Factors influencing the satisfaction of chat commerce usage experience in Thailand: A Covid necessitated e-business platform

Eralp Güllep
Assumption University of Thailand, eralp.gullep@gmail.com

Asis Unyapoth
Digital Government Development Agency, Thailand, asisunyapoth@gmail.com

Poonphon Suesaowaluk
Assumption University of Thailand, Thailand, poonphonssw@au.edu

Factors influencing the satisfaction of chat commerce usage experience in Thailand: A Covid necessitated e-business platform

Eralp Güllep [1,*]
Asis Unyapoth [2]
Poonphon Suesaowaluk [3]

_____

*Corresponding author
[1] Master's Student, Assumption University of Thailand, Thailand, eralp.gullep@gmail.com
[2] Executive Vice President, Digital Government Development Agency, Thailand, asisunyapoth@gmail.com
[3] Lecturer, Assumption University of Thailand, Thailand, poonphonssw@au.edu

ABSTRACT

It is an undoubted fact that Internet, and by extension, e-commerce on the Internet is here to stay. Merchants of all types, big and small, are aiming to find their niche in the e-commerce marketplace, and increase their revenue. Consumer preferences on online shopping and use of new technologies are continually shifting as well. Expansion of e-commerce offerings has significantly increased the number of users and trading volumes of online shopping, therefore highlighting the need to research online consumer purchasing behavior. In the meantime, COVID-19, which forced public lockdowns over the last 2 years, led the consumers to engage in alternative purchasing channels. One of those new channels that was successful due to the increased use of smartphone mobile apps technology is called "conversation commerce", a.k.a., "chat commerce" or "c-commerce".

In this research, with the use of a web-based survey involving 227 respondents, we investigated into the factors influencing the satisfaction of chat commerce usage experience in Thailand, and focused on their views based on generational age differences among them. This research's objectives were to answer the following 2 research questions: [1] What factors influence the satisfaction of chat commerce usage experience in Thailand?; [2] Do factors influencing the satisfaction of chat commerce usage experience vary among generational age differences?

The 10 factors studied in this research, which may lead to the success of chat commerce in Thailand, were: [1] Service Rep's Reliability; [2] Service Rep's Assurance; [3] Service Rep's Responsiveness; [4] Service Rep's Empathy; [5] Perceived Information Quality; [6] Perceived Appropriate Wait Time; [7] Trust in the Platform; [8] Perceived Ease of Use; [9] Perceived Usefulness; [10] Satisfaction with the Experience.

The 4 generations in this study were: [1] Baby Boomer; [2] Gen X; [3] Gen Y; [4] Gen Z.

The results of this study indicate that all 10 proposed factors ultimately have positive influence on Satisfaction with chat commerce usage experience, and may lead to the success of chat commerce in Thailand, while the 2 most important factors being Assurance [ASS] and Perceived Usefulness [PUS]. This was true for ASS for 3 of the generations (Baby Boomer, Gen X, Gen Z), as well as for the entire dataset; and for PUS for 2 of the generations (Gen Y, Gen Z), as well as the entire dataset..

Keywords: Chat Commerce, Live Chat Interaction, Online Customer Support, Perceived Ease of Use, Perceived Usefulness, Trust in E-Commerce.

INTRODUCTION

The COVID-19 pandemic during Mar/2020−Mar/2022, resulted in public lockdowns and business closures all around the world. Without exception, there were a lot of business management troubles in Thailand as well. In order to survive, those businesses that lost many customers during the lockdowns had to find new channels to reach to their customers. One of those new channels that was successful due to the increased use of smartphone mobile apps technology is called "conversation commerce", a.k.a., "chat commerce" or "c-commerce". During the COVID lockdowns and re-opening periods, instead of leaving their homes to venture outside, general public found it more convenient to communicate and perform purchasing with their favorite merchants using chat commerce platforms with the help of with their smartphone mobile apps right from their homes.

In this research, we aimed to study the factors that may influence the satisfaction of chat commerce usage experience in Thailand, and whether those factors vary among generational age differences.

LITERATURE REVIEW

Chat Commerce

In Wikipedia, "chat commerce" (or "conversational commerce" or "c-commerce") is defined as follows:

> Conversational commerce is e-commerce done via various means of conversation (e.g., live support on e-commerce Web sites, online chat using messaging apps, chatbots on messaging apps or websites, voice assistants), and using technology, such as, speech recognition, speaker recognition (i.e., voice biometrics), natural language processing and artificial intelligence.

