Exploring The Potentiality Of Information Technology Integration Within Customer Relationship Management And Knowledge Management In The Postgraduate Educational Organizations

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1.   ABSTRACT: Customer Relationship Management (CRM) has emerged in recent years as one of the most challenging issues and an outstanding point in the world. There is a minority of Higher Education Institutions (HEIs) adopting CRM systems as the reviewing literature indicated that there is a lack of wide-ranging researches that discussed the association of CRM with the educational organizations performance. The aim of this paper is to measure the effectiveness of implementing CRM systems and technology on the higher education organizations by assessing how well these systems perform in promoting students' relations and raising customer satisfaction awareness in order to successfully attract, retain and serve them. For that reason, building a sustainable relationship with students is the keystone for acquiring loyal profitable ones. The study relied on the descriptive and analytical approach using both Qualitative and Quantitative methods to describe the subject in a comprehensive and accurate manner through data collection and analysis of the CRM impact on Customer satisfaction. This was accomplished by interviewing key managers from various educational service areas; in addition, survey questionnaires were distributed to a population of postgraduate students in order to obtain a deeper understanding. Since there is a substantial volume of documents and manual work that constitute quite a lot of limitations, this requires data integration into a system which can be accessed at any given time. The findings seem to provide a remarkable contribution to the development of the postgraduate educational services. Meanwhile, CRM remains a discussed phenomenon, the collected data help reaching better familiarity with the topic. Regarding a successful implementation of a CRM strategy, unlimited benefits to the HEIs are supposed to be gained. Such EIs can realize increasing revenue through better market segmentation, customizing and providing high quality services, accessing information in order to achieve scholars' satisfaction, and above all, ensuring long- lasting students'-retention and loyalty.

2.   INTRODUCTION

Customer Relationship Management (CRM) evolved to be of considerable use to higher education organizations, for ensuring long-lasting scholars' retention and realizing loyalty. Dowling (2002) affirmed that it is worth mentioning that building a sustainable relationship with customers is the keystone for acquiring loyal profitable ones. As Alomtairi (2009) stated, such organizations can realize unlimited positive impacts by increasing revenue through better market segmentation, customizing and providing high quality

services, accessing information to achieve students' satisfaction. Throughout a typical supply chain model, such institutions should view students as customers, and knowledge as the service rendered to them in order to attract, retain and serve students effectively. The educational marketplace is in need to sustain a competitive advantage in the powerful, global developed higher education value proposition.

The aim of this Paper is to assess the effectiveness of CRM systems to be implemented on the educational organizations by measuring the performance of promoting students' relations and raising customer satisfaction awareness. If leveraged properly, valuable insights about the students can be provided to develop strong and personalized relationships with prospective and current learners as well as the graduates. Satisfied students are repeat customers and willing to recommend the brand to their friends and family. Customer loyalty, which is a significant factor in word-of-mouth marketing, increases when providing a solid customer retention strategy. Best Customer Retention Strategies your Business Should Use, (2020).

Customer retention which is considered the next level in the customer satisfaction hierarchy is probably its best measure. Today, Educational organizations must build positive relationships and loyalty to their end customers (i.e. enrolled students, postgraduate students and graduates), because without a considerable number of repeat customers EIs will not long standing. Deif, M. (1998), affirmed that loyal customers become a source for new marketing strategy by means of positive word- of-mouth recommendations. In addition, recent research about service-related businesses strongly indicates that revenue and profitability are higher for processes made by repeat customers than for processes made by first-time or one-time customers (Ibid, 1998).

Managing all the organization's relationships and interactions with actual and prospective customers is the goal to improve relationships for growing the business. Buttle and Stan (2015) affirmed that CRM helps being connected to them, streamline processes, and improve profitability.

3. RESEARCH PROBLEM AND OBJECTIVES

Earlier research found limited impact of CRM themes and aspects on service key performance indicators (KPIs) in the HEIs. Large sector in the postgraduate education deserves more attention within the admission and registration processes to offer distinguished services for the Students. Recently, most of the EIs realized that a system must be applied to services, since students turn out to be the cornerstone for any organization providing educational services.

