# Evaluating the Success of Holy Redeemer Credit Union Information System

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## Abstract

*Globally, a large amount of research have been conducted on information system, however there have been minimal research done in Belize to analyze the information system in the country. There has been no research conducted on Holy Redeemer Credit Union (HRCU) to determine its effectiveness. A quantitative research was used to gather information about the effectiveness of HRCU IS through the aid of a survey, which was conducted on 4th April 2018. A total of 30 questionnaires were distributed to employees of HRCU. To address the issue of adequate hardware and slow internet access that developing countries encounter the Delone and Mclean model was utilized to include complementary technology. The end results showed that the hypothesized relationship between Delone and Mclean (2003) six dimensions were successfully supported in this research.*

**Keywords:** Information system success model, developing countries, perceived net benefit

## Introduction

Holy Redeemer Credit Union Information System (HRCU IS) is a customized banking system that was created by a consultant from abroad. The banking system is solely used by HRCU and there are frequent adjustments to the system to increase the value of the system. The cost of this personalized system is very costly and it requires frequent maintenance. The banking system is very diverse as it can be used in each department of the credit union.

HRCU IS purpose is to channel funds from member owners through savings to borrowings in an efficient manner. The banking system at HRCU is for providing loans, operating a payments system, taking deposits and helping with investments. The banking system at HRCU calculates interest rates on loan, alerts when a member is delinquent and calculates a loan repayment schedule. Also, it generates member's personal information and alert service representatives when an account information needs updating and when IDs are expired. Source of funds declaration forms are systematically generated and alerts can be sent to the compliance department through an add alert feature.

Delone and Mclean have done prior research on Information System success models and they have been updated throughout the years. The updated researches from Delone and Mclean have been very popular and have been widely sourced by other researchers. HRCUIS have not been studied to determine the effectiveness of its banking system in the credit union. This system is only used by HRCU and since it is a customized banking system it is a challenge gathering information based on the system.

There's a large change across the glo9be due to technology. Technology creates vast transformation in the way organizations operate, conduct their businesses and develop new product and services. The interdependence of technology have caused many companies to change to compete with international companies. In Belize, unlike other developing countries, technology have not been evolving as it should making it difficult to compete with international companies. The inefficiency of internet providers make it challenging to compete with international companies. With the evolution of technology the more accurate the system is the more value the system adds to its organization. Banking systems have become a huge part of our lives; as information system continues to expand beyond the usual it is important to develop the necessary assets that are associated with the information systems such as develop0ing new business models and processes, changing the behavior of management and the culture of organizations to information system, training employees to use the system effectively and creating new relationship with members. Unfortunately the reality of Belize and HRCU is that change can't occur rapidly as technology.

This research is of high importance because it is being conducted on the banking system done by HRCU, who is the largest Credit Union in the country and not only the country but also the region. The researchers believe that Information system success model can provide practical ways to evaluate user satisfaction and the overall satisfaction of using the banking system in HRCU. This system is used for financial services that helps in the development of the country and it is important to conduct more studies on these systems, because the decisions directly affect the evolving of the country.

## Literature Review

The theoretical framework mainly focuses on the 1992 and 2003 Delone and McLean IS Success Model. The main objective based on this IS Success Model is to present the theoretical foundation and the conceptualization of a success Banking Information System at the Holy Redeemer Credit Union in Belize. These chosen frameworks were seen relevant in order to conduct a thorough analysis from the gathered data.

In 1992 Delone and Mclean published a paper in which they attempted to bring some knowledge and understanding about the structure of the measurement of the dependent variable in information system in order to identify the factors that contribute to IS success. According to their theory, the measurement of IS success is important because you must understand the value and efficacy of IS management actions and IS investments. They confirmed that the dependent variable in MIS research is a particularly important issue because if IS research wants to make a contribution to the world of practices, a well-defined outcome measurement is essential. They argued that there was little relevance in calculating input variables like user participation or IT investment with respect to IS, if the dependent or output variable, IS success or IS effectiveness, could not be evaluated with similar accuracy ( Delone & McClean ,1992). The research was based on theoretical and empirical IS research which was conducted by a number of different researchers in the 1970s and 1980s.

Delone and Mclean argued that there were six major factors in IS success, specifically: the quality uniqueness of the IS itself (system quality), the quality of the productivity of the IS (information quality), utilization of the output of the IS (use), the IS user's response to the IS (user satisfaction), the effect of the IS on the behavior of the user (individual impact) and the effect of the IS on organizational performance (organizational impact). Based on both process and causal considerations, these six scope of success are proposed to be interrelated rather than independent. This has important implications for the measurement, analysis, and reporting of IS success in empirical studies (Delone & Mclean, 2003). With this categorization both authors tried to identify, categorize and analyze the IS success measure that had been published in several journals between 1981 and 1988. Richard Mason in 1978 developed the use of categorization which was based on Claude Shannon and Weaver's Information Theory in 1949. Shannon's information theory was developed based on mathematical theories based on signal transmissions with maximum telephone line capacity at a minimum distortion and later on Weaver extended and used Shannon's information theory for different kinds of communications developing the philosophical part of the theory related to human communication and in 1992 Delone and Mclean proposed the six demensions of IS success based on Masons taxonomy.

Based on work by Shannon and Weaver (1949) and Mason (1978), Delone and Mclean noted that the effect of information on its recipient (user) can be measured at a technical level, a semantic level, or an effectiveness level. The technical level relates to how well a system transmits the symbols of communication, the semantic level concerns the explanation and interpretation of meaning by the receiver relative to the intended meaning of the sender, and the effectiveness level concerns how well the meaning delivered to the receiver affects his/her actual behavior. There are five stages to the process of communication according to Mason (1978), they are: the production of information, the product itself, the recipient of information, the influence it has on the recipient and the influence information has on the performance of the system.