According to Reul (2022), the primary goals of conversational commerce are:

- Ensuring that the customer feels as though they are properly guided or assisted during product selection, purchase decision, and order placement.
- Moving the customer through the purchasing process, and reminding them with notifications via direct messages.
- Introducing the customer to products they were otherwise unaware of.
- Providing additional support and recommendations to the customer after the purchase has been completed.

In this research, we scoped chat commerce, which is a means of communication between customers (buyers) and merchants (sellers) for conducting a product purchasing transaction, as follows:

- Using smartphone or tablet/pad;
- Using smartphone or tablet/pad based mobile messaging app (excluding PCs or browsers on merchant websites, or chat features on websites);
- Chatting with a human seller or product Service Rep (excluding chatbots and voice assistants using speech recognition or natural language processing or artificial intelligence, or messenger/delivery driver);
- Chatting via text, emoticons, emojis, stickers, or photo and video attachments (excluding in-person voice/audio/video talking); and
- Using the online chat commerce platform via its e-commerce features (product list, product selection, quantity setting, shopping cart, payment methods, order tracking) within the mobile chat app (excluding person-to-person transactions, which is buying/selling as individuals on their own, without the involvement of a chat commerce platform).

Consequently, the following list of common chat apps that have implemented chat commerce features would fit to the scope of chat commerce platform defined above:

- LINE (as in "LINE Official")
- Facebook Messenger
- WhatsApp
- Instagram
- WeChat
- Telegram
- Shopee
- Lazada
- Shopify
- and, other similar apps.

Chat commerce, as an e-commerce channel, provides customers a convenient platform for purchasing, and provides merchants a natural way of online marketing. Merchants can use chat commerce for interacting with their customers directly in a remote and digital way, without the customers needing to physically visit the merchant's store. Moreover, due to its remote and digital way, chat commerce can save customers time and money (Piyush *et al.*, 2016).

Chat Commerce in Thailand

The use of smartphones is increasing all around the world, including Thailand. According to Statista.com (2021a), Thailand ranked 13th in the world in the smartphone penetration rate with 59.3% of the population (as of Mar/2022). In 2019, Facebook was the most prominent social media platform in Thailand with more than 50 million users (Statista.com, 2021b), and LINE Thailand Head of E-commerce stated that they have 47 million users in Thailand (Spring News, 2021). In addition, in 2021, the most preferred platform for online shopping in Thailand was Shopee, which amounted to around 75.6% of users (Statista.com, 2021b). This means that e-commerce through smartphone technology and Internet access brings increased business opportunities.

According to Peck (2020), between 2015 and 2019, the e-commerce gross merchandise volume (GMV) in Thailand increased from 0.9 billion USD to 5 billion USD, as published in the "e-Conomy SEA 2019" report by Google, Bain & Temasek (Davis *et al.*, 2019); that is more than 5x growth in 5 years. In their report, J.P. Morgan (2019) stated that the online shopping sector in Thailand is valued at 26.2 billion USD, of which 13.6 billion USD are transactions completed on mobile devices, and of which 8.9 billion USD are in-app transactions (i.e., using dedicated apps, like LINE, Facebook, WhatsApp, as opposed to common Internet browsers).

In general, Thai people are "chatty" among family and friends, but in person (face-to-face), they have a shy nature towards "strangers" (Srisai, 2011; Chaisiri, 2016). However, in online interactions, because of its perceived remote nature, they seem to overcome their shyness in talking to strangers (Sangiamchit, 2017). Therefore, this makes chat commerce a convenient

platform for their online shopping activities, especially when they have the need to inquire deeper from "strangers" about the products they would like to purchase.

