

The Application of QR Code Technology to Create the Value-Added Products for The Baan Klong Peek Neur Beehive Community Enterprise Group at Tambon Suankhan, Nakhon Si Thammarat Province

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ABSTRACT

This research is aiming to study the acceptance factors of QR Code technology in brand communication for the Baan Klong Peek Neur Beehive community enterprise group. The satisfaction of using QR code technology of related parties by using qualitative research methods by an in-depth interview. The target group is the chairman of Bee Thai Community Enterprise of Baan Klong Wing Nuea and local leaders. Also, quantitative research using questionnaires for confirmatory factor analysis to see the consistency of the results of both methods. The results showed that the sample group accepted QR code system at a high level with an average of 4.27. The ease of use of the QR code system is at a high level with an average of 4.23. In terms of utilisation of QR code system is at a high level with an average of 4.30. Attitude towards using QR code system is at a high level, with an average of 4.28. When analysing the components of variables to see the influence of factors in accepting the QR code in marketing communication in Suankhan in all three aspects, found that all three factors had the highest level of acceptance of the QR code system in the marketing communication. Moreover, when testing the consistency of all models Which the model test results are $P=0.223$, $X^2/df = 1.111$, $GFI = 0.974$, $IFI = 0.998$, $CFI = 0.998$, $TLI = 0.997$, $RMR = 0.009$, $RMSEA = 0.016$. The survey was conducted by using an interview with questionnaire with samples of 182 usable responses used on further analysis.

Keywords: QR Code Technology, Baan Klong Peek Neur Beehive Community, Brand Communication

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INTRODUCTION

As technology is becoming more and more advances, the owner of the product or business then uses the advancement of technology to apply in the business operation to communicate, create value-added for the product or good image of the organisation. If the brand can create an identity from sight, hearing, taste, smell and touch with all five senses, consumers will recognise more value and finally, will make a purchase. (Lindstrom, 2005) Technology will play an important role in turning the pattern of communication between products and consumers. Although the traditional communication channels such as radio, television, and print still exist, new technologies will have more roles, especially smartphones and social networks, resulting in a new character society for consumers which has the definition called Socialnomics. It means the world's population is assimilated through online channels and various social networks (Anshari, Alas & Guan, 2016). Currently, the symbol of the black line is often seen with sharp corners and looks crumpled in a white background box similar to

the 'Finding the exit game' appears on products of various types and brands. This symbol is called QR Code, which hides the meaning and the details that will be displayed. Some operators will make a link within the QR code to access the company's website immediately. QR Code is a square symbol that started to see more widespread. QR Code stands for "Quick Response" is a 2D barcode originating from Japan by Denso-Wave company since 1994. The feature of QR code is it represents the information that has a fast response. Mostly will be used with the product. Various advertising media to provide additional information or a website. When taking a mobile phone's camera to take a QR Code, you will be able to enter the website immediately without having to spend time typing.

With the modern technology, QR Code can be applied to many forms such as displaying the website URL (URL stands for Uniform Resource Locator), which is the address of various information on the internet such as the address of the files or websites on the internet, messages, phone numbers and many text information. Nowadays,

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the QR Code is used in many areas due to its speed because today, most people have mobile phones and every mobile phone have a camera. The most obvious benefit of QR Code is displaying the web site's URL because the URL is usually difficult to remember because it's long and sometimes very complicated. But with QR Code, we just lift the phone to scan the QR Code that we see in different products and the phone will link to the webpage where the QR Code is saved automatically. The way to use QR Code must be via mobile phones with the QR code symbol inside the device. Just bring the phone camera, scan it on the QR code, wait for a moment, the device will read the black QR code into a letter with a lot of information such as product details, promotions, company location, stores, website, telephone number, etc. These activities are designed to facilitate an exchange the goal of creating satisfaction and respond to the needs of individuals or business organisations (Stanton, Etzel, Walker, Sánchez, Mont, & Villagra, 1996).

Baan Klong Peek Neur Beehive community enterprise group at Tambon Suankhan Nakornsritammarat province is a small community that has a strong in selling natural honey products. Currently, honey packaging has been developed in a more diverse and beautiful way. Make it be able to create value-added products in the eyes of buyers. But what is still missing in the package is the QR code technology, to communicate, create value-added for the brand by adding the code on the honey product package. The QR code will provide the references which lead to the trust of the product such as how to keep bees, finding nectar of bees from a variety of pollen flowers, how to store honey, methods of making bee's crates, and etc. From the background and importance of the stated problems, together with the research team's field to be aware of community problems which lead to the research project, regarding the factors affecting the adoption of QR Code technology system for the communication in Baan Klong Peek Neur Beehive community enterprise group at Tambon Suankhan Nakornsritammarat province, in order to apply the research results to the development of the packaging of the Baan Klong Peek Neur Beehive community enterprise group to add value by using QR Code technology to apply efficiently. The aim of this study to the acceptance of QR Code technology in brand communication on Baan Klong Peek Neur Beehive community enterprise group and the satisfaction of using QR code technology of related parties.

