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EMIS Success Modeling Using Information Systems Quality Factors

Lily Asiedu Danso, Ghana Institute of Management and Public Administration, Ghana
Joseph Kwame Adjei, Ghana Institute of Management and Public Administration, Ghana
Winfred Yaokumah, University of Ghana, Ghana
https://orcid.org/0000-0001-7756-1832

ABSTRACT

This study validates the DeLone and McLean information systems (IS) success model in the context of education management information system (EMIS). It develops a model to examine the effect of IS quality factors (system quality, information quality, and service quality) on IS success (use, user satisfaction, and net benefit) of EMIS. The study employs purposive sampling technique to select participants and a validated structural questionnaire to collect data from 100 users of EMIS. Employing three multiple regression models, the results show that there is a statistical significant relationship between system quality, information quality, service quality, use, and user satisfaction. Overall, among the six constructs measured, the impact of system quality, information quality, and use significantly improve the net benefits of EMIS. However, service quality contributes insignificantly to user satisfaction.

KEYWORDS

DeLone, EMIS, Information Quality, Information Systems, McLean, Service Quality, System Quality

INTRODUCTION

Education Management Information System (EMIS) is a vital tool for providing quality data for policy formulation, decision-making, resource allocation, monitoring, and evaluation of the performance of education system (Hidayat & Wahab, 2019; USAID, 2011). EMIS is a repository of data, computer applications, software, and hardware that collect, process, analyse, store, publish, and manage information for educational functions (Bernbaum & Moses, 2011; Martins et al., 2019). Korde (2018) refers to EMIS as a centralised data repository capable of not only gathering and storing data but also analyzing and generating relevant reports. Besides, EMIS facilitates the implementation of education policies and practices (Bojte, 2019). A well-functioning EMIS can provide efficient information to all levels of education delivery and enhance monitoring and evaluation of the performance of education systems (Chowdhury & Salahuddin, 2017). As a result, education institutions are looking forward to management information systems, resources, and services that deliver maximum benefits to students,

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teachers, school management (Riswandi, 2017) and other stakeholders including national governments, sub-national offices, and non-governmental organizations (NGOs) (Iyengar et al., 2016).

Functional and effective EMIS require the right technology, right people and the right processes. EMIS project implementations are confronted with skilled and technical staff, difficulties in collection of data, poor system functionality, lack of timely and reliable production and dissemination of information to meet the needs of the users and other stakeholders (Bhatti et al., 2013; Kirchner, 2015). Laudon and Laudon (2014) observe that an organization's information systems' success depends on its people, structure, business processes, politics, and culture (Laudon & Laudon, 2014). Abdul-Hamid et al. (2017) identify leadership, data quality, operational, and technology challenges as militating factors against successful EMIS implementation. Additional challenges relate to use of technology, low literacy (Iyengar et al., 2016), lack of participation, inadequate funding, and top-down leadership-driven institutional culture (Yaokumah, Brown, & Adjei, 2015). These factors impede on the development, efficiency and effectiveness of EMIS success (Bernbaum & Moses, 2011). For example, a recent Human Capital Index (HCI) study estimates that about 56 per cent of Ghana's human capital may go waste in the next 18 years due to ineffective management of education system (World Bank Group Education Report, 2018). To address these challenges and to improve the quality of education, the Ministry of Education deploys the use of EMIS to deliver quality information that will support educational planning and management. Accordingly, it is expected that efficient and effective use of EMIS will enable quality delivery of educational services (Baymuldin, Shakirova, & Savchenko, 2013).

Successful IS implementation requires integration of IT into a social setting with the aim of achieving stakeholder acceptance (Treku & Wiredu, 2018). Information systems success is measured by the quality of its implementation in such a way that it meets the desired outcomes (Meyers et al., 2012). Critical success factors for IS implementation depends on technology design and people characteristics (Wiredu, 2012). Notably, EMIS projects require large amount of capital investment with high expectations of returns. Therefore, it is crucial to evaluate the success of such systems, considering that financing IT projects does not necessarily warrant success. This study investigates the influence of EMIS quality factors (system quality, information quality, and service quality) on EMIS success factors (use, user satisfaction, and net benefits), based on DeLone and McLean IS Success Model (DeLone & MacLean, 1992; DeLone & MacLean, 2003). Moreover, the study validates DeLone and McLean IS Success Model through EMIS implementation at the pre-tertiary level of education in Ghana. The following research questions guide the study:

1. What is the effect of system quality, information quality, and service quality on the use of Education Management Information System?
2. What is the effect of system quality, information quality, and service quality on the user satisfaction of Education Management Information System?
3. What is the effect of use and user satisfaction on the net benefits of Education Management Information System?

LITERATURE REVIEW

Theoretical Foundation

There are some approaches and models that are used in assessing the success of information systems (IS) project. The most frequently used models to evaluate IS success include the Theory of Reasoned Action, Theory of Planned Behavior, Technology Acceptance Model (TAM), and the DeLone and McLean IS success model (D & M model) (Visser et. al, 2012). For example, Moertini et al. (2012) developed an academic management information system (AMIS) model to evaluate education quality. The traditional education quality evaluation systems focused mainly on faculty while paying little