When looking at research that was done before, The categories introduced in the 1992 paper displayed a more comprehensive view of information system success, it was also a more organized, more logical and coherent IS research which provided alternative explanations for those seemingly inconsistent findings in recent IS research results. Other researches stated that Delone and McLean's work makes several important contributions to the understanding of IS success.

The Delone and McLean IS success (D&M) model (2003) was approved as a valid comprehensive model for measuring success in the IS area. The D&M outlined that the addition of service quality and the collapsing of individual impacts and organizational impact on net benefits did not change the nature of the original model; instead, it made it a stronger model considering the rapid improvement in Internet-based applications. Furthermore, after realizing the importance of electronic service in the IS context, Delone and McLean (2003) outlined that the frequent use of the system not only indicates more benefits to the users, but also the quality of the system should be considered as well. They stated that the new variable, service quality, is considered the most important success measure. They argued that service quality the new added dimension refers to the overall support that the users of the system receive from their IT department personnel or from the service provider or by the organizational unit or outsourced to an Internet service provider (ISP) and that net benefits is the most important success measures because it capture the balance of a positive and negative impacts of the e-commerce on our customers, employees, suppliers, organizations, market , industries, economies and even in our society. The D&M IS success model is the main theoretical basis of the reviewed studies.

## *Information Systems in Developing Countries*

According to Sife, Lwoga and Sanga (2007), developing countries globally were operating within Information and Communication Technologies (ICTs) where the resource-constraints were evident and the greater population were not as skilled or equipped with the basic how-to in operating ICTs and other technological applications. The lack of a systematic approach to ICT implementation was considered as a as "Digital Divide" which in definition, was referred to a limit to access between demographics in relation to information and technology (Lutz, 2003). This digital divide created a gap between these developing countries and online service and communication. This gap was attributed to the lack of efficient and skilled human resources in these countries as well as the technical issues faced due to the lack of or minimal complementary assets needed to operate technical systems. Technology and design factors may allow room for local improvisation, but the ability of implementers in developing countries to enact such improvisations will depend partly on local capacities. A wide range of such local capacities is required, but there is a central require- ment for hybrids (Earl, 1989).

Not surprisingly, the ISDC literature reflects the broad thematic categories of the IS field and has followed its unfolding of research topics and conceptual approaches. Long-standing themes of IS research such as systems development and implementation, IS management, ICT and competitive advantage, IS and organizational change, are clearly present in the ISDC literature. However, the issues and research questions in ISDC studies of familiar IS themes are often quite different. Another distinctive feature of ISDC research is that it has given a great deal of attention to non-business organizational settings. IS innovation in the public sector and e-government, the 'free and open' software phenomenon, and the development of community resources intended to overcome the digital divide, while marginal in the IS field, are prominent in ISDC research (Heeks and Bailur 2007)

## Research Methodology

Information is a very important aspect within HRCU, information obtained by HRCU is used to screen members when obtaining a loan which is the primary source of income for the credit union. The original Delone and Mclean model has six (6) interrelated dimensions of success: System Quality, Information Quality, Use, User Satisfaction, Individual Impact and Organizational Impact. Service Quality and Intention to Use were added to the updated model and there was a combination of Individual and Organizational impact into Net Benefits within HRCU information quality, net benefits, system quality and service quality are success variables with HRCU banking system. Based on Delone and Mclean theoretical findings on Information system success model information quality which focuses on HRCU's quality output is very important when it comes to decision making and its usefulness of its users. Service Quality comprises of an overall support related to HRCU's maintenance providers. User satisfaction, which was based on the employees attitude towards HRCU Banking system. The user satisfaction had a great impact on determining information system success as it relates to how often the employees use the system. The net is the achievement of HRCU's objective for using the banking system.

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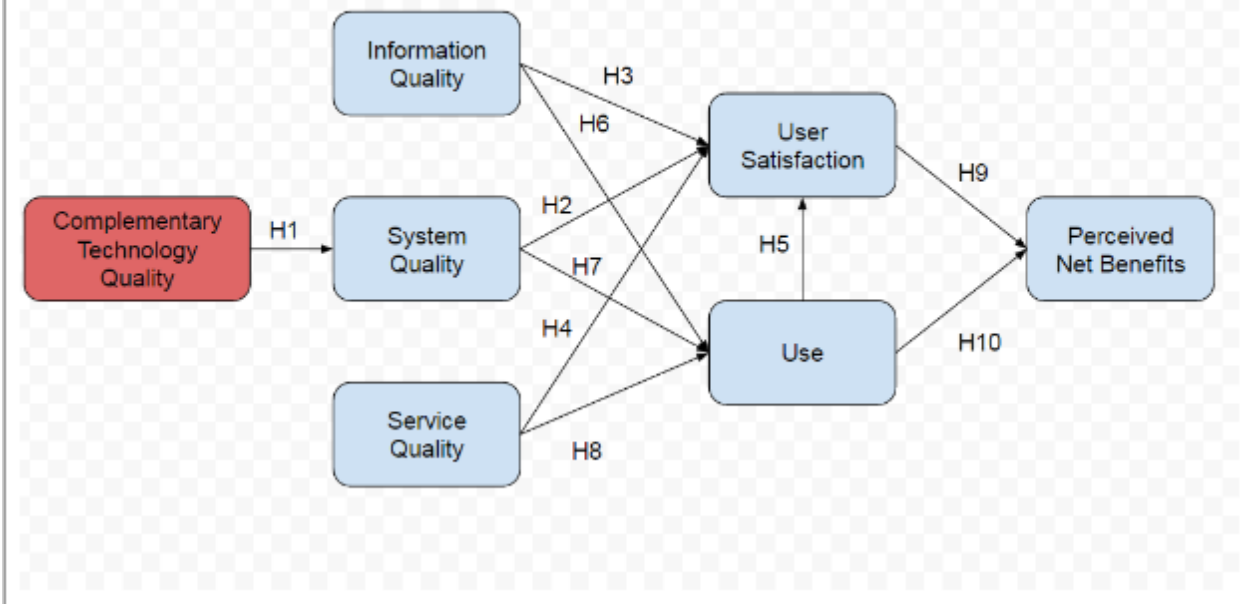


**Figure 1. Modified Research Model**

The hypothesized relationship between HRCUBK success variables are based on the theoretical and empirical work reported by Delone and Mclean (2003).Although further research is essential. Accordingly, the study hypothesized the following nine hypotheses tested:

*H1. Complementary technology quality will positively impact system quality.*

*H2. Information quality will positively impact user satisfaction.*

*H3. System 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.*

### *Construct measurement*

To ensure the validity of the research, measurement scales for the quantitative data collection were mainly elicited from previously verified instruments. The Bailey and Person (1983) seven item scale with a few adjustments to fit the specific contents of HRCUBS. Bailey and Person's instrument is the standard instrument in the IS field, because it has been widely accepted and used by several researchers. The validity and the reliability of the instrument have been tested.