LITERATURE REVIEW

In a number of studies on the advertisement (Ertekin and Pelton, 2015), publicity (Demir et al., 2015; Sago, 2011; Kamarudin, Patwary and Mahmoud, 2020) and protection (Narayanan, 2012), the QR codes have been studied. In brand communication, these codes were applied to provide consumers with details (Katlav, 2020), promote (Celtek, 2017; Patwary, Omar and Tahir, 2020) and increase the satisfaction of customers (Tardivo et al., 2015). Pillai et al. (2017) published the most detailed study, exploring the use of QR code in global business industry and how QR codes can enhance the customer experience.

The use of the QR code thus increases the importance of the experience of customers and simplifies the activities they participate in. Coding is used in restaurants and hotels to provide food and drink information on the menu and to provide promotions and to give messages to

guests (Chen et al., 2016; Shadaksharappa et al. , 2018). Thanks to its versatility and information speed, QR codes have spread rapidly to all service sectors. It appears that QR codes are most widely used in the industry by showing the codes on signboards with company or association details (Pillai et al., 2017). In addition, the implementation of QR codes could give several companies a competitive advantage (Alom, Patwary, & Khan, 2019). Hotels use mobile technology, change their websites and enrich their mobile applications for marketing activities and deliver competitive advantages (Kirlar Can et al. 2017). Some companies offer guests diverse information on goods, quality and religious restrictions (halal, kosher, etc.) through QR codes. QR codes can be used for social media software or social networking sites within marketing activities. According to Rajendra and Hemant (2013), the QR code would have a positive impact on brand construction, sales and company credibility. The user's intention to embrace technology is especially important to understand the performance of QR code at the corporate level because of the highly interactive nature of QR code usage.

METHODOLOGY

Acceptance factors of QR Code Technology System in Baan Klong Peek Neur Beehive community enterprise group at Tambon Suankhan Nakornsritammarat province. The researcher has studied and researched according to the process of research and development, including:

Step 1: Explore the need for the development of QR code technology in brand communication of Baan Klong Peek Neur Beehive community enterprise group at Tambon Suankhan Nakornsritammarat province. Specify the key information and select target research groups, namely the president of the Baan Klong Peek Neur Beehive community enterprise. There were seven members of Baan Klong Peek Neur Beehive community enterprise, using a simple random sampling method and three local leaders from Tambon Suan Khan including the mayor, subdistrict headman and the village headman. The reason for choosing these target groups is because they are directly involved in using QR Code technology. By means of semi-structured and in-depth interviews by using the interview guidelines as an interview in accordance with the interview form that has been created. The question is the same with all interviewees. There are steps to collect data,

1) The interview will be requested by making an official document from the research organisation of the researcher, then arrange the appointment as well as prepare the questions in the interview. 2) Take all the data for data triangulation by considering the data from 3 sources. Namely 1) data from interviewees, 2) data from theoretical concepts and 3) data from relevant literature.

Step 2: Analyse the data from an in-depth interview from the target group. Then, bring to build a questionnaire to cover the variables specified in the research and check the completeness and accuracy, both the structural content and language used. Bring the updated questionnaires to 3 experts to check the accuracy of the content (Content Validity). Next, conduct the updated questionnaires to the experts to approve and bring the data that were collected from 30 selected targets to find the reliability of the questionnaire and find out the Cronbach's Alpha-Coefficient. The questionnaires that

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passed the quality and validity is will actually be applied to the sample set in the research. In the analysis of the composition of variables brought all the data to find Kaiser-Meyer-Olkin (KMO) to test preliminary whether all variables can be analysed for composition.

Step 3: Conducting a study of the satisfaction of using QR code technology of related parties, namely the president of the Baan Klong Peek Neur Beehive community enterprise and the local leader of Tambon Suan Khan, Chang Klang District Nakhon Si Thammarat Province, by using in-depth interview and used the questionnaire with samples as follows population in Nakhon Si Thammarat Municipality in the amount of 105,844 people. Then, using the formula of Taro Yamane with the ratio of 0.5 and at the level of confidence of 95%, a total of 400 samples were used to see the factors of acceptance or QR code system in brand communication of Baan Klong Peek

Neur Beehive community enterprise include 1) the ease of use of the QR code system, 2) the utilisation of the QR code system, 3) the attitude towards using the QR code system.

