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Article Title

Assessment of the End Users' Perceptions About the Campus Management System: A Case Study of Kohat University of Science & Technology

Abstract

Information management systems are in vogue for data gathering, storage, and reporting to make effective decision-making and management. The study was designed to investigate end users' satisfaction with different dimensions of the KCMS (Kohat University of Science and Technology Campus Management System) and their intent to use it. The theoretical basis came from DeLone–information Mclean's system model (2003). The researcher obtained data through questionnaires online and personally visiting departments. The data were analyzed using SPSS version 20. Regression analysis was used to analyze the relationship between quality attributes and end-user happiness. All variables were compared using Pearson correlation. End-user satisfaction is highly correlated with quality dimensions (system, information, and service). ANOVA was used to compare user's perceptions with quality dimensions where teachers and students were found highly satisfied with all the dimensions except administrative staff. Information systems also have a moderating effect on self-efficacy and usage intention.

Keywords: Systems Quality, Information Quality, Service Quality, User Satisfaction

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Title

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Contents

Abstract

Information management systems are in vogue for data gathering, storage, and reporting to make effective decision-making and management. The study was designed to investigate end users' satisfaction with different dimensions of the KCMS (Kohat University of Science and Technology Campus Management System) and their intent to use it. The theoretical basis came from DeLone–information Mclean's system model (2003). The researcher obtained data through questionnaires online and personally visiting departments. The data were analyzed using SPSS version 20. Regression analysis was used to analyze the relationship between quality attributes and end-user happiness. All variables were compared using Pearson correlation. End-user satisfaction is highly correlated with quality dimensions (system, information, and service). ANOVA was used to compare user's perceptions with quality dimensions where teachers and students were found highly satisfied with all the dimensions except administrative staff. Information systems also have a moderating effect on self-efficacy and usage intention.

Introduction

The advent of technology in academia has revolutionized the operation and management of higher education institutes (HEIs). Implementing a new IT system allows universities to reorganize, restructure, streamline, and financial optimization. (Thomas, 2010). Development and implementation of a university-specific information system, each set of stakeholders can promote or hinder the project's success by following their agenda. Stakeholder groups may have various perspectives on project success due to differences in perspective, goal, and requirements. A successful project is aided by aligning the university's and stakeholder groups' requirements and expectations with each other and the organization's goal. (Dixit& Prakash, 2011).

Technology has been introduced in the education sector to make the education process more efficient

and convenient. However, in the last many years, online education has transformed the education system with the expansion of online management systems to make universities paperless and achieve learning objectives along with a smooth management process (Dziuban et al., 2018).

The online / Campus Management System consists of software designed to manage all activities of the educational institutes which includes teachers, students, and management. The main purpose of the Campus management system is to have one single database through which they handle whole educational institutes' activities (Upadhyay& Dan, 2008; Laura et al., 2010). The potential use of technology improves the quality of education. However, it has been identified the user should have adequate computer skills as its usage depends upon skills and it has a positive impact on the teaching and learning processes. Technology is used to facilitate users and to improve their analytical and information-handling skills, while these skills are very important to acquire (Saravanakumar, 2018).

The goal of the management system is to solve various problems encountered by educational institutes. Around the world educational institutes are using the online educational management system. Internationally used systems are very much advanced and users have positive reviews about their system. The system they are using is called Spectrum management system used in UAE, Saudi Arabia, and the rest of the Middle East (https://www.eduserv.com).

According to Delone and McLean (2003), the addition of intention to use to the DeLone–McLean model is based on the idea that a user's attitude reveals their intention to use the system before they use it, whereas variable use is the behavior. After utilizing the system, the user will be satisfied with it (as measured by "user satisfaction"), which will lead to an intention to use it, which will be followed by actual use, which will lead to user satisfaction, and so on. However, as indicated in the DeLone–McLean model, the intention to use and the act of using are brought together or adhere to each other. It will be difficult to operationalize the measurement if the researcher does not know when to measure intention to use and when to measure actual use. Measurement of intention to

use as an attitude is "notoriously difficult to measure DeLone and McLean, 2003.

User satisfaction is influenced by the quality of service provided. Previous study by Ardianto (2013), Bakrie (2019), and Karim (2019) reveals that service quality has a major impact on user happiness. Student satisfaction will improve if the quality of academic services improves. The higher the quality of CMS supplied by universities to students, the more benefits the university will receive.

