

Improvement Social Customer Relationship for Community Enterprise through using Gamification



Sumitra Nuanmeesri

Abstract: *There are many types of community enterprise products in Thailand but not yet widely known, resulting in not many customers. In some cases, the existing customers have the opportunity to disappear because community entrepreneurs do not have marketing knowledge to help keep and maintain their customers. This paper proposes the development of gamification for improving the customer relationship management in community enterprises on social media such as Facebook. The results showed that the applied gamification for the community enterprise products has the highest level of efficiency evaluation and has the highest acceptance criteria while being used by experts and users. It can be said that Thai gamification on social media could be effectively used to support community enterprises in improving social customer relationship management and buying their products.*

Keywords: *community enterprise, CRM, gamification, social media, social media management.*

I. INTRODUCTION

In 2019, new consumers prefer to participate in marketing activities organized by a company or business. Especially activities that create entertainment that allows consumers to act or operate on their own as well as competitions and sharing information with other consumers as well. [1]. One of the approach techniques in business administration is Customer Relationship Management (CRM). It has generally been regarded as a set of principles, techniques, processes, and technologies that help businesses handle their transactions and customer relations [2]. In e-commerce on social media, CRM has become a strategic necessity to combat rivalry, make difference, and gain value to consumers. Social media have now introduced new customer-centered tools that allow consumers to collaborate with others and companies in different ways, like the online word of mouth, for sharing resources and for creating value.

Currently, entrepreneurs of community enterprise products still lack CRM in various forms of activities through social media with customers, resulting in a lack of communication with customers, which is an opportunity to help increase sales. Including brand management to be remembered by customers and maintain customer relationships with community enterprise products via social customer relationship management.

Thus, the gamification concept has been raised to be a driver for consumer participation in business and marketing. Gamification is the fundamentals of traditional games and their adaptation to new principles, including client retention. Because creating a new customer base requires a large amount of budget, and if existing customers disappear, it will directly affect the financial status of the business.

There is some study shown that a 5% increase in customer retention could result in a 25%-95% profit increase from Harvard Business Review [3]. The main aim of customer retention is to keep current customer relationships. In term of brand loyalty, it is not easy to measure the loyalty of the consumer. So, marketer typically use customer involvement as an important measure of brand loyalty. It is more likely that an involvement customer remains loyal and purchases more products and services. By introducing gamification will lead to more persuading consumers to engage in activities or businesses.

This research presents the application of gamification to help maintain the customer base and customer relationship management for entrepreneurs of community enterprise products. To create a feeling of customer participation, the online gamification is conducted on social media. At the end, it will help improve the society of customer relationship management to boost sales, memorable brand, management word of mouth through gaming, and maintaining customer relationships for community enterprise.

II. RELATED WORKS

A. Social customer relationship management

Change in technology, the revolution of social media changes the way of people interacting and communicate with others. It can cause an effect directly on business and marketing. And allowing customers to be able to control and do more activities on social media by themselves. These actions affect the brand image and customer loyalty [4] [5].

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Social media is the reason why customer behaviors change and must evolve with the CRM [6] [7] [8] [9] [10] in effect defines how businesses can personalize and build customer relationships [11].

Social media is one tool that plays a role in helping companies to attract and create more value for customers and communities more efficiently. Therefore, customer involvement in business activities is a new perspective on CRM.

There are four main functions of social media drives revolutionized CRM: conversations, sharing, groups, and relationships [12]. These functions help to keep communication between customers and businesses.

B. The gamification

Gamification may be defined as is the adaptation of game theory in non-gaming contexts [13]. It is more engaging and enjoyable to do tasks [14] by using techniques of presenting various things to create motivation for players to accomplish various activities [15]. Player activities may be posting, sharing, registering which are fun for them then got some rewards such as emblem, points, or unique offer [16]. Games are what make customer behavior change. Customers are willing to spend time doing various activities repeatedly for entertainment, fun, and rewards [17]. Furthermore, gamification helps businesses better understand the behavior and needs of customers [18].