Factors in acceptance of QR code system for marketing communication in Suan Khan honey market found out that the sample accept QR code system at a high level. The average value is 4.27, the relationship between factors of acceptance of QR code in brand communication. The researchers used all data to find value in Kaiser-Meyer-Olkin (KMO) to test preliminary whether all variables can be analysed for composition. In the composition analysis, there is an agreement which is the variables that are grouped together will not lower than 0.30. The Kaiser-Meyer-Olkin (KMO) in this questionnaire is .968, which is considered a prerequisite. And the value in determining a harmonious model.

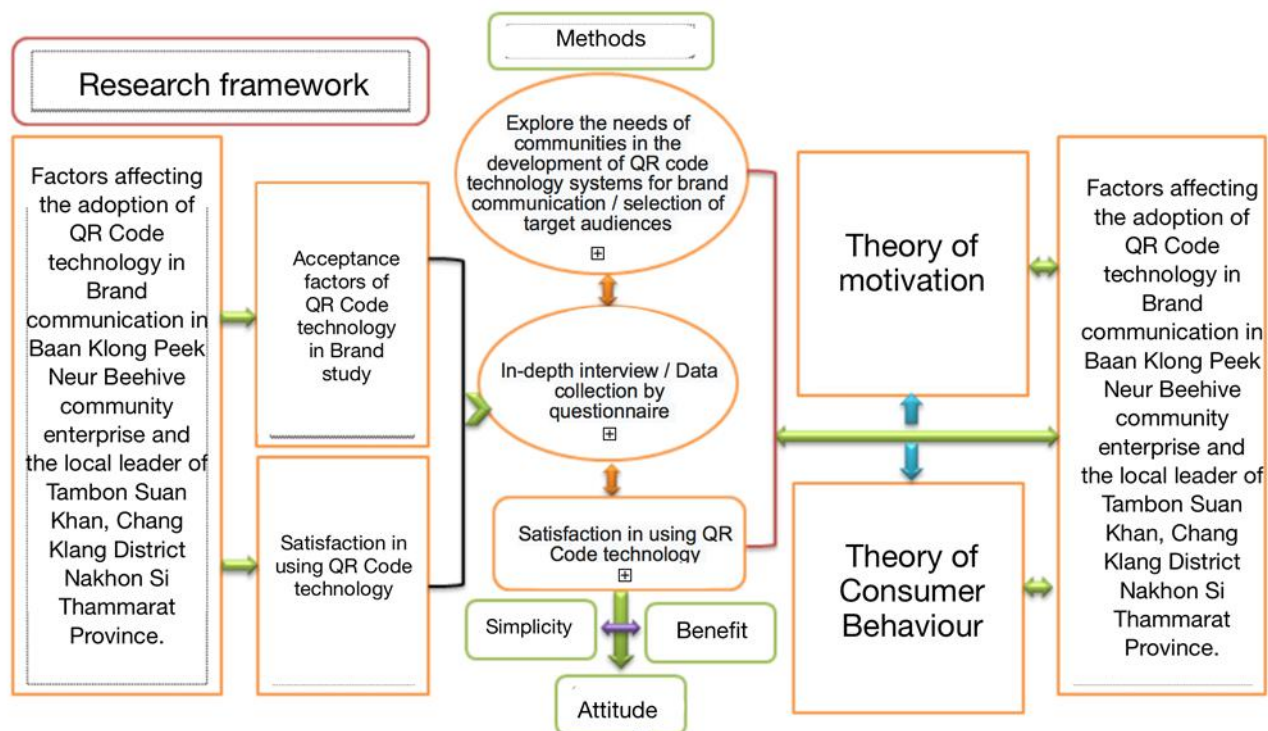


Figure 1: A research framework

Table 1. Average and standard deviation factors for adopting the QR code system in the marketing communication of Suan Khan Beehive Community.

	Factors for adopting the QR code system in the marketing communication of Suan Khan Beehive Community.		S. D	Degree of Achievement
1.0	The ease of use of the QR code system	4.23	0.768	High
1.1	Easy to learn and use the QR code system.	4.17	0.756	High
1.2	Duration of time to scan the code is fast, suitable, not complicated.	4.22	0.754	High
1.3	The size of the QR code is appropriate	4.22	0.765	High