**Table 1. The measurement items for questioners.**

| Construct | Survey Questions | Source |
|---|---|---|
| Information Quality | IQ1: The HRCUBS provides information that is exactly what you need<br>IQ2: The HRCUBS provides information you need at the right time<br>IQ3: The HRCUBS provide information that is relevant to you job<br>IQ4: The HRCUBS provides sufficient information<br>IQ5: The HRCUBS provides information that is easy to understand<br>IQ6: The HRCUBS provides up-to-date information | Bailey and Person (1983) |
| System Quality | SQ1: Is HRCUBS easy to use?<br>SQ2: Is HRCUBS user friendly?<br>SQ3: Does HRCUBS provides high-speed information access?<br>SQ4: Does HRCUBS provides interactive features between users and the system? | Alshibly, (2011) |
| Complementary Technology Quality | CTQ1: The software on the device (desktop computer, laptop, mobile, device) used to access HRCUBS adequate<br>CTQ2: The device hardware (desktop computer, laptop, mobile device) used to access HRCUBS is adequate.<br>CTQ3: Is the speed of the internet connection used to access HRCUBS adequate?<br>CTQ4: The reliability of the internet connection used to access HRCUBS is adequate. | Teece, D. J. Yip (1992) |
| Computer Self-Efficacy Measures | CSMQ1: I could complete the job using HRCUBS if there was no one around to tell me what to do as I go.<br>CSMQ2: :I could complete the job using HRCUBS if I had never uses an BS like it before.<br>CSMQ3: : I could complete the job using HRCUBS if I had only the BS manuals for reference<br>CSMQ4: : I could complete the job using HRCUBS if I had seen someone else using the BS before trying it myself. | Cassidy, S., & Eachus, P. (2002) |

| | | |
|---|---|---|
| | CSMQ5: I could complete the job using HRCUBS if I could call someone for help if I got stuck.<br>CSMQ6: : I could complete the job using HRCUBS if someone else had helped me get started<br>CSMQ6: : I could complete the job using HRCUBS if I had a lot of time to complete the job for which the BS was provided<br>CSMQ7: : I could complete the job using HRCUBS if I had just built-in help facility for assistance.<br>CSMQ8: : I could complete the job using HRCUBS if someone showed me how to do it first.<br>CSMQ9: : I could complete the job using HRCUBS if I had used similar BS before this one to do the same job. | |
| Service Quality | SQ1: The support staff keep HRCUBS software up to date.<br>SQ2: When users have a problem, HRCUBS support staff show a sincere interest in solving it.<br>SQ3: HRCUBS support staff respond promptly when users have a problem.<br>SQ4: HRCUBS staff tell users exactly when services will be performed. | Change et al., (2009) |
| User Satisfaction | US1: Most of the users bring a positive attitude or evaluation towards HRCUBS function.<br>US2: You think that the perceived utility about HRCUBS is high.<br>US3: HRCUBS has met your expectations.<br>US4: You are satisfied with HRCUBS | Seddon and Yip (1992) |
| Use | U1: The frequency of use with HRCUBS is high<br>U2: You depend upon HRCUBS<br>U3: I was able to complete a task using HRCUBS even if there was no one around to tell me what to do as I go<br>U4: I have the knowledge necessary to use HRCUBS | Balaban et al., (2013)<br>Rai et al., (2002) |
| Perceived Net Benefits | NB1: HRCUBS helps you improve your job performance.<br>NB2: HRCUBS helps the organization save cost.<br>NB3: HRCUBS helps the organization achieve its goal.<br>NB4: HRCUBS improves the assessment and training.<br>NB5: Using HRCUBS in job increases my productivity<br>NB6: Overall, using system Performance enhances recruitment and performance management. | Alshibly, (2011);<br>Tansley et al, (2001) |

### *Sampling and data collection*

The purpose of this research is to determine the effectiveness of HRCU's Banking System and base on findings make assumptions of whether or not employees find the banking system useful to them. This research was conducted from a quantitative perspective. The sample size for this research was 30 employees from HRCU. For this proposal the following methods were used to obtain the information:

Primary data: Questionnaires were utilized to obtain data from HRCU employees. Participants were selected using the accidental sampling method where each researcher distributed to employees nearby.

Secondary data: a reviewed though source such as the internet search engines and google scholar.

Out of 30 questioners distributed at HRCU all were usable questionnaires after being collected, which yield a responsive rate of 96.35 percent.