Especially online gamification activities, players will be able to perform activities from various locations, which can share experiences and achievements with others. Resulting in businesses being able to more easily analyze and respond to customer needs. Resulting in a larger online community with more relevant relationships between individuals and communities which can directly comment and feedback on the success of others in this online community. Players can express their individuality by means of participation and interaction in a virtual environment based on the Self-Determination Theory (SDT+) of motivation [19] as shown in Figure 1.

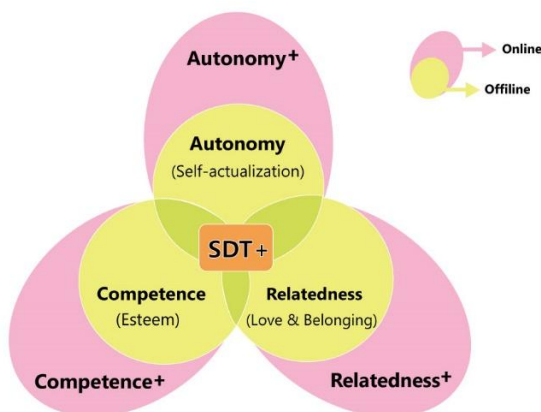


Fig. 1. Self -Determination-Theory in the internet era: SDT+ [19].

In the form of prizes on gamification, including marketing strategies, will be adjusted following behavior of consumer groups. The prizes are consisting of three types of structures as follows [3]. First, points are a form of expression in which

the loyalty of the customer will receive points according to their ability and frequency in completing the activity. This type of structure is suitable for methods of sales promotion in a short time period of purchasing. Second is achievement, this technique allows participants to achieve success levels. After some missions are completed, participants will get reward from them. Businesses can remember when consumers act to the brand. From there, the loyalty plan may be changed to suit different customer experiences. Last, the competition, all players like the form of competition with the display of cumulative points to rank and compare with other players. More updated every day or every time there is a virtual event These players all want the leadership of the group. Which the results of being a group leader who has highest score will also receive a special prize.

III. RESEARCH METHODOLOGY

This research methods adopted in the application development process for the Thai gamification on social media marketing for the community enterprise, include the following steps:

A. System requirements analysis and design

In this stage, the rapid application development (RAD) was adopted to develop Thai gamification on Facebook which is one of the favorites of social media. The researcher has collected and analyzed data on system requirements from the community enterprise entrepreneurs following the rapid application development principles which help to save a lot of development time and cost. RAD is suitable for systems development that does not require much complexity under the use of tools or the various frameworks that are already built into the system to meet the requirements of users. There are four main processes in RAD; system requirements planning, system design, system development, and system cutover [20]. Figure 2 shows the processing steps of RAD. It consists of four distinct phases; requirement planning; system design; development and cutover phase [20] as shown in Figure 2.

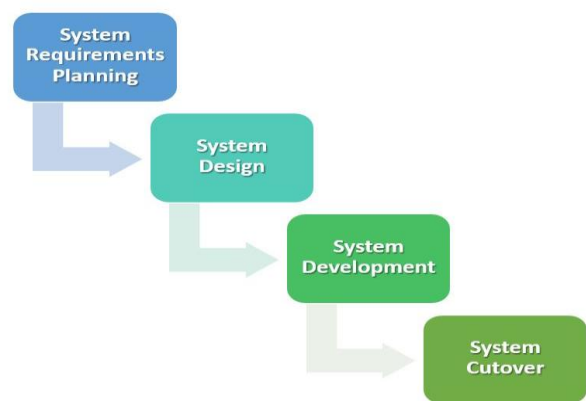


Fig. 2. The processing steps of rapid application development.

At first step of RAD processing, the researcher plans for gathering the system and user requirements by using the survey as a tool for collecting information form community enterprise entrepreneurs.

This survey was designed to matching the system workflow or application capabilities on social media. For example, the user interfaces (UI) and format of the display screen including the contents are designed suitable for users who are customers of the community enterprise products. Many forms attract customers with needs and want to use the system continuously.