Factors Influencing the Satisfaction of Chat Commerce Usage Experience

Customers develop attitudes and behavioral approaches based on their interaction experience during their service encounter (Verhoef *et al.*, 2009). Customer experience is a holistic process made up from the customer journey, deriving from the sequence of touchpoints a customer has with a service provider (Voss *et al.*, 2008). Recent research studies have focused on customers' perceptions of websites and the overall service quality, introducing E-S-QUAL (Parasuraman *et al.*, 2005). A comprehensive review of the literature from over the past 20 years, including E-SERVQUAL and WebQual, reveals various factors with a potential to influence the online customer experience. Factors, such as website's look-&-feel, color coordination, information quality, trust in the platform, ease of use, usefulness, responsiveness, wait time and page navigation, have been outlined by many studies as influencing the online customer experience (Zeithaml *et al.*, 2000; Yoo *et al.*, 2001; Loiacono *et al.*, 2002; Rattanawicha *et al.*, 2003a; Rattanawicha *et al.*, 2003b; Yang *et al.*, 2003; Rattanawicha *et al.*, 2004; Kim *et al.*, 2006; Loiacono *et al.*, 2007; Rattanawicha *et al.*, 2008; Rose *et al.*, 2012; Kalia, 2013; Martin *et al.*, 2015; McLean *et al.*, 2016; McLean *et al.*, 2017).
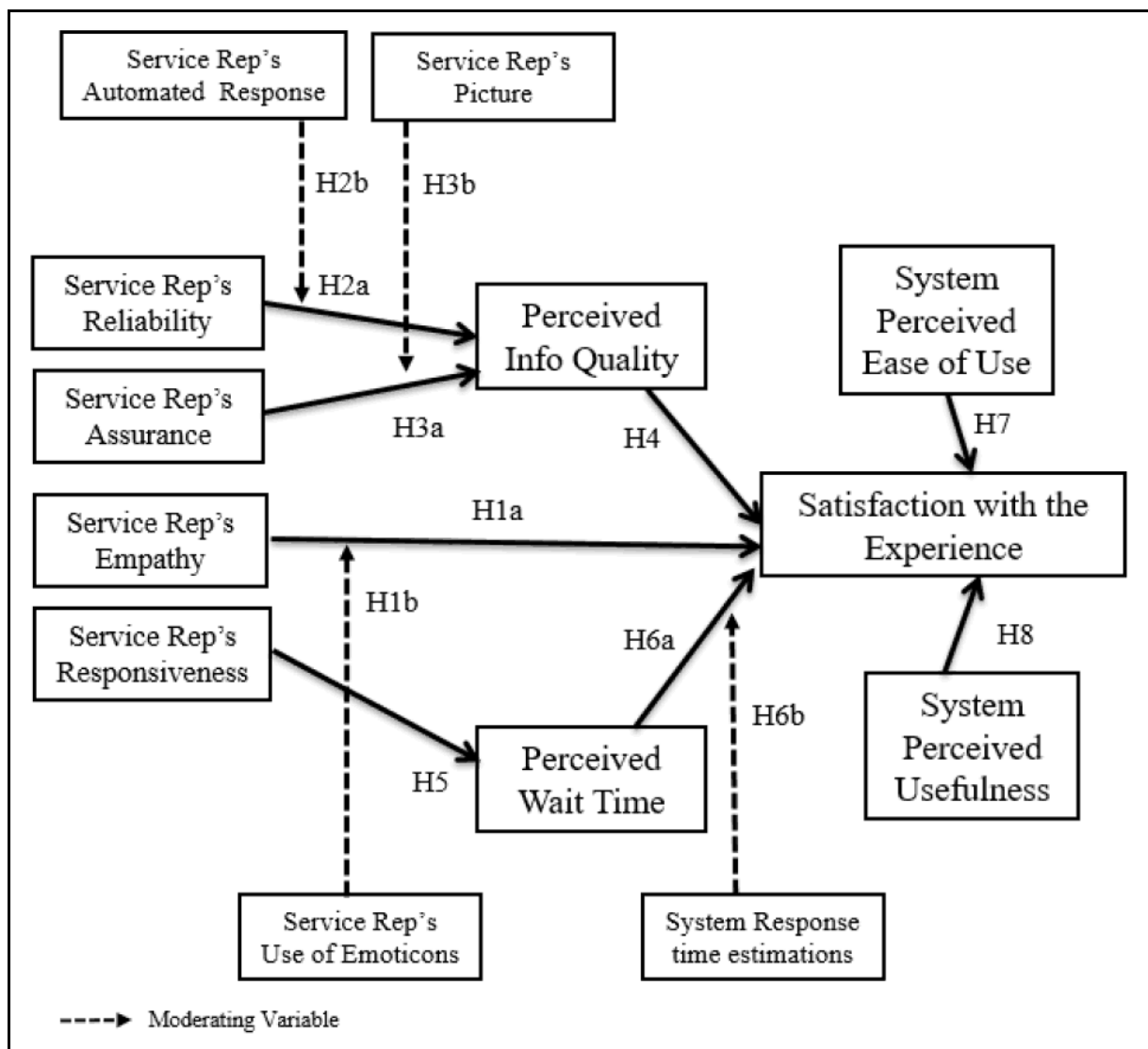
Figure 1: McLean *et al.*'s graphical representation of hypothesized model (2017).