**Table 2. Characteristics of Respondents**

| Characteristics | Number | Percentage |
|---|---|---|
| **Gender** | | 23.33% |
| Males | 7 | 73.67% |
| Females | 23 | |
| **Age** | | |
| <20 years | 0 | 0% |
| 21-25 years | 10 | 33.33% |
| 26-30 years | 6 | 20% |
| 31-35 years | 7 | 23.33% |
| 36-40 years | 3 | 10% |
| 41-45 years | 4 | 13.34% |
| >46 years | | 0% |
| **Working Experience** | | |
| 1-2 years | 7 | 23.33% |
| 3-5 years | 11 | 36.67% |
| 6-9 years | 3 | 10% |
| >10 years | 9 | 30% |
| **Education Level** | | |
| PhD | 0 | 0% |
| Masters | 0 | 0% |
| Bachelors | 18 | 60% |
| Associates | 12 | 40% |
| High school | 0 | 0% |
| Primary School | 0 | 0% |

Analysis Data and Research Results

There was a lack of research information, so the researcher did not access the Smart PLS to test the hypothesis do the researcher applied and assessed through of histograms:

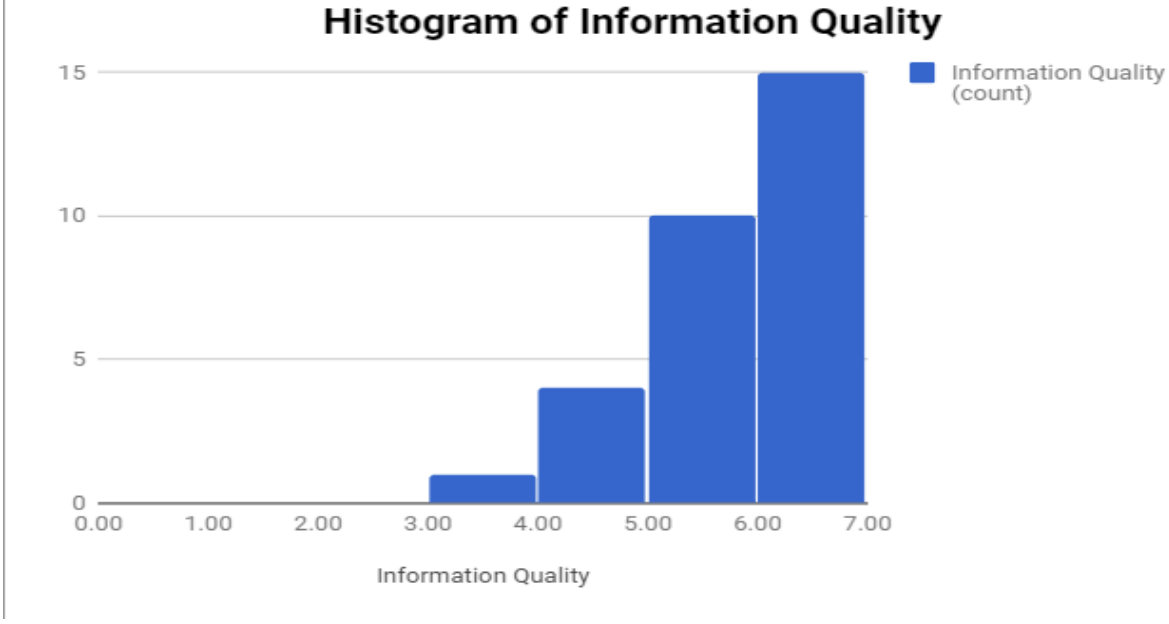


**Figure 2. Histogram of the Information Quality construct**

Figure 2. illustrates the average responses for Information Quality construct. The results showed that majority of the responses are above average, indicating that HRCU BS provides information that are up-to-date quite in order.

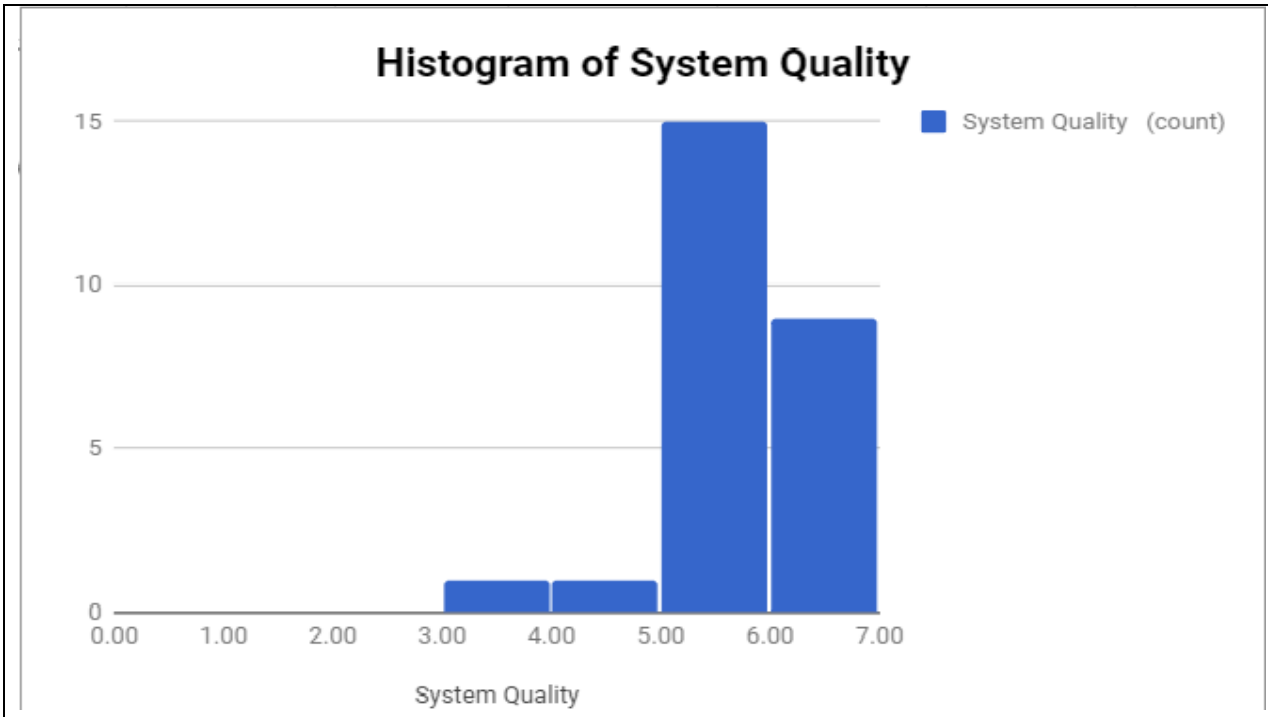


**Figure 3. Histogram of the System Quality construct**

Figure 3. illustrates the average responses for the System Quality construct, showing that majority of the respondents agree that HRCU BS is easy to use and user friendly.

