



Customer Relationship Management (CRM): Strategy for Creating Value in an Upper Secondary Education Institution

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Abstract. This study aimed to propose a Customer Relationship Management (CRM) strategy designed to address the needs of students at Century XXI High School, with the purpose of creating value in educational services, strengthening the sense of institutional belonging, and encouraging recommendations of the institution among graduates and prospective students from secondary education. The research was conducted using a correlational quantitative methodology with a mixed-methods approach. Questionnaires were administered to students to identify needs related to customer orientation, knowledge management, organizational variables, and technology. Additionally, in-depth interviews were carried out with the principal and the academic-administrative psychologist in order to analyze institutional management and customer service practices. The results revealed a positive and significant difference among knowledge management, customer orientation, technology, and organizational variables, which were associated with higher levels of student satisfaction and loyalty. Knowledge management emerged as the most influential factor. In conclusion, the adoption of a CRM strategy is considered essential to integrate institutional processes, improve communication with students, increase student retention, and strengthen value creation in educational services. The qualitative analysis indicated the need to strengthen academic and administrative follow-up through tools such as a centralized database.

Keywords: Customer Relationship Management (CRM), Upper Secondary Education, Customer Orientation, Value Creation, and Continuous Improvement.

1 Introduction

Upper secondary education in Mexico represents a strategic stage in the student's educational development, as it serves as a bridge between basic and higher education [1]. In this context, educational institutions face challenges related to student belonging, satisfaction, and retention, particularly in competitive environments where the quality of educational service becomes a determining factor.

From the perspective of relationship marketing, initially proposed by Berry [2]. From the evolution from transactional marketing to relationship marketing established the foundations for Customer Relationship Management (CRM) [3]. Customer Relationship Management (CRM) is defined as a strategy aimed at building long-term relationships through customer knowledge and value creation [4]. In the educational context, CRM has evolved into specialized models known as Educational Customer Relationship Management (EdCRM), which seek to comprehensively manage the interactions between educational institutions and their current and potential students [5]. They found that factors such as student orientation, institutional capabilities, and digital technologies significantly influence the success of educational CRM strategies and, consequently, institutional performance.

Several studies have shown that CRM contributes to customer loyalty and value creation in various sectors, including education [6]. In this regard, implementing CRM-based strategies improves communication, personalizes educational services, and strengthens students' sense of belonging to the institution [7]. Furthermore, the authors conclude that the integration of digital tools promotes the efficiency of academic and administrative processes, strengthening the relationship between the institution and its students. At the Century XXI high school, Loma Bonita campus, a limited implementation of systematic CRM practices was identified, which negatively impacts student needs assessment and sense of belonging. In response to this problem, the present research aimed to design a customer relationship management strategy that would meet student needs, generate value in educational services, and strengthen their identification with the institution.

Although customer relationship management (CRM) has proven to be an effective strategy for strengthening satisfaction, loyalty, and value creation in various organizational sectors, its application in upper secondary education institutions has been limited. In particular, there is little research analyzing how factors such as customer orientation, knowledge management, organizational variables, and technology influence CRM outcomes at this educational level. Continuous feedback systems and institutional performance indicators can improve the student experience and encourage students to remain engaged with the educational institution. The authors emphasize that institutional loyalty can be strengthened when educational organizations use systematic communication and monitoring mechanisms based on relevant student information [8].

Furthermore, recent literature indicates that the successful implementation of CRM in educational institutions goes beyond the adoption of technological tools and requires the integration of organizational capabilities, student focus, institutional processes, and digital technologies. Furthermore, student orientation, institutional capabilities, and digital technologies are key determinants of educational CRM success ([5] & [9]). Digital transformation in higher education institutions should be supported by the integration of people, processes, and technology, as these elements foster more efficient and user-centered experiences. From this perspective, CRM can be conceived as a comprehensive organizational strategy aimed at strengthening satisfaction, a sense of belonging, and value creation for students.