Specifically, for this study, we adopted a slightly modified version of McLean *et al.*'s Technology Acceptance Model (TAM) (McLean *et al.*, 2017), as displayed in Figure 1 above, by integrating "Trust" factor from Rattanawicha *et al.*'s (2003a) as "Trust in the Platform" in our 10 factors.

Main differences between McLean *et al.*'s model and our model are described in Table 1 below.

Table 1: Main differences between McLean *et al.*'s (2017) study and our study.

Item	McLean *et al.*'s Model	Our Model
[1]	Does not have "Trust in the Platform" as a factor.	Has "Trust in the Platform" as a new factor.
[2]	Service Rep's Empathy (1a) and Perceived Information Quality (H4) and Perceived Wait Time (H6a) influence Satisfaction with the Experience.	Service Rep's Empathy (H4) and Perceived Information Quality (H5) and Perceived Appropriate Wait Time (H6) influence Trust in the Platform.
[3]	Service Rep's Empathy (1a) and Perceived Information Quality (H4) and Perceived Wait Time (H6a) influence Satisfaction with the Experience.	Trust in Platform (H7) influences Satisfaction with the Experience.
[4]	Does not study generational age differences.	Studies generational age differences.
[5]	Studies chat commerce usage experience in United Kingdom.	Studies chat commerce usage experience in Thailand.

The definitions of the 10 factors are as follows:

According to McLean *et al.* (2017), service quality manifests itself in Service Rep's reliability, assurance, responsiveness, and empathy, which also form the first 4 factors of our model, are important indicators in assessing the quality of the received service.

[1] Service Rep's Reliability [REL]
As a part of service quality, Reliability refers to the consistency of performance and dependability of the Service Rep (McLean *et al.*, 2017).

[2] Service Rep's Assurance [ASS]
As a part of service quality, Assurance involves competence, courtesy, credibility, and security offered by the Service Rep (McLean *et al.*, 2017).

[3] Service Rep's Responsiveness [RES]
As a part of service quality, Responsiveness refers to the willingness and readiness of the Service Rep to provide the service in a timely manner (McLean *et al.*, 2017).

[4] Service Rep's Empathy [EMP]
As a part of service quality, Empathy refers to the Service Rep's ability to understand and connect with a customer's feelings for effective communication (McLean *et al.*, 2017).

[5] Perceived Information Quality [PIQ]
DeLone and McLean's Information System Success Model (DeLone and McLean, 2003) outlines information quality as a vital component to an information systems success. An important purpose of a live chat Service Rep is to provide information relevant to the customer's query (Turel *et al.*, 2013; Rattanawicha, 2013). Information that is clear, current, relevant, accurate, complete, and reliable is perceived to be of high quality (Guo *et al.*, 2012). Due to the abundance of information on online platforms, buyers often seek clarification or further information through other confirming sources, such as Service Reps, friends or family (Metzger *et al.*, 2013). Individuals often make evaluations on the quality of information provided; however, this can be challenging for those who are not experts within the topic area (Lucassen *et al.*, 2013). To overcome this, live chat facilities provide customers with an online form of prompt support that allows customers to clarify information (Chattaraman *et al.*, 2012).

[6] Perceived Appropriate Wait Time [PWT]
Wait time is often deemed as secondary to the core service experience; however, studies show that it is often the first touchpoint in the sequence of experiences that customers have with an organization, and a critical part of service quality (Chase *et al.*, 2001). Customers expect Service Reps to be responsive and willing to help in a timely manner (Verhoef *et al.*, 2009). Waiting for service is an experience that can lead to dissatisfied customers (Katz *et al.*, 1991). Customers often overestimate their potential waiting time (Katz *et al.*, 1991; Pruyn *et al.*, 1998), as such these estimated wait times have a significant effect on satisfaction than actual waiting time (Katz *et al.*, 1991; Davis *et al.*, 1998). Thus, as perceived appropriate wait time increases, individual's reactions can become increasingly negative (Folkes *et al.*, 1987; Hui *et al.*, 1998), therefore, resulting in dissatisfactory customer experience (Clemmer *et al.*, 1989; Antonides *et al.*, 2002).

