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Proposed Analytic Framework for Student Relationship Management based on a Systematic Review of CRM Systems Literature

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Abstract: Notwithstanding the research attention given to the importance and capability of the student relationship management strategy in higher education sustainability, there is no any systematic framework for implementation. This research as one of the preliminary studies has been undertaken to provide a structural framework of strategic practices for positioning this strategy at an operational level. In doing so, a methodological approach was implemented in two tiers. Firstly, a systematic review of the leading-edge literature on the customer relationship management systems was performed owing to the lack of significant research on the topic, as well as the structure and nature of the concept. Then, the principal components factor analysis with varimax rotation, which is a method of exploratory factor analysis was used to finalize the research. The findings revealed an articulated structural framework with five hypotheses, which may partially or fully be applied to narrow the major gap in the current knowledge. The measurement scale has also been developed for simplification in implementation of the application. Limitations and directions for future research were accordingly discussed.

Keywords: student relationship management; customer relationship management system; systematic review; exploratory factor analysis; conceptual framework

1. Introduction

The theme of student relationship management (SRM), which emerged from the customer relationship management (CRM) system, has established itself as a distinct identity for research over the last decade (See Table 1). Hilbert et al. [1] (p. 209) described it as "a fundamental strategic orientation of the entire academy aiming at the increase of student satisfaction and the creation of additional value for the students as well as for the academy". Ackerman and Schibrowsky [2] stressed the importance of SRM as "an institutional philosophy, which contributes a different view of the institution's interactions with students (p. 328)". They found the higher education future in shaping the sustainable relationships with students under this notion, which agrees with the standpoints of Rowley [3] and Seeman and O'Hara [4], who believe sustainability in the educational institutions depends on the ability to make paradigm shifts in the system, as well as the capability to construct the meaningful relationships with both current and potential students. Going through the literature,

as summarized in Table 1, it is found that SRM constitutes a strategic orientation for maximizing the student value through meeting the students' needs, as well as for advancing the institutional sustainability through sustainable relationships development.

Table 1. Brief descriptions of the articles published on student relationship management (SRM).

Author(s)	Title	Paper Type	Objective
Hilbert et al. [1]	Student relationship management in Germany: foundations and opportunities	Theoretically based	To introduce the topic of SRM.
Ackerman and Schibrowsky [2]	A business marketing strategy applied to student retention: a higher education initiative	Theoretically based	To explore a business relational managerial strategy to the retention of students.
Piedade and Santos [5]	Student relationship management: concept, practice and technological support	Theoretically based	To present a technological tool to assist the university in the process of SRM.
Piedade and Santos [6]	Business intelligence in higher education: enhancing the teaching-learning process with a SRM system	Empirically based	To present some of the results obtained through implementing the prototype of the SRM system.
Shannaq et al. [7]	Student relationship in higher education using data mining techniques	Empirically based	To advance the quality of the higher educational system through improving SRM using the data mining processes.
Drapińska [8]	A concept of student relationship management in higher education	Theoretically based	To provide a novel concept of SRM in higher education institution.
Kongsakun et al. [9]	Neural Network Modeling for an Intelligent Recommendation System Supporting SRM for Universities in Thailand	Empirically based	To develop an intelligent recommendation system in support of SRM for Thailand higher education.
Lechtchinskaia et al. [10]	Requirements analysis for a student relationship management system—results from an empirical study in Ivy league universities	Empirically based	To examine the requirements of a SRM system in the four largest Ivy League universities.
Radenković et al. [11]	Providing services for student relationship management on cloud computing infrastructure	Theoretically and empirically based	To develop the e-learning system through providing the SRM services on cloud computing infrastructure.
Fontaine [12]	Student relationship management (SRM) in higher education: addressing the expectations of an ever evolving demographic and its impact on retention	Theoretically based	To investigate the impact of SRM on higher education sustainability.
Vulić et al. [13]	Student Relationship Management Using Social Clouds	Empirically based	To implement and develop the concept of SRM in an e-educational system using social media.

While the significance of implementing an effective SRM has been stressed in the educational institutions that are the academic powerhouse in creating the needed human capital to support sustainable development, there is insufficient empirical and theoretical research. To date, no previous studies have explicitly and systematically addressed a comprehensive framework/model of SRM. Surprisingly, it is in accord with the investigation of Hilbert [1], who concluded that a common model is still missing, highlighting the major gap regarding this missing link in the educational systems. Thus, an opportunity exists for innovative research. This study has attempted to make a valuable contribution theoretically and empirically, with the objective of providing a framework that positions SRM at an operational level.

To achieve this goal, this article has been designed as follows: Section 2 clarifies the research methodology to implementing the study's objective; Section 3 presents the theoretical framework obtained by a systematic review, indicating how the CRM system was adopted and applied for developing the SRM strategy. This leads to providing a hypothetical account; Section 4 reveals the results and findings obtained by the analyses according to the research methodology step by step; Section 5 describes an integrative discussion of the research results and findings; Section 6 provides

a conceptual framework and hypotheses as well as the limitations for future research; and Section 7 outlines the final conclusions.

2. Research Methodology

This research is an exploratory research, as performed for a problem that has not more clearly been studied so far. From the exploratory objective viewpoint, it is descriptive and analytic. It begins with a systematic review of the literature at the first step and proceeds with an analytic approach to finalize the research at the second step. These steps discuss in more detail below.

2.1. Systematic Review

As mentioned earlier, the SRM strategy was emerged from the CRM system—moreover, no systematic efforts have been made to operationalize this strategic approach. Therefore, this step is aimed at clarifying the CRM concept and exploring its strategic practices. To do so, a systematic literature review has been performed for this investigation. This type of reviews is particularly useful for (a) conducting an in-depth analysis of the leading-edge research and integrating the result of research on emerging matters [14] and (b) evaluating and summarizing the existing studies that address a particular issue and providing a framework/background, so as to properly place new studies activities [15]. Two main actions for performing this review are taken out in this step of the research, as addressed below.

2.1.1. Designing the Review Protocol

The protocol is a crucial part of any systematic review [15]. To design a review protocol for this study, a quality assessment checklist according to Kitchenham [15] was applied to assess the individual studies published in the ISI Web of Knowledge and Scopus databases from 2000 to 2017. Accordingly, the checklist involves the following questions: (1) Does the article clearly specify the methodological approach? (2) Is the methodological approach relevant to the problem under study? (3) Does the article properly perform the analysis? If the article fulfills the quality criteria, then it is eligible to include in this review.

2.1.2. Selecting the Articles

Three main stages for selecting the articles have been implemented in this study as follows: The first stage involves a systematic search for studies associated with CRM from 2000 to 2017. The ISI Web of Knowledge and Scopus databases have been employed as the quest engines, for various keywords including "customer relationship management", "CRM", "successful CRM", "CRM models", "CRM critical success factors", "CRM strategic practices", and "CRM scale development".

The second stage begins by focusing on journal publications: the conference papers, editorial material, book review, meeting abstract, correction, retracted publication, book chapter, and reprint were excluded. Next, searches were administered in the publishers' databases including Elsevier, Taylor & Francis, Emerald, Springer, Sage, and Wiley. The search has also eliminated the studies that were not available for download or not written in English.

Finally, the authors have individually studied the full text to take the papers into consideration. The articles that did not discuss CRM from a practical/operational point of view were also excluded from the review. This restriction has secured the concentration on the theoretical-empirical publications associated with the issue. As a result, 20 remaining articles were taken into account for further analyses. These 20 papers that meet the assessment criteria were particularly studied as a critical appraisal of the content, which was outlined in Section 3. The outcome of this appraisal has briefly been described in Table 2.

Table 2. Literature comparison against the customer relationship management (CRM)'s strategic practices, with the addition of the objective(s) of each analyzed study.

