



Factors affecting customer relationship management practices in Thai academic libraries

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Thailand;
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Abstract This study investigates and analyzes the factors affecting customer relationship management (CRM) practices in Thai academic libraries. The research conceptual framework focuses on factors affecting CRM practices was developed using Combe (2004)'s study on assessing CRM strategies. Mixed methods, qualitative, and quantitative approaches were used as a research methodology. Data was collected by using the interview and survey techniques with the administrators, staff and customers of six selected academic libraries in Thailand. Analysis of the data was done by using Pearson's correlation coefficient, factor analysis, and multiple regression analysis. The results of the study show that factors that have statistically significant impact on CRM practices in Thai academic libraries at 0.05 level were: (1) the knowledge and understanding of CRM of library staff and leadership of library administrators (Beta = 0.762), (2) organizational culture and communication (Beta = 0.323), (3) customer management processes (Beta = 0.318), (4) technology for supporting customer management (Beta = 0.208), and (5) channels for library services and communications (Beta = 0.150). The knowledge and understanding of CRM of library staff and leadership of library administrators which include the perception and awareness of service quality focusing on customer relationship is a key to library success. Important factors also include the acceptance and support of the use of CRM in the library, the clear vision and mission about using CRM in the library strategic plan, the knowledge and understanding of library staff on CRM processes, customer characteristics, and behaviors. The organizational culture and communication factors involve the creation of the CRM cultures of working in the library, good teamwork, cooperative and clear working agreements, clear roles and responsibilities, good communication between library staff, cross library functional integration, and performance evaluation and development. The customer management processes factor includes recording and registration of customer profiles, customer analysis and classification, services to individual customers, services to expected customers, and continual customer interactions. The technology for supporting CRM factors includes communication technology, information technology, and operations support technology. The channels for library services and communications factors can be direct channels, such as a service counter and self-circulation service, and indirect channels such as telephone, call center, email, personal web, library web, and social networking technology.

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Suggestions for academic libraries on the development and implementation of CRM in libraries are: (1) CRM must be included in the library strategic plan; (2) CRM must be a key strategy for the improvement of library service quality; (3) library administrators must have strong leadership for achieving the effectiveness of CRM practices in the library; (4) library staff must have good knowledge and understanding of CRM and its link to the library service quality improvement; (5) the working cultures for CRM effectiveness such as teamwork, cross functional work, and good communication between staff must be encouraged and practiced in the library; and (6) technology must be fully supported for CRM in the library.

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Introduction

Academic libraries are currently facing their greatest challenge due to the explosion in tertiary education and academic publications. The alliance of business and universities to create a new paradigm of tertiary education, and the emergence of the virtual university, supported by the virtual library, call into question many basic assumptions about the role of the academic library and the security of its future. Retaining and improving their customer databases and focusing on meeting their customers' expectations are the only ways for academic libraries to survive in this volatile competitive environment (Cullen, 2001). Competition for customers and resources as well as recognition that the library may no longer be the primary nor the only information source available bring new meaning to the need to promote the library's value in a crowded arena (Stueart & Moran, 2007). The reviews of literature revealed that customer relationship management (CRM) has been studied and used as part of library strategies for improving the quality of library services. This is because CRM is a widely-implemented strategy for managing organizational interactions with customers. It involves the processes of finding, attracting, and retaining new customers, nurturing and retaining customers the organization already has, enticing former customers back into the fold, and reducing the costs of marketing and customer service. The overall goals of CRM are to create customer satisfaction, trust, loyalty, and retention (Gartner Inc., 2009; Gronroos, 2000; Tiwana, 2001).

Recently, there has been increasing interest among Thai academic libraries in using CRM for library services improvement as seen in meetings and conferences that addressed applications of CRM in academic libraries and CRM benefits. The research from *Roles of University Libraries in Enhancing the Students' Learning* done five years ago by Tuamsuk, Tulyasuk, Sarawanawong and Dadphan (2005), also suggested that Thai academic libraries had urgent needs to provide more proactive services and integrate the CRM strategy for improving the library services. However, the study by Siriprasoetsin, Tuamsuk, and Vongprasert (2010) found that most Thai academic libraries had no policies on the creation and retention of good relationships with customers. Although there were CRM practices found in some academic libraries such as a study of customers' attitudes and needs, creation of customers' profiles, and provision of several options for customers' communication, most of these practices were

related to the traditional library services such as circulation, inter-library loan, and current awareness services. There were few innovative services focusing on customers in Thai academic libraries.