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	and easy to scan			
1.4	Good looking QR Code Symbol, unique and easy to recognise.	4.23	0.764	High
1.5	Can be used with many smartphones and tablets	4.32	0.750	High
1.6	QR code can connect to the internet for 24 hours.	4.24	0.788	High
1.7	QR Code Reader application is available for download.	4.19	0.798	High
2.0	The benefits of using QR Code system	4.30	0.707	High
2.1	A system facilitates access to information	4.32	0.664	High
2.2	Fast and easy system for receiving information Public relations	4.32	0.713	High
2.3	Fast way to buy products, save time.	4.31	0.745	High
2.4	Easy system to buy goods.	4.24	0.701	High
2.5	Reach websites faster than entering website in a normal way.	4.33	0.712	High
3.0	Attitude towards QR code system	4.28	0.715	High
3.1	Having a positive opinion on the use of QR code systems.	4.27	0.701	High
3.2	Curiosity arises, trying to use the QR code system	4.23	0.717	High
3.3	The use of the QR code system opens up new opportunities for new concepts.	4.33	0.702	High
3.4	Using QR Code is an enhancement of skills to access information on the internet by self.	4.31	0.732	High
3.5	Using QR Code make changes to the previous way people access the data.	4.28	0.723	High
	Average total	4.27	0.730	High

The relationship of factors of acceptance of QR code system in brand communication

In the analysis of the composition of variables, researchers used all data to find the value of Kaiser-Meyer-Olkin (KMO) to test preliminary whether all variables can be analysed for composition. In the

composition analysis, there is an agreement that the variables that are grouped together are not less than .30. The Kaiser-Meyer-Olkin (KMO) value in this query is .968 as per the data in Table 2 which is considered passing in basic criteria. The value in determining a harmonious model, according to the information in Table 3

Table 2. Preliminary test for component analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.968
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Bartlett's Test of Sphericity	Approx. Chi-Square	5006.533
	Df	136
	Sig.	.000

Table 3. To test the consistency of the model.

Chi-square X^2 or CMIN	p-value higher than 0.05
X^2/df or CMIN/df	Should not be over 2.00
GFI, IFI, CFI, TLI	From 0.90 – 1.00
RMR, RMSEA	Lower than 0.05
standardised residual covariance	From -2 to 2

When analysing the factors of acceptance or QR code system in brand communication by individual aspects of Baan Klong Peek Neur Beehive community enterprise Tambon Suan Khan, Nakhon Si Thammarat Province found out that.

1 .Ease of use QR code system

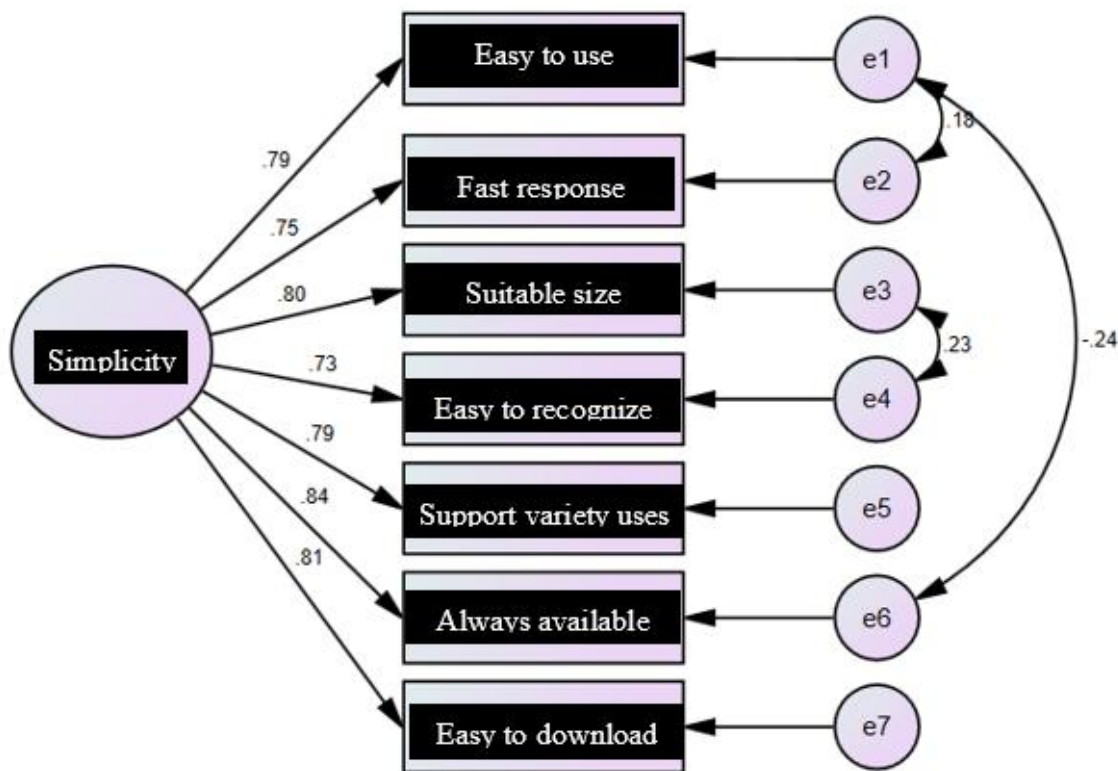
When analysing the components of variables to see the influence factors in the acceptance of QR code system in

marketing communication of Suan Khan Honey, regarding the ease of use of the QR code system found that all factors used to explain the ease of use are greater than 50 per cent for all factors and have passed the consistency testing of all models .The model test results are P =0.149, X^2 /df =1.437, GFI =0.989, IFI =0.997, CFI =0.997, TLI =0.995 and RMR =0.008, RMSEA =0.032 . The details are in Table 4 and as shown in Figure 2.

