

THE INTERNATIONAL JOURNAL OF SCIENCE & TECHNOLEDGE

Effects of Enterprise Resource Planning System Navigation on Academic Service Delivery at Masinde Muliro University of Science and Technology, Kenya

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Abstract:

The ERP system has for long been adopted in private higher learning institution and has had a significant impact on finance and accounts management, examinations management, hostels and accommodation, library management, procurement and stores management and catering management. The implementation of the ERP System in Masinde Muliro University of Science and Technology since 2012 has been characterized by dissatisfaction from both students and lecturers especially in form of service delays due to faulty queuing systems or network delays. This has led to poor institutional performance, on this basis the study examined usability of enterprise resource planning system on academic service delivery in Masinde Muliro University of Science and Technology. To evaluate how navigation as an ERP system usability factor affect academic service delivery at Masinde Muliro University of Science and Technology. The study was guided by: systems theory; resource-based theory and SERQUAL model. A descriptive case study design was used. The target population was 10 heads of department, 37 technical personnel and 5179 students totaling to 5226 respondents. Questionnaire was used for data collection instrument. Stratified random sampling and purposive technique was used. Navigation affects the usability of the enterprise resource planning system on academic service delivery. It shows that ERP-Navigation should be designed to be user-friendly, which means that it can be easily customized for any type of business or company.

Keywords: ERP-Navigation, service delivery, ERP usability

1. Background

Higher learning institutions today face increased competition, global challenges, market shifts, and continuing rapid technological development. Thus, few administrations of higher learning institutions can afford to ignore how their students handle information. Indeed, information is a basic resource that is so critical to an organization, like materials, money, personnel, and energy, all of which are vital to the well-being of individuals and organizations in the modern world (Addo-Tenkorang & Helo, 2017). Hence, higher learning institutions' administration needs information to run the day-to-day operations to spur growth and ultimately gain a competitive advantage. In addition, technology is changing how information is captured, processed, stored, disseminated, and used. Davenport (2017) states that almost all higher learning institutions rely on information technology. The dynamic context of learning institutions is characterized by the digital economy, which has resulted from the convergence of computing and telecommunications technologies. This has had a significant effect on learning institutions and society in general and is epitomized by the impact of the internet and the World Wide Web.

2. Literature Review

2.1. ERP System Navigation

Navigation has been reported as a design issue in many ERP usability studies (Lucas & Babian, 2012; Supulniece et al., 2013). Poor navigation prevents users and, by extension, the organization from getting the maximum benefits from the ERP system (Hurtienne, Prümper, and Rötting 2009). Therefore, there is a need to offer guidance on navigation for the system, as Surendran, Somarajan, and Holsing suggested in 2016.

Awad (2014) studied the effects of ERP systems on universities of Saudi Arabia. A descriptive survey design was used where 873 employees from 23 universities. Simple random sampling was used to select 219 respondents while both questionnaire and interview schedule were used as data collection instruments. The validity of the research instrument was ensured through the advice of experts in the Department of Computer Science. The reliability of research instruments

was measured through the pre-rest method. Both qualitative and quantitative analysis was used to analyze data with the help of descriptive statistics. The study revealed that ERP systems could be useful for any group of organizations that have the same organization structure, data flow, business processes structure, and industry. Awad recommended that the Saudi government start thinking of providing ERP services to their public universities through the ERP system cloud to reduce the cost, gain better control over universities' operations, and manage effective processes.

Comparative research of important success variables in ERP system adoption in industrialized and developing nations was conducted by Moohebat, Aserni, and Jazi (2010). Their research found that success determinants in both rich and developing countries follow a nearly identical pattern. They also pointed out that ERP technology has matured in industrialized countries in contrast to underdeveloped countries' cultures. These events revealed that developing-country businesses require greater vendor assistance when implementing ERP systems, especially in understanding the navigation and presentation of the system.

According to Hurbean (2016), navigation is a major issue in ERP usability. Finding the right information is difficult, and it is often unclear how to get from one place to another. Navigating ERP software can be a tedious, cumbersome task. Users are often unsure of where to find the information they need. They also have trouble getting from one place to another, with many menus and links often leading nowhere (Malonza & Nduki, 2014). The scholars further affirmed that a well-implemented ERP system could provide a number of advantages to businesses, including automated business operations, quick access to management information, and improved SCM through the usage of e-commerce, for example (Yusuf et al., 2004). However, selecting and deploying an appropriate ERP system are not simple undertakings. There are countless examples of businesses failing to realize the anticipated benefits that prompted them to invest in an ERP system.

