Association for Information Systems
AIS Electronic Library (AISeL)

5-24-2013

Examining the Success of a Youth Care Management Information System through the Lenses of Novices

B. Alexander Scott
University of Nebraska at Omaha, bascott25@gmail.com

Ann L. Fruhling
University of Nebraska at Omaha, afruhling@unomaha.edu

Follow this and additional works at: http://aisel.aisnet.org/mwais2013

Examining the Success of a Youth Care Management Information System through the Lenses of Novices

B. Alexander Scott
University of Nebraska Omaha
bascott25@gmail.com

Ann L. Fruhling, Ph.D.
School of Interdisciplinary Informatics
University of Nebraska Omaha
afruhling@unomaha.edu

ABSTRACT

The goal of the research is to evaluate the success of novice end user interactions with a newly developed youth care management information system (YCMIS) that was designed to replace a paper based system managing mentally challenged clients. Delone and McLean's (1992) framework of information system (IS) success was utilized in the evaluation which predicts the success of the end user interaction by measuring six independent variables; end user's satisfaction, usage, system quality, information quality, individual impact, and organizational impact. In this study researchers used a semi-structured group interview to collect the data. The interview questions were designed to address the six independent variables measured in the Delone and McLean (1992) success model which are to determine the dependent variable, IS success. In conclusion, the YCMIS system was found to be a success and the interviews also identified unintended organizational value and efficiencies.

Keywords Information system success, youth care management information system, measurement

INTRODUCTION

In today's information environment, systems often fail to reach successful outcomes especially with novice users. In this we specifically focus on end users who are novices. There are logical utilization challenges that extend beyond the data in how it is organized, accessed and represented. A developer's ability to analyze business needs, provide robust solutions that meet users' needs regardless of users experience levels, and measuring the outcomes are all quintessential to overall system success. Being as the YCMIS was created from a paper base system when measuring the success of the YCMIS through the usage experiences of novice users, researchers speculated that the quality of the system and the impact on individuals would determine the success of the system. The Delone and McLean IS Success Model (1992) states that IS success can be measured by six independent variables: end user's satisfaction, usage, system quality review, information quality review, individual impact, and organizational impact. Therefore by the use of novice user feedback obtained from interview questions based on Delone and McLean's (1992) IS success framework, this case study measures how successful a newly developed system is meeting the needs of novice users specifically in terms of the six variables mentioned above.

PROJECT BACKGROUND

The organization studied in this research is a not for profit NFP, 501(c)3 agency that was established in 1980. The organization provides residential program services for developmentally disabled youth and adults with IQ's ranging from 52-80 in a large Midwestern city and the surrounding area. Currently the NFP provides services for 30 clients at four residential facilities which are operated by case managers and administrative staff members. The NFP has been a paper based organization which commissioned a team of developers to analyze their business needs and design and implement a youth care management information system. The developers successfully built a Microsoft Access Database system which has been in use for six months and supported by the development team with minor challenges. The system was designed to provide features that focused on seamless communication through reporting which has been utilized daily between employees who work in a shift base work environment.

IS SUCCESS MODEL

Delone and McLean's (1992) original work on IS success includes an extensive review of 180 articles, including both conceptual and empirical studies, measuring independent variables of IS success. Delone and McLean updated their model in (2003) to include "intention to use" as a variable but due to the end users involuntary usage of the YCMIS, the researchers believed the former model was appropriate for the given case study. Based upon the theoretical works of Shannon and Weaver (1949) and later adaption by Mason's (1978) regarding communication, the researchers established that information flows through a series of measurable stages from its production to its consumption where the end product influences the recipient(s) and the organizational performance. It is this systematic process of information and its effect on recipients that researchers speculate the perceived system quality and individual impact will dictate overall system success.

In order to focus on the dependent variable, IS success, Delone and McLean (1992) conducted a qualitative analysis of literature, using a taxonomy methodology grouping identified independent variables into six categories and defined them which is represented in Table: 1. Delone and McLean (1992) also provided a relational graph of the six categories which can be seen in Figure: 1.

| System Quality	Information Quality	Use	User Satisfaction	Individual Impact	Organizational Impact
"The desired characteristics of the information system itself which produces the information"	"The information product for desired characteristics such as accuracy, meaningful ness, and timeliness"	"The interaction of the information product with its recipients, the users and/or decision makers, by measuring use or user satisfaction."		"The influence which the information product has on the management decisions."	"The effect ofthe information product on organizational performance."