Author(s)	Objective(s)	Knowledge Management	Organizational Elements	CRM Technology	Customer Orientation
Croteau and Li [16]	To propose a research model that contributes to recognizing the CRM critical success factors.	√	√	√	
Chen and Ching [17]	To examine the relationship among IT intensity, organizational absorptive capacity and CRM practices and performance.	√	√	√	√
Reinartz et al. [18]	To conceptualize and operationalize an underlying structure of the CRM processes, as well as to investigate the organization's performance results of performing these processes.		√	√	
Yim et al. [19]	To conceptualize the CRM domain as well as to examine the impact of implementing CRM on the business performance metrics.	√	√	√	√
Jayachandran et al. [20]	To conceptualize and investigate the functions of relational information processes and technology in CRM.	√	√	√	√
Sin et al. [21]	To develop a valid measuring scale for customer relationship management.	√	√	√	√
Mendoza et al. [22]	To present a valid model of critical success factors, which constitutes a guide for organizations in implementing the CRM strategy.		√	√	
Love et al. [23]	To test a research model of CRM critical success factors in the context of building material suppliers.	√	√	√	
Chang et al. [24]	To propose a comprehensive framework that translates the CRM technology into organization's performance as well as to generalize the mechanisms included in implementing the CRM success.	√	√	√	√
Garrido-Moreno and Padilla-Meléndez [25]	To propose an integrated framework of factors affecting CRM success as well as to provide some empirical evidence about the mediating role of the organizational factors on CRM success.	√	√	√	√
Yang [26]	To demonstrate the impact of several individual service capabilities and their interactions on CRM performance in the banking industry.	√	√	√	√
Abdullateef and Salleh [27]	To examine the impact of CRM system on call center quality performance.	√	√	√	√
Chuang and Lin [28]	To investigate the effect of infrastructure capability and customer orientation on enhancing the customer information quality which improves customer relationships and firm performance.		√	√	√
Martelo et al. [29]	To determine the relationship between market orientation, knowledge management, and CRM as well as to examine the impact of this relationship on creating superior customer value.	√	√	√	√
Wang [30]	To evaluate the CRM implementation in hospital-based and privately-run nursing homes.	√	√	√	√
Garrido-Moreno et al. [31]	To provide a research framework which draws the path from CRM technology infrastructure to CRM success.	√	√	√	

Table 2. *Cont.*

Author(s)	Objective(s)	Knowledge Management	Organizational Elements	CRM Technology	Customer Orientation
Padilla-Meléndez and Garrido-Moreno [32]	To identify and analyze the critical success factors for implementation of CRM.	√	√	√	√
Garrido-Moreno et al. [33]	To present a research framework that explores the link between knowledge management processes and CRM performance	√	√	√	
Cambra-Fierro et al. [34]	To analyze the simultaneous effect of Market Orientation, Knowledge Management and other organizational factors for the sake of implementing a successful CRM.	√	√	√	√
Mohammed et al. [35]	To examine the impact of CRM on marketing capabilities and organization's performance in the hotel industry.	√	√	√	√

2.2. Analytic Approach

This step is aimed at measuring the exploratory variables, assessing the reliability of measurement scales, and forming a smaller number of coherent subscales with a minimum loss of information, defining the fundamental structure among the variables assumed. In doing so, the exploratory factor analysis (EFA), which is a method of factor analysis, is employed. Three main actions for implementing this method are taken out in this step of research, as explained in the following parts.

2.2.1. Designing the Exploratory Survey

To design a EFA, two basic questions should be addressed [36]: (1) What variables are involved? and (2) what is the desired sample size to measure the variables? The first question has been addressed based on a review of the state-of-the-art literature on the CRM system owing to (1) the lack of significant research on the topic and (2) the structure and nature of SRM. Therefore, to create the initial variables relating to the SRM strategy, the authors examined the significant checklists of the articles relevant to the CRM system that were commonly applied by researchers. This exploratory review was in pursuit of the notion that CRM success is predicated on addressing the main ones in the four core domains, as described in Section 3. Consequently, 36 variables were identified and modified according to the variable-based checklist of Garrido-Moreno and Padilla-Meléndez [25], who have explicitly and systematically addressed the developed scale of leading articles, particularly [21], to develop their checklist. These variables, along with the respondents' answers on them have been presented in Figure A1.

In operational and managerial studies, the non-probabilistic convenience sampling can be employed to obtain primary data concerning the specific issues such as collecting opinions of respective customers with respect to a new design of a product or service. This technique of sampling has widely been applied, and its sample collection process is continued until the expected sample size is met [37]. Due to varied rules of thumb, there is a lack of consensus on the sample size necessary to utilize EFA [36,38,39]. Hair et al. [36] recommended that the minimum absolute sample size should generally be 50 observations, and preferably it needs to be 100 or larger in implementing EFA. Moreover, Sin e al. [21] and Nejati and Nejati [40] have approved their exploratory survey on data obtained from a study with 150 and 125 samples, respectively. Therefore, in this study, in order to examine the initial variables and to reveal its factorial structure, 151 samples were totally collected from the local and international students of the Universiti Teknologi Malaysia (UTM, Johor Bahru, Malaysia), that is a top-ranking research university in Malaysia. There are a variety of ways, settings, and sources to collect data in the survey research, which has had a significant history and contribution to advancing the scientific knowledge. Questionnaires are considered to be the main method to collect data in such research [37].

Once the variables and sampling are specified, the correlation matrix can be assessed to apply EFA to recognize an underlying structure of relationships. In this regard, the decisions must be produced regarding (1) the selection of a factor method for extracting the factors and (2) the specification of a factor matrix for revealing the underlying structure of the data [36].

2.2.2. Selecting a Factor Method and Specifying a Factor Matrix

In the available literature, the principal components factor analysis, also known as component analysis with VARIMAX rotation has widely been used [18,19,21,25,28,31,40,41], which is in accord with the reviews of Conway and Huffcutt [38] and Plonsky and Gonulal [39] on the topic. The main advantage of this method is to consider the total variance and determines factors that include small proportions of unique variance. The varimax rotational approach maximizes the aggregate of required loadings variances of the factor matrix. It is fundamentally simple and appears to provide a clearer division of the factors. In general, this method has successfully been demonstrated as an analytical approach to getting an orthogonal rotation of factors [36]. Therefore, this study has taken into account this type of method to generate a fundamental structural framework. To do so, SPSS software has been employed.

2.2.3. Testing Reliability and Validity

Factorability and adequacy of sampling are examined through Bartlett's test of Sphericity (BTS) and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. These tests are particularly advised when the participant-to-variable ratio is smaller than 5:1 [42]. The BTS should be significant at the 0.05 significance level, and the KMO index that varies between 0 to 1 with minimal adequacy as 0.5 was considered suitable for a good EFA [36,42].

The criteria most commonly applied to distinguish the total factor number for extraction are: (1) the percentage of contribution to the total variance, the principal factor should exceed 20% in the valid scales; (2) eigenvalues—each factor should be greater than one; and (3) scree test—a test to optimum the number of factors that should be extracted [36,43]. Furthermore, following the criteria set by Heir et al. [36], factor loadings exceed 0.45 are regarded significant according to the sample size.

Finally, the internal consistency coefficient, also known as the reliability coefficient (Cronbach's Alpha) is calculated to assess the consistency of the entire scale. It should be more than 0.6 in the exploratory survey [36,40,41,43].

3. Theoretical Framework

In the early 2000s, the concept of CRM with a distinct identity was constituted to be a customer-centric relational managerial approach. According to the descriptive classification of Zablah et al. [44], CRM is described in the available literature as a (1) process [18,19,21,30], aiming at establishing the relational flows and developing the process of creating and sustaining a fully profitable portfolio of relationships with the customers; (2) strategy [16,19,21–23,25,32–34,45], aiming at embedding the customer satisfaction-retention-loyalty chain to develop sustainable relationships with the customers that are (potentially) valuable; (3) philosophy [44], aiming at achieving customer centricity for the organizational sustainability; (4) capability [29], aiming at developing the organizational knowledge and capability to construct the sustainable relationships with the respective customers toward business excellence; and/or (5) technological tool [17,24], aiming at mingling marketing, sales, and knowledge-capable systems to create partnerships.

Many benefits of implementing a successful CRM have been identified across the literature. Croteau and Li [16] highlighted the CRM benefits in enabling products and services customization, providing a "one-to-one" experience of customers, improving efficiency and effectiveness of sales force, and enabling customized marketing plan for each customer. Reinartz et al. [18] enumerated the benefits in improving pricing, enabling segmentation according to customer economic value, and improving resource allocation to accounts. The most complete enumeration of these benefits was

stated by Richards and Jones [46], who highlighted seven core benefits as CRM value drivers including (1) improvement of the ability to target profitable customers; (2) integration of offerings throughout channels; (3) improvement of the efficiency and effectiveness of sales force; (4) individualization of marketing information; (5) customization of products and services; (6) improvement of customer service efficiency and effectiveness; and (7) improvement of pricing. Practically, it is found the organizations that encompass advanced customer relationship strategies have successfully established a state-of-the-art CRM system, for example, MBNA Europe has implemented CRM through marketing the apt products to the apt customers and there was an annual profits increase of 75% since 1995, Wells Fargo with implementing a successful CRM has drastically experienced customer satisfaction, and/or Amazon that has been achieved to a high prosperity by its customer proposition as well as CRM training for the employees [45].