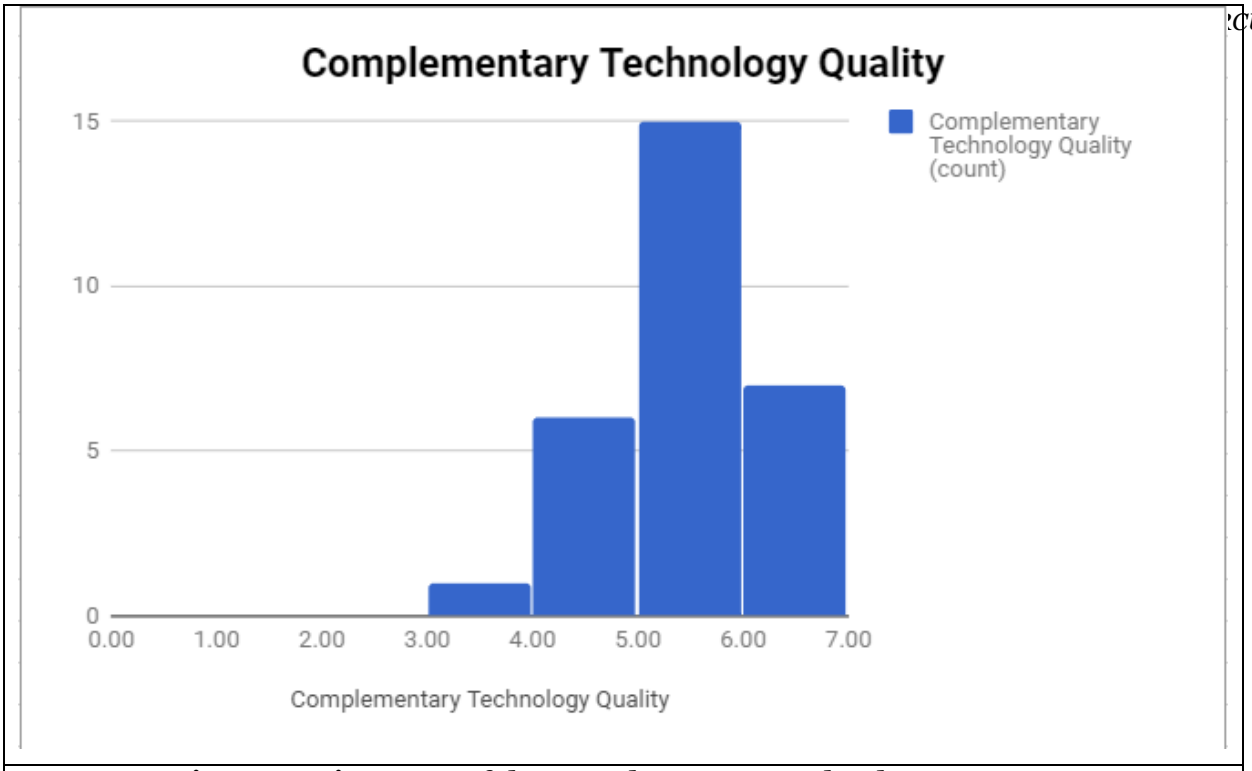


**Figure 4. Histogram of the Complementary Technology construct**

Figure 4. illustrates that most of the respondents agree and are satisfied with the devices that are used.

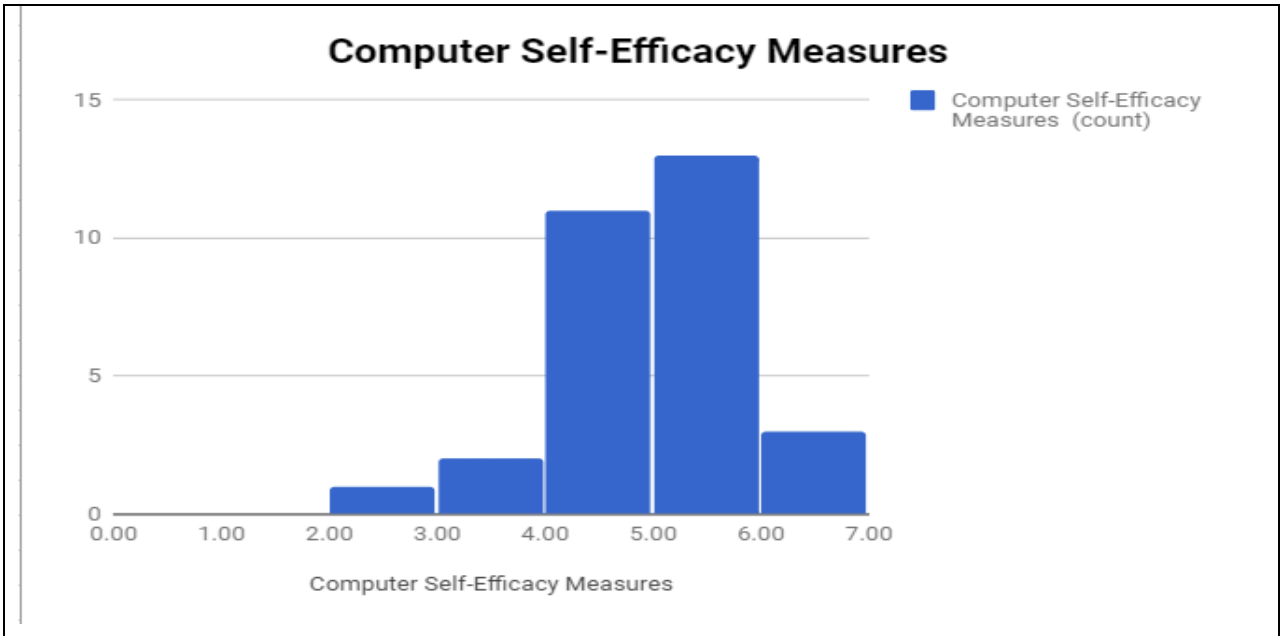


**Figure 5. Histogram of the Computer Self-Efficacy Measure**

Figure 5. illustrates that majority of the response scores are above average, indicating that most of the respondents agree that they are able to complete their job using the HRCU BS without much assistance.