Table 4. Relationship of the ease of use of QR Code System

	The ease of use of the QR code system	B	P-Value
1.1	Easy to learn and use the QR code system.	0.786	0.000
1.2	Duration of time to scan the code is fast, suitable, not complicated.	0.754	0.000
1.3	The size of the QR code is appropriate and easy to scan	0.800	0.000
1.4	Good looking QR Code Symbol, unique and easy to recognise.	0.727	0.000
1.5	Can be used with many smartphones and tablets	0.790	0.000
1.6	QR code can connect to the internet for 24 hours.	0.845	0.000
1.7	QR Code Reader application is available for download.	0.806	0.000
P=0.149, X^2/df =1.437, GFI =0.989, IFI =0.997, CFI =0.997, TLI =0.995, RMR =0.008, RMSEA =0.032			

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$P=0.149, X^2/df= 1.437, GFI = 0.989, IFI = 0.997, CFI = 0.997= 0.032$

Figure 2. The relationship between the ease of use of the QR code system.

From the detailed information in Table 4 and in picture 1, if the Baan Klong Peek Neur Beehive community enterprise Tambon Suan Khan, Nakhon Si Thammarat Province want to use QR Code system to use in brand communication, it will be very appropriate because the QR code system is easy to use. Especially, the QR code system can connect to the internet network for use 24 hours, which has the highest value of 84 per cent (B: 0.845), followed by the availability for download which is 81% (B: 0.806) and the appropriate QR code size 80 percent easier to scan (B: 0.800)

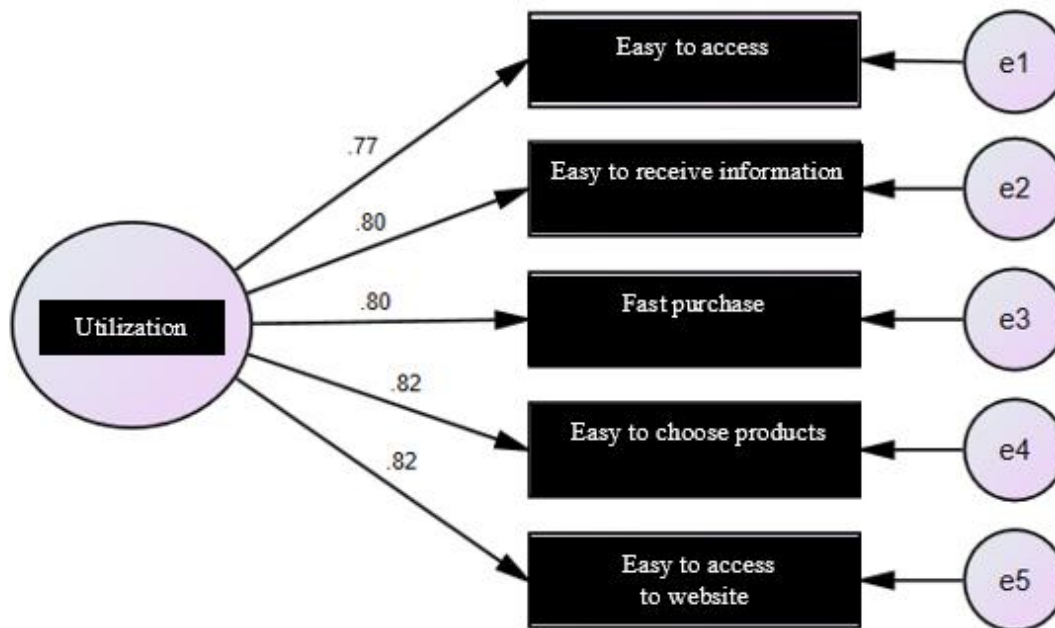
2. Benefits from using QR code systems

When analysing the components of variables in order to see the influence of factors in acceptance of QR code in brand communication. Regarding the utilization of the QR code system, it was found that all factors used to explain the benefits of using the QR code system are greater than 50% of all factors and passed the consistency testing of the model in all issues The model test results are $P = 0.171, X^2 / df = 1.548, GFI = 0.993, IFI = 0.998, CFI = 0.998, TLI = 0.995$ and $RMR = 0.006, RMSEA = 0.036$. Details of the data in Table 5 and as shown in Figure 3.