Khodakarami and Chan [47] elaborated the types of CRM systems by drawing on [48–53] research. These systems have mainly been fallen into three classes including operational CRM systems, which utilizes for automating the CRM processes and improving their efficiency and productivity; analytical CRM systems, which utilizes for analyzing the customer data and knowledge; and collaborative CRM systems, which utilizes for managing and integrating the channels of communication and customer touchpoints. The point at issue is how to implement. According to Sin et al. [21], a more comprehensive theory/conceptualization that contributes new outlooks and appends to the available system of knowledge can be created through the appropriate replications, extensions, and generalizations. The present research has systematically recognized and reviewed a certain amount of these replicative and creative studies, as summarized in Table 2. It is found that the development of CRM system is largely being addressed through integrating and balancing of the main factors based on the principles and ideals that (1) reflect CRM as a multi-dimensional strategic application and (2) involve three critical dimensions, that is, technology, people, and process. There has been a developing frame of the literature that reveals the importance of four critical factors for successful implementation (Table 2). It is believed that an integrated and balanced approach to these tangible strategic practices paves the way for implementing a CRM system effectively. According to Garrido-Moreno and Padilla-Meléndez [25], they should be analyzed and improved in each case and structure to investigate the structural integrity. These strategic practices have been discussed in detail below, so as to provide a hypothetical account. Moreover, the authors have presented an imaginable and/or graphic model, as shown in Figure 1, which indicates a holistic perspective of the CRM system in accord with the aforementioned principles and ideals. It may help to the conceptual richness that is complicated to express explicitly and succinctly with terms.



Figure 1. A holistic perspective of the CRM system.

3.1. Knowledge Management

Knowledge management (KM) is mostly considered as a plan for directing the organization toward its goals [54]. Therefore, it is outlined as the process of recognizing, using, sharing, and managing knowledge to help the company enter into a competition [55]. Rastogi [56] describes KM as a systematic comprehensive process to fulfill organizational aims through creating, sharing, developing and employment of knowledge by members of a community. The viewpoints on knowledge given by Alavi and Leidner [57] clearly hypothesize this idea. In perspective of knowledge as (1) a state of mind, KM focuses on improving individual's learning and understanding by providing information; (2) an object, KM focuses on developing and managing the knowledge stocks; (3) a process, KM concentrates on the knowledge flows and process of acquiring, diffusing, and applying knowledge; (4) an access to information, KM concentrates on systematic access to and information retrieval; and (5) a capability, KM is concerning constructing core competencies and realizing strategic know-how [57].

There are many evidences of the positive influence of KM on CRM success, and, consequently, the organizational performance internally and externally [16,17,19–21,23–27,29–35]. From a viewpoint of CRM, knowledge can be regarded as the experiential learning for the sake of excellence [21]. Converting information into knowledge could be used to improve new products and services as well as to design communication plans for attracting customers and constructing the long-lasting relationship with them [16].

Following this viewpoint, KM capability is described as the ability of a company which involves capturing, handling and supplying products and services information for the customer. Therefore, there is an increase in customer response and the decisions are made fast with respect to the reliable information [25]. However, KM is emerging as a key concept and frequently reported as an antecedent of innovation. Hence, when implementing CRM, a decisive role will be given to KM which makes a change in the organizational vision. Consequently, learning and innovation occur in a great deal within the organization to succeed.

Knowledge management and its initiatives in the KM-capable CRM system are largely regarded as a process involving the key facets, as follows: (a) knowledge acquisition, that is a professional procedure through which the existing information is used to learn new knowledge; (b) knowledge application, that involves the business procedures in enabling an organization to access knowledge easily through effective storage and retrieval mechanisms; and (c) knowledge diffusion, that is described as the business procedures that share knowledge among all people joining in process events. In general, according to [25], CRM and KM initiatives are aimed at delivering a continuous improvement for the sake of the customers. This would contribute to build up better relationships with the customers, increase their approval and accomplish business excellence.

3.2. Organizational Elements

This factor (OE) is aspects of doing with the organizational structure, human resource management, and resource allocation [19,21,25,27]. It is considered implementing the CRM system necessitates changes in the way an organization is organized as well as in its business processes [21], highlighting the need for a model that includes the variables measuring the significance and consequence of these organizational factors on CRM success. According to Garrido-Moreno and Padilla-Meléndez [25], the implementation of the successful CRM requires redesigning the organizations and reorienting the value chain toward the demand. Therefore, so as to succeed in implementing CRM that depends on building the appropriate synergy between the technological tools, processes, and people [21,25], the aspects of this factor require being transformed into the organizations.

Mendoza [22] pointed out the human factors are critically important in this context. It is critical in organizations due to the relationship of humanity with the complex processes and the high-level systems as well as the inter-human relations, which has had a determinative function in implementing any organizational strategy. Hence, the factor of employees' involvement that concentrates on providing training, motivations, and opportunities has specifically been determined in implementing the CRM

system. Additionally, it includes a direct impact on the impressive performance of the organization's culture, which plays a pivotal role in knowledge management [25]. Based on Reinartz et al. [18], if organization embeds the importance of CRM-based activities in their employees, the organizational structural change to expedite these activities and engage the employees will be more likely.

3.3. CRM Technology

An increasing number of the literature, as outlined in Table 2, signified that the CRM technological tools should be taken into account as a fundamental factor in performing the concept. Sin et al. [21] emphasize how the CRM software systems are important for organizations to provide a customized service with higher quality, but at the lower cost. Most of the customer-based activities would not be possible without an appropriate system [18,19]. Consequently, it is believed that establishing the right technology can be leveraged to succeed.

Garrido-Moreno and Padilla-Melendez [25] argues that the CRM technological systems contribute numerous benefits to organizations including providing a customer single view, managing the customer relationships in a comprehensive way regardless of the communication channel applied, and improving the efficiency and effectiveness of the processes defined in relationships with customers. Yim et al. [19] believe CRM technology assists organizations in collecting, sharing and analyzing information from customers, developing communication quality about customers, and configuring the tailored products for customers. It also expedites the customer cross-referencing within divisions of an organization for greater sales initiatives. Nonetheless, the review of literature revealed that organizations should not consider the technology as an only enabler of its CRM; should take account of it as a necessary but not sufficient condition. According to Cambra-Fierro [34], technology is not all for CRM success.

3.4. Customer Orientation

The clarification of the role of customer orientation (CO), which has explicitly been described by Narver and Slater [58], as "the sufficient understanding of one's target customers to be able to create superior value for them continuously (p. 21)", in the modern CRM and progressed organizations has evolved over the last two decades. It encompasses the degree to which a company stresses meeting the customer wants and needs for its service quality [59]. Bentum and Stone [60] argued that CO is a type of organizational culture, which must be part of the organizations' implicit assumptions. There are many empirical evidences that reveal this factor as a critical importance of business excellence [27].

Following the investigation of Narver and Slater [58], Garrido-Moreno and Padilla-Melendez [25] assumed that CO demonstrates having an adequate understanding of the customers to be able to give them greater added-value as well as establishing the customer at the center of organization's activities to develop long-lasting relationships. Therefore, organizations should take into account the necessity of having a holistic view of this orientation in their visions. A company that is actively oriented toward the customer can improve the organizational performance in the ever-competing global market by reason of the cultural excellence, which lead to improving employee understanding of the customers. Consequently, CO has been considered to be an indispensable prerequisite to succeed in CRM implementation.

4. Results

This section is performed through the procedure with the research methodology step by step, as presented in detail in Section 2. Accordingly, the detailed analyses and findings on the steps outlined in the research methodology are reported in the ensuing segments.

4.1. Results of the Systematic Review

A systematic literature review was conducted to identify and align the strategic practices of the CRM system, and, consequently, to develop a framework of the SRM strategy that is an emerging field

of inquiry. Table 2 shows the results of this systematic review against the CRM's strategic practices. Twenty theoretical-empirical articles could be classified according to the following practices: (a) CRM technology and organizational elements, considered by all of the articles; (b) knowledge management, considered by 17 articles; and (c) customer orientation, considered by 14 articles. Additionally, Table 2 describes the objective(s) of each analyzed study. Accordingly, the results revealed the importance of four critical factors to the CRM success, which were applied as starting points to develop our survey. In pursuit of the aim, the studies by Sin et al. [21] and Garrido-Moreno and Padilla-Meléndez [25] were found noteworthy among others, helping the authors to develop the survey questions/the variable-based checklist.