Gargeya & Brady (2015) expresses more challenges that navigation presents as a major issue in ERP usability. It is difficult to find the right information, and it is often unclear how to get from one place to another. This can lead to frustration and confusion, resulting in lost productivity and wasted time. Keyword search is the most widely used and the most effective form of navigation for ERP software. It allows people to enter a string of words from their current screen into a search field and quickly find relevant information provided by the software. Unfortunately, most ERP systems have not implemented such functionality of keyword search.

Fisher (2016) assessed staff perceptions about issues that influence the implementation of ERP systems in public universities in Ghana. The research revealed that influences impact the outcomes of the implementations and form the basis for developing guidelines for the efficacious management of ERP implementations in Ghana universities. Additionally, the study stated security issues and poor infrastructure enhance resistance when applying new systems, such as poor cooperation in dealing with problems. Jepng'eno, Amuhayalravo, and Sakataka (2016) studied the effects of enterprise resource planning systems on organizational performance in Kitale Technical Training Institute, Kitale. The study found that using the ERP system at Kitale Technical Training Institute:

- Helped in the real-time generation of reports, increased accessibility of records,
- Improved decision making, accountability, transparency, and quick retrieval of information,
- Minimized duplication and accurate financial reports

2.2. Research Design

A descriptive case study design was used. According to Kevin (2016), a case study emphasizes a complete contextual analysis of fewer events or conditions and their interrelations. This design is suitable because the study requires an accurate examination of the effects of the enterprise resource planning system on academic service delivery at Masinde Muliro of Science and Technology University.

3. Results

3.1. Enterprise Resource Planning System Navigation

The researcher sought to establish the level of enterprise resource planning system navigation as per objective one. Five response items were used to examine the prevailing status of system navigation at Masinde Muliro University. According to the findings presented in Table 1.0, 89.1% of the respondents agreed and strongly agreed that there is faster processing of customer requests ($M=4.44$ $SD=.700$), 0.6% were in disagreement, and 10.9% were undecided. Furthermore, 76.3% of the respondents both agreed and strongly agreed that the ERP system has up-to-date hardware and software ($M=3.85$ $SD=1.320$), while 0% and 21.8% disagreed and were undecided, respectively. Besides, a majority of the respondents both agreed and strongly agreed (70.3%). Furthermore, the system ensures the presentation of clear information ($M=3.99$ $SD=.909$). 6.1% disagreed, while 23.6% were undecided. 71.5% of the respondents agreed that the system ensures storing a large amount of data ($M=4.12$ $SD=.838$), 0.6% disagreed and strongly disagreed, while 27.9% were undecided. Lastly, 69.7% of respondents agreed and strongly agreed that The ERP technical support team is dependable ($M=3.86$ $SD=.739$), 2.4% disagreed, and 27.9% were undecided.

Responses	SD %	D%	UD%	A%	SA%	MEAN	SD
The systems ensure the adaptability of information/data	0.0	.6	10.3	33.9	55.2	4.44	.700
The ERP system has up-to date hardware and software	0.0	1.8	21.8	31.5	44.8	4.19	.839
The system ensures the presentation of clear information	0.0	6.1	23.6	35.8	34.5	3.99	.909
The system ensures storing a large amount of data	0.0	0.6	27.9	30.3	41.2	4.12	.838
The ERP technical support team is dependable	0.0	2.4	27.9	50.9	18.8	3.86	.739

Table 1: System Navigation Descriptive Statistics

3.2. Regression Analysis

3.2.1. Effects of Enterprise Resource Planning System Navigation on Academic Service Delivery

The goodness of fit model presented in Table 2 below shows enterprise resource planning system navigation (X_1) as the only independent variable. The coefficient of determination (R square) was .605, which indicated that the model explained only 60.5 percent of the variation or change in the dependent variable. This implies that enterprise resource planning system navigation positively affects academic service delivery Masinde Muliro University of science and technology. The remainder of 39.6 percent can be explained by factors other than systems navigation. Adjustment of the R square reduced the results of the explanatory behavior of the predictor from 60.5 percent to 60.4 percent.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Durbin-Watson
1	.778 ^a	0.605	0.604	0.327	0.605	1.736

Table 2: Goodness of Fit Model Summary

a. Predictors: (Constant), System Navigation

b. Dependent Variable: Academic Service Delivery

The Analysis of Variance (ANOVA) of the relationship between systems navigation and academic service as illustrated in delivery is stated in Table 3. The results give a p-value of 0.000, which is less than 0.05. This indicates that the model is statistically significant in explaining the relationship between systems navigation and academic service delivery.