Knowledge management is a fundamental component of Customer Relationship Management (CRM), as it allows for the collection, organization, and use of relevant information to better understand user needs and strengthen institutional decision-making. In the educational field, this capability facilitates the identification of student needs, the improvement of academic and administrative processes, and the enhancement of student satisfaction and retention.

According to [10] educational institutions that implement effective knowledge management mechanisms develop greater capacities to innovate and respond promptly to the demands of their students. Furthermore, [11] they point out that knowledge management significantly influences the effectiveness of CRM by facilitating stronger relationships and greater user satisfaction. In the educational context, the integration and utilization of institutional information allow for improved academic monitoring, strengthened communication, and the design of strategies aimed at generating value for students. In this sense, knowledge management is a strategic factor for the success of CRM, as it contributes to the personalization of services, student retention, and the continuous improvement of the institution.

On the other hand, the effective implementation of CRM requires the integration of technological and organizational resources that allow for the proper management of information and strengthen relationships with users. In the educational field, digital technologies facilitate communication, student tracking, and the personalization of services, contributing to an improved student experience [5]. Likewise, organizational factors such as management commitment, internal communication, and coordination between departments are crucial for the success of CRM strategies. The [9] emphasizes the integration of people, processes, and technology is a key element for the digital transformation of educational institutions. In this sense, the combination of technological and organizational capabilities fosters satisfaction, loyalty, and value creation for students.

At the Century XXI High School, Loma Bonita campus, areas for improvement were identified related to monitoring student needs, institutional communication, and the systematization of student information. These conditions could affect student satisfaction, retention, and sense of belonging to the institution. Therefore, it is important to answer the following research question: What is the relationship between customer orientation, knowledge management, organizational variables, and technology with the results of customer relationship management (CRM) in a high school?

Based on the literature on customer relationship management (CRM), it is recognized that the effectiveness of this strategy depends on the interaction of various organizational, technological, and relational factors. Previous studies have indicated that a proper customer orientation, efficient knowledge management, organizational commitment, and the use of technological tools promote satisfaction, loyalty, and value creation for service users. In the educational context, these elements acquire special relevance because they contribute to strengthening the student experience and

developing lasting relationships between students and the institution. Based on these theoretical foundations and considering the objectives of this research, the following hypotheses are proposed:

1. H1: There is a positive and significant relationship between customer orientation and CRM outcomes.
2. H2: There is a positive and significant relationship between knowledge management and CRM outcomes.
3. H3: There is a positive and significant relationship between organizational variables and CRM outcomes.
4. H4: There is a positive and significant relationship between technology and CRM outcomes.

2 Research Method

This study employed a mixed-methods approach with a non-experimental, cross-sectional research design. Mixed-methods research enables the integration of quantitative and qualitative evidence, providing a more comprehensive understanding of complex social and educational phenomena by combining numerical trends with participants experiences and contextual information [12]. The non-experimental, cross-sectional design was considered appropriate because the study sought to analyze participants perceptions at a specific point in time without manipulating the study variables [13]. Furthermore, the research was classified as applied, since the findings were used to design a Customer Relationship Management (CRM) strategy aimed at improving educational services and strengthening value creation at Century XXI High School, Loma Bonita campus. Applied research focuses on generating practical solutions to organizational problems while supporting evidence-based decision-making [14]. This methodological approach facilitated the identification of opportunities for improving educational services and provided the empirical basis for developing a CRM strategy focused on value creation and student retention.