4.2. Results of the Analytic Approach

EFA was performed to reveal the current structure of SRM with 36 determined variables and subsequently create a structural framework of the developed scale. In doing so, the principal component factor analysis was employed to analyze the received scores from the responses provided by the 151 respondents, who were studying and requesting the service education in the Universiti Teknologi Malaysia (UTM, Johor Bahru, Malaysia). The demographic profile of the participants was conducted according to Nejati and Nejati [40], which is as follows:

In terms of gender, 70 of them (46.4%) were female, 81 of them (53.6%) were male. In terms of age group, 57.6% were below 25 years of age, 39.1% were 26 to 35 years, and 3.3% were 36 to 45 years. Both local and international students were engaged; 95 of them (62.9%) were international and 56 of them (37.1%) were local. According to the higher education level, 28.5% of the total respondents had undergone bachelor's degree, 53% of the total respondents had undergone Master's degree, and 18.5% of the total respondents had undergone PhD study. Based on period of study in the current university, 27.8% had less than 1 years, 44.4% had 1 to 2 years, 21.9% had 2 to 3 years, 4.6% had 3 to 4 years, and 1.3% had more than 4 years' experience in their careers.

A five-point Likert scale on a continuum from 1 (strongly disagree) to 5 (strongly agree) was implemented to measure the variables, as shown in Figure A1. The overall reliability coefficient (α) of the survey was equal to 0.95, which is an appropriate consideration. The responses on the identified variables have clearly been illustrated in Figure A1. Table A1 displays the correlation matrix for the 36 variables of SRM strategy. Analysis of the correlation matrix shows that most of the correlations have been significant at 0.01 level, which reveals a sufficient basis for advancing an empirical investigation of sufficiency for EFA on a general basis as well as for each variable. The BTS and KMO tests were also performed to ensure adequacy of sampling and evaluate the data factorability. In this study, the BTS found to be significant at $p < 0.001$ and the KMO index was equal to 0.922, indicating the data is fitting for implementation of EFA.

Next, the percentage of contribution to the total variance, eigenvalues, and scree plot—the criteria most commonly applied to distinguish the total factor number for extraction—were taken into consideration. Initially, the EFA on the SRM variables extracted seven factors with the total variance 60.755% and eigenvalues greater than 1.0. The scree plot demonstrated that six factors were steeply descended and then levelled off, indicating the data should be analyzed for six factors. Hence, six of seven factors were extracted by one variable per each factor with a loading exceeding 0.45. Ten variables—V4, V8, V9, V15, V22, V23, V24, V25, V27, and V32—were accordingly excluded due to lack of the specified threshold. Consequently, 26 out of 36 initial variables were methodically retained in this survey, with factor loadings higher than 0.45. The overall reliability coefficient (α) of the variables was calculated at 0.938, which is considered significant. These developed variables have distinctly formed six factors with the total variance explained 63.190%, as follows:

- The first factor with eigenvalue 10.326 involved seven variables including V2, V26, V3, V1, V5, V16, and V28 with significant loadings 0.681, 0.661, 0.639, 0.631, 0.596, 0.572, and 0.527 respectively, which are considered appropriate. The variance proportion explained by this primary factor was estimated 39.714% of the total variance, indicating the attendance of one

principal factor at the internal consistency of the factorial structure of SRM strategy. According to the common characteristics of the loaded variables, this factor focused on recognizing and acquiring domain knowledge about an application. Thus, this factor was named "Knowledge Acquisition and Application (KAA)". The reliability of the KAA's construct through the internal consistency coefficient (α) using SPSS was calculated at 0.855, which is significant. Consequently, the examinations proved the validity of this articulated seven-variable construct.

- The second factor with eigenvalue 1.475 involved six variables including V35, V36, V31, V33, V34, and V20 with significant loadings 0.738, 0.651, 0.624, 0.617, 0.504 and 0.482, respectively. The variance proportion explained by this factor was estimated 5.672% of the total variance. According to the common characteristics of the loaded variables, this factor focused on having the right technology to facilitate various activities involved in student relationships. Thus, this factor was named "SRM Technology (SRMT)". The reliability coefficient of SRMT's construct was calculated at 0.857. Consequently, the examinations proved the validity of this articulated six-variable construct.
- The third factor with eigenvalue 1.350 involved three variables including V18, V19, and V17 with significant loadings 0.745, 0.697 and 0.689, respectively. The variance proportion explained by this factor was estimated 5.193% of the total variance. According to the common characteristics of the loaded variables, this factor focused on the diffusion of knowledge among all individuals participating in facilitating concerted actions. Thus, this factor was named "Knowledge Diffusion (KD)". The reliability coefficient of the KD's construct was calculated at 0.783. Consequently, the examinations proved the validity of this articulated three-variable construct.
- The forth factor with eigenvalue 1.161 involved four variables including V13, V14, V11 and V29 with significant loadings 0.721, 0.700, 0.567 and 0.552, respectively. The variance proportion explained by this factor was estimated 4.464% of the total variance. According to the common characteristics of the loaded variables, this factor focused on student-centered activities in the university, so as to continuously create the long-lasting relationships. Thus, this factor was named "Student Orientation (SO)". The reliability coefficient of the SO's construct was calculated at 0.791. Consequently, the examinations proved the validity of this articulated four-variable construct.
- The fifth factor with eigenvalue 1.067 involved three variables including V7, V6, and V21 with significant loadings 0.666, 0.606 and 0.557, respectively. The variance proportion explained by this factor was estimated 4.106% of the total variance. According to the common characteristics of the loaded variables, this factor focused on the evaluation of the influences of a SRM initiative in the university. Thus, this factor was named "SRM Results (SRMR)". The reliability coefficient of the SRMR's construct was calculated at 0.669. Consequently, the examinations proved the validity of this articulated three-variable construct.
- The sixth factor with eigenvalue 1.051 involved three variables including V10, V30, and V12 with significant loadings 0.777, 0.603 and 0.549, respectively. The variance proportion explained by this factor was estimated 4.041% of the total variance. According to the common characteristics loaded by the variables, this factor focused on providing the employees with feedback programs concerning implementing the SRM strategy. Thus, this factor was named "Employees' Involvement (EI)". The reliability coefficient of the EI's construct was calculated at 0.632. Consequently, the examinations proved the validity of this articulated three-variable construct.

5. Discussion

The results of this research are categorized into two tiers according to a well-defined methodological approach based on the project purpose—providing a framework that positions SRM at an operational level.

Firstly, due to the lack of significant research on the SRM strategy as well as the structure and nature of the concept, a systematic review has been performed to examine the nature of CRM system and present its strategic practices based on a holistic perspective which reflects a co-creation process to

achieve a maximum of value across the lifecycle of relationship. It is essential to ensure that the SRM's knowledge develops into a cumulative manner as an emerging field of inquiry. The findings revealed that CRM is a multi-dimensional system, involving three critical dimensions including technology, people, and process. This is important because CRM technology is often incorrectly equated with CRM, and a key reason for CRM failure is viewing CRM as a technology initiative [18,21]. In this regard, the findings highlight the importance of four strategic practices: knowledge management (KM), organizational elements (OE), CRM technology (CRMT), and customer orientation (CO). It is believed that an integrated and balanced approach to these tangible practices paves the way for implementing a CRM system successfully. A summary of this review has been shown in Table 2, where the main studies in this field were characterized against the CRM's strategic practices. In addition, a holistic perspective of the CRM system based on the principles and ideals has been illustrated (Figure 1), which would contribute to the conceptual richness. Consequently, the outcomes of this systematic review were applied as starting points to develop the exploratory survey.