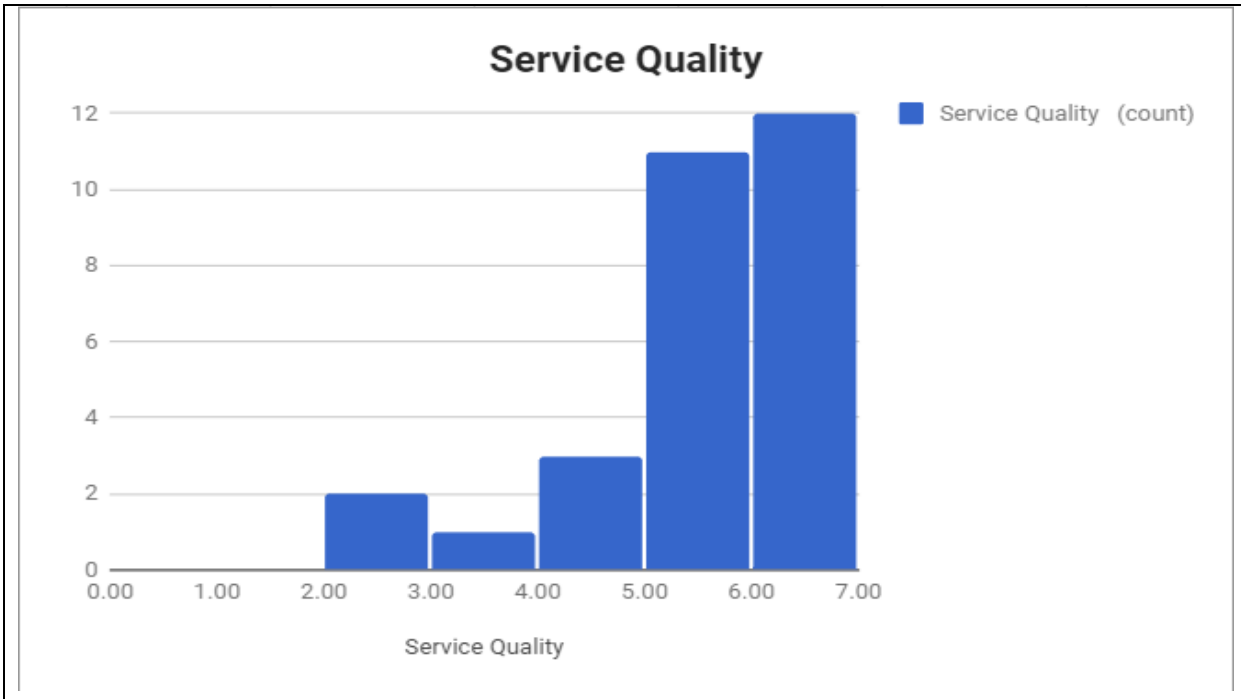


**Figure 6. Histogram of the Service Quality construct**

Figure 6. illustrates that the majority of the respondents are quite satisfied with the service quality of HRCU BS. There were two respondents who indicated below average for this dimension, stating that the software support staff takes a while to solve the problem.

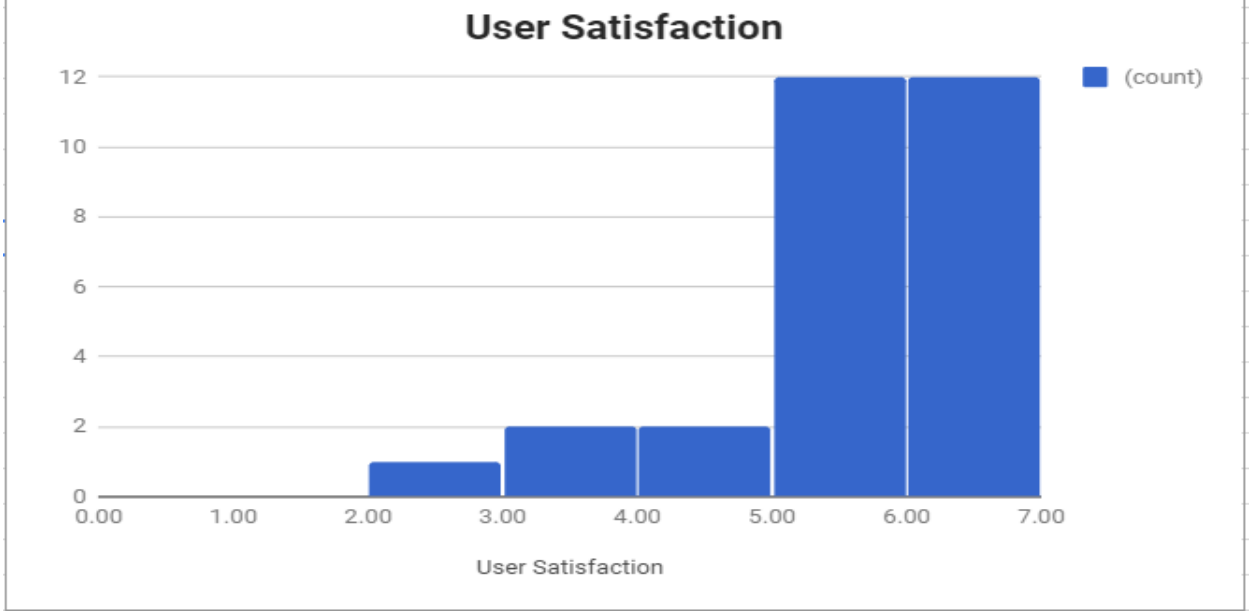


**Figure 7. Histogram of the User Satisfaction construct**

Figure 7. illustrates that majority of the respondents agreed that HRCU BS has met their expectations and that they are satisfied with the BS.