There are several constraints (gaping flaws) in following up number of the admission and registration procedures for students, as well as a significant amount of paper and manual work; as follow-up operations for students have several limitations. EIs that are not in recourse of a CRM system will be facing rigorous competition from the new educational organizations. Therefore, this paper offers a solution in order to realize some of the main *following research objectives:*

1. Applying a system that can lead to competiveness among new peers and insuring customer long- term relationships and students loyalty

2. Proposing a smart system by fully digitizing all data and processes.

According to Smith A.D. (2006), any organization needs to implement a CRM system to move beyond the conventional methods of providing services considering it as a competitive advantage. Special features of innovation in service and creativity, moreover building particular characteristic allow any Educational Institution (EI) to be unique in comparison to other competitors, and therefore cause more customers to be attracted and eventually trigger their loyalty.

EIs have to adopt one of the CRM practices in order to build student relationships and ensure excellent services to them before and after graduation through the recruitment of the factors that influence their motivation to the degree completion. Consequently, it will be the strategy to work on to ensure highest customer satisfaction and to gain the return on student experience in terms of goodwill as well as the great revenue.

Data has to be integrated in a system where each department can access at any given time. The information-sharing platform should consist of all the enrolled and graduates students' profiles, with all the relevant details. Students should expect that staff members have then a common understanding about their data, related to contact details, academic performance, qualifications, attendance for lectures, educational progress, all financial details, and so on.

Educational Organizations need to be aware of the students' expectations, and must always have to make necessary arrangements for them to enjoy excellent service all time through managing interaction with current and potential future students. Accordingly, CRM plays a significant mediating role in ensuring the highest levels of satisfaction that contribute to sustaining the long-term relationships with the scholars. So, it is the process of minimizing the gap

between the students as customers' expectations and experiences by offering excellent services within the organization's value system with equitable relationships at all stages (Adikaram,C., et al., 2016).

The Educational Organizations will be directly impacted by this study and has the potential to advance communication and set a benchmark for all entities.

4.   RESEARCH METHODOLOGY

The methodological approach is qualitative, quantitative, or mixed of both (i.e. triangulation) that is used to conduct research studies (Creswell, (2017); Burns and Bush (2014); Zikmund, (2013); Guba, E.G. and Lincoln, Y.S. (1994)). The study focus is on collecting, analyzing, and interpreting numerical data in a structured way using statistical techniques and a large representative sample of the population.

A deeper understanding of how HEIs can implement CRM is presented to gain sustainable competitive advantages in order to increase its efficiency and effectiveness intending to improve customer services for satisfying students and graduates as well as empowering employees, resulting in a qualitative approach. The research has been completed by constructing a conceptual structure that is carried out prior /subsequent to collection of data.

This is not a prevalent method that can be performed immediately regarding answers. It requires patience, time and tools to piece together a conceptual model as presented later in Figure 2.

The descriptive exploratory design was used to be able to describe the relationship between understanding the concept of CRM and how to be applied. As well as the results would examine its presence according to the research field and scope.

Research approach

In research methodology, both qualitative and quantitative approaches, especially in the field of education, have been taken into account. Abuhamda and her colleagues Ismail and Bsharat (2021) go to that these approaches are regarded as two practical and essential methods in the majority of research studies. Data, whether qualitative or quantitative, cannot indicate or explain something alone; it must be analyzed in order to reveal its significance based on the research questions. Each type of data requires a different method of analysis.

The case study in this research has the purpose as an adaptable qualitative technique of investigation that has a remarkable integrated functionality throughout

other qualitative methods. It is one of the research methods in social sciences, that is, the characterization of the situation and incidents, as well as a description of the process of discovery of these elements, which is the research process itself.

Specific information, same questions need to be asked in each interview. A list of specific questions was prepared and an interview schedule has been produced, as well as topics to be discussed. [Ref. Practical Research Methods, (2002)].