[7] Trust in the Platform [TIP]
In Webster's Dictionary, trust is defined as assured reliance on the character, ability, strength, or truth of someone or something. Trust in the Platform can be viewed from several dimensions such as transaction, presentation, product, service, and technology. Trust in the Platform can be developed and maintained (Elmorshidy *et al.*, 2015). Many studies concluded that trust is one of the most influential factors for customers to conduct commerce online (Gefen *et al.*, 2003; Rattanawicha *et al.*, 2003a).

[8] Perceived Ease of Use [PEU]
Perceived ease of use refers to the degree to which a prospective user expects the target system to be free of effort (Elmorshidy *et al.*, 2015). Most studies on TAM (Davis, 1989) indicate that perceived ease of use directly influences use and intention to use (Rattanawicha *et al.*, 2005).

[9] Perceived Usefulness [PUS]
As another factor in TAM (Davis, 1989), perceived usefulness refers to perceived benefits of using a specific application system. Perceived usefulness has consistently been a strong determination of the intention to use technology (Elmorshidy *et al.*, 2015).

[10] Satisfaction with the Experience [SAT]
Ultimately, resulting from the positive interaction with quality service, quality system and quality information, the customer would be positively influenced and would have a satisfactory experience with the service he/she received from the online merchant. Studies indicate that the factors used in this research that have their roots in the original TAM (Davis, 1989) have a direct impact on customer satisfaction (Rose *et al.*, 2012).

RESEARCH QUESTION AND HYPOTHESES

This research's objectives were to answer the following 2 research questions:
1) What factors influence the satisfaction of chat commerce usage experience in Thailand?
2) Do factors influencing the satisfaction of chat commerce usage experience vary among generational age differences?

The 10 factors studied in this research, which may lead to the success of chat commerce in Thailand, were:
(1) Service Rep's Reliability [REL]
(2) Service Rep's Assurance [ASS]
(3) Service Rep's Responsiveness [RES]
(4) Service Rep's Empathy [EMP]
(5) Perceived Information Quality [PIQ]
(6) Perceived Appropriate Wait Time [PWT]
(7) Trust in the Platform [TIP]
(8) Perceived Ease of Use [PEU]
(9) Perceived Usefulness [PUS]
(10) Satisfaction with the Experience [SAT]

The 4 generations in this study, as defined in Kotler *et al.* (2021), were:
(1) Baby Boomer (born in 1946-1964)
(2) Gen X (born in 1965-1980)
(3) Gen Y (born in 1981-1996)
(4) Gen Z (born in 1997-2009)

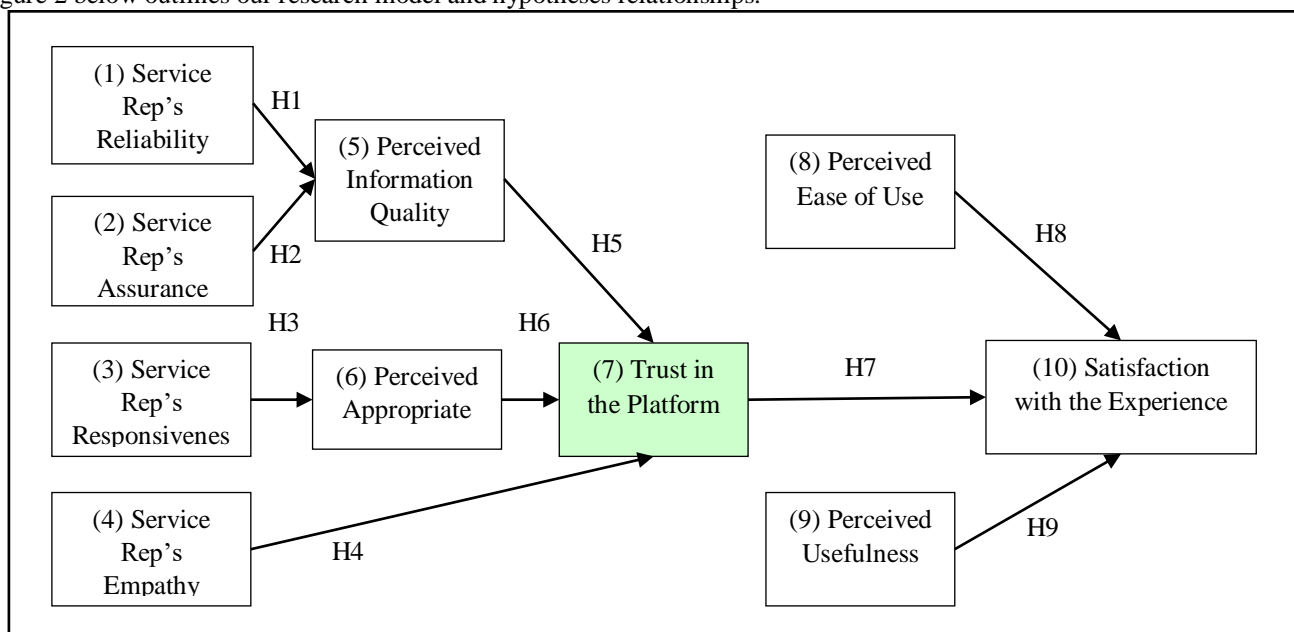Figure 2 below outlines our research model and hypotheses relationships.