As well as supporting the display on mobile phones of different screen sizes. Overall, it must make the user easy to understand and happy while using the application which has all necessary components of the system. In this work, the survey is conducted for collecting data and information related with community enterprise products such as product contents, product pictures, brand or logo images on Facebook Pages. The sample group used in the questionnaire consisted of 250 records of products in 15 community enterprises. The data collection process was conducted by interviewing directly from the entrepreneurs of community enterprises.

Next step of RAD, the system design, after collecting the system requirements from the responses of the sample questionnaires, the researcher used the information to analyze user needs and then designed the system to be suitable and match the system requirements. This system requirements were assessed by five experts who are specialized in information technology and business or marketing.

The Index of Item-Objective Congruence (IOC) [21] is used as a tool for evaluating system performance requirements for a rating guideline which evaluated by the above experts. The scoring of assessments was defined in three scores as follows; 1, 0, and -1. The meaning of each scoring shown in Table I.

Table- I: Range of scores for system requirements evaluated by expert based IOC

Range of scores	Meaning of scores
1	The design and contents are appropriate and meet the system requirements that can be used.
0	The design and contents may or may not conform to system requirements.
-1	The design and contents are inconsistent and inappropriate for system requirements.

Each content or part of the system designed is summarized and calculated for the average score of IOC. The maximum of average score is 1. If the average score of IOC value of content and design was higher than 0.5, it means that content or system requirements designed are accepted by experts and suitable for use as a model for system development in the next step [22]. The IOC value can be calculated as formula in (1) [23]:

$$IOC = \frac{\sum R}{N} \tag{1}$$

Where:

$\sum R$ is the summation of the scores.

R is the score which evaluated by each expert.

N is the total number of the experts.

As a results of IOC value evaluated by five experts, all contents and system designed has equal or higher than 0.8. It indicated that all requirements met the objective and suitable for this system designed.

B. The development of gamification for community enterprise products

To development the gamification for community enterprise products on Facebook, there are three components in this system: the user interface, the game environment mechanics, and the customer relationship database. This game was developed by using Construct 2 which is software for game creator based on HTML5. It was developed by Scirra Limited. Game style is designed specifically for 2-dimensions game. The highlight features of Construct 2 are codeless and can be played on all devices that support HTML5. Thus, this software is compatible and compliant with rapid application development.

Considering the user interfaces, it consists of providing community enterprise product information to users and displaying the game on Facebook. Customers or players can play the game on Facebook, which can quickly share the success and experience of playing the game on Facebook. This action will result in players receiving rewards instead such as a discount voucher, accumulate points for redemption some products, etc.

For game play style and environments, customers can play both limited and unlimited games depending on the duration of special community enterprise activities. With the game requirements, there will be time and score points appearing to let players know how much points and how long they spend If the accumulated points have reached the specified conditions, they will receive a promotion or a reward back. Moreover, there is a ranking of players with the highest scores each week for other players to praise and rotate the players who are interested and continue to participate in the event instead of having highest accumulated points of a week. Under the game environment, the product images and branding of community enterprise will be used to enable players or customers to recognize the brand through the game itself. The game play style and design are shown as Figure 3, 4, and 5.



Fig. 3. The example game play of Thai sauce.



Fig. 4. The example game play of plastic weave bag product.



Fig. 5. The example game play of compote vegetables product.

In the customer relationship database phase, it performs to store and manage the system to set up suitable games and promotions to customers or players who active account on Facebook.

C. The gamification implementation

The developed game was implemented on Facebook with Facebook developer console. All customers or users can access this game via hyperlink that sent to them on Facebook Messenger or e-mail at begin of week. Customers must login to their Facebook account before play a game.

D. System evaluation

In this stage, black box testing is used to evaluate the effectiveness of gamification. Black box testing is a test technique which ignores the internal mechanisms of the system or part [23] such as the system file, algorithm or system coding, etc. The black box testing focuses only on the data input and output or results obtained from the system, regardless of the algorithm that produces the results. In this research, there are 35 assessors in total of the sample group. Five assessors are experts in information technology and business or marketing, 30 assessors are users who are customers and non-customers of community enterprises. The indicators for evaluation of gamification system has five indicators: function requirement test, function test, usability test, performance test, and security test. These indicators were evaluated in concept of black box testing.