Application of CRM in libraries will add value to library services. It creates confidence and satisfaction among users and will in turn increase the number of users and at the same time bring back former users (Broady-Preston, Felice, & Marshal, 2006; Wang, 2007). However, successful CRM application also depends on a number of factors. Any organization wishing to use it has to understand the various factors in the CRM paradigm in order to establish the framework and mission (Chen & Popovich, 2003). Many academics have studied and compiled factors underlying the success of CRM administration and listed the following as major contributors: information technology, staff, customers, customer management, organizational culture, leadership, organizational strategies, and teamwork (Buttle, 2004; Chen & Popovich, 2003; Combe, 2004). In fact, these factors are the outcome of the CRM administration studies conducted in business organizations. There is currently no study conducted on successful CRM-based administration for library organizations, especially academic libraries which are categorized as non-profit and classify customers as users. The researchers believe CRM administration is a new issue for Thailand and hence, wish to study it in depth and holistically in order to obtain accurate and practical academic information. This study is one part of the research into the development of a CRM model for Thai academic libraries.

Research objective

This research investigates and analyzes the factors affecting CRM practices in Thai Academic Libraries.

Literature review

Customer Relationship Management is a concept that is based on the philosophy of using a combination of customers and marketing for relationship building (Kotler, 2003). Gronroos (2000) defined CRM in service marketing as a communicating process between customers and an organization's service in order to attract and maintain those customers who will be the organization's true customers who are using the organization's services. These

customers also have a tendency to pay willingly for the organization's services at a higher price.

The factors behind the success of CRM include items that drive a successful implementation which become the key components underlying the success of CRM (Rajola, 2003). Many academics have conducted studies and proposed important components of CRM. Buttle (2004), for instance, stated that there are four important factors affecting the chain values of CRM, namely, leadership and organizational culture, people, data and information technology, and process. Similarly, Chen and Popovich (2003) suggested that the key factors for CRM are people, technology, and process. However, all four strategies and implementation processes, customer-centric business process, enterprise-wide strategy, technology-driven process, and cross functional integration must have momentum to move forward. Combe (2004) proposed the following four items for driving forth CRM: culture, leadership, people, and technology. There are others academics, both Thais and foreigners, who conducted studies on factors leading to CRM success. The researcher has synthesized the findings of these studies into the following conceptual framework.

Knowledge & understanding of CRM of library staff and leadership of library administrators

This factor mainly involves people, or the administrators of the libraries who set the policies and are responsible for advancing CRM toward success. The administrators should have leadership capacity meaning they understand and know CRM well. They should be able to establish the vision and lead the organization by efficiently introducing CRM, be responsible for developing CRM strategies, and drive implementation by creating CRM support mechanisms such as resources, time, working environment, and technology. They should be able to remove obstacles or problems that will hinder the administration from reaching the expected goals (Combe, 2004). Staff should be informed of and understand CRM and organizational visions and strategies, aware of customer-oriented service values, and knowledgeable about the outcomes from the creation and maintenance of good relationships between customers and the organization (Greenberg, 2001).

Organizational culture and communication

Organizational culture originated and is accumulated from beliefs, expectations, attitudes, and common values of all members. All of these aspects result in cooperative learning, acceptance, and successful implementation in order to attain the organizational aims which are then transferred to future generations (Noppakhun, 1998; Wheelen & Hunger, 2000). As far as CRM administration is concerned, it can be said that organizational culture and communication are the most difficult factors to overcome since the administrators need to change attitudes and encourage the personnel to accept new concepts in CRM. Moreover, this involves the building of a working culture, establishing agreement for cooperation, building teamwork consisting of people of various disciplines that take different roles, creating integrated cooperation, and

communicating efficiently; all of which require personnel participation at all levels ranging from administrators to operators (Mendoza, Marius, Prez & Griman, 2006; Stone, Woodcock, & Machtynger, 2001).

Customer management processes

The processes of customer management are the most important factors supporting the introduction of CRM in organizations. The process commences from getting to know customers and building good relationships with customers based on the behaviors of targeted groups (Nykamp, 2001). An organization needs to make a customer inventory as the foundation for relationship building through the construction of complete customer databases that are accessible by the organization. Each customer account should be analyzed in order to understand his or her need and attitudes, which are the basis for good relationship building and ongoing relationships maintenance (Stefanou, Sarmaniotis, & Stafyla, 2003). The customer management processes cover recording and registering customer accounts, analyzing customer accounts for improved customer understanding, providing services to library customers, preparing for expected customers, interacting continuously with customers, and arranging other activities (Combe, 2004; Ho & Chuang, 2006; Mendoza et. al., 2006; Zablah, 2005).