BI is expressed by variable intention to use, which is the antecedent for usage, in the updated DeLone–McLean model (DeLone and McLean, 2003). The intention to use is preceded by the quality of the information, system, and service. These three variables are derived from the technical side of IS, whereas the intention to use (BI) is based on psychological theory. Some research has attempted to pinpoint the root etiology of BI. The majority of these studies, such as (Baker-Eveleth and Stone, 2008), (Ceccucci et al., 2010), and (Jackson et al., 2010), are undertaken in technological showing support (Lu et al., 2010). Apart from information quality, system quality, service quality, and user happiness, BI (intention to use) is influenced by a number of additional factors, including perceived usefulness (PU).

The most frequently used model in delivering an online education management system was the system presented by DeLone and McLean (2003), in which they proposed the six-dimensional model for having a quality online education management system. This model was also modified after receiving views and criticism (Urbach& Müller, 2011). The successful implementation of the Campus Management system depends upon system quality, data quality, utilization, user happiness, and individual and organizational influence (DeLone & McLean, 2003). This technology has benefited educational institutions tremendously by increasing productivity, enhancing access to accurate and timely information, streamlining workflow, and reducing reliance on paper, knowledge exchange, and tight control (Bhamangol*et al.,*2011)

In the context of Pakistan, many factors are impacting the user management system. In light of the research conducted by Nizamani *et al.*, 2014, the lack of experience, and the non-availability of

resources are the key factors in this regard to improve performance. Similarly, it is important to examine the relationship between information system quality and its use by the end-users because researchers are still struggling with the information system and its success. Zafar et al. (2018) stressed in their research that we should focus on this information system model more comprehensively link it with end-user satisfaction and find out the measures related to dissatisfaction factors. Another study examined user satisfaction impact on the organization (Akroush *et al.*, 2015).

The study's purpose is to assess user perception regarding the campus management system (CMS) at Kohat University of Science and Technology, in the administrative department's teachers, and students, to examine user satisfaction and dissatisfaction with the module. A Campus management system is a highly customized and specialized Information system for higher education institutions (HEIs) or a modular campus management system adjusted for university.

Furthermore, for the successful implementation of the campus management system, it is mandatory to assess the review of the current Campus Management System and its quality as being used by the users at Kohat University of Science & Technology. The study will contribute not only toward the successful implementation and improvement of the system but also enhance its quality.

Significance of Research Study

The main reason to conduct this study is to take users' perceptions regarding KCMS and to give suggestions for more improvement of the system. During the pandemic, the university shifted to an online stream and it had a great impact on end-user satisfaction. Through this study, we examined the user perception regarding its different components; system quality, information quality, and service quality. The system can be made more efficient and useable if we find out all the obstacles faced by the user and further improve its user interface. This research highlighted the limitations of KCMS and suggested new features of KCMS to improve quality. Moreover, very limited research has been done on this system so it will also contribute in that respect too. The study has theoretical as well as practical importance. The

study contributes to the theoretical aspect of the relationship between user satisfaction and their intent to use. The study established the need to explore user satisfaction for the successful implementation of the management system. The study may lead to the improvement of the system by implementing findings and recommendations.

The rationale of the Study

The introduction of the campus management system is a recent phenomenon in higher education institutes in Pakistan. The novel has expedited the recent pandemic social distancing forced educational institutions to go online and introduces CMS. Since in a nascent stage user satisfaction regarding the campus management system is explored to improve its quality and successful implementation.

A campus management system has been recently introduced at Kohat University of Science and Technology user satisfaction is to be explored to improve its quality. No such study has been conducted the study as devised to investigate KCMS user satisfaction and intent to use.

DeLon and Mclean, (2003) and Hamdah *et al.* (2020) studied different factors/dimensions of the campus management system which has a significant effect on end-user satisfaction. There is a strong relationship between system quality and end-user satisfaction. Similarly, various studies have found a strong relationship between system quality, information quality, service quality, and end-user satisfaction (Benmoussa, 2018; Delone & McLean, 2003, Zafar *et al.*, 2016). Nizamani *et al.,* (2014) and Akroush *et al*, (2015) mentioned that many factors are impacting its use with users regarding the Campus management system and contend these factors are.
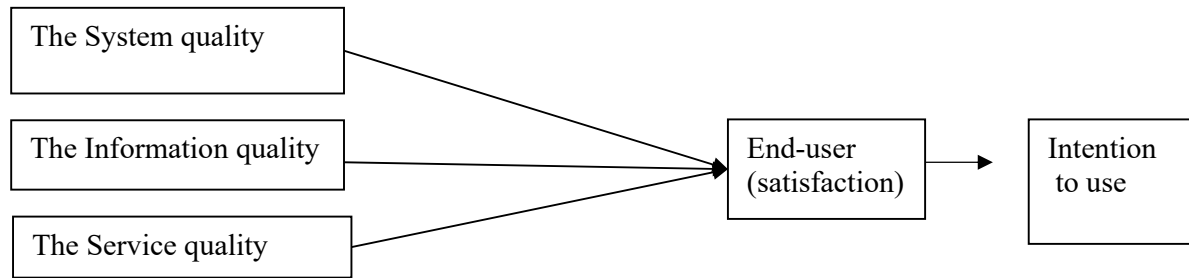
Objectives of the Study