Table 1. Delone • McLean Categories of IS Success (1992)
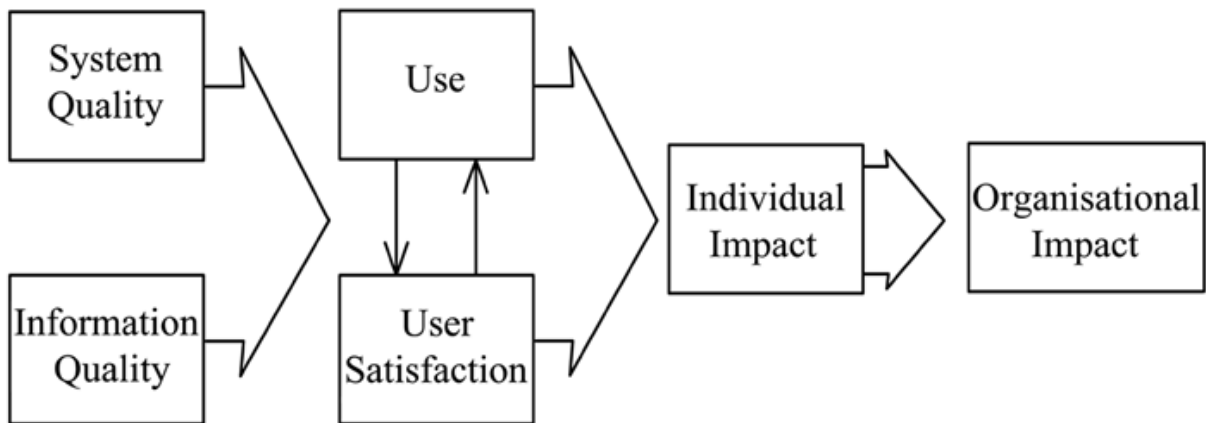
Figure: 1. Delone • McLean Categories of IS Success (1992)

RESEARCH METHODOLOGY

A semi-structured group interview approach for gathering data in this case study was selected. Researchers believed this approach would allow participants to not only provide data in a structured manner but that of an unstructured manner as well. The structured segment of the interview was based upon eleven questions (Appendix A) designed according to Delone and McLean's (1992) success model. Each question was designed to capture the users' opinion of the system using the six independent variables isolated by Delone and McLean (1992).

Six months after system implementation the newly developed system was examined to determine the level of system success using the Delone and McLean's (1992) IS success framework. A group interview with the five administrative staff members was conducted in the office of the administrators. Participants were informed that participation was optional and the system's performance was being measured not theirs. Researchers confirmed confidentiality of data, preserving the secrecy of the data, and using research for intended purposes only. Participant responses were recorded and analyzed based upon researchers' experience.

FINDINGS

In this section we discuss each of the dependent variables and analyze how well the system achieved them based on participants' responses from the interview questions. The first variable we examined was *System Quality which is defined as "The desired characteristics of the information system itself which produces the information."* (Delone and McLean, 1992*)* We began by asking users in general their reaction to the system's quality and satisfaction. Overall, they were very satisfied although there were a few recommendations for add-on functionality which was not included during the design phase. The participants collectively agreed that once they became comfortable with the system they liked it. Specifically one participant gave an example that she was especially pleased with the system's ability to extract data during an emergency.

One participants stated, "I am able to complete all tasks seamlessly" when asked if the system aligns with work flow during a multistep task points to the ease of use when using the billing function and navigation, thus allowing the performance of such tasks as record management and bookkeeping to be seamless. There was an overwhelming response of system quality as it relates to perceived usefulness not only with the systems' design intent but to the added ability to better manage employees as well. For example, participants were excited that employee's data entry could now be monitored from shift to shift. Based on such positive feedback it can be concluded that *System Quality* was perceived has high.

Next we will discuss *Information Quality*. *Information Quality* is defined as *"The information product for desired characteristics such as accuracy, meaningfulness, and timeliness"* (Delone and McLean, 1992*).* When asked if the system provides you with all data that is needed to complete tasks, everyone agreed that the system provided them with the required information. Participants specifically mentioned the timeliness of the information and meaningfulness of the data which are similar aspects identified in the Delone and McLean (1992) model. For example, when speaking of timelessness more than one participant mentioned data being available for staff from shift to shift. This same data also provided participants care management updates of clients and any issues related to clients. Information Quality was also held in high regards as it related to client intake, one participant responded to the systems client intake reporting functions stating "The system made our work easier by providing new understanding and better insight derived from reports."

As stated earlier within the IS Model section above the independent variables, *Use and User Satisfaction* which is defined by Delone and McLean (1992) as, *"The interaction of the information product with its recipients, the users and/or decision makers, by measuring use or user satisfaction."* Use was not measured do to the participants' involuntary usage of the system itself. What was interesting was the user's satisfaction rate of the system overall which was perceived to be positive. When asked to describe the first and last encounters along with any positive or negative encounters with the systems, participants preceded to explain functionalities of the system and its ability to provided better vision though out the organization. One participant described her experience of learning the system and exploring the systems functions once comfortable. A second participant stated, "Tabs are self-explanatory so it is easy to use the billing function. Reports are easier to manage and easier to retrieve…"

When asked about training, everyone agreed that they received above adequate training which was supported by help desk support and a user manual which were also very helpful. Though it has been assumed the users use the system for all daily activities users confirmed that the system has been useful in urgent situations. The satisfactory performance during urgent situations implies that the YCMIS has proven itself as a reliable system.

