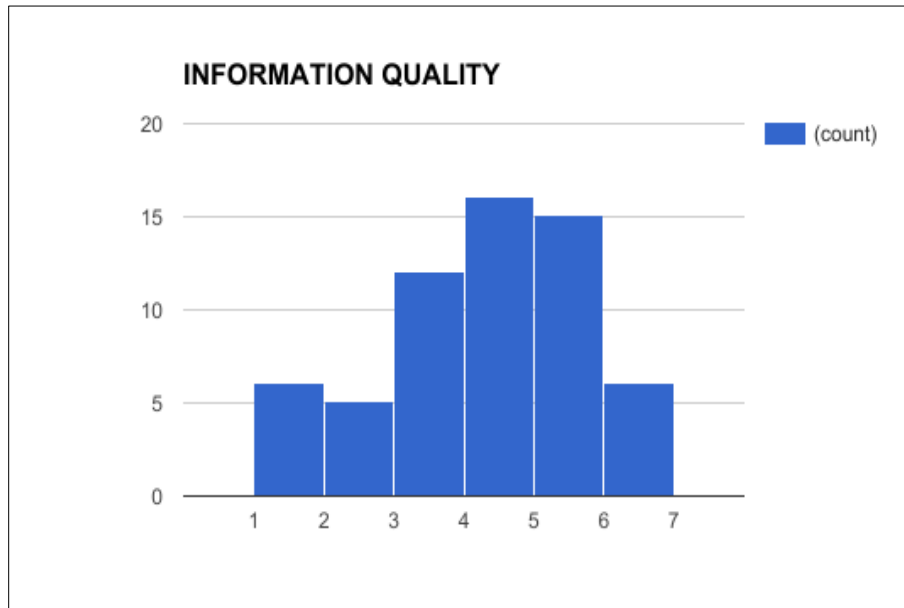


Figure 2.

In figure 2. There is clear variations in the response from students to the quality of information from using Xenegrade, but the two most selected response were 4 and 5, which means the average user was neutral with information quality that Xenegrade provided.

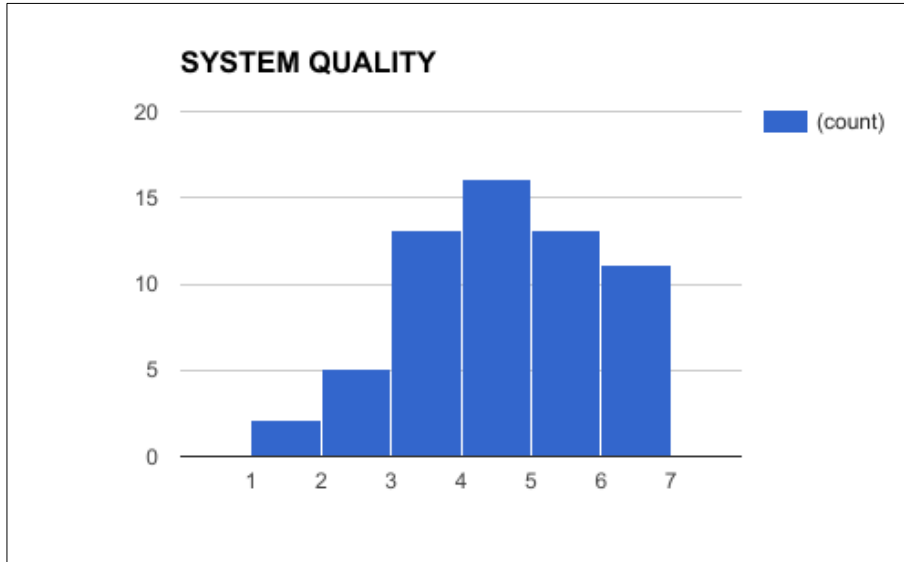


Figure 3.

Figure 3. The system quality received almost the same score as information quality, with most of the scores being placed between 3 and 5 on the scale, but majority selected 4 which is neutral meaning they are not sure of the system and its features or usability of it.