Secondly, an analytic approach has been implemented to developing the SRM strategy based on a student-as-customer perspective, which reveals an integrated framework to operationalization. In doing so, the principal components factor analysis with varimax rotation—a method of exploratory factor analysis—was used to measure the exploratory variables, assess the reliability of measurement scales, form a smaller number of coherent subscales with a minimum loss of information, and, consequently, to provide a structural framework among the variables assumed. In this regard, a three-step instrument development process was generated: (1) identification of variables associated with SRM and development of variables pool; (2) An exploratory study on 151 students to measure the identified variables to improve the content and reveal the factorial structure; (3) Ensuring the reliability and validity of the evidence. Upon validation of the application, the findings demonstrated a articulated structural model with the six factors that assessed Knowledge Acquisition and Application (KAA, α = 0.855), Student Relationship Management Technology (SRMR, α = 0.857), Knowledge Diffusion (KD, α = 0.783), Student Orientation (SO, α = 0.791), Student Relationship Management Results (SRMR, α = 0.669), and Employee's Involvement (EI, α = 0.632). These six factors were accurately extracted with eigenvalues higher than 1.0 including 10.326, 1.475, 1.350, 1.161, 1.067, and 1.051 respectively. It may seem that some of the variability is unaccounted for, however, 63.190% explained variability was considered as sufficient explanation of variance. The overall reliability of the structure was also measured with a reliability coefficient (α) equaling 0.938. Accordingly, the internal consistency and reliability of the structure of SRM strategy were statistically and analytically approved. The analyses indicated that there were strong relationships among the recognized factors throughout the model. This is in accord with References [16–35], who have theoretically hypothesized there are significant relationships between the strategic practices (Table 2) and CRM results/success. Empirically, Yim et al. [19] indicated these four critical dimensions significantly influence CRM results. Sin et al. [20] proved that there is a strong correlation between four key practices. They have consequently developed a reliable and valid scale for measuring the practices. Following the investigation of Sin et al. [21], which were frequently applied by the researchers, Garrido-Moreno and Padilla-Meléndez [25] have systematically found positive influences in CRM success of all factors (KM, OE, CRMT, CO). Also, Garrido-Moreno and Padilla-Meléndez [25] demonstrated that the factor of CRM experience positively affects CRM results. Abdullateef and Salleh [27] by mainly drawing on [19,21] research among others, showed the factors of KM and CRMT are significant and influential. In general terms, Padilla-Meléndez and Garrido-Moreno [32] observed that all key factors positively affect CRM implementation success. Moreover, Croteau and Li [16] argued that CRM success is significantly determined by OE and KM supported by CRMT. Notably, the assertion of Croteau and Li [16] has been supported by the findings of Love et al. [23], stressing that CRM system is much more than technological innovations and is not solely technology-driven.

The findings highlight that SRM strategy could meaningfully be linked to the strategic practices of the CRM system, arguing that the CRM system is internally consistent and reliable for interpreting and

developing the SRM strategy in higher education institutions. Therefore, based on the content of the factors analyzed by this investigation, a conceptual framework according to the systematic literature review is provided in detail in the next section. This framework would contribute a helpful reference to narrow the major gap in the current knowledge of SRM strategy.

6. Conceptual Framework and Hypotheses

Based on the results and analyses of this study, a conceptual framework according to the research objective is presented in Figure 2, which links the SRM results and the four strategic practices. Accordingly, the following hypotheses have been formulated:

Hypothesis 1 (H1). *Knowledge management positively affects SRM results.*
Hypothesis 2 (H2). *SRM technology positively affects SRM results.*
Hypothesis 3 (H3). *Student orientation positively affects SRM results.*
Hypothesis 4 (H4). *Employees' involvement positively affects SRM results.*

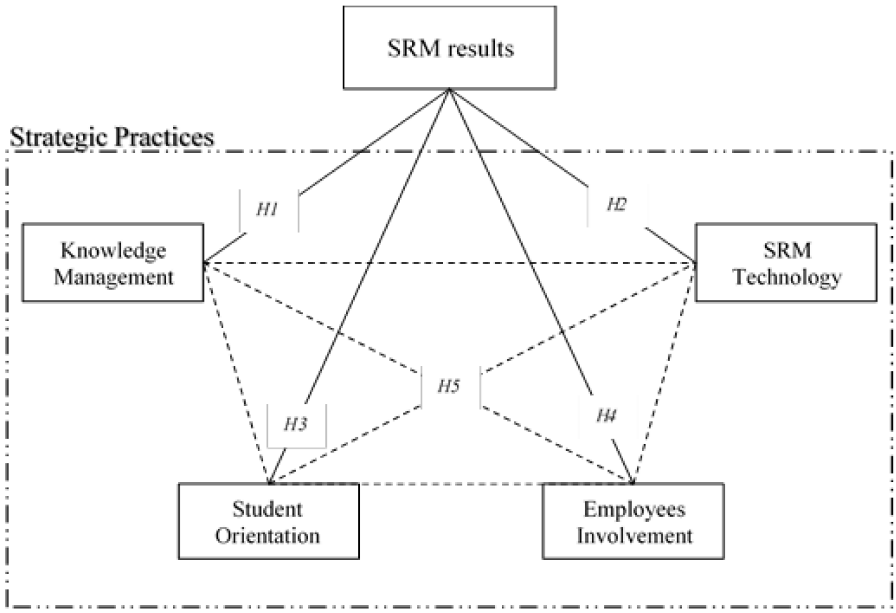

Figure 2. A framework for future studies regarding the implementation of SRM success.

Also, the framework (Figure 2) demonstrates potential correlations among the four strategic practices. In other words, in addition to the above four hypotheses, another hypothesis is developed to explore the relationship among the four strategic practices, namely:

Hypothesis 5 (H5). *The strategic practices are interrelated and there is a strong relation between them.*

Following the conceptual framework, the measurement scale has been reformatted and proposed that can be applied by researchers and the educational decision makers to measure the SRM's strategic practices, and, consequently, to assess the structural framework. This proposed scale has been shown in Table A2. The repetitive and innovative investigations are needed to confirm and develop the structure's integrity.

Limitations and Further Research

This research as one of the preliminary studies is undertaken to create a conceptual model of SRM strategy. In this regard, the research findings, which have been indicative rather than conclusive,

are subject to the limitations that suggest directions to further research. Although it is endeavored to encompass the critical aspects of SRM by thoroughly reviewing the state-of-the-art literature on the CRM system, there may be other critical factors which should be taken into account. It may include the mediators that should be examined. In some cases, including new items and/or excluding original items may be needed. This research has paved the way for a more detailed exploration through providing a systematic literature review as briefly presented in Table 2. The analyzed studies in this table would be useful to explore more insights into probable causation.

7. Conclusions

The research for this article has been built upon the discussion regarding student relationship management, so as to develop the concept with a distinct identity. Going through the literature on the topic, as briefly described in this study (Table 1), it is observed that SRM was emerged from the customer relationship management system—moreover, no systematic efforts have been made to operationalize this strategic approach. There is a need for innovative research. Following this aim, the research objective was determined in providing a framework that positions SRM at an operational level.

In doing so, a methodological approach was implemented in two tiers. The first tier has theoretically revealed the results of a systematic literature review on CRM system based on a holistic perspective. This kind of review has proven to be useful for addressing a framework to appropriately constitute new research activities on emerging issues. The main investigations in this field were characterized against the CRM's strategic practices (Table 2). Next, a hypothetical account of the practices was presented. Moreover, a graphic perspective that may advance the field was illustrated (Figure 1). The second tier has empirically revealed the results of an exploratory factor analysis on a variable-based checklist obtained by the aforementioned tier. This type of analysis has proven useful for creating a fundamental structural framework. The outcomes of this analysis verified an articulated structural model with five critical factors including knowledge management, SRM technology, student orientation, employees' involvement, and SRM results. The findings argued that the CRM system has internally been consistent and reliable for interpreting and developing the SRM strategy in the educational institutions, highlighting that SRM strategy could positively be linked to the strategic practices of the CRM system. Consequently, a conceptual framework of SRM with five hypotheses has clearly been proposed (Figure 2), which may partially or fully be applied to narrow the major gap in the current knowledge of the SRM strategy. Additionally, the measurement scale was developed for simplification in implementation of the application (Table A2). Limitations and directions associated with the framework for further research were also discussed.