Technology for supporting customer management

Nowadays information technology and communication are used as the tool for organizational communication, knowledge management, and strategies (Laudon & Laudon, 2002). Likewise, CRM technology is an important strategic tool of an organization to attain success in CRM application (McKie, 2001; Stefanou, Sarmaniotis, & Stafyla, 2003) due to the basic structure of information technology and information from customers' databases (Torres, 2004). Primarily, the customer management strategy requires a central repository to store all customer news and information. This central repository must have an efficient information technology architecture that is adjustable according to the changing environment (Buttle, 2004; Combe, 2004). It must contain a systematic CRM in order to communicate with customers through the direct dispatch of information to customers which is a strategy for retaining an organization's customers (Steffes, 2005). The quality of information sent to customers also affects relationship building with customers. In this respect, the application of technology can upgrade the quality of information dispatched to the customer (Zablah, 2005). It can be concluded that the successful CRM includes coordinating technology, operational technology, and analytical technology (Ho & Chuang, 2006; Mendoza et al., 2006; Zablah, 2005).

Channels for library services and communications

Channeling interactions and communication appropriate for customers is very important for building and maintaining relationships. There are a number of possible interaction

channels and communication means, namely, direct market communication, face-to-face communication, and indirect market communication by means of telephone or internet network. Interactions through the various channels increase the relationship between the organization and its customers, with the former being able to provide suitable services that directly meet the latter's needs (Kotler, Roberto, & Lee, 2002). Appropriate communication with customers, notwithstanding whether it is selling or providing services in situ, at the telephone center, on the websites, at the customer service point, or through advertisement, can satisfy customers and result in customer loyalty (Nykamp, 2001). Additionally, the service channeling factor corresponds to the innovative library concept that suggests the addition of information processes through regular surveys, increase of multiple information characteristics, and increase of means for information access based on convenient information technology and perceived speed of information, will assist in lessening budget expenditure (Stueart & Moran, 2007).

Research methodology

This study applied a mixed research method which included both quantitative and qualitative means. The research site was academic libraries of public universities affiliated with the Office of Higher Education Commission of Thailand. The sample was selected through purposive sampling by considering six university libraries with readiness and high information technology potential. Two population groups were chosen with one comprising administrators and library staff and the other consisting of library customers who were lecturers from each academic institution. Information was collected through a questionnaire and interviews during the June–October 2009 time frame. From the 130 library personnel, 125 (92.00%) responded, whereas 342 customers (89.00%) from the total of 385 provided information from the second population group. The data was statistically analyzed to determine percentages, means, standard deviations, and multivariate analysis.

Results

Impacts on CRM in academic libraries as seen by the library personnel

The analysis of overall impacts of CRM in academic libraries as seen by library personnel indicates that the factor yielding the highest impact was the channels for library services and communications (77.4%). The factors with medium impact were the knowledge and understanding of CRM of library staff and leadership of library administrators (54.2%) and customer management processes (54.2%). The factors with little impact were the technology for supporting customer management (48.8%) and organizational culture and communication (37.6%).

The analysis of sub-factors affecting CRM shows that a direct channel for communication with customers was the factor seen as having the highest impact (77.4%). The factors with medium impact were services to individual customers (72.8%), perception and awareness of service

quality focusing on customers (66.4%), and continual customer interactions (63.2%). The factors receiving the lowest opinion level with over 50% of respondents included customer-oriented activities (58.4%) and communication technology (54.4%). Some respondents (41.6%) believed that creation of CRM teamwork had no impact on CRM (Table 1).

Impacts on CRM in academic libraries as seen by the library customers

The analysis of the overall impacts on CRM in academic libraries as seen by library customers reveals that the factors yielding the highest impact were the channels for library services and communications (66.1%), followed by organizational culture and communication (53.6%) and technology for supporting customer management (52.7%). The factors with medium impact were the knowledge and understanding of CRM by library staff and library administrator leadership (46.6%) and the customer management processes (27.3%).

The analysis of sub-factors affecting CRM shows that channels for library services and communication had the highest impacts with the direct channels at 72.2% and indirect channels at 64.0%, followed by communication technology (61.4%) and cross library functional integration (60.5%). The factors receiving medium opinion were perception and awareness of service quality focusing on the customer (61.7%) and performance evaluation and development of the library culture (50.9%). The factor with low impact in CRM was services to individual customers (48.0%). The factor seen as not having any impact was customer classification (48.0%) (Table 1).