The objectives of the study were to:
1. To assess the perception of the users about KCMS.
2. To identify the impact of quality dimensions of KCMS on its end-user satisfaction.
3. To compare users' perceptions regarding different dimensions of KCMS.

Conceptual framework of the study

Figure 1

Conceptual framework

Research Design and Method

A quantitative design was followed using a 5-point Likert scale questionnaire as recommended by Cohen et al. (1995) and Dornyei (2007). This quantitative research design is descriptive in nature in which data or information is gathered without changing the environment. The descriptive research design is also called co-relational research as it describes the existing situation, it describes the relationship between two or more quantifiable variables L.R (Mills& Gay, 2018).

Research Type

According to the nature of the study, a descriptive, as well as inferential research design, was adopted. The distinctive feature of descriptive research, also known as factual research, is that it describes data and features about the population or topic under study. The inferential aspect as targeted in the study covers the cause and effect in the shape of various dimensions of the KCMS on the users' perceptions.

Instrumentation/ Tool/Approaches/Device

According to O'Leavry (2004), a survey is a process by which the researcher collects data through a questionnaire. A questionnaire is a series of questions asked by individuals to obtain statistical and useful information about a given topic (Roopa & Satya 2012).

In this research, an adapted questionnaire was used for data collection for the study. The adopted Questionnaire is based on Nizamani *et.al* (2014) and Davis (1993) was used to administer for collecting data. Data were collected through the adapted questionnaires to know the end users' perceptions about the campus management system. SPSS (version 20) was used to analyze the collected data, and the results were targeted by the study's objectives.

Data Collection Method and Analysis

The questionnaire was comprised of two sections. In the first section the respondent's demographic data was collected they were asked about their computer literacy, internet usage, and how long they have been using computers. They were also asked about their ICT skills.

Section two was comprised of different questions related to system quality, information quality, service quality, end-user satisfaction, self-efficacy, and intention to use. Five Likert scale was used where respondents responses were taken in the form of strongly agree, agree, neutral, disagree, and strongly disagree

Descriptive Analysis of the Respondents' Responses

Table 1

Items	Mean	Standard deviation
System quality	3.33	1.12
Information quality	3.31	1.12

Items	Mean	Standard deviation
Service quality	3.3	1.7
End-user satisfaction	2.94	1.07
Intention to use	4.03	1.2
Self-efficacy	3.4	1.07
Total		

In the above-mentioned table, 514 respondents' responses were taken whereas we found that system quality has a 3.33 mean with SD (1.12) where we found that users were satisfied with KCMS system ease, reliability features flexibility, customization, in information quality mean=3.31(SD=1.12) KCMS provides the most accurate information, up-to-date information. Generates output/reports timely. Easy to understand, service quality mean=3.3 (SD=1.7) technological team provides services on a regular basis and knowledge to do their jobs well. Understands its customers and their needs well.

Technically competent, End-user satisfaction mean = 2.97 (SD=1.07) helpful for the university. Requires mental, difficult to use. Stiff and inflexible. Satisfied with the graphical user interface, intention to use, mean = 4.03(SD=1.2) academic/administrative purposes. Handling my academic, and administrative tasks use KCMS frequently this year. Self-efficacy mean = 3.4(SD =1.07) easy to use, confident in my ability to use, expertise, and understanding of a system to use for work.

Regression Analysis

Table 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.823[a]	0.654	0.799	0.62285	2.191

In the above output of linear regression in Table 4.4.1 we can see that the adjusted R square is equal to 0.79 and the most common interpretation of the adjusted R square is how well the regression model fits the observed data this means that the adjusted R square of 79% shows that 79% of the data fit the regression model. Usually, a higher R2

suggests a good fit for the model. The results show that the model explained 79% of the variation in the dependent variable (end-user satisfaction) through independent variables (system quality, information quality, and service). For these data, the adjusted R square value indicates that the model provides a good fit for the data**.**

Table 3

Regression Analysis I: Impact of three independent variables on end-user satisfaction.