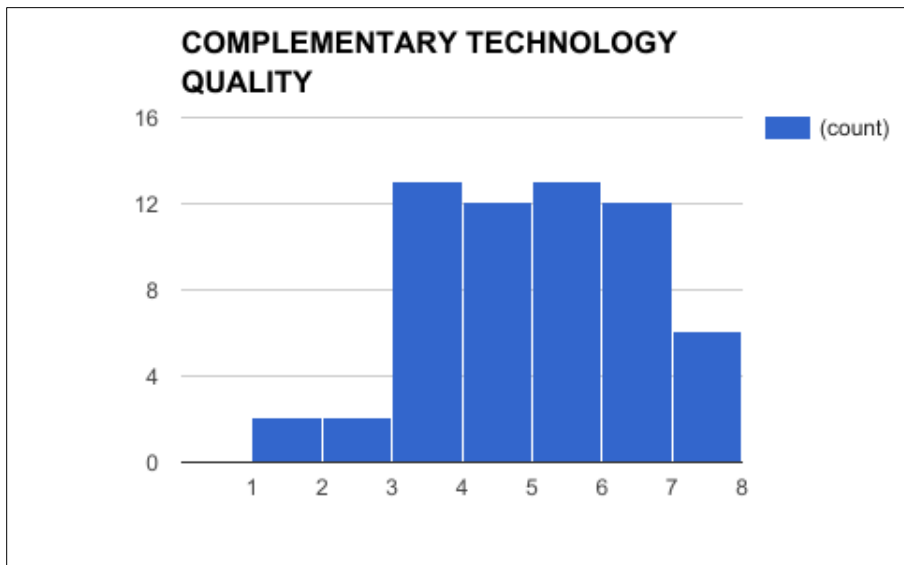


Figure 4.

Figure 4. Complementary technology covers hardware and software which is needed to access Xenegrade. The scores were high on the scale for this section revealing that majority of students have satisfactory devices and technology to access Xenegrade, but the highest numbers were in ranked 3 on the scale meaning that many students do not have the sufficient complementary technology quality. We suspect that they were pointing out the slow internet speed or the high cost for internet access.



Figure 5.

Figure 5. Illustrates data that the bulk of the respondents felt unsure or neutral about their ability to use Xenegrade or a similar information system the first time.



Figure 6.

Figure 6. Shows that majority of the students whom responded felt neutral or unsatisfactory about the service quality coming from the ones who were responsible for Xenegrade. From our own research and personal experiences, we the researchers always felt that the staff did a good job in keeping Xenegrade updated and responded promptly to problems.

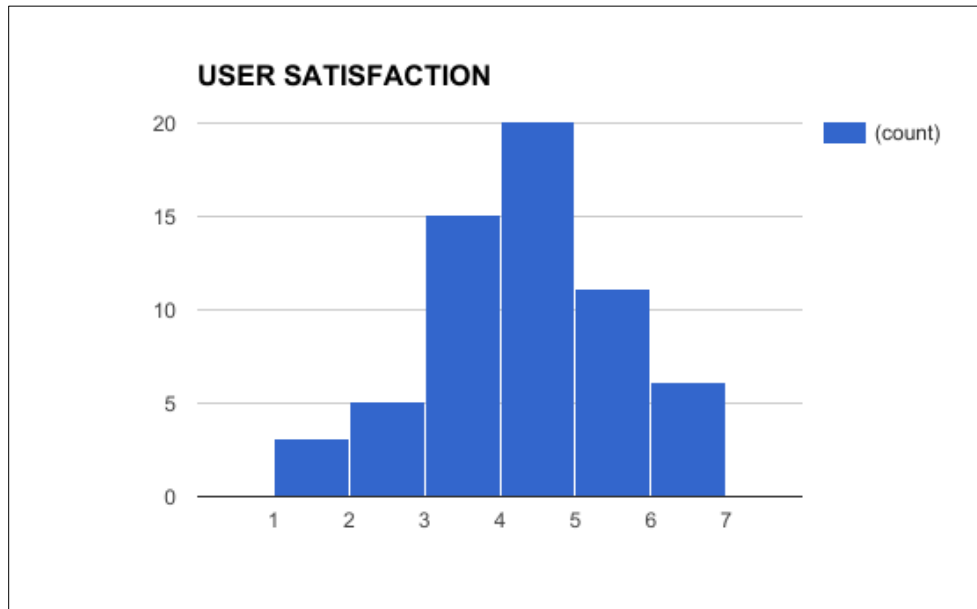


Figure 7.