Analysis of factors affecting CRM in academic libraries

The analysis of factors affecting CRM in academic libraries was conducted based on multivariate analysis and multiple regression analysis. The independent variables included five factors, namely, (1) knowledge of CRM and leadership; (2) organizational culture and communication; (3) customer management processes; (4) technology supporting customer management; and (5) service channels and communication. CRM was the dependent variable. The factor reported as having highest impact on CRM was knowledge of CRM and leadership (Beta = 0.762), followed by organizational culture and communication (Beta = 0.323), customer management processes (Beta = 0.318), and technology supporting customer management (Beta = 0.208). The factor least affecting CRM was service channels and communication (Beta = 0.150) (Fig. 1). The detail of each factor is provided in Table 2.

1.1. The analysis on knowledge and understanding of CRM and leadership shows that all sub-factors in this category explain CRM in academic libraries at a significance level of 0.05. The variation of CRM in these libraries is explained at 36.6% (Adjusted $R^2 = 0.366$). There was one sub-factor having a statistically significant positive impact which was the understanding, acceptance, and

Table 1 Perspectives of the library staff and customers on factors affecting CRM effectiveness in academic libraries.

Factors affecting CRM effectiveness	Perspectives of library staff no. (%)					Perspectives of library customers no. (%)				
	High	Mode-rate	Low	None	Total	High	Mode-rate	Low	None	Total
1. Knowledge & understanding of CRM of library staff and leadership of library administrators	28 (22.1)	68 (54.2)	26 (20.5)	4 (3.2)	125 (100)	146 (42.8)	159 (46.6)	33 (9.7)	3 (0.9)	342 (100.0)
1.1. Perception and awareness of service quality focusing on customer relationship is a key to library success.	21 (16.8)	83 (66.4)	20 (16)	1 (0.8)	125 (100)	105 (30.7)	211 (61.7)	24 (7.0)	2 (0.6)	342 (100)
1.2. Acceptance and support of use of CRM in the library	26 (20.8)	58 (46.4)	31 (24.8)	10 (8)	125 (100)	163 (47.7)	137 (40.1)	37 (10.7)	5 (1.5)	342 (100)
1.3. Clear vision and mission about using CRM in the library strategic plan	25 (20)	69 (55.2)	27 (21.6)	4 (3.2)	125 (100)	166 (48.5)	141 (41.2)	31 (9.1)	4 (1.2)	342 (100)
1.4. Knowledge and understanding of library staff on CRM processes	38 (30.4)	67 (53.6)	18 (14.4)	2 (1.6)	125 (100)	161 (47.1)	146 (42.7)	33 (9.6)	2 (0.6)	342 (100)
1.5. Knowledge and understanding of customer characteristics and behaviors	28 (22.4)	62 (49.6)	32 (25.6)	3 (2.4)	125 (100)	137 (40.1)	162 (47.4)	41 (12.0)	2 (0.6)	342 (100)
2. Organizational culture and communication	14 (11.3)	29 (23.2)	47 (37.6)	35 (27.9)	125 (100)	183 (53.6)	134 (39.2)	22 (6.3)	3 (0.9)	342 (100)
2.1. Creation of the CRM teamwork	6 (4.8)	19 (15.2)	48 (38.4)	52 (41.6)	125 (100)	189 (55.3)	122 (35.7)	27 (7.8)	4 (1.2)	342 (100)
2.2. Clear cooperative working agreements	41 (32.8)	57 (45.6)	20 (16)	7 (5.6)	125 (100)	172 (50.3)	139 (40.6)	29 (8.5)	2 (0.6)	342 (100)