Model	Standardized Coefficients Beta	t	P-value
	(constant)	18.310	0.000
	system quality	-0.250	-5.449	0.000
1	information quality	0.163	3.278	0.001
	services quality	0.214	4.424	0.000

In Table 4.4.1 results show that the explanatory variable, System Quality, Information Quality, and Service quality are statistically significant because their P-value is less than the significance level and have a great effect on a model In Table 4.4.1, we can see that some of the regression coefficients are

negative and some are positive, and the positive sign of regression coefficients tells us that there is a positive correlation between each explanatory variable and the response variable. A positive coefficient implies that as the value of the explanatory variable increases, the mean of the

response variable also tends to increase and a negative sign of regression coefficient indicates that as the explanatory variable decreases, the response variable tends to decrease.

Table 4
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.588ª	0.808	0.562	0.69257	1.529

In Table 4.4.2 we can see that the adjusted R square is equal to 0. 56 and an R square of 56% shows that 56% of the data fits the regression model. The model explained 56% of the variation in the dependent variable (Intention to Use) by independent variables (system quality, information quality, and service). In the output above in the table we can see that the predictor variables System quality and information quality are statistically significant because their p-values are less than the alpha value i.e., 0.05, and the predictor variable Service quality are statistically insignificant because their p-values are greater than alpha value i.e., 0.05.

Table 5
Regression Analysis I₁: Impact of Three Independent Variables On Intention To Use

Model	Standardized Coefficients Beta	P-value
1 (constant)		19.363
system quality	0.053	1.089
information quality	0-.010	-.186
Services Quality	0-.086	-1.684

In the above-mentioned table, the P-value of all predictors is greater than the significance level i.e. (0.05), usually, the p-value of predictors tests the null hypothesis that the coefficient does not affect the dependent variable and a high p-value (> 0.05) directs that we cannot reject the null hypothesis and we can say that the predictor variables are statistically insignificant. In above table 4.16, we can see that the P-values of System Quality, Information Quality, and Service quality are 1.089,0 .186, and 1.684 which are greater than the significance level i.e. (0.05), so the results indicate that System Quality, Information Quality, and Service quality are statistically insignificant and have no impact on the dependent variable (Intension to use).

To Compare Users' Perceptions Regarding Different Dimensions of KCMS.

Table 6
Students' perceptions regarding different dimensions of KCMS.

		Sum of Squares	df	Mean Square	F	Sig.
	ANOVA					
SQ	Between Groups	24.360	13	1.874	3.973	.000
	Within Groups	180.633	383	.472		
	Total	204.992	396			
IQ	Between Groups	46.053	13	3.543	7.228	.000
	Within Groups	187.704	383	.490		
	Total	233.757	396			
SSQ	Between Groups	37.720	13	2.902	8.638	.000
	Within Groups	128.645	383	.336		
	Total	166.365	396			

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
US	Between Groups	7.126	13	.548	1.960	.023
	Within Groups	107.140	383	.280		
	Total	114.267	396			

Variance

(ANOVA) tells us if there are any statistical differences between the means of three or more independent groups. When we conduct an ANOVA, we are attempting to determine if there is a statistically significant difference among the groups. In the above table, we can see that the p-value of variables Information quality (IQ), Service quality (SQ), System quality (SSQ) and User satisfaction (US) is very small as compared to the significance level (0.05), so we reject our null hypothesis that is all means are equal and conclude that the student's opinion about Service quality, Information quality, System quality and User satisfaction are different.

Table 7

Teachers' perceptions regarding different dimensions of KCMS.

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
System Quality)	Between Groups	14.526	5	3.631	4.109	.004
	Within Groups	88.388	100	.884		
	Total	102.914	105			
Information Quality	Between Groups	37.760	5	9.440	13.295	.000
	Within Groups	71.002	100	.710		
	Total	108.762	105			
Service Quality	Between Groups	47.546	5	11.887	20.348	.000
	Within Groups	58.416	100	.584		
	Total	105.962	105			
User Satisfaction	Between Groups	13.973	5	3.493	3.378	.012
	Within Groups	103.418	100	1.034		
	Total	117.390	105			

The analysis of variance compares the means of two or more independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different. The results in above table 3 show that all the variables are statistically significant and we can say that the teachers' opinions about Service quality, Information quality, System quality, and User satisfaction are different.