Table 5. Relationship of utilisation factors from QR code system usage

	The benefits of using QR Code system	b	P-Value
2.1	A system is facilitates access to information	0.768	0.000
2.2	Fast and easy system for receiving information Public relations	0.802	0.000
2.3	Fast way to buy products, save time.	0.801	0.000
2.4	Easy system to buy goods.	0.819	0.000
2.5	Reach websites faster than entering website in a normal way.	0.821	0.000
$P=0.171, X^2/df = 1.548, GFI = 0.993, IFI = 0.998, CFI = 0.998, TLI = 0.995, RMR = 0.006, RMSEA = 0.036$			

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$P=0.171, X^2/df= 1.548, GFI = 0.993, IFI = 0.998, CFI = 0.998, TLI = 0.995, RMR = 0.006, RMSEA = 0.036$

Figure 3. The relationship between factors of the utilisation of the QR code system

From the detailed information in Table 5 and in picture 2, Baan Klong Peek Neur Beehive community enterprise Tambon Suan Khan, Nakhon Si Thammarat Province want to use the QR code system to use in brand communication will be very appropriate because the QR code system is very useful, especially making the website faster than normal, which has the highest value of 82 per cent (B: 0. 821), followed by a system that is easy to buy 82 per cent (B: 0.819). And it is a fast and easy system to receive news and information Public relations 80 per cent (B: 0.802)

3. Attitude towards using QR Code system

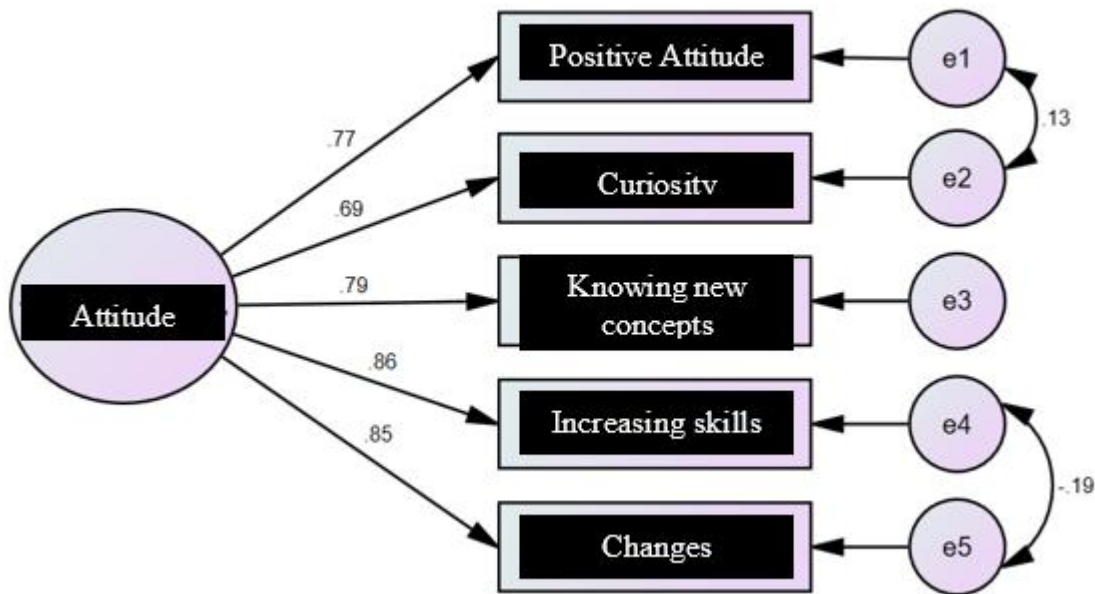
When analysing the components of the variables to see the influence of factors in the acceptance of QR code system in marketing communication, Suan Khan Honey, regarding the attitude towards using QR code, it was found that all factors used to describe the attitude towards using QR code system was more than 50% and passed the consistency test of the model in all issues. The model test results are $P = 0.188, X^2 / df = 1.597, GFI = 0.995, IFI = 0.998, CFI = 0.995, TLI = 0.995$ and $RMR = 0.005, RMSEA = 0.037$. Details of the data in Table 6 and as shown in figure 4.