2.3. Clear roles and responsibilities	7 (5.6)	19 (15.2)	52 (41.6)	47 (37.6)	125 (100)	199 (58.1)	123 (36)	18 (5.3)	2 (0.6)	342 (100)
2.4. Good communication between library staff	2 (1.6)	20 (16)	54 (43.2)	49 (39.2)	125 (100)	200 (58.5)	124 (36.2)	16 (4.7)	2 (0.6)	342 (100)
2.5. Cross library functional integration	4 (3.2)	20 (16)	55 (44)	46 (36.8)	125 (100)	207 (60.5)	122 (35.7)	10 (2.9)	3 (0.9)	342 (100)
2.6. Performance evaluation and development	25 (20)	39 (31.2)	53 (42.4)	8 (6.4)	125 (100)	133 (38.9)	174 (50.9)	30 (8.7)	5 (1.5)	342 (100)
3. Customer management Processes	19 (15.2)	60 (47.7)	35 (27.8)	12 (9.4)	125 (100)	91 (26.7)	93 (27.3)	89 (26.0)	68 (20.0)	342 (100)
3.1. Recording and registration of customer profiles	30 (24)	75 (60)	17 (13.6)	3 (2.4)	125 (100)	150 (43.8)	158 (46.2)	32 (9.4)	2 (0.6)	342 (100)
3.2. Customer analysis	24 (19.2)	67 (53.6)	26 (20.8)	8 (6.4)	125 (100)	3 (0.9)	25 (7.3)	151 (44.2)	163 (47.6)	342 (100)
3.3. Customer classification	13 (10.4)	29 (23.2)	48 (38.4)	35 (28.0)	125 (100)	2 (0.6)	16 (4.7)	160 (46.7)	164 (48.0)	342 (100)
3.4. Services to individual customers	14 (11.2)	91 (72.8)	19 (15.2)	1 (0.8)	125 (100)	3 (0.9)	36 (10.5)	164 (48.0)	139 (40.6)	342 (100)
3.5. Services to expected customers	37 (29.6)	51 (40.8)	29 (23.2)	8 (6.4)	125 (100)	144 (42.1)	137 (40.1)	57 (16.6)	4 (1.2)	342 (100)
3.6. Continual customer interactions	13 (10.4)	79 (63.2)	31 (24.8)	2 (1.6)	125 (100)	182 (53.2)	125 (36.5)	30 (8.8)	5 (1.5)	342 (100)
3.7. Customer-oriented activities	2 (1.6)	25 (20)	73 (58.4)	25 (20)	125 (100)	156 (45.6)	156 (45.6)	28 (8.2)	2 (0.6)	342 (100)
4. Technology for supporting customer management	11 (8.8)	38 (30.4)	61 (48.8)	15 (12.0)	125 (100)	180 (52.7)	101 (29.6)	50 (14.7)	10 (2.9)	342 (100)
4.1. Communication technology (telephone, web page, call center, hot line, etc.)	8 (6.4)	47 (37.6)	68 (54.4)	2 (1.6)	125 (100)	210 (61.4)	41 (12.0)	74 (21.6)	17 (5.0)	342 (100)
4.2. Information technology (database, data mining, knowledge management system)	19 (15.2)	26 (20.8)	60 (48)	20 (16)	125 (100)	155 (45.3)	148 (43.3)	36 (10.5)	3 (0.9)	342 (100)
4.3. Technology for operating support (SFA-service force automation system, marketing automation, financial operation system)	6 (4.8)	41 (32.8)	55 (44)	23 (18.4)	125 (100)	176 (51.5)	115 (33.6)	41 (12.0)	10 (2.9)	342 (100)
5. Channels for library services and communications	79 (63.0)	13 (10.4)	24 (19.1)	9 (7.5)	125 (100)	233 (68.1)	89 (25.9)	14 (4.2)	7 (1.9)	342 (100)
5.1. Direct channels (service counter, self circulation service)	97 (77.4)	13 (10.2)	11 (8.48)	4 (3.8)	125 (100)	247 (72.2)	76 (22.2)	16 (4.7)	3 (0.9)	342 (100)
5.2. Indirect channels (telephone, call center, email, personal web, library web, social networking tech., etc.)	61 (48.6)	13 (10.5)	37 (29.7)	14 (11.2)	125 (100)	219 (64.0)	101 (29.5)	12 (3.6)	10 (2.9)	342 (100)

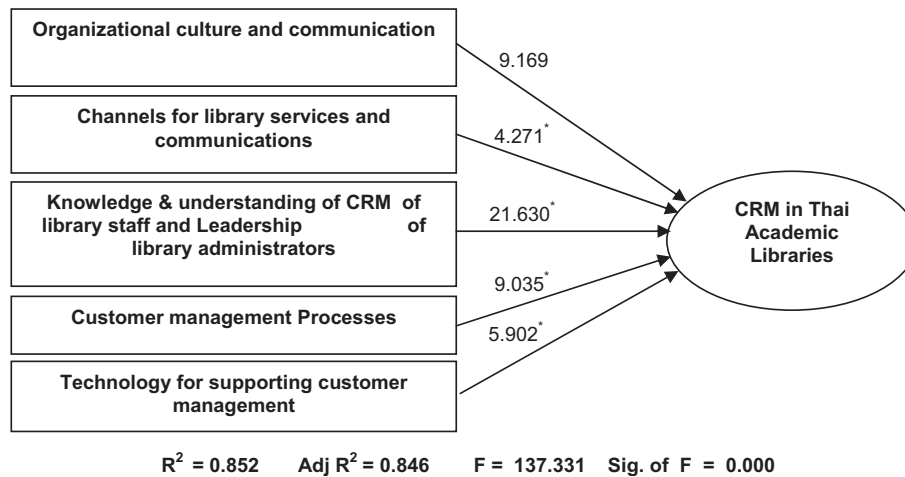


Figure 1 Model of factors affecting customer relationship management.