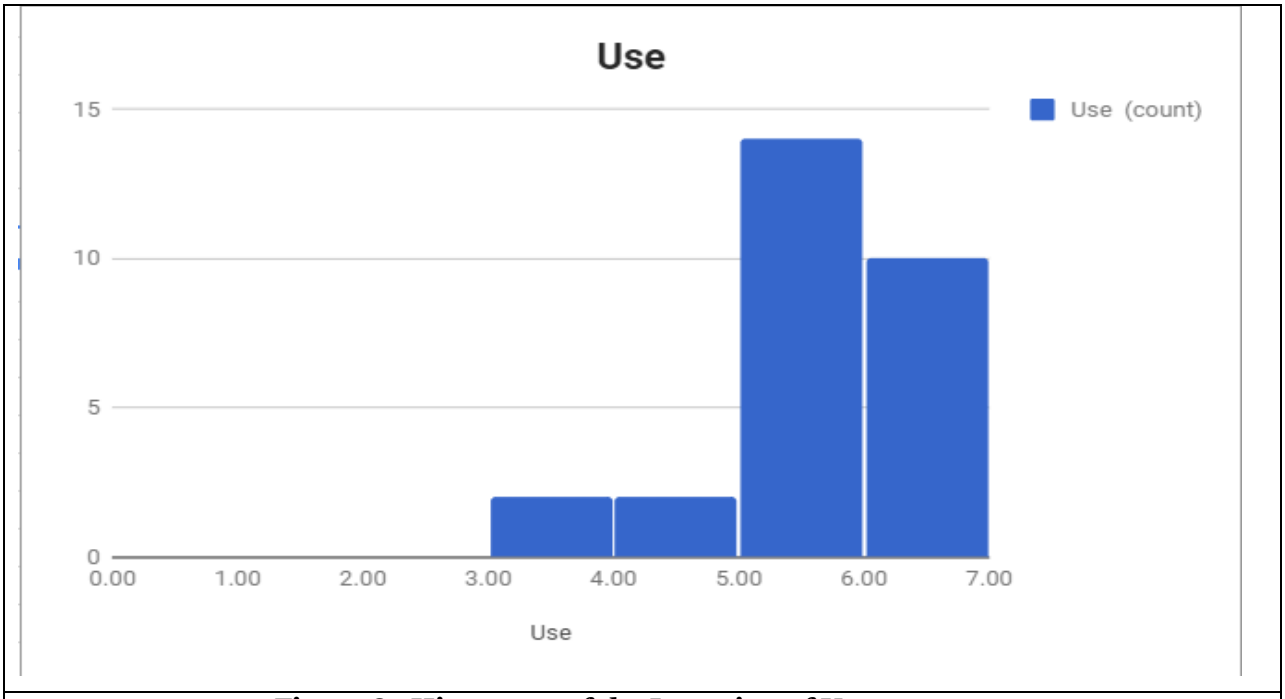


**Figure 8. Histogram of the Intention of Use construct**

Figure 8. illustrates that majority of the respondents scored this dimension above average. This indicated that the staff of HRCU are dependent upon the BS since the frequency of use is high, and they also have the knowledge necessary to use the BS.

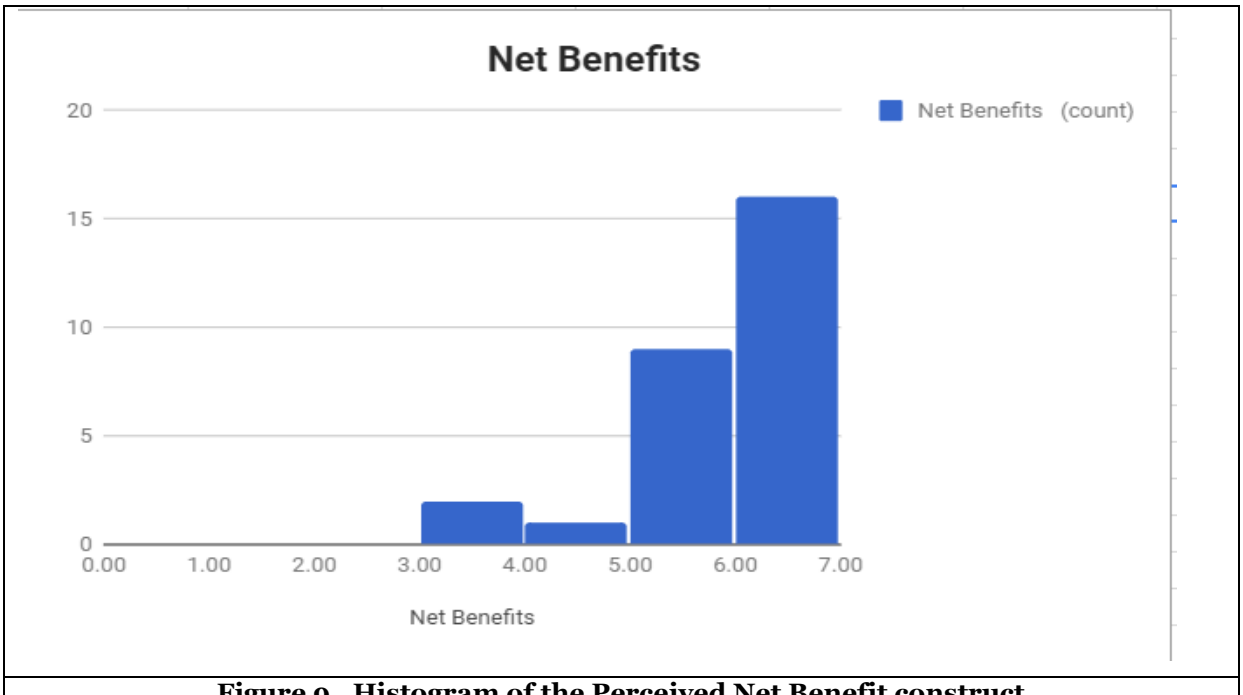


**Figure 9. Histogram of the Perceived Net Benefit construct**

Figure 9. illustrates that majority of the respondents agree that HRCU BS helps them improve their job performances, as well as their productivity. They agree that using HRCU BS enhances performance management.