Figure 7. User satisfaction shows the clearest data from all the other histograms. A vast majority selected 4 on the scale meaning they were neutral about how Xenegrade meets expectations, its utility and how satisfied they are. This can be a result from frustration while trying to register for classes that may full.

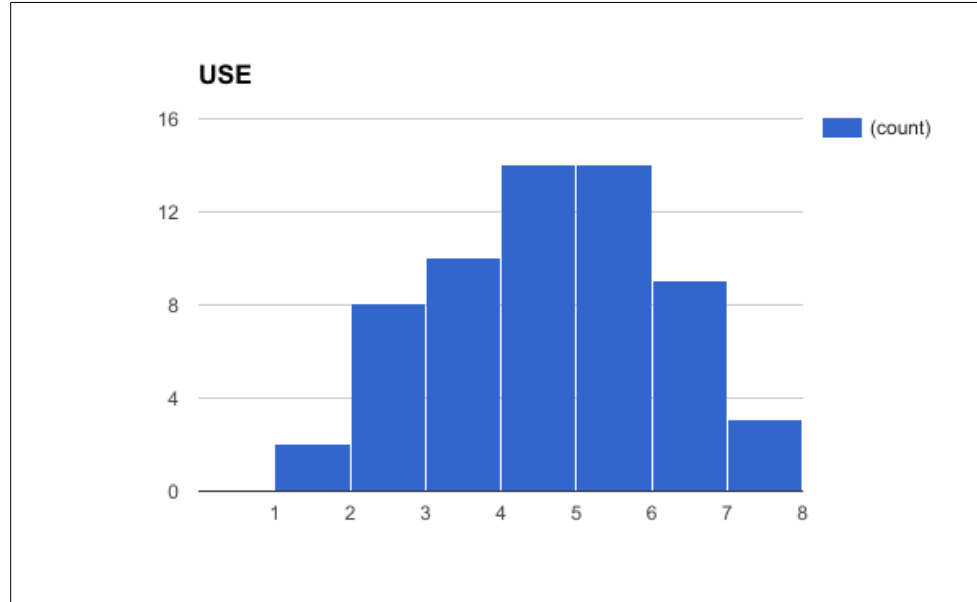


Figure 8.

Figure 8. Again the data tells us that majority of the students selected 4 and 5 on the scale revealing their neutral perception towards Xenegrade. We believe it is because Xenegrade is used only during the registration period and the participants are not completely familiarized with the information system.