In general, this study shows an up-to-date investigation in the current area and involves both theoretical and practical insights. Notwithstanding the research attention given to the importance and capability of SRM, so far there has been no any systematic framework for implementation. This research as one of the preliminary studies was undertaken to propose a systematic framework of strategic practices based on the principles and ideals, which reflect SRM as a multi-dimensional strategic approach and encompass three critical dimensions including technology, people and process. Proposed conceptual framework may strengthen the cutting-edge research for the sake of developing the successful SRM system. It may also constitute a guide for decision makers in higher education systems toward implementation of an effective SRM. Moreover, it may complement the research on advancing the institutional sustainability, which is subject of growing interest in various educational establishments.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

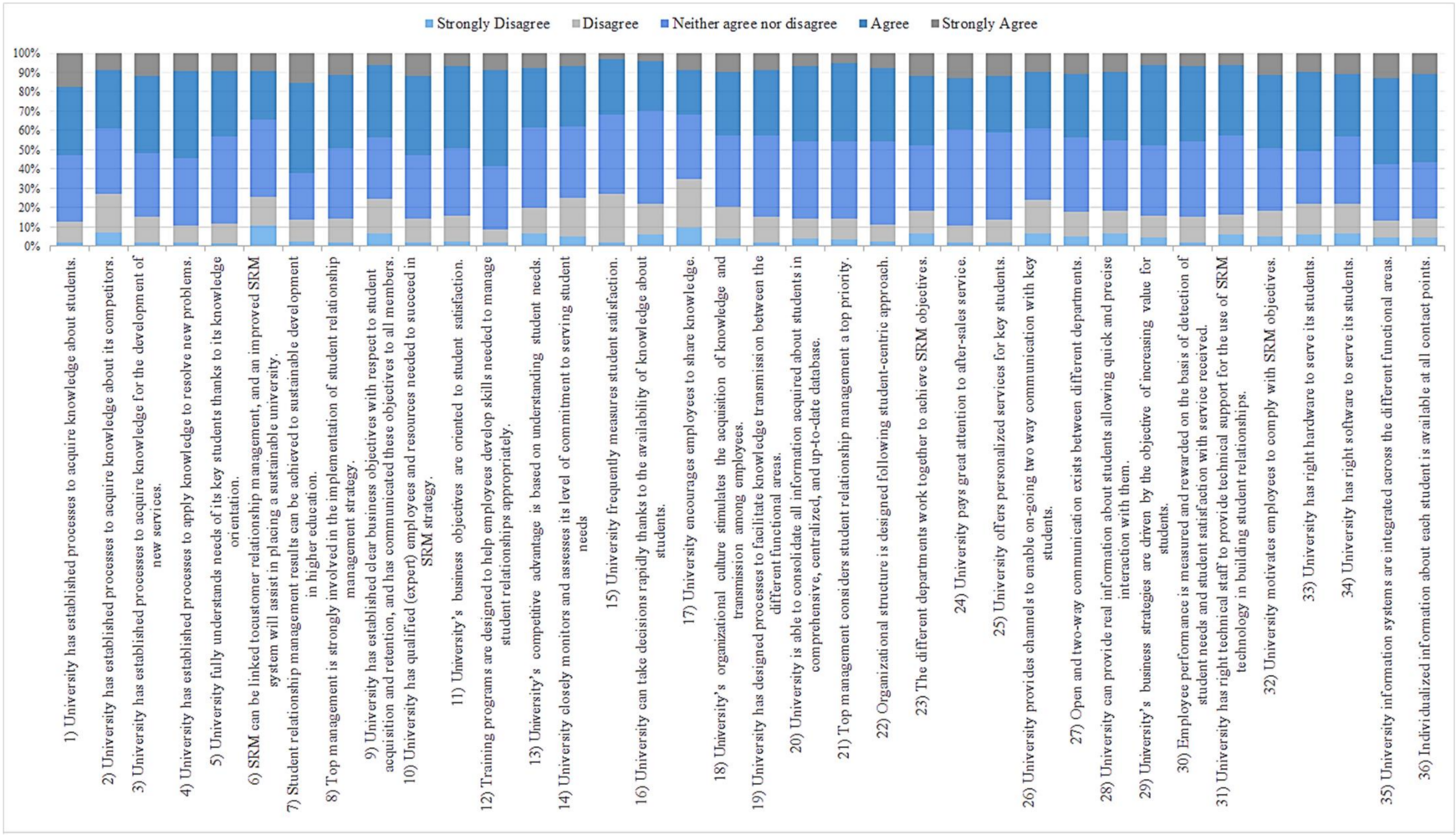

Figure A1. The measurement variables, along with the respondents' answers on each variable (n = 151, α = 0.95).

Table A1. The correlations among initial variables.

Variable	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35
V2	0.44																																		
V3	0.47	0.56																																	
V4	0.26	0.27	0.28																																
V5	0.42	0.48	0.49	0.26																															
V6	0.33	0.40	0.42	0.33	0.50																														
V7	0.24	0.30	0.35	0.26	0.38	0.54																													
V8	0.35	0.40	0.37	**0.14**	0.44	0.38	0.35																												
V9	0.43	0.43	0.35	0.19	0.46	0.46	0.36	0.51																											
V10	0.17	0.27	0.22	**−0.04**	0.30	0.25	0.31	0.37	0.38																										
V11	0.36	0.36	0.36	**0.14**	0.41	0.35	0.29	0.51	0.46	0.35																									
V12	0.23	0.27	0.35	**0.14**	0.30	0.24	0.28	0.33	0.35	0.38	0.38																								
V13	0.34	0.42	0.35	0.20	0.34	0.27	0.31	0.36	0.35	0.26	0.47	0.40																							
V14	0.31	0.40	0.34	**0.15**	0.32	0.24	0.22	0.40	0.29	0.25	0.39	0.33	0.56																						
V15	0.42	0.38	0.45	0.21	0.46	0.35	0.32	0.33	0.45	0.18	0.37	0.37	0.40	0.51																					
V16	0.34	0.51	0.41	**0.14**	0.38	0.43	0.21	0.39	0.47	0.24	0.31	0.32	0.38	0.39	0.41																				
V17	0.30	0.37	0.29	**0.11**	0.41	0.31	0.28	0.35	0.38	0.21	0.35	0.32	0.41	0.36	0.41	0.49																			
V18	0.24	0.29	0.29	0.16	0.28	0.26	0.23	0.40	0.35	0.22	0.44	0.32	0.26	0.36	0.26	0.42	0.54																		
V19	0.32	0.34	0.42	**0.11**	0.43	0.28	0.30	0.42	0.48	0.25	0.35	0.44	0.30	0.30	0.40	0.41	0.57	0.54																	
V20	0.33	0.32	0.38	**0.13**	0.25	0.37	0.33	0.40	0.53	0.27	0.44	0.44	0.36	0.34	0.43	0.36	0.42	0.43	0.53																
V21	0.24	0.24	0.25	0.23	0.30	0.32	0.35	0.28	0.35	0.16	0.50	0.28	0.43	0.33	0.28	0.28	0.39	0.37	0.40	0.39															
V22	0.29	0.34	0.48	0.21	0.38	0.35	0.40	0.46	0.39	0.39	0.44	0.42	0.42	0.36	0.45	0.31	0.43	0.40	0.42	0.47	0.42														
V23	0.32	0.33	0.41	0.17	0.36	0.42	0.28	0.36	0.46	0.16	0.47	0.28	0.40	0.40	0.39	0.48	0.42	0.36	0.40	0.48	0.49	0.35													
V24	0.32	0.43	0.47	0.33	0.40	0.38	0.37	0.30	0.39	0.28	0.28	0.27	0.39	0.33	0.38	0.36	0.41	0.29	0.29	0.31	0.23	0.37	0.35												
V25	0.24	0.39	0.25	0.20	0.41	0.31	0.26	0.35	0.41	0.22	0.30	0.27	0.36	0.43	0.39	0.38	0.43	0.45	0.32	0.33	0.28	0.35	0.40	0.42											
V26	0.54	0.51	0.43	**0.12**	0.47	0.49	0.32	0.41	0.49	0.25	0.43	0.34	0.39	0.46	0.50	0.54	0.50	0.43	0.45	0.47	0.25	0.44	0.41	0.36	0.42										
V27	0.40	0.32	0.36	0.24	0.43	0.40	0.35	0.38	0.47	0.20	0.46	0.37	0.41	0.44	0.48	0.36	0.52	0.49	0.44	0.46	0.37	0.36	0.38	0.36	0.38	0.55									
V28	0.39	0.37	0.42	**0.11**	0.38	0.45	0.33	0.43	0.40	0.21	0.32	0.33	0.45	0.35	0.40	0.49	0.41	0.36	0.37	0.40	0.25	0.33	0.40	0.41	0.32	0.58	0.57								
V29	0.40	0.50	0.43	0.21	0.43	0.35	0.32	0.41	0.38	0.36	0.46	0.40	0.50	0.53	0.46	0.37	0.43	0.35	0.39	0.39	0.29	0.50	0.38	0.37	0.40	0.50	0.42	0.53							
V30	0.26	0.28	0.34	0.17	0.25	0.28	0.32	0.20	0.34	0.35	0.17	0.37	0.29	0.20	0.29	0.29	0.19	0.29	0.37	0.33	0.21	0.26	0.29	0.37	0.22	0.26	0.27	0.36	0.31						
V31	0.44	0.34	0.40	0.29	0.36	0.35	0.37	0.32	0.50	0.22	0.29	0.35	0.31	0.37	0.39	0.29	0.37	0.39	0.43	0.46	0.32	0.39	0.45	0.39	0.41	0.39	0.47	0.38	0.49	0.42					
V32	0.33	0.40	0.39	**0.14**	0.43	0.25	0.31	0.38	0.38	0.27	0.39	0.45	0.39	0.36	0.40	0.37	0.44	0.43	0.46	0.44	0.36	0.43	0.37	0.32	0.38	0.45	0.48	0.40	0.43	0.28	0.50				
V33	0.28	0.33	0.30	0.19	0.30	0.33	0.40	0.40	0.44	0.28	0.38	0.38	0.39	0.35	0.29	0.37	0.35	0.37	0.45	0.44	0.30	0.36	0.37	0.37	0.32	0.37	0.42	0.42	0.44	0.33	0.41	0.44			
V34	0.32	0.42	0.37	0.22	0.34	0.38	0.33	0.51	0.51	0.25	0.44	0.31	0.42	0.44	0.35	0.32	0.46	0.41	0.44	0.51	0.43	0.44	0.44	0.40	0.36	0.39	0.52	0.50	0.50	0.25	0.46	0.46	0.54		
V35	0.33	0.28	0.32	0.28	0.28	0.34	0.45	0.30	0.50	0.23	0.31	0.43	0.26	0.21	0.28	0.29	0.36	0.28	0.39	0.46	0.30	0.35	0.39	0.41	0.28	0.33	0.38	0.39	0.29	0.40	0.48	0.33	0.51	0.44	
V36	0.49	0.42	0.40	0.30	0.41	0.37	0.41	0.41	0.42	0.16	0.50	0.49	0.50	0.43	0.43	0.42	0.51	0.49	0.41	0.52	0.34	0.43	0.47	0.41	0.39	0.47	0.58	0.51	0.54	0.34	0.54	0.57	0.61	0.57	0.55