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	53.778	1	53.778	503.309	.000 ^b
	Residual	35.046	328	0.107		
	Total	88.824	329			

Table 3: ANOVA

a. Dependent Variable: Academic Service Delivery

b. Predictors: (Constant), Systems Navigation

3.2.2. Regression Coefficients of Academic Service Delivery

Table 4 presents the regression results of systems navigation and academic service delivery at Masinde Muliro University. The gradient coefficient of .718 indicated how a unit change in systems navigation causes a change in academic service delivery. In this case, a unit change in systems navigation leads to .718 units of positive change in academic service delivery. Therefore, the systems navigation and academic service delivery can be presented as follows:

$$y = \beta_0 + \beta_1 X_1 + \epsilon \dots \dots \dots \text{Equation 1.0}$$

$$Y = 1.344 + .718X_1 + \epsilon,$$

When the t-test associated with B value is significant, the predictor contributes significantly to the model. The results in Table 4 show that systems navigation has a $t = 22.435$, and a $P < .05$. This implies that systems navigation significantly affects organizational academic service delivery.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.344	0.134		10.055	0		
	Systems navigation	0.718	0.032	0.778	22.435	0	1	1

Table 4: Coefficients of Academic Service Delivery

a. Dependent Variable: Academic Service Delivery

b. Predictor Variable: Systems Navigation

4. Discussion

Because of statistical results, system navigation was found to have a positive and significant relationship with academic service delivery at Masinde Muliro University of Science and Technology. Thus, an increase in system navigation efficiency increases academic service delivery. These results imply that the university may acquire better academic service delivery results by potentiating the system's navigation of their ERP system.

ERP-Navigation takes care of the whole customer journey, from brand awareness to purchase decisions and beyond; hence better service delivery. ERP-Navigation is an essential tool for keeping your company's operations running smoothly. It helps users to be more efficient and cost-effective. ERP Navigation is a software usability feature that can help users to manage their company's service delivery and make them more efficient. It does this by providing a map of all the processes inside the institution, allowing users to see how they interact with each other. ERP Navigation is an essential tool for any business that operates in different locations or has many employees. It enables users to keep track of all the processes, which makes it easier to achieve efficiency and cost-effectiveness.

ERP Navigation is an essential tool for any business that operates in different locations or has many employees. Higher education institutions have many employees who are at different levels. It supports system users in keeping track of all the processes, which makes it easier to achieve efficiency and cost-effectiveness. ERP-Navigation is an essential aspect of ERP software concerning service delivery.

These findings are premised on systems theory which calls for effective communication within different parts of the organization to bring the system closer to its goal. However, goals are not always reached and are sometimes accompanied by other unintended goals. Furthermore, it shows that ERP-Navigation should be designed to be user-friendly, which means that it can be easily customized for any business or company.

5. Conclusion

The objective was to determine the effectiveness of ERP system navigation in academic service delivery at Masinde Muliro University of Science and Technology at Masinde Muliro University of Science and Technology. In acknowledging the essence of system navigation in academic service delivery, the management should ensure that system navigation is at its maximum potential. Multiple regression analysis showed that a significant relationship exists between dependent variables and independent variables. The model explained only 60.5% of the variation or change in academic service delivery variable, with the remainder of 39.5% explained by other factors other than systems navigation. From the regression analysis table, t value is =22.435, and P value is equal to 0.000, which is less than 0.05 and is sufficient to show relative importance $r = .778^{**}$. Therefore, it is evident from the results that systems navigation was found to be a positive and significant predictor of academic service delivery. This finding supports the findings of Abbas (2011) and Nock (2016). They opine that ERP enables better distribution of information across internal teams within the organization through timely and real-time information that is easy for non-IT users to access. This implies that the university should be firmly committed to systems navigation, which can help foster high academic service delivery.

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