The case study

Both qualitative and Quantitative methods were used. The utility and viability of research methods are not defined by following methodological rules; rather, they are determined by the particular environment and phenomena to be investigated, as well as the actual implications of the research strategy (Maxwell. 2012). The case study is presented including survey Questions with students, and interviews with staff management, some enrolled students as well as graduates too. In addition, this study used focus groups with learners in order to have a wide range of responses during one meeting. The qualitative and quantitative data analysis used in this research paper was applied to broaden the scope of developing a better understanding of how the HEI can apply the CRM to add value to postgraduate studies sector through learners and concerned staff management as well as the instructors. The data collected from interviews used content analysis which enabled organizing the qualitative data in order to meet the study objectives and facilitates the reduction and simplification of data while providing outcomes. Data collection is classified into themes and sub-themes so that it can be compared. The qualitative research design is showed in the following research Design Figure 1.
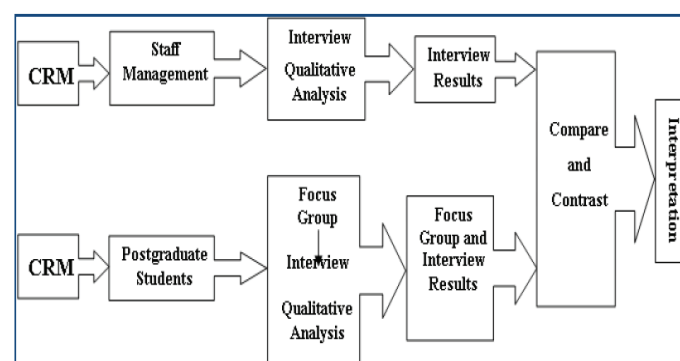

Figure 1 Qualitative Research Design

Once the interview guide and the questionnaire were outlined, a pilot test was carried out to develop the interview questions and the survey questionnaires for participants in order to conform that theoretical and practical terms identified were appropriate to the EIs

and to identify the key persons whom responsibilities and duties allow them responding the questions accurately.

The ethical considerations issues concerning the focus groups and interviews have been followed according to the rules. It also represents the discussions of the qualitative and quantitative approaches that have been used in the study: the interview, the focus group and the survey questionnaire.

5. FINDINGS AND DISCUSSION

A CRM system can improve the efficiency of EIs by centralizing, optimizing, and streamlining students' communications. Whereas, it is the technique of analyzing and utilizing databases and communication technologies in order to establish professional guidelines and methods that would enhance the lifetime value potentiality of each individual customer to the organization. (Shaw, E.A., 2018 and Chai, W., 2020).

The key constructs that constitute the findings presented in Table 1 might significantly have contribution to the educational services, and thus preparing distinguished elite of graduates and postgraduates to serve in the country's diverse sectors. (Deif, N. 2022)

The interview started with questions concerning the variety of study programs offered at the Educational Institute postgraduate sector, Learners specializations and their background experiences.

These subjects are *"Diversity of Postgraduate Programs and Postgraduate students background experiences"*, *"Educational Institution's Reputation and Customer Orientation"* and *"Customer Trust"*. Then, questions about the available *"EI resources"*: The Information provided, *"Advising and Guidance"*, and the *"Evaluation levels of Customer Satisfaction"* throughout their studies to the graduation phase. Questions ended with the Conclusion of *"Word of Mouth"*, where the interviewees were asked about their *"Recommendations to new comers for the EI E-Channels"* and what are their "Advices for others".

Table 1 Students Key Constructs

Constructs	Themes
I. Key Constructs: Educational Organizations Reputation and Customer Orientation	1. The Diversity of Programs and students Background experiences
	2. Customer Trust
II. Key Constructs: Importance of CRM: Considerations and Assessment for Applying a CRM System, available Resources and Evaluation of Customer Satisfaction	1. Available Resources Allocation
	2. Customer Focus: Guidance and Advising
	3. Evaluation Levels of Customer Satisfaction
III. Key Constructs: Word of Mouth	1. Recommendations to new comers for E-Channel 2. Students oriented advices to others for Registration and Enrollment.

Interviewees are classified into two groups: graduates and others who are currently in various phases of study, whether they are attending lectures or conducting their researches. The fact is that the majority of them actually be managing working and studying at the same time.

Some questions were asked to discover to what extent the EI's reputation is and to explain how the new comer students were guided through the institution orientation including information about it, several activities and diverse studies fields. As well as evaluating the EI channels whether on websites, the different media, advertisements or word of mouth and their trust.

Most of the respondents agreed upon the sufficient

of the provided information concerning the different programs, schedules and fees and how smooth was the online web. A represented percentage agreed upon the clarity of the goals established for EI's development and the main objective for the acquisition and retention of the students, and some of the interviewees declared the need for a student mentor system. The majority are satisfied with the workflow, the organization change and performance, and tuition fees value.

The postgraduate students shared their recommendations regarding the entity with newcomers and also what guidance they could give them.

According to the respondents' feedbacks and Recommendations, it is necessary to apply a CRM

system in order to achieve the students' satisfaction through building a sustainable relationship with them. Customer oriented approach, good communications, and system's flexibility lead to attract and retain more students. Now, Customers' relationships are regarded as a key component in the organization in the global market. CRM is one of the considerations of management decisions that leads to have an easier system for admission and registration.