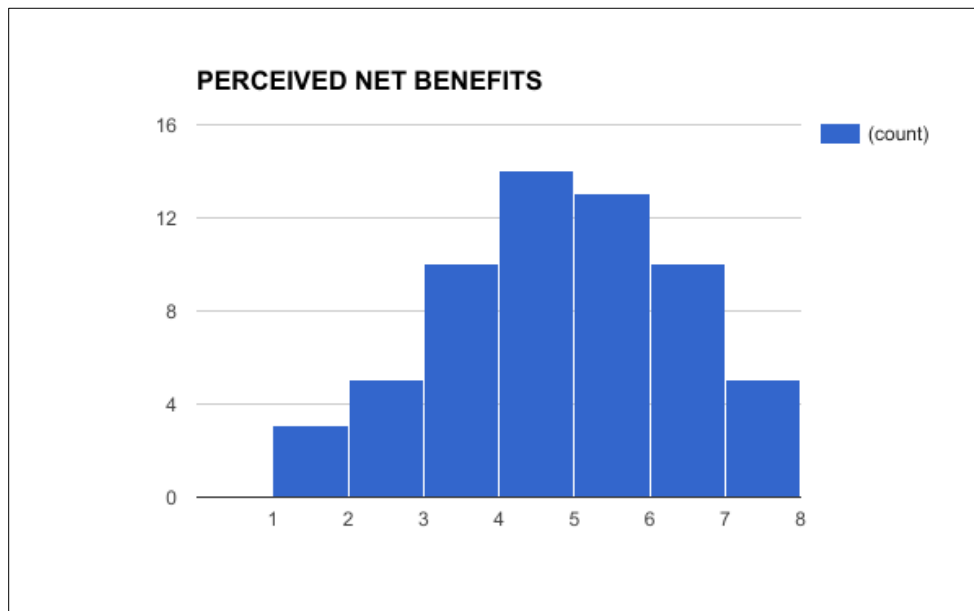


Figure 9.

Figure 9. When it comes to the net benefits of Xenegrade the data shows that participants do believe that Xenegrade improve their registration process, saves costs and overall enhances access to student records. These scores are highest in 4 to 6 on the scale and also some participants selected 7 on the scale. This tells us that although the quality and use are neutral they still see benefits to using Xenegrade.

Conclusion

Implications/Discussion

We have concluded from our research and data that most of the questions in the questionnaire which were answered was given a score of 3 - 5 on the scale. This we believe was due the lack of students not being familiarized with the information system, Xenegrade. We came to that conclusion, because when the researchers were handing out the questionnaires most of the students did not know what Xenegrade was. We had to explain to the students that Xenegrade is the information system which is also known as “Student Portal” only then were they able to answer the questionnaire.

After reviewing the data from information quality, the responses were low to moderate. Meaning that students did not think the information was satisfactory enough or because of the lack of familiarization did not understand the question fulling. The same can be said about system quality as majority of the participants selected 4 on the scale which is neutral. For the complementary technology quality section most of the participants selected higher on the scale even reaching strongly agree (7), but equally there were participants that selected 3 on the scale, thus signalling to us that perhaps they have the necessary devices to access Xenegrade but not sufficient internet speed to utilize it properly. Xenegrade self-efficacy data shows that the bulk of the respondents felt unsure or neutral about their ability to use Xenegrade or a similar information system for the first time. That is why majority of the participants selected 3 and 4 on the scale. On the University of Belize right below the link to access Xenegrade, there is a link which takes you to a power point that teaches you how to use the information system, but often time the case is that students ignore it and improvise. This means that personnel responsible for Xenegrade needs to be more proactive when promoting or teaching how to use Xenegrade apart from a simple power point video and orientation. Since our data shows that the information quality, system quality and self-efficacy are poor, then we recommend that a new more user-friendly interface needs to be incorporated.

Service quality shows that majority of the students whom responded felt neutral or unsatisfactory about the service quality coming from the ones who were responsible for Xenegrade. From our own research and personal experiences, we the researchers always felt that the staff did a good job in keeping Xenegrade updated and responded promptly to problems such when the information system crashes and minor errors. This create hindrance for many students who are employed part-time and full-time. That is why majority of the respondents selected scores from 4 to 1 on the scale. We also identified a relationship between service quality and user satisfaction because on both questions majority of participants selected 4 on the scale. So in our opinion if service quality increases then user satisfaction will also increase.

After careful analyzation of the use and perceived net benefits data, we have identified and are certain that these two questions have a direct correlation which each other. Although students rarely utilize the information system they are sure that it benefits them enough. If this information system, Xenegrade did not exist many students would have to devote even more time and effort to register for their classes.

Limitations and Future Research

During our research and after, we have identified a few important limitations which played a major role in the study. The first is *time*, not only did we have a short limited time span to carry out this research, but our time was sliced apart by many other responsibilities that each research has. Responsibility with other classes and projects, family and work. Another limitation is the level of familiarization with Xenegrade. Since the only time students use Xenegrade is during the registration period many students hard difficulty answering the questionnaire. This lead to students just simply checking any score on the scale which can have an adverse effect on the entire data results. That is why majority of the scores are located around 3-5 which is neutral. Lastly it was difficult to come to real solid conclusion because of the wide variations in scores from each participant. For future research it is recommended that a larger sample size be chosen in order for the data to have more validity and reliability and also extended the research to all the campuses from the University of Belize.

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