The study population consisted of 124 fourth- and sixth-semester students enrolled at Century XXI High School, Loma Bonita campus. Because of the manageable size of the population, a census sampling strategy was adopted, allowing all eligible students to participate in the quantitative phase of the research. Census sampling minimizes sampling error and provides a comprehensive representation of the target population when the number of participants is relatively small [15]. For the qualitative phase, semi-structured interviews were conducted with the school principal and one faculty member with academic-administrative responsibilities. These participants were intentionally selected because of their direct involvement in student support, institutional management, and academic monitoring, enabling the collection of in-depth information regarding institutional practices associated with CRM implementation [16]. For the quantitative phase, data were collected using a structured questionnaire consisting of 45 items developed from an extensive review of the specialized literature on educational Customer Relationship Management (CRM). The instrument evaluated five dimensions: customer orientation, knowledge management,

organizational variables, technology, and CRM outcomes. Responses were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), a format widely recognized for measuring attitudes and perceptions in educational and organizational research [17]. Content validity was established through expert judgment and a pilot test conducted before the formal application of the instrument. Expert validation contributes to ensuring that questionnaire items adequately represent the construct being measured and are appropriate for the target population [18]. Likewise, the internal consistency of the instrument was assessed using Cronbach's alpha coefficient, obtaining a value of 0.86, which indicates good reliability and an adequate level of internal consistency for research purposes [19].

For the qualitative phase, a semi-structured interview guide was developed to identify institutional practices, student needs, and areas for improvement related to the implementation of CRM strategies. Semi-structured interviews provide sufficient flexibility to explore participants' experiences while maintaining consistency across interviews, making them particularly appropriate for educational management research [20]. The questionnaire was administered in March 2025 after obtaining authorization from the school administration. Subsequently, between April and September 2025, in-depth interviews were conducted with the selected key informants after obtaining their informed consent. The integration of quantitative and qualitative evidence enabled methodological triangulation, strengthening the credibility and completeness of the findings by contrasting multiple sources of information [21].

Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were first calculated to summarize participants' responses, followed by Pearson's correlation analysis to examine the relationships among customer orientation, knowledge management, organizational variables, technology, and CRM outcomes. Pearson's correlation coefficient is appropriate for evaluating the strength and direction of linear relationships between continuous variables in social science research [22].

Qualitative data were transcribed verbatim and analyzed using content analysis. This analytical procedure facilitated the systematic identification of categories, recurring themes, patterns, and opportunities for improvement associated with student relationship management and CRM implementation. Content analysis is widely recognized as a rigorous qualitative technique for organizing and interpreting textual information while preserving the contextual meaning of participants' experiences [23].

3 Results

The results indicate that teaching preparedness received the highest evaluation ($M=3.27$), suggesting that students perceive faculty members as well qualified and capable of supporting the learning process. In contrast, institutional preparedness, the student-centered institutional strategy, and administrative preparedness obtained moderate evaluations ($M=2.61$), reflecting opportunities to strengthen institutional

management and support services. Lower scores were observed for institutional objectives (M=2.46), academic preparedness (M=2.23), and another dimension related to the student experience (M=2.03), indicating room for improvement in academic support and institutional communication. The lowest-rated dimension was evaluated for preparedness (M=1.73), identifying it as the primary area requiring strategic attention. Overall, while faculty preparedness represents a clear institutional strength, the findings highlight the need to reinforce academic support, institutional processes, and student-oriented services to improve the overall educational experience (see Table 1).

Table 1. Customer orientation.

Measured Item	Mean	Interpretation
Faculty Preparation	3.27	This was the highest-rated aspect. Students perceived that faculty members are well prepared.
Institutional Preparation	2.61	Students perceived the institution's level of preparation as moderate.
I believe that the institutional strategy	2.61	Assesses students' perceptions of the institution's student-centered strategy. The evaluation was moderate.
Administrative Preparation	2.61	Measures the preparedness of the administrative staff to provide services to students.
The Objectives of the Institution...	2.46	Assesses whether students are familiar with or perceive the institution's objectives as appropriate.
Academic Preparation	2.23	Reflects a relatively low perception of the academic support or preparation provided by the institution.
The Preparation...	2.03	Measures another aspect of institutional preparation related to the student experience. The evaluation was relatively low.
Evaluated Preparation	1.73	This was the lowest-rated aspect, indicating the greatest opportunity for improvement.

Note. Prepared by the author based on study results.