The method of data processing, the understanding of statistical methods and the requirements of each method for certain conditions and hypotheses which are important parts within the research design stages, and that are shown in the Research Model represented in Figure 2 are necessary to give correct results. The SPSS program (Statistical package for social sciences), which is an integrated computer package for data entry and analysis and one of the most important, comprehensive and most common statistical programs was used when dealing with questionnaire forms.
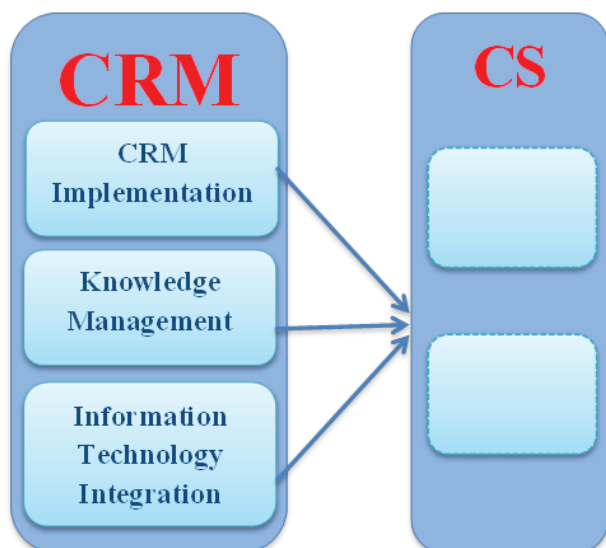

Figure 2 Relationship between CRM and its Variables with Customer Satisfaction

The descriptive statistics presents the different types of Statistical techniques that were used to test the research hypotheses and illustrates the outcomes of the Quantitative analyses. It shows the description of the study variables i.e. (Correlation and Regression).

A. The results of the effect of CRM at customer satisfaction in educational institutions are:

There is a strong direct correlation between customer relationship management and customer satisfaction, where the value of significance = 0.01 is less than (α = 0.05).

So the correlation between CRM and the customer satisfaction variables has been proven, which is the study's main Hypothesis.

It can be concluded that customer relationship management influences customer satisfaction. In other words, the better customer relationship management, the higher the level of customer satisfaction is.

Table 2 shows the relationship between customer satisfaction constructs and CRM

		CRM
Customer Satisfaction variables	Correlation coefficient	0.64*
	The value of significance	0.01

*. Correlation is significant at the 0.05 level (2-tailed)

B. The results of CRM practices in educational institutions are:

CRM practices in EIs, in order of their importance, is as follows:

1. **CRM implementation** (with a mean of 4.94) correlation coefficient 0.87** /the value of significance 0.000.

2. **Knowledge management** (with a mean of 4.70) correlation coefficient 0.940** /the value of significance 0.000.

3. **Information Technology Integration** (with a mean 4.84) correlation coefficient 0.890** / the value of significance 0.000.

There is a strong positive correlation between CRM and (CRM implementation, Knowledge management, and Information technology integration) where the value of morale is less than (α=0.05). Table 3 shows the relationship between CRM and its variables:

Table 3 Relationship between CRM and its variables

		CRM
CRM Implementation	Correlation coefficient	0.870**
	The value of significance	0.000
Knowledge Management	Correlation coefficient	0.940**
	The value of significance	0.000
Information Technology Integration	Correlation coefficient	0.890**
	The value of significance	0.000

**Correlation is significant at 0.01 level (2- tailed)

C. The results of customer satisfaction variables in educational institutions

(The detailed variables *presented and discussed in another research paper*) are significant and have a strong direct correlation.

There is a strong direct correlation between the customer satisfaction variables, where the value of significance is less than ($\alpha = 0.05$).

6.   IMPLICATIONS

The marketing situation today makes greater requests to learn about customer preferences, value establishment, products and service customization. Product-centric plans cannot address these advanced requests, but customer-centric plans are developing in response. In exactly this environment if CRM implemented properly, it might represent a challenging competitive means to satisfy new demands. Marketers need a management methodology that realizes increasing customer heterogeneity and addresses concerns about promotional responsibility. Furthermore, that can set available data to suitable usage and includes customer profitability as a significant objective function. This approach is named customer value management. Direct Marketing Association (2010).