Table 8

Administration perceptions regarding different dimensions of KCMS.

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
SRQ	Between Groups	1.395	8	.199	1.027	.521
	Within Groups	.776	4	.194		
	Total	2.171	12			
INQ	Between Groups	4.156	8	.594	3.403	.127
	Within Groups	.698	4	.174		
	Total	4.854	12			
SYQ	Between Groups	3.199	8	.457	2.123	.244

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	.861	4	.215		
	Total	4.060	12			
	Between Groups	3.564	8	.509	5.029	.069
USR	Within Groups	.405	4	.101		
	Total	3.969	12			

In analysis of variance (ANOVA) we are attempting to determine if there is a statistically significant difference among the groups. In Table 2 the p-value of variables Service quality, Information quality, System quality, and User satisfaction is greater than the significance level (0.05), therefore we accept the null hypothesis that means all groups are equal and conclude that the opinion of the administration about Service quality, Information quality, System quality, and User satisfaction is same.

Discussion of the Study

As previously stated, there are three major dimensions to quality: "information quality," "systems quality," and "service quality." Each should be measured or controlled separately because, individually or collectively, they will have an impact on "user satisfaction" in the future. W. H. DeLone and E. R. McLean (2003).

Hudin et al. (2016) used the DeLone and McLean model to investigate the accuracy of successful information systems. They discovered that system and information quality have a significant positive impact on end-user satisfaction, and that user satisfaction has a significant positive impact on information system use. Arifin et al. (2012) used the DeLone and Mclean Model to investigate the impact of different dimensions on user satisfaction, and the results revealed a strong positive relationship.

The current study investigates users' perceptions of KCMS. All three (3) objectives of this research were met with success. The frequency of positive user responses to KCMS was indicated by the results. According to the survey results, the majority of the respondents acquired numerous benefits from KCMS. It can be seen from respondent feedback that there is a strong relationship between system quality, service quality, information quality, and end-user satisfaction with significant p-values (0.05) and (r =0.79), indicating a positive and strong relationship between dependent and independent variables. Furthermore, respondents stated that it is beneficial to use KCMS for their tasks, particularly managing class activities, uploading courses, results, admissions, recruitments, and finance. However, in the intention to use system quality, information quality, and service quality have a negative impact on each other with a p-value of more than (> 0.05) and (r=0.56). Moreover the impact of system quality, and service quality have a positive impact on each other but information quality has a negative impact on self-efficacy with greater p-value (>0.05) and the (r=88). Along with that different quality dimension correlation was checked by using the Pearson correlation in which we found high, strong, and positive between system quality, information quality, and services quality with end-user satisfaction with the values, system quality (0.75), information quality (0.84) and service quality (0.89) it shows high and positive correlation between these variables, and user satisfaction is highly important for the success of this system. However system quality showed a weak relationship with information quality and service quality but a strong relationship with self-efficacy and intention to use. Information quality also showed a weak relationship with service quality, system quality, and self-efficacy. In service, it showed a weak relationship with system quality and information quality but a strong relationship with self-efficacy and intention to use.

As for the last objective users' perceptions were compared with each other and it was found that students and teachers were more satisfied and using the system with accuracy with a p-value less than 0.05, however, administration staff was found dissatisfied with quality dimensions of the KCMS with p-value more than 0.05 which an insignificant value.

Conclusion of the Study

1. The study concluded that the majority of the users agreed with the good system quality of KCMS. System quality has positive and strong relationships with end-user satisfaction.

2. The study concluded that users have a positive perception regarding the information system of the KCMS, as they found it informative and accurate. It also showed a strong relationship with end-user satisfaction which is highly required for any system success.

3. The study concluded that users have a positive perception regarding the service quality of KCMS. It also showed a strong relationship with end-user satisfaction.

4. The study concluded that end-user satisfaction has a strong relationship with system quality, service quality, and information quality.

5. The study concluded that intention use has no impact on system quality, information quality, and service quality, it shows a moderate correlation with end-user satisfaction

6. The study concluded that teachers and students are using the system with accuracy and they are satisfied with the quality dimensions.

7. The study concluded that administrative staff is not fully satisfied with quality dimensions they have shown weak comparison with each other.

8. With the growth of management support systems and the advent and development of technology systems, systems use is more common today than it was a decade ago. We, therefore continue to support "end-user satisfaction" as an important factor for successful implementation of the system. It is based on the result analysis.

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