Note: Bolded values indicate the correlations are not significant. All the correlations are significant at the 0.01 significance level. Overall KMO Measure of Sampling Adequacy is 0.922. Bartlett's Test of Sphericity is significant at $p = 0.000$.

Table A2. Measuring SRM strategic practices.

Item	Not Sure	No	Ongoing Process	Yes	Sure
Knowledge Management					
The university establishes the processes to acquire knowledge about students.					
The university establishes the processes to acquire knowledge for developing new services.					
The university establishes the processes to acquire knowledge about its competitors.					
The university fully understands the students' needs due to its knowledge orientation.					
The university can make decisions rapidly due to the availability of knowledge about students.					
The university can provide real information about students allowing quick and precise interaction with them.					
The university's organizational culture stimulates the acquisition of knowledge and transmission among employees.					
The university designs the processes to facilitate knowledge transmission between the different functional areas.					
The university encourages employees to share knowledge.					
The university provides the channels to enable ongoing mutual communication with key students.					
SRM Technology					
The university involves right software to serve its students.					
The university involves right hardware to serve its students.					
The university integrates its information systems across the different functional areas.					
The individualized information about each student is available at all contact points.					
The university involves right technical staff to provide technical support for using SRM technology in developing student relationships.					
The university can consolidate all information acquired about students in comprehensive, centralized, and up-to-date database.					
Student Orientation					
The university's competitive advantage is according to understanding student needs.					
The university closely monitors and assesses its level of commitment to serving student needs.					
The university orients its business objectives to student satisfaction.					
The university drives its business strategies, with the aim of increasing value for students.					
Employees' Involvement					
The university qualifies the employees and resources needed to succeed in SRM strategy.					
The university measures and rewards employee performance based on detection of student needs and student satisfaction with service received.					
The university designs training programs to develop the employees' skills to manage student relationships appropriately.					
Top management considers SRM as a top priority.					
SRM Results					
An improved SRM system will assist in placing a sustainable university.					
SRM results can be achieved to higher education sustainability.					

References

1. Hilbert, A.; Schönbrunn, K.; Schmode, S. Student relationship management in Germany: Foundations and opportunities. *Manag. Rev.* **2007**, *18*, 204–219.
2. Ackerman, R.; Schibrowsky, J. A business marketing strategy applied to student retention: A higher education initiative. *J. Coll. Stud. Retent.* **2007**, *9*, 307–336. [CrossRef]
3. Rowley, J. Retention: Rhetoric or realistic agendas for the future of higher education. *Int. J. Educ. Manag.* **2003**, *17*, 248–253. [CrossRef]

4. Seeman, E.D.; O'Hara, M. Customer relationship management in higher education: Using information systems to improve the student-school relationship. *Campus-Wide Inf. Syst.* **2006**, *23*, 24–34. [CrossRef]
5. Piedade, M.B.; Santos, M.Y. Student Relationship Management: Concept, practice and technological support. In Proceedings of the IEEE International Engineering Management Conference, Estoril, Portugal, 28–30 June 2008; pp. 1–5.
6. Piedade, M.B.; Santos, M.Y. Business intelligence in higher education: Enhancing the teaching-learning process with a SRM system. In Proceedings of the 5th Iberian Conference on Information Systems and Technologies, Santiago de Compostela, Spain, 16–19 June 2010; pp. 1–5.
7. Shannaq, B.; Rafael, Y.; Alexandro, V. Student relationship in higher education using data mining techniques. *Glob. J. Comput. Sci. Technol.* **2010**, *10*, 54–59.
8. Drapińska, A. A concept of student relationship management in higher education. *Mark. Sci. Res. Org.* **2012**, *6*, 35–49. [CrossRef]
9. Kongsakun, K.; Fung, C.C. Neural Network Modeling for an Intelligent Recommendation System Supporting SRM for Universities in Thailand. *WSEAS Trans. Comput.* **2012**, *11*, 34–44.
10. Lechtchinskaia, L.; Friedrich, I.; Breitner, M.H. Requirements analysis for a student relationship management system—Results from an Empirical Study in Ivy League Universities. In Proceedings of the IEEE 45th Hawaii International Conference on System Sciences, Washington, DC, USA, 4–7 January 2012; pp. 5132–5141.
11. Radenković, B.; Despotović-Zrakić, M.; Bogdanović, Z.; Labus, A.; Milutinović, M. Providing services for student relationship management on cloud computing infrastructure. In Proceedings of the IEEE 11th International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services (TELSIKS), Nis, Serbia, 16–19 October 2013; Volume 2, pp. 385–388.
12. Fontaine, M. Student Relationship Management (SRM) in Higher Education: Addressing the Expectations of an Ever Evolving Demographic and Its Impact on Retention. *J. Educ. Hum. Dev.* **2014**, *3*, 105–119.
13. Vulić, M.; Petrović, P.; Kovačević, I.; Živanović, V.R. Student Relationship Management Using Social Clouds. In *Handbook of Research on High Performance and Cloud Computing in Scientific Research and Education*; IGI Global: Hershey, PA, USA, 2014; pp. 173–194.
14. Jabbour, C.J.C. Environmental training in organisations: From a literature review to a framework for future research. *Resour. Conserv. Recycl.* **2013**, *74*, 144–155. [CrossRef]
15. Kitchenham, B. *Procedures for Performing Systematic Reviews*; Keele University: Keele, UK, 2004; Volume 33, pp. 1–26.
16. Croteau, A.M.; Li, P. Critical success factors of CRM technological initiatives. *Can. J. Adm. Sci.* **2003**, *20*, 21–34. [CrossRef]
17. Chen, J.; Ching, R. An empirical study of the relationship of IT intensity and organizational absorptive capacity on CRM performance. *J. Glob. Inf. Manag.* **2004**, *12*, 1–17. [CrossRef]
18. Reinartz, W.; Krafft, M.; Hoyer, W.D. The customer relationship management process: Its measurement and impact on performance. *J. Mark. Res.* **2004**, *41*, 293–305. [CrossRef]
19. Yim, F.H.K.; Anderson, R.E.; Swaminathan, S. Customer relationship management: Its dimensions and effect on customer outcomes. *J. Pers. Sell. Sales Manag.* **2004**, *24*, 263–278.
20. Jayachandran, S.; Sharma, S.; Kaufman, P.; Raman, P. The role of relational information processes and technology use in customer relationship management. *J. Mark.* **2005**, *69*, 177–192. [CrossRef]
21. Sin, L.Y.; Tse, A.C.; Yim, F.H. CRM: Conceptualization and scale development. *Eur. J. Mark.* **2005**, *39*, 1264–1290. [CrossRef]
22. Mendoza, L.E.; Marius, A.; Pérez, M.; Grimán, A.C. Critical success factors for a customer relationship management strategy. *Inf. Softw. Technol.* **2007**, *49*, 913–945. [CrossRef]
23. Love, P.; Edwards, D.J.; Standing, C.; Irani, Z. Beyond the Red Queen syndrome: CRM technology and building material suppliers. *Eng. Constr. Archit. Manag.* **2009**, *16*, 459–474. [CrossRef]
24. Chang, W.; Park, J.E.; Chaiy, S. How does CRM technology transform into organizational performance? A mediating role of marketing capability. *J. Bus. Res.* **2010**, *63*, 849–855. [CrossRef]
25. Garrido-Moreno, A.; Padilla-Meléndez, A. Analyzing the impact of knowledge management on CRM success: The mediating effects of organizational factors. *Int. J. Inf. Manag.* **2011**, *31*, 437–444. [CrossRef]
26. Yang, Y.F. Service capabilities and customer relationship management: An investigation of the banks in Taiwan. *Serv. Ind. J.* **2012**, *32*, 937–960. [CrossRef]