7.   CONCLUSIONS

Customer Relationship Management has become a component part of business strategy and is not considered only as a marketing tool. The strategy supports management decision making, while using the existing information in the organization and, more importantly, the use of information technology for the marketing programs of the organization.

Today, CRM systems are not just for business, but also help HEIs around the world to provide broad professional experience with distinct challenges and opportunities, from recruiting and marketing to student success and leadership development. In this regard, the need to develop HEIs' strategies for the attraction and retention of students is considered as strategic orientations.

The cumulative availability of technology allows organizations to collect and analyze customer-level data and cooperate with customers consecutively. Rapid changes in the environment in which organizations perform need the growth of new market strategies and a change from a product or service-only focus toward a customer-centric suggestion.

When HEIs implementing the new technologies, they will be experiencing an improvement in reducing the applications processing time and transitioning to a paperless application process to accommodate and become more environmentally friendly for both Management and students in the digital age. CRM systems help HEIs organizing data and guiding students throughout their college lifetime to postgraduate; saving the institution staff time by automating repetitive and operational time, as well as transferring the registration process from complicated spreadsheets to an accessible web cloud.

Recommendations

Through the theoretical study and the field study, and through the information obtained, a number of the following recommendations and proposals can be reached:

First: CRM Effect at Customer satisfaction in educational institutions:

HEIs must develop CRM programs to achieve their goals as it provides information relating to customers, such as purchasing behaviors, consuming habits products, services and others. These data and information are used to improve understanding of how to communicate with customers in order to create value and customer satisfaction.

Second: CRM in educational institutions:

1.   **CRM implementation:** These are some CRM implementation best practices in today's Education Environment:

    1. Map out institutions.

    2. Having the best CRM apps.

    3. Thinking about integrations.

    4. Selecting a CRM implementation team.

    5. Set out the organization's metrics, KPIs and goals.

    6. Plan a comprehensive budget.

    7. Rollout the CRM for an initial stage.

    8. Analyze all the collected data and get feedback.

2.   **Knowledge management:** These are some Knowledge management best practices in today's Education Environment:

1. Identify Knowledge Management Goals.

2. Choose Knowledge Management Software that Is Easy to Adopt.

3. Don't Stray from The Knowledge Management Process.

4. Look at Knowledge as an Asset.

5. Consider Employee Needs.

6. Don't Forget the Ultimate End-User: Customers.

7. Monitor Knowledge Management Success with Metrics.

3. **Information Technology Integration:** These are some Technology best practices in today's Education Environment:

- Classroom culture: creating a classroom culture supportive of all needed technology.

- Making sure to communicate the learning objectives to the class, when students know what the objectives are, they can focus on the lesson and are more likely to feel motivated to achieve these goals.

- Keep flexibility and patience for emergency purposes.

- Keep students engaged: Adding some variety to the lessons. Implying alternating between few activity types or platforms keeps students engaged.

- Encourage collaboration: To make classes more interactive, have students' team work groups.

- Having support: Chances at the colleagues would help.

- Give feedback: Feedback lets the learner know exactly where they stand with the material, plus it enhances learning and improves a learner's enthusiasm.

Future Work

Despite the interesting findings and implications that emerged from the current study, it is important to recognize its limitation and the need for additional research to enhance the comprehension of the antecedents and consequences of customers' perceptions of CRM after service encounters involving service success.

It is important to investigate customers with different relational orientations since this study revealed that customers behave similarly regardless of the relationship they hold with the organization. Future research can use the framework in the context of service success.

Gathering useful relevant information about the subject including all the necessary details and having easy access to the content with the minimum steps are some of the Characteristics that can help a CRM system effectively. This could come across by finding the right CRM tool for the organization in order to help in analyzing and understanding its requirements as well as working on reducing administration costs and increasing the effectiveness of marketing competition in traditional and electronic markets by optimizing campaigns, product/service configurations, and pricing.

Increasing customer responsiveness and time of customer service, as well as surveillance about the performance of team members and implementation development by improving customer service and enhancing the appearance of the organization, should be done at all stages for building customer loyalty, reducing customer defection, and identifying new opportunities.

Extended CRM models could include software consumption, which hence requires *Cyber security measures* and organizations have to continue to invest in *Artificial Intelligence (AI)* to automate tasks and augment CRM users as AI and automation would improve CRM outcomes.

Organizations should stay on top of emerging technologies as long as digital transformation is disrupting how business would be conducted. This would help deciding on what technologies to adopt and when to depend on their organizational roadmap and long-term goals.

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