support of CRM. It is predicted that an increase of one unit of this sub-factor will increase 1.561 units of CRM in academic libraries, with the sub-factor impact value of 0.437 (Beta = 0.437). We were able to conclude that the understanding, acceptance, and support of CRM are related to university library CRM.

These findings correlated to a number of literature and research studies, for example; Anderson and Kerr (2001); Combe (2004); Ho and Chuang (2006); Mendoza et. al. (2006); and Torres (2004). These studies proved that organizational administrators, staff, and operators must have CRM knowledge and understanding to make building and maintaining relationships with customers a success.

1.2. The analysis of organizational culture and communication in libraries indicates that all sub-factors in this category can be explained in academic libraries with CRM at a statistical significance level of 0.05. The analysis was able to explain the variation of academic library CRM at 30.0% (Adjusted $R^2 = 0.300$). There was one sub-factor in this category that had a statistically significant positive effect on CRM which was inter-communication. It is predicted that with an increase of one unit of this sub-factor, the CRM of academic libraries would increase at 9.072 units, with the sub-factor impact value of (Beta = 0.251). It is concluded that inter-communication between library staff is correlated to university library CRM.

Our findings correlate to a number of research studies, for example, Combe (2004); Gartner Inc. (2009); Ho and Chuang (2006); Mendoza et. al. (2006); Stone, Woodcock, & Machtynger (2001). All of these studies report that successful application of CRM in an organization requires inter-communication among the members.

1.3. The analysis of customer management shows that all of the sub-factors in customer management were able to explain CRM in academic libraries at a statistical significance level of 0.05. The variation of CRM in these libraries was as high as 91.5 percent (Adjusted $R^2 = 0.915$). Four sub-factors in this category were found to be statistically

significant in terms of positive impact, namely, arrangement of activities for customers, customer services, continuous customer interaction, and recording and registering customer accounts. It could be predicted that an increase of one unit of these sub-factors would increase CRM of academic libraries to 1.813, 1.476, 1.539, and 0.913 units, respectively.

The comparison of the impact from the four sub-factors revealed that the arrangement of activities for customers had the greatest impact on a library's CRM (Beta = 0.490), followed by customer services (Beta = 0.257), continual interaction with customers (Beta = 0.240), and the recording and registering of customer accounts (Beta = 0.223). We concluded that the sub-factors in customer management processes, arrangement of activities for customers, customer services, continuous customer interaction, recording and registering customer accounts, correlate with academic library CRM.

This correlates to a lot of research work and literature, for example, Combe (2004); Mendoza et al. (2006); Nykamp (2001); Stefanou, Sarmaniotis, & Stafyla (2003); Tiwana (2001) and Torres (2004). These studies proved that continuous activities, services, and recording and registering customer accounts contribute to success in maintaining good relationships with customers.

1.4. The analysis of customer management technology showed that all of the technology-related sub-factors explained CRM in academic libraries at the significance level of 0.05, with the variation of CRM being 28.6% (Adjusted $R^2 = 0.286$). There were two sub-factors with statistically significant positive influences which were coordination technology and analytical technology. It could be predicted that when these sub-factors increase one unit, CRM of academic libraries would increase at 1.649 and 4.811 units, respectively. When the two sub-factors were compared in terms of their impact, it was found that the coordination of technology showed the highest impact on academic library CRM (Beta = 0.371) followed by analytical technology (Beta = 0.290). It was concluded that the coordination of technology and analytical technology related to academic library CRM.

Table 2 Factors Analysis on CRM practices in Thai academic libraries.