27. Abdullateef, A.O.; Salleh, S.M. Does customer relationship management influence call centre quality performance? An empirical industry analysis. *Total Qual. Manag. Bus. Excell.* **2013**, *24*, 1035–1045. [CrossRef]
28. Chuang, S.H.; Lin, H.N. The roles of infrastructure capability and customer orientation in enhancing customer-information quality in CRM systems: Empirical evidence from Taiwan. *Int. J. Inf. Manag.* **2013**, *33*, 271–281. [CrossRef]
29. Martelo, S.; Barroso, C.; Cepeda, G. The use of organizational capabilities to increase customer value. *J. Bus. Res.* **2013**, *66*, 2042–2050. [CrossRef]
30. Wang, M.L. An evaluation of customer relationship management in hospital-based and privately run nursing homes in Taiwan. *Total Qual. Manag. Bus. Excell.* **2013**, *24*, 1004–1021. [CrossRef]
31. Garrido-Moreno, A.; Lockett, N.; García-Morales, V. Paving the way for CRM success: The mediating role of knowledge management and organizational commitment. *Inf. Manag.* **2014**, *51*, 1031–1042. [CrossRef]
32. Padilla-Meléndez, A.; Garrido-Moreno, A. Customer relationship management in hotels: Examining critical success factors. *Curr. Issues Tour.* **2014**, *17*, 387–396. [CrossRef]
33. Garrido-Moreno, A.; Lockett, N.; Garcia-Morales, V. Exploring the role of knowledge management practices in fostering customer relationship management as a catalyst of marketing innovation. *Balt. J. Manag.* **2015**, *10*, 393–412. [CrossRef]
34. Cambra-Fierro, J.J.; Centeno, E.; Olavarria, A.; Vazquez-Carrasco, R. Success factors in a CRM strategy: Technology is not all. *J. Strateg. Mark.* **2016**, *25*, 316–333. [CrossRef]
35. Mohammed, A.A.; Rashid, B.B.; Tahir, S.B. Customer relationship management and hotel performance: The mediating influence of marketing capabilities—Evidence from the Malaysian hotel industry. *Inf. Technol. Tour.* **2017**, *17*, 335–361. [CrossRef]
36. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis: A Global Perspective*, 7th ed.; Pearson-Hall International: Upper Saddle River, NJ, USA, 2010.
37. Forza, C. Survey research in operations management: A process-based perspective. *Int. J. Oper. Prod. Manag.* **2002**, *22*, 152–194. [CrossRef]
38. Conway, J.M.; Huffcutt, A.I. A review and evaluation of exploratory factor analysis practices in organizational research. *Org. Res. Methods* **2003**, *6*, 147–168. [CrossRef]
39. Plonsky, L.; Gonulal, T. Methodological synthesis in quantitative L2 research: A review of reviews and a case study of exploratory factor analysis. *Lang. Learn.* **2015**, *65*, 9–36. [CrossRef]
40. Nejati, M.; Nejati, M. Assessment of sustainable university factors from the perspective of university students. *J. Clean. Prod.* **2013**, *48*, 101–107. [CrossRef]
41. Rezaei, G.; Gholami, H.; Shaharou, A.B.M.; Zameri Mat Saman, M.; Sadeghi, L.; Zakuan, N. Shared knowledge mediated correlation between cultural excellence and organisational performance. *Total Qual. Manag. Bus. Excell.* **2017**, *28*, 427–458. [CrossRef]
42. Williams, B.; Onsman, A.; Brown, T. Exploratory factor analysis: A five-step guide for novices. *Australas. J. Paramed.* **2010**, *8*, 1–13.
43. Gholami, H.; Rezaei, G.; Saman, M.Z.M.; Sharif, S.; Zakuan, N. State-of-the-art Green HRM System: Sustainability in the sports center in Malaysia using a multi-methods approach and opportunities for future research. *J. Clean. Prod.* **2016**, *124*, 142–163. [CrossRef]
44. Zablah, A.R.; Bellenger, D.N.; Johnston, W.J. An evaluation of divergent perspectives on customer relationship management: Towards a common understanding of an emerging phenomenon. *Ind. Mark. Manag.* **2004**, *33*, 475–489. [CrossRef]
45. Soltani, Z.; Navimipour, N.J. Customer relationship management mechanisms: A systematic review of the state of the art literature and recommendations for future research. *Comput. Hum. Behav.* **2016**, *61*, 667–688. [CrossRef]
46. Richards, K.A.; Jones, E. Customer relationship management: Finding value drivers. *Ind. Mark. Manag.* **2008**, *37*, 120–130. [CrossRef]
47. Khodakarami, F.; Chan, Y.E. Exploring the role of customer relationship management (CRM) systems in customer knowledge creation. *Inf. Manag.* **2014**, *51*, 27–42. [CrossRef]
48. Meuter, M.L.; Ostrom, A.L.; Roundtree, R.I.; Bitner, M.J. Self-service technologies: Understanding customer satisfaction with technology-based service encounters. *J. Mark.* **2000**, *64*, 50–64. [CrossRef]
49. Bose, R.; Sugumaran, V. Application of knowledge management technology in customer relationship management. *Knowl. Process Manag.* **2003**, *10*, 3–17. [CrossRef]

50. Gebert, H.; Geib, M.; Kolbe, L.; Brenner, W. Knowledge-enabled customer relationship management: Integrating customer relationship management and knowledge management concepts. *J. Knowl. Manag.* **2003**, *7*, 107–123. [CrossRef]
51. Xu, M.; Walton, J. Gaining customer knowledge through analytical CRM. *Ind. Manag. Data Syst.* **2005**, *105*, 955–971. [CrossRef]
52. Geib, M.; Kolbe, L.M.; Brenner, W. CRM collaboration in financial services networks: A multi-case analysis. *J. Enterp. Inf. Manag.* **2006**, *19*, 591–607. [CrossRef]
53. Iriana, R.; Buttle, F. Strategic, operational, and analytical customer relationship management: Attributes and measures. *J. Relatsh. Mark.* **2007**, *5*, 23–42. [CrossRef]
54. Rezaei, G.; Gholami, H.; Shaharou, A.B.M.; Saman, M.Z.M.; Zakuan, N.; Najmi, M. Relationship among culture of excellence, organisational performance and knowledge sharing: Proposed conceptual framework. *Int. J. Prod. Qual. Manag.* **2016**, *19*, 446–465. [CrossRef]
55. O'Dell, C.; Grayson, C.J. If only we knew what we know: Identification and transfer of internal best practices. *Calif. Manag. Rev.* **1998**, *40*, 154–174. [CrossRef]
56. Rastogi, P.N. Knowledge management and intellectual capital—The new virtuous reality of competitiveness. *Hum. Syst. Manag.* **2000**, *19*, 39–48.
57. Alavi, M.; Leidner, D.E. Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Q.* **2001**, *25*, 107–136. [CrossRef]
58. Narver, J.C.; Slater, F.S. The effect of a market orientation on business profitability. *J. Mark.* **1990**, *54*, 20–35. [CrossRef]
59. Dean, A.M. The impact of customer orientation of call center employees on customers' affective commitment and loyalty. *J. Serv. Res.* **2007**, *10*, 161–173. [CrossRef]
60. Bentum, R.V.; Stone, M. Customer relationship management and the impact of corporate culture—A European study. *J. Database Mark. Customer Strategy Manag.* **2005**, *13*, 28–54. [CrossRef]



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