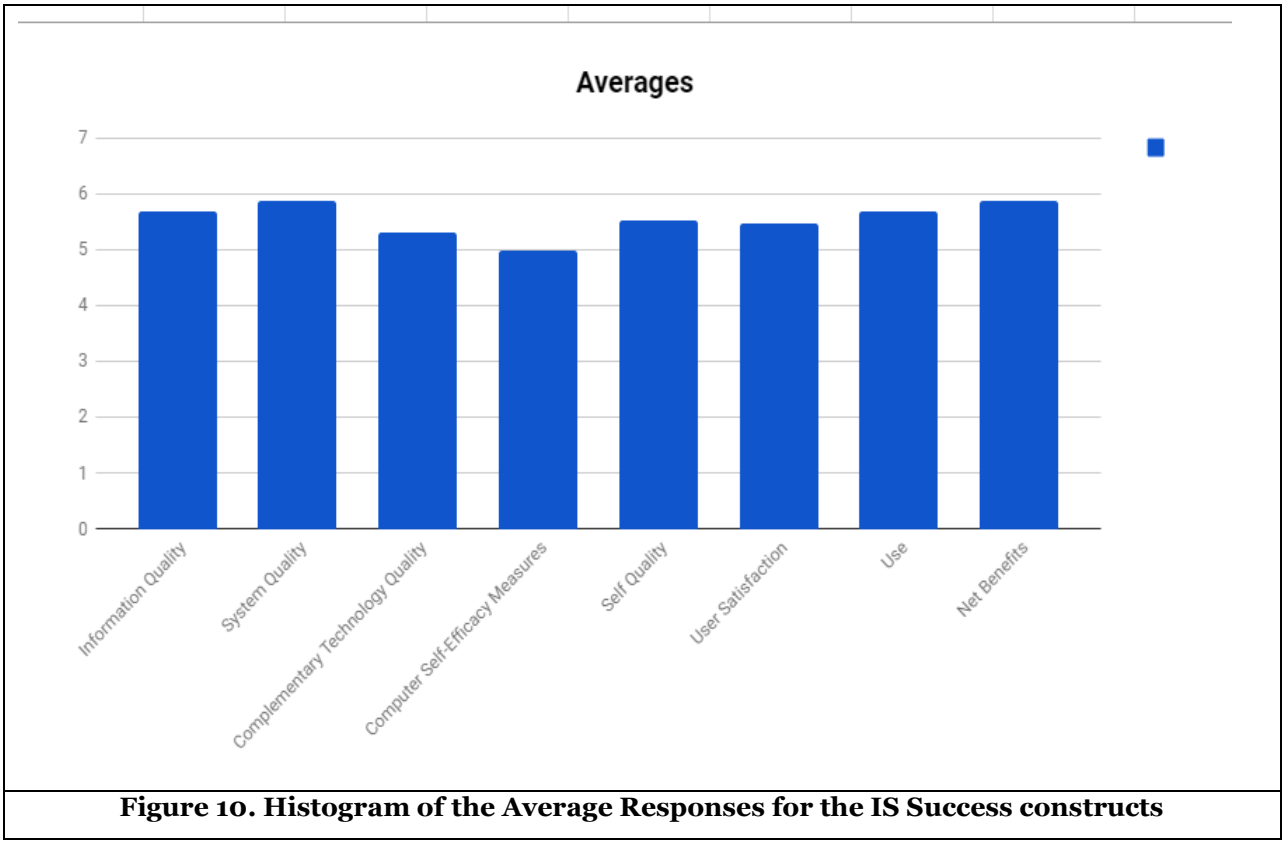


**Figure 10. Histogram of the Average Responses for the IS Success constructs**

Figure 10. illustrates the average scores for the responses for each construct. The results showed that all responses are above average and Information Quality and System Quality are the highest response scores.

# Conclusion

## Implications

This research was based on Delone and Mclean (2003) update IS success model. The results indicate that there is a positive feedback on System Quality, Service Quality, Information Quality, and Perceived Net Benefits when it comes to the information system of HRCU. Base on the finding the hypothesized relationship between Delone and Mclean (2003) six dimensions were supported in this research. The Delone and Mclean IS Success model illustrates that the objective is to have a high perceived net benefit, at HRCU the net benefit was positive, suggesting that the employees of HRCU have an unbiased net benefit of the HRCU BS.

This research provides important information as it relates to the banking system of HRCU. According to the Delone and Mclean model the net perceived benefits is the key to determining IS success as well as the other dimensions are also needed to provide a better understanding of the success of HRCU. Information system, system use, user satisfaction, quality system, service quality, and complementary technology quality are all contributing factors that influence whether there is perceived net benefits.

# Limitations

There were several limitations in carrying out the research. Some of the limitations were. There were limited information on the internet about the banking system. Also the researchers had planned to conduct an interval sampling; however due to time and vacation leaves the researchers had to use accidently sampling.

# Future research

There were a few recommendations if for any reason anyone wants to research about the banking system of HRCU in the future. They are as follow: time management is key in collecting data via survey. Requesting help from a staff that is directly involved in the information system would be of great assistance. Avoid procrastination. Lastly, acquire as much information possible about the system. The contribution that this research has on the banking system of HRCU. Also to conduct IS success models at the different credit union that uses similar banking system and conduct a comparison. Further more research is necessary to make the research more accurate.

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