Regarding knowledge management, the results showed higher levels of appreciation from students. Students indicated that their opinions were considered in some improvement processes and that there was coordination between academic and administrative areas. This dimension showed the strongest association with the perception of overall satisfaction (see Table 2).

Table 2. Knowledge Management.

Measured Item	Mean	Interpretation
Communication Between Academic and Administrative Areas	3.86	This was the highest-rated aspect, reflecting effective communication between institutional areas.
Coordination of Academic Processes	3.69	Students perceived a high level of coordination among academic processes.
Knowledge Management Practices	3.48	Reflects a positive perception of institutional knowledge management.
Use of Knowledge for Institutional Improvement	3.42	Indicates that knowledge is used to support institutional improvement.
Availability of Information	2.63	Students reported moderate access to the information they needed.
Timely Information Sharing	2.55	Information sharing was perceived as moderate.
Knowledge Sharing Processes	2.52	Knowledge-sharing processes received a moderate evaluation.
Accessibility of Information	2.46	Information accessibility was perceived as moderate.
Institutional Learning	2.20	Institutional learning received a relatively low evaluation.
Coordination Among Institutional Areas	2.18	Interdepartmental coordination was rated relatively low.
Academic Support	1.86	Academic support was perceived as limited.
Consideration of Students' Opinions	1.80	Students perceived limited consideration of their opinions.
Continuous Improvement Processes	1.73	Continuous improvement efforts received a low evaluation.
Students' Opinions Generate Institutional Changes	1.68	This was the lowest-rated aspect, indicating limited impact of student feedback.

Note. Prepared by the author based on study results.

Regarding organizational variables, the results showed that management involvement and internal communication was perceived as moderate. It was identified that the organizational structure did not always facilitate comprehensive attention to student needs (see Table 3).

Table 3. Institutional involvement.

Measured Item	Mean	Interpretation
Faculty Preparation	3.27	This was the highest-rated aspect. Students perceived that faculty members were well prepared to provide quality educational services.
Institutional Preparation	2.61	Students perceived the institution's level of preparedness to meet their needs as moderate.
Institutional Protocols	2.61	Assesses students' perceptions of the existence and implementation of institutional protocols for providing services and managing academic processes. The evaluation was moderate.
Administrative Staff Preparation	2.61	Measures the preparedness of the administrative staff to provide effective support and services to students. The evaluation was moderate.
Institutional Objectives	2.46	Assesses whether students are familiar with and perceive the institution's objectives as appropriate. The evaluation was moderate.
Academic Preparation	2.23	Reflects a relatively low perception of the academic support and preparation provided by the institution.
Preparation to Address Student Needs	2.03	Measures another aspect of the institution's preparedness to respond effectively to students' needs. The evaluation was relatively low.
Overall Institutional Preparedness	1.73	This was the lowest-rated aspect, indicating a significant opportunity to strengthen the institution's overall preparedness from the students' perspective.

Note. Prepared by the author based on study results

For its part, the technological dimension reflected limitations in the use of digital platforms for communication and tracking of requests, which impacted the student experience (see Table 4).

Table 4. Technology.

Measured Item	Mean	Interpretation
Institutional digital platforms facilitate communication with students.	3.65	Highest-rated technological aspect.
Digital tools support access to institutional information.	3.33	Positive perception of access to information.
The technological infrastructure adequately supports academic activities.	2.19	Moderate perception of technological support.
Requests submitted through digital platforms are handled efficiently.	2.02	Moderate satisfaction with request management.
I receive timely responses through institutional digital channels.	1.56	Low satisfaction with response timeliness.
The institution effectively tracks requests submitted through digital platforms.	1.54	Weak perception of request tracking.
The technological services provided by the institution meet my expectations.	1.49	Lowest-rated technological aspect.

Note. Prepared by the author based on study results.