Table 6. Relationship of attitude factors towards using QR Code system

	Attitude towards QR code system	b	P-Value
3.1	Having a positive opinion on the use of QR code systems.	0.774	0.000
3.2	Curiosity arises, trying to use the QR code system	0.687	0.000
3.3	The use of the QR code system opens up new opportunities for new concepts.	0.793	0.000
3.4	Using QR Code is an enhancement of skills to access information on the internet by self.	0.858	0.000
3.5	Using QR Code make changes to the previous way people access the data.	0.845	0.000

$P=0.188, X^2/df= 1.597, GFI = 0.995, IFI = 0.998, CFI = 0.995, TLI = 0.995, RMR = 0.005, RMSEA = 0.037$

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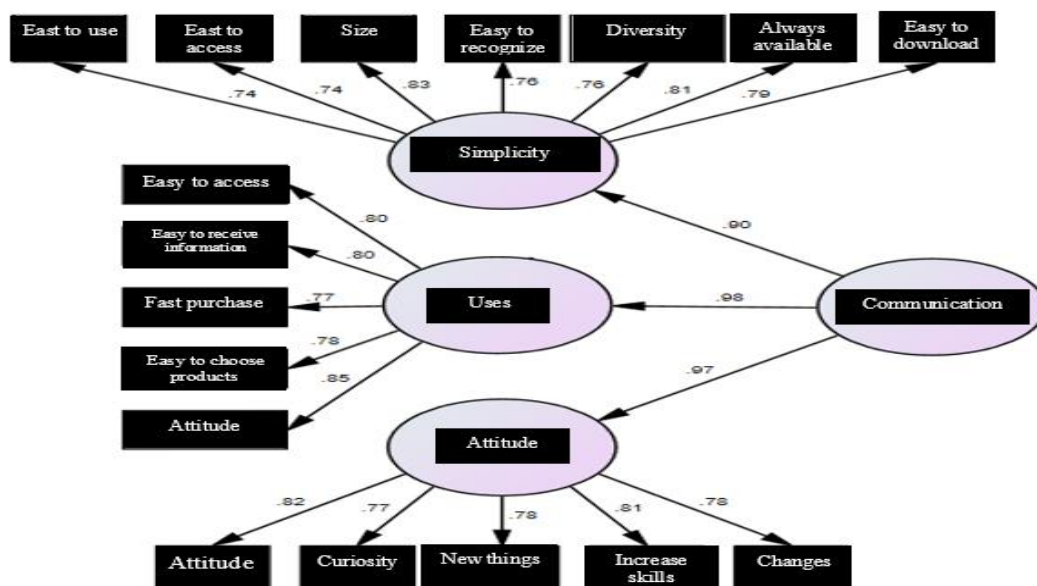


P=0.188, X²/df = 1.597, GFI = 0.995, IFI = 0.998, CFI = 0.995, TLI = 0.995, RMR = 0.005, RMSEA = 0.037

Figure 4. Attitude towards using QR Code system

From the detailed information in Table 6 and in Figure 4, Baan Klong Peek Neur Beehive community enterprise Tambon Suan Khan, Nakhon Si Thammarat Province want to use the QR code system to use in brand communication will be very appropriate because the customer's attitude towards using the QR code system is good, especially the use of QR codes is an enhancement skill to access information on the internet by self, which has the highest value of 86 per cent (B: 0.858), followed by using QR code resulting in 85% change in traditional methods of access to information (B: 0.845) and the use of QR code systems, opening up 79% of new concepts (B: 0.793).

When analysing the components of the variables to see the influence factors in accepting the QR code in marketing communication in Suan Khan Honey in all three aspects found that all three factors affect the acceptance of the QR code system in Marketing communication in Suan Khan Honey is at the highest level. Also, when testing the consistency of all models The model test results are P = 0.223, X² / df = 1.111, GFI = 0.974, IFI = 0.998, CFI = 0.998, TLI = 0.997 and RMR = 0.009, RMSEA = 0.016, detailed information as in figure 5.



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$P=0.223$, $X^2/df = 1.111$, $GFI = 0.974$, $IFI = 0.998$, $CFI = 0.998$, $TLI = 0.997$, $RMR = 0.009$, $RMSEA = 0.016$

Figure 5. The relationship of attitude factors towards using QR Code system

From the detailed information as picture 4, if the Suan Khan Honey community wants to use the QR code system for marketing communication, it will be very appropriate. The reason is that the benefits of using QR code systems, the highest value is 98% (B: 0.985). Customer's attitude towards using QR Code system With 97 per cent (B: 0.967) and the ease of use of the QR code system With a percentage of up to 90 per cent (B: 0.901)