Factors	Customer relationship management			
	B	Beta	t	No.
1. Knowledge & understanding of CRM of library staff and leadership of library administrators	21.003	0.762	21.630*	(1)
1.1. Perception and awareness of service quality focusing on customer relationship is a key to library success.	2.656	0.161	1.534	0.128
1.2. Acceptance and support of use of CRM in the library	1.561	0.437	3.251*	0.001
1.3. Clear vision and mission in using CRM in the library strategic plan	0.270	0.147	1.227	0.222
1.4. Knowledge and understanding of library staff on CRM processes	0.720	0.153	1.271	0.206
1.5. Knowledge and understanding of customer characteristics and behaviors	0.322	0.062	0.465	0.643
(Constant)	91.211		5.679	0.000
<i>SEE = 21.944 R² = 0.392 Adjusted R² = 0.366</i>				
<i>F = 15.322 Sig. of F = 0.000(a)</i>				
2. Organizational culture and communication	8.903	0.323	9.169*	(2)
2.1. Creation of the CRM teamwork	6.545	0.204	13.857	0.751
2.2. Clear cooperative working agreements	0.258	0.014	1.626	0.826
2.3. Clear roles and responsibilities	4.050	0.127	0.093	0.443
2.4. Good communication between library staff	9.072	0.251	0.83*	0.013
2.5. Cross library functional integration	-3.946	-0.115	2.042	0.687
2.6. Performance evaluation and development	0.721	0.166	-1.041	0.112
(Constant)	143.048			0.000
<i>SEE = 23.056 R² = 0.334 Adjusted R² = 0.300</i>				
<i>F = 9.867 Sig. of F = 0.001</i>				
3. Customer management processes	8.774	0.318	9.035*	(3)
3.1. Recording and registration of customer profiles	1.813	0.223	6.508*	0.000
3.2. Customer classification	-0.689	-0.024	-0.705	0.482
3.3. Customer analysis	0.616	0.049	1.294	0.198
3.4. Services to individual customers	1.476	0.257	6.350*	0.000
3.5. Services to expected customers	0.982	0.058	1.542	0.126
3.6. Continual customer interactions	1.539	0.240	5.227*	0.000
3.7. Customer-oriented activities	0.913	0.490	16.628	0.000
(Constant)	16.137		2.648	0.009
<i>SEE = 8.044 R² = 0.920 Adjusted R² = 0.915</i>				
<i>F = 191.259 Sig. of F = 0.000</i>				
4. Technology for supporting customer management	5.731	0.208	5.902*	(4)
4.1. Communication technology (telephone, web page, call center, hot line, etc.)	1.649	0.371	3.963*	0.000
4.2. Technology for operating support (SFA-service force automation system, marketing automation, financial operation system)	-0.028	-0.005	-0.040	0.968
4.3. Information technology (database, data mining, knowledge management system)	4.811	0.290	2.800*	0.006
(Constant)	134.312		11.890	0.000
<i>SEE = 23.294 R² = 0.303 Adjusted R² = 0.286</i>				
<i>F = 17.532 Sig. of F = 0.000</i>				
5. Channels for library services and communications	4.147	0.150	4.271*	(5)
5.1. Direct channels (service counter, self circulation service)	1.634	0.548	7.263*	0.00
5.2. Indirect channels (telephone, call center, email, personal web, library web, social networking technology, etc.)	2.235	0.174	5.157*	0.00
(Constant)	131.144		11.619	0.00
<i>SEE = 23.294 R² = 0.303 Adjusted R² = 0.286 F = 17.532 Sig. of F = 0.000</i>				

The findings correlated to a lot of literature and studies such as Anderson and Kerr (2001); Combe (2004); Ho and Chuang (2006); Mendoza et al. (2006); and Torres (2004). These authors found that the basic structure of information technology and the information from the customers' databases affected building and maintaining customer relationships. Zablach (2005) also found that the quality of information for customers was related to building of relationships with customers and the use of technology increased the quality of information. Libraries should apply technology to support customer management since it would contribute to building and maintaining successful customer relationships.

1.5. The analysis of service channels and communication revealed that all sub-factors in this category explained CRM in academic libraries at a statistical significance level of 0.05. The variation of CRM in academic libraries was accounted for at 28.6 percent (Adjusted $R^2 = 0.286$). Thus, it could be predicted that an increase of one unit of these sub-factors increased academic library CRM to 1.634 units, with the impact value of library CRM being 0.548 (Beta = 0.548). It can be concluded that service channels and communication are related to academic library CRM.

The research findings indicated that appropriate channeling of customer service is very important for the creation of library customer relationships. This correlates to Nykamp (2001) who suggested that the provision of suitable services are what customers want whereas interaction by means of direct and indirect channels such as computer network result in an improved relationship between the organization and its customers. Additionally, the concept of customer service channels are also in accordance with the modern library concept which states that libraries should increase the information processes provision as needed by the customers. This can be done through constant surveying. The information patterns should also be multiple and access channels added through information technology advances to enable the customers to receive information conveniently and rapidly without any limitations in time and place. This will partially reduce the loss of budget (Stueart & Moran, 2007). Our findings also correlate to Yamazaki's research (2006) which showed that development of facilitating tools for quick information searching through the Internet enable library customers to have access to information by themselves.