The data obtained from the evaluation will be analyzed to find the efficiency of the system with the average mean values and standard deviations value according to the scoring criteria of the Likert Scale [24] between 1 and 5, where 5 is the highest level of accepting the indicator by the assessor. In contrast, 1 is the lowest of acceptance, meaning that the assessor disagrees with that indicator.

IV. EXPERIMENTAL RESULTS

This section shows the results of social customer relationship management for community enterprise using gamification. The results were processed by black box testing shown as follows.

A. The effectiveness of the gamification in black box testing

The results of effectiveness of the gamification in concept of the black box testing shown that the mean of “Usability Test” indicator is highest value at 4.80 for both experts and users’ evaluation. And the standard deviation (SD) values are 0.45 and 0.41 respectively. The second highest ranking is “Function Requirement test” indicator which has mean value at 4.60 and 4.71 for experts and users respectively. Next, it is “Function Test” and “Performance Test” indicators. The “Security Test” indicator is the last one which has lowest of mean. The average in total of five indicators, mean for experts is 4.60 with standard deviation at 0.50. For user’s evaluation, the average mean value at 4.69, and standard deviation at 0.47. Thus, the developed gamification had highest effectiveness, as shown in Table II.

Table- II: The results of effectiveness of gamification

Assessment indicators	Experts		Users	
	Mean	SD	Mean	SD
1. Function Requirement Test	4.60	0.55	4.71	0.46
2. Function Test	4.60	0.55	4.66	0.48
3. Usability Test	4.80	0.45	4.80	0.41
4. Performance Test	4.60	0.55	4.66	0.48
5. Security Test	4.40	0.55	4.60	0.50
Average of total	4.60	0.50	4.69	0.47

B. The acceptance criteria of gamification in black box testing

The results of acceptance criteria of the gamification based black box testing show that all assessment indicators in term of the interquartile range (IQR) are not over than 1, and the quartile deviation (QD) are not over than 0.5 shown as Table III. As a result, the acceptance criteria of gamification which is evaluated by experts and users, is high consensus.

Table- III: The results of acceptance criteria of gamification

Assessment Indicators	Mean	SD	Quartiles			IQR	QD
			Q1	Median	Q3		
Experts							
1. Function Requirement Test	4.60	0.55	4	5	5	1	0.5
2. Function Test	4.60	0.55	4	5	5	1	0.5
3. Usability Test	4.80	0.45	4	5	5	1	0.5
4. Performance Test	4.60	0.55	4	5	5	1	0.5
5. Security Test	4.40	0.55	4	5	5	1	0.5

Total	4.60	0.50	4	5	5	1	0.5
Users							
1. Function Requirement Test	4.71	0.66	4	5	5	1	0.5
2. Function Test	4.66	0.48	4	5	5	1	0.5
3. Usability Test	4.80	0.41	5	5	5	0	0
4. Performance Test	4.66	0.48	4	5	5	1	0.5
5. Security Test	4.60	0.50	4	5	5	1	0.5
Total	4.69	0.47	4	5	5	1	0.5

V. CONCLUSION

This research presents the Thai gamification on social media based on Facebook to improve social customer relationship management for community enterprise. The game was divided into the important three components: the user interface, the game environment mechanics, and the customer relationship database. The black box testing technique and questionnaires were needed to evaluate the game. The results of the evaluation by experts and users were found that this gamification with the highest performance and acceptance criteria while being used.

Overall, it is a game development that is easy to understand. There is a way to play that is not complicated, takes a short time to play, but reflecting the way of life of community enterprise products that have characteristics and elements of community goods appearing in the game continuously. It is also easy to access games via social media such as Facebook. It can be said that Thai gamification on social media could be effectively used to support community enterprises in improving social customer relationship management and buying their products. Future research, we will present the gamification techniques of conversation inputs for Thai gamification.

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