All correlations presented (see Table 5) were statistically significant at the 0.01 level ($p=0.000$), indicating relevant positive relationships between the analyzed variables and the CRM outcomes. These findings demonstrate its relevance for strengthening student-relationship management, as well as for increasing satisfaction, a sense of institutional belonging, and recommendations to prospective students. Knowledge management showed the highest correlation with CRM outcomes ($r=0.709$), representing a strong positive relationship. This result suggests that proper management and utilization of organizational knowledge is directly associated with greater effectiveness in implementing CRM strategies. Regarding the technological variable, a moderate positive correlation was identified ($r=0.562$), highlighting its role as a facilitating element in efficient CRM management, particularly in the use of tools that optimize student interaction and tracking. Organizational variables ($r=0.465$) and customer orientation ($r=0.451$) showed smaller but statistically significant positive correlations. These results indicate that, while both factors favorably influence CRM performance, their impact is more limited, suggesting the need to strengthen organizational involvement and consolidate a student-centered approach.

Table 5. Correlation between knowledge management, customer orientation, organizational involvement, and technology with CRM outcomes.

Correlations CRM outcomes		
Knowledge management	Pearson correlation	.709**

	Sig. (bilateral)	.000
Customer orientation	Pearson correlation	.451**
	Sig. (bilateral)	.000
Organizational involvement	Pearson correlation	.465**
	Sig. (bilateral)	.000
Technology	Pearson correlation	.562**
	Sig. (bilateral)	.000
**The correlation is significant at the 0.01 level (2 tails).		

Note. Prepared by the author based on study results.

Interviews with high school administrators revealed shortcomings in the implementation of CRM, primarily in the systematization of student interactions, personalized follow-up, and the limited use of technological tools that would enable effective and efficient communication. Therefore, there are areas for improvement in personalized attention, institutional communication, and access to relevant academic information. Therefore, the results of the correlational analysis allowed us to verify the hypotheses put forward in the research. First, hypothesis H1 was supported by finding a positive relationship between customer orientation and CRM outcomes, ($r=0.510$), which indicates that practices focused on understanding and addressing students' needs contribute to strengthening relationship management strategies.

Similarly, hypothesis H2 was confirmed by identifying a strong positive relationship between knowledge management and CRM outcomes ($r=0.709$), establishing it as the dimension with the greatest influence within the analyzed model. This result highlights the importance of collecting, sharing, and strategically using institutional information to improve the student experience and generate value.

Regarding hypothesis H3, the results showed a positive relationship between organizational variables and CRM outcomes ($r=0.465$), which confirms that factors such as internal communication, coordination between areas, and institutional commitment favor the implementation of student-oriented strategies.

Finally, hypothesis H4 was also supported by the positive correlation found between technology and CRM outcomes ($r=0.562$). This finding highlights the importance of technological tools for facilitating communication, information management, and student tracking. Taken together, the results obtained provide empirical evidence that supports the four research hypotheses, confirming that customer orientation, knowledge management, organizational variables, and technology are factors positively associated with CRM outcomes in upper secondary education institutions.

4 Discussion

The results obtained confirmed that customer relationship management (CRM) is a relevant strategy for strengthening student satisfaction and loyalty in upper secondary

education institutions. This finding is consistent with the arguments presented by Kayal & Billah ([8] & [4]), who argue that relationship marketing is based on creating value through customer knowledge and building long-term relationships. In the educational context, students assume an active role as users of educational services, which reinforces the relevance of adapting CRM as an institutional management philosophy. In this sense, ([7], [24] & [25]). These authors emphasize that CRM extends beyond the use of technological tools and should be conceived as an organizational strategy aimed at generating value through sustainable customer relationships. Likewise, recent research from [5] points out that the implementation of CRM in educational institutions contributes significantly to improving institutional performance and the student experience when integrated with organizational and technological capabilities [26].

Knowledge management was the dimension that showed the strongest relationship with CRM outcomes ($r=0.709$), demonstrating its relevance for value creation in the educational context. This result coincides with ([10] & [11]). They emphasize that capturing, analyzing, and strategically using information allows for anticipating needs and improving the user experience. Additionally, [11]. They argue that knowledge management significantly strengthens the effectiveness of CRM strategies by facilitating stronger relationships and greater user satisfaction. The findings of this research show that when student opinions and needs are collected, shared, and used by different institutional areas, it fosters more efficient student relationship management. This aligns with [25], who claim that educational CRM requires integrated information systems that allow data to be transformed into actions aimed at improving educational services.