Conclusions and discussions

The nature of Thai academic libraries presently has significantly changed due to the impact from the advancement of information technology and communication, economic competitiveness and educational marketing, production and dissemination of technical knowledge, and people's learning behaviors. All of these necessitate academic libraries to become aware of various challenges and make organizational adjustments in order to keep pace with the changes. Library visions and administration have to be refocused with an emphasis placed on customers or users. A library is

a service organization and as such, its existence depends on service quality and customer satisfaction. It is observed that in academic library quality accreditation, notwithstanding whether it is based on Thai or foreign criteria such as LibQUAL+, importance is placed on service quality and customer satisfaction which affects the overall quality implementation (CHE, 2001; Green & Kyillidou, 2011).

Research on factors affecting the use of CRM in the adjustments of academic library organizations in order to improve service quality and customer service reflect that library staff and customers who are also university lecturers believe that technology is no longer a factor affecting CRM. Technology already existed or can be obtained without any difficulty. Most academic libraries have been performing their customer management with technology such as contacting and communicating with customers through e-request that enables customers to retrieve the library's information with librarian assistance. There is also the e-suggestion service that allows customers to voice their opinions and suggestions about library services (Siriprasoetsin, Tuamsuk, & Vongprasert, 2010). However, the important issue is the understanding of CRM by library administrator leadership, especially the acceptance and support for the introduction of CRM in libraries. This may be analyzed in terms of the alteration of academic library staff vision. This organization is non-profit; the change from user services to customer services may contradict organizational values. Nevertheless, although the concept of customer services is in the scope of a marketing perspective, it accents the importance of attracting and maintaining customers in order to develop loyal customers who value the services and will become repeat customers (Gronroos, 2000; Kotler, 2003). The concept, therefore, can be applied in library service from a marketing perspective.

As far as organizational culture and communication is concerned, the multivariate analysis revealed that these two factors were second in affecting CRM in libraries. It should be noted that the important sub-factor was communication among staff. It can be said that Thai academic libraries possess a strong and clear structural culture, i.e., establishment of teamwork, operational agreements, and roles and responsibilities of all team members. However, there are shortcomings in inter-communication and cross library function. From most of the personnel's perspectives, organizational culture and communication are not the important factors affecting CRM. This indicates that the potential for organizational change is high. From the customers' perspectives, on the contrary, inter-communication among personnel and cross library functional integration are the most important factors (over 55 percent). Thus, libraries should review the perception of people in the organization since the internal and external perspectives are essential.

The multivariate analysis revealed that the service channels and communication are the factors with the least effects on the use of CRM in academic libraries. This was contrasted with the results from the analysis of staff and customers in which most respondents believed that service channels and communication had great impact. The answers in this category were widely distributed, from high levels of impact to no impact. Hence, the descriptive statistical data and advanced statistical information differ. However, service channel provisions and communication is

vital for CRM. Perhaps, it may not be necessary to stipulate the multiplicity of patterns and channels, but more importantly, appropriate communication channels should be provided for different customers (Kotler et al., 2002). Therefore, it is necessary for libraries to select suitable communication channels and propose their services through these channels for their customers.

The findings from the analysis of the impact from CRM use in academic libraries enabled us to determine the major and minor factors affecting CRM based on CRM organizational management. The answers were obtained from those who were directly involved in the operation of academic libraries, i.e., administrators, personnel, and customers. The factors will be useful for library administration since they denote key conditions that promote or drive CRM in academic libraries toward success and at the same time, show important conditions or weaknesses in the libraries that need to be amended. The factors affecting CRM also show the situations of each library and should be further studied in order to design the strategies and means for CRM administration in academic libraries. Suggestions for academic libraries on the development and implementation of CRM in libraries are: (1) CRM must be included in the library strategic plan; (2) CRM must be a key strategy for the improvement of library service quality; (3) library administrators must have strong leadership for achieving the effectiveness of CRM practices in the library; (4) library staff must have good knowledge and understanding of CRM and its link to library service quality improvement; (5) the working cultures for CRM effectiveness such as teamwork, cross functional work, and good communication between staff must be encouraged and practiced in the library; and (6) technology must be fully supported by CRM in the library.

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