Next researchers evaluated the *Individual Impact* which is defined by Delone and McLean (1992) as, *"The influence which the information product has on the management decisions."* When participants were asked how did the system add to their job functions responses including "system provided easier processing of tasks", "insightful views to clients", and "faster project completion time". Though participants did not provide direct feedback to how the system impacted their decisions directly, the requests for missing data attribute fields such as "gang relations", "sexual activity" and "food restrictions/food

habits" as it relates to housing assignments for clients, indicates the users' perception of the usefulness of the YCMIS as a decision support tool.

Organizational Impact was evaluated last and is defined by Delone and McLean (1992) as, *"The effect of the information product on organizational performance."* The overall organizational impact of the YCMIS has allowed the nonprofit organization to become more effective and the system will help support organization growth as stated by a participant. In addition, researchers discovered that the system's purpose reached beyond its original intent of use. Not only did the system provide the means to manage clients it also allowed the mitigation of organizational risk by providing the means to monitor employee documentation. This documentation monitoring can lead to opportunities for administration to better train employees, evaluate work performance, or even to find systematic trends that can lead to punitive damages to the organization.

CONCLUSIONS

Overall, by meeting the needs of the users and proving an unexpected employee manage functionality; the Youth Care Management Information System is perceived as a success and the Delone and McLean IS Success evaluation model further supports this conclusion from the positive responses regarding each of the six measurements. The limitations of research are that it is only one case study and a very small sample size and therefore the results are not generalizable. In the future we plan to survey all staff members including the administration which uses the new the system and compare the results to the perceptions of the administration collected during the group interview. Contribution to the field of study would include that the Organizational Impact measurement of Delone and McLean IS success framework can also include unexpected functionality that was not a part of original design.

REFERENCES

1. Commonwealth of Pennsylvania. (2013). *Pennsylvania's Enterprise Portal*. Retrieved from Pennsylvania State of Independence commonwealth enterprise portal: http://www.portal.state.pa.us/portal/server.pt

2. Mason, R. O. (1978). Measuring Information Output: A Communication Systems Approach. *Information and Management, 1*(5), 219-234.

3. National Communications System Technology and Standards Division. (1996). *Telecommunications: Glossary of Telecommunication terms.* General Services Administration Information Technology Service.

4. Petter, S., & Fruhling, A. (2011). Evaluating the success of an emergency response medical information system. *International journal of medical informatics*, *80*(7), 480-489.

5. Shneiderman, B. (1997). *Designing the User Interface: Strategies for Effective Human-computer Interaction.* . Reading, MA: Addison-Wesley.

6. Terrill, B., & Flitman, A. (2003). *http://is2.lse.ac.uk/.* Retrieved from http://is2.lse.ac.uk/asp/aspecis/20030159.pdf.

7. W.H. Delone, E.R. McLean. (1992). Information Systems Success: The Quest for the Dependent Variable. *Information Systems Research, 3*(1), 60-95.

8. W.H. Delone, E.R. McLean. (2003). The DeLone and McLean model of information systems succ3ss: a ten-year update. *Journal of information systems success: a ten-year update, Journal of Management Information Systems, 19*(4), 9-30.

9. Weaver, C. E. (1949). *The Mathematical Theory of Communication.* Urbana, IL: University of Illinois Press.

Appendix A

System Quality

1sq:	What are your general reaction/impressions about the Youth Care Management System? Do you like the system? Why/Why not?
2sq:	Does the system layout align with your individual work flows? For example, for a multistep task are you able to complete it without searching for needed sections?
3sq:	Do you think the system is smooth in its display and flow or is it clunky? Please explain?
4sq:	What improvements would you suggest if any? Is there any functionality that you do not use or that is missing?

Information Quality

1iq:	Does the System provide you with all of the data you need to complete your tasks? ➢ If not, please describe? ➢ If somewhat, please describe?

Use and User Satisfaction

1uu:	Explain the system training you received and do you believe it was satisfactory? If not how can it be improved?
2uu:	Please describe the following encounters with the Youth Care Management System: ➢ Your first encounter? ➢ Your last encounter? ➢ A positive experience? ➢ A negative experience?
3uu:	Do you think the system is useful in an urgent situation? In other words, can you navigate and retrieve information while rushed if need be?

Individual Impact

1ii:	How did the system add to your job functions? Did the system provide new understandings and better insight of your clients?

Organizational Impact

1oi:	Did the system increase your productivity? If so in what ways? If not in which ways does it slow your process?
2oi:	Does the system allow you to manage more clients or less? If more, how many more cases do you think the system will allow you to manage at an effective rate?