DISCUSSION AND CONCLUSION

1) Ease of use in the QR code system

The QR code is designed to be beautiful, exotic, and interesting because there is a bee on the flower. The flower is called Khan flower, which is the symbol of the Suan Khan community. Therefore, it is notably to the general public when using a mobile phone, looking into the QR code system and see the information of the community which is going to go to Facebook of the Baan Klong Peek Neur Beehive community enterprise which has all the information of the community, also be able to interact with images, text, audio and video clips of the community products. In the overview of the QR code of the Baan Klong Peek Neur Beehive community enterprise which is easy to learn and use the QR code system. Moreover, the time to scan the code is fast, suitable, not complicated, and the size of the QR code is appropriately easy to scan, beautiful QR Code symbol is unique, easy to remember, can be used with many types of smartphones and tablets. QR Code can connect to the internet for use 24 hours. There is a QR Code Reader application available for download in which the mean and standard deviation are the factors in accepting the QR code system. In marketing communication, the said Suan Khan honey has a high level in all factors ($X = 4.23$, $SD = 0.768$), in line with the research of Cata, Patel, and Sakaguchi (2013). Clear the factors that affect the acceptance, and use of QR Code system of Generation Y consumers found that the new generation of consumers accept the QR Code Payment technology, which indicates that there are many factors causing awareness that QR Code Payment is easy to use and useful to cause usage behaviour. And also consistent with the research by Kim and Woo (2016). Research on the application of QR Code technology in Hat Yai City Museum found that users are satisfied with the convenience and ease of use in very high level and are satisfied with the completeness of the information at a good level.

2) The utilisation, nowadays, various businesses try to use a variety of sales strategies and trying to use social media to help publicise and advertise products. The reason is that it will add value to the image of the product to the market. In the eyes of the buyer, QR Code Technology System considered as another dimension to increase product sales channels and create a good image and modern. They are increasing the convenience in accessing community information. It's fast and easy to receive news from the community through Facebook's group and can also be a channel to choose and purchase convenient and fast as well. As a whole, in regard to the utilisation of QR Code technology of the Baan Klong Peek Neur Beehive community enterprise is a system that facilitates access to information fast and easy for receiving information. Public relations are a way to buy

products faster, save time, is an easy system to buy products, reach the website faster. In which the mean and standard deviation are the factors in accepting the QR code system. In marketing communication, the said Suan Khan honey has a high level in all factors ($X = 4.30$, $SD = 0.707$), in accordance with the research of Liantoni, Rosetya, and Rahmawati (2019). Research on the application of two-dimensional bar code technology to provide tourist information in tourist attractions: a case study of, Firmansyah (2019), found that tourists have overall satisfaction at a high level. And are satisfied with almost every item at the high level as well, such as displaying the information that meets the needs, can easily access information, easy to use of signs at information service points. And the number of data service points is sufficient.

3) Attitude towards the use of QR code system. Consumers' purchasing decisions do not only consider the facts, but it is decided by the attitude towards the product together (Hoyer & Macinnis, 2010). Therefore, in brand communication, marketers can determine the type of communication to create consumers' attitudes by being able to communicate to consumers to understand the product, create the love for products and create intentions to the act that leads to the creation of a positive attitude towards the product and ultimately the purchasing decision (Hoyer & Macinnis, 2010). In the overall QR code technology system of the Baan Klong Peek Neur Beehive community enterprise group, regarding the attitude towards using QR code system is a communication strategy that creates incentives to stimulate consumers to realise unmet needs and lead to demand for products or services (Schiffman & Kanuk, 2010). At the same time, motivation is due to internal instincts of human beings that are automatically generated in response to stimuli (Blythe, 2008). Therefore, having a positive attitude towards using QR code systems will lead to curiosity and to try to use the QR code system which is an opportunity to get to know new concepts and an enhancement of skills to access information on the internet by self—resulting in changes to the old method of accessing information. The mean and standard deviation are the factors in accepting the QR code system. In the communication of the Suan Khan Honey Market, every factor has a good attitude at a high level ($X = 4.28$, $S.D = 0.715$), consistent with the research of Islam & Patwary (2013), who research on factors that influence the intention of using QR Code system. Standards of users in the Muang Thong Thani area found that perception of the standard QR code system, the attitude towards the standard QR Code system and the acceptance of the standard QR Code system of users in the Muang Thong Thani area are at a high level.

SUGGESTION

QR code technology in Baan Klong Peek Neur Beehive community enterprise group to support payments via QR code, there will increase the convenience and method of payment for customers as well. Besides, QR code technology in Baan Klong Peek Neur Beehive community enterprise group to be used in conjunction with other mobile applications connected to credit cards, debit cards or bank accounts. When purchasing products at stores,

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they just open the QR Code on their mobile phone for the cashier to scan, it will be able to pay immediately. As for a small stall that does not have a QR Code scanner installed, the store owner will submit a QR Code to their Alipay or Wechat Pay account to customers. When a customer picks up the phone to scan the said QR Code, they can immediately pay to the owner's account.

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