Regarding customer orientation, the results showed a moderate positive correlation ($r=0.510$), confirming that practices focused on understanding and addressing student needs contribute to the success of CRM strategies. This result is consistent with ([27] & [4]). They warn that many organizations limit CRM to the use of technological tools without adopting a true user-centered culture. The findings suggest that student orientation should be consolidated as a cross-cutting element in institutional management, fostering communication, support, and follow-up processes that strengthen satisfaction and a sense of belonging.

Regarding organizational and technological variables, the results showed positive associations with CRM outcomes, particularly highlighting the influence of technology ($r=0.562$). Similarly, Canché [28], emphasizes that CRM implementation requires centralized customer information, process integration, and continuous monitoring to improve organizational decision-making and customer management. These findings align with what has been proposed by ([9] & [29]), who argue that CRM success depends on the alignment of strategy, people, processes, and technology. Similarly, [9]. It argues that digital transformation in educational institutions requires the effective integration of these elements to generate sustainable improvements in institutional management. Furthermore, Kayal & Billah [8] They identify digital technology as one of the critical factors for the success of educational CRM. Likewise, Altonar de la Cruz et al. [30], highlight that digital marketing strategies

strengthen customer relationship management by improving communication and interaction through digital channels. The need for integrated technological platforms and databases also aligns with the approaches of ([25] & [31]), who emphasize that technological integration strengthens communication, student retention, and institutional decision-making.

Taken together, the results suggest that the effective implementation of CRM in upper secondary education institutions requires a comprehensive approach that combines knowledge management, student focus, organizational capabilities, and technological resources. The interaction of these factors fosters value creation, strengthens student satisfaction, and contributes to the development of lasting relationships between students and the educational institution [32].

5 Conclusions

This research aimed to propose a customer relationship management (CRM) strategy for the Century XXI High School, Loma Bonita campus, in order to strengthen value creation in educational services, increase the sense of institutional belonging, and promote recommendations of the institution among students and graduates. The results obtained confirmed the relevance of CRM as a management strategy applicable to the educational context, demonstrating positive relationships between the dimensions analyzed and the expected results of a CRM system.

The findings indicate that knowledge management is the most influential factor affecting CRM outcomes, highlighting the importance of strategically collecting, sharing, and using information related to students' needs and expectations. Technology, customer focus, and organizational variables also showed positive relationships, confirming that the effectiveness of CRM strategies depends on the interaction of human, organizational, and technological factors.

Based on the results obtained, the research hypotheses are accepted, as positive relationships were found between customer orientation, knowledge management, organizational variables, and technology with CRM outcomes. These findings suggest that educational institutions can strengthen student satisfaction, loyalty, and retention through strategies focused on understanding the student, using information technologies, and consolidating a service-oriented organizational culture.

Finally, the proposed CRM strategy represents a viable alternative for improving institutional management and strengthening the relationship between Century XXI High School and its students. Its implementation would contribute to creating more personalized educational experiences, optimizing communication and student tracking processes, and increasing value creation for the institution's various stakeholders.

Among the main limitations of the study are its cross-sectional nature and the fact that it was conducted in a single educational institution, which limits the generalizability of the results to other contexts. Furthermore, the quantitative data was obtained

through student perceptions, so future studies could incorporate objective institutional indicators related to student satisfaction, retention, and loyalty.

It is recommended that future research analyze the implementation and longitudinal evaluation of CRM strategies in educational institutions at different levels and in different geographical contexts. Furthermore, it would be pertinent to develop explanatory models using multivariate techniques to delve deeper into the effect of knowledge management, technology, and organizational factors on the outcomes of educational CRM.

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