Figure 2: This study's research model and hypotheses relationships by integrating Rattanawicha *et al.*'s (2003a) "Trust in the Platform" into McLean *et al.*'s (2017) research model.

The objective of this research is to study 10 factors which may lead to the success of chat commerce in Thailand by focusing on the differences of these factors between generations. The four generations in this study are: [1] Baby Boomer; [2] Gen X; [3] Gen Y; and [4] Gen Z. The 10 factors include [1] Service Rep's Reliability; [2] Service Rep's Assurance; [3] Service Rep's Responsiveness; [4] Service Rep's Empathy; [5] Perceived Information Quality; [6] Perceived Appropriate Wait Time; [7] Trust in the Platform; [8] Perceived Ease of Use; [9] Perceived Usefulness; [10] Satisfaction with the Experience. We tested the following hypotheses:

- *H1: Service Rep's Reliability has positive influence on Perceived Information Quality.*
- *H2: Service Rep's Assurance has positive influence on Perceived Information Quality.*
- *H3: Service Rep's Responsiveness has positive influence on Perceived Appropriate Wait Time.*
- *H4: Service Rep's Empathy has positive influence on Trust in the Platform.*
- *H5: Perceived Information Quality has positive influence on Trust in the Platform.*
- *H6: Perceived Appropriate Wait Time has positive influence on Trust in the Platform.*
- *H7: Trust in the Platform has positive influence on Satisfaction with the Experience.*
- *H8: Perceived Ease of Use has positive influence on Satisfaction with the Experience.*
- *H9: Perceived Usefulness has positive influence on Satisfaction with the Experience.*

In addition, above mentioned 9 hypotheses (H1−H9) were again tested for each of the 4 generations as shown below (H10−H18). This was performed for the purpose of analyzing the differences among the 4 generations of respondents. In other words, hypotheses H10−H18 were tested for Baby Boomer generation as follows:

- *H10: Service Rep's Reliability has positive influence on Perceived Information Quality <u>for Baby Boomer customers</u>.*
- *H11: Service Rep's Assurance has positive influence on Perceived Information Quality <u>for Baby Boomer generation</u>.*
- *H12: Service Rep's Responsiveness has positive influence on Perceived Appropriate Wait Time <u>for Baby Boomer generation</u>.*
- *H13: Service Rep's Empathy has positive influence on Trust in the Platform <u>for Baby Boomer generation</u>.*
- *H14: Perceived Information Quality has positive influence on Trust in the Platform <u>for Baby Boomer generation</u>.*
- *H15: Perceived Appropriate Wait Time has positive influence on Trust in the Platform <u>for Baby Boomer generation</u>.*
- *H16: Trust in the Platform has positive influence on Satisfaction with the Experience <u>for Baby Boomer generation</u>.*
- *H17: Perceived Ease of Use has positive influence on Satisfaction with the Experience. <u>for Baby Boomer generation</u>.*
- *H18: Perceived Usefulness has positive influence on Satisfaction with the Experience <u>for Baby Boomer generation</u>.*

Similarly, Hypotheses H19−H27 were tested for Gen X generation, Hypotheses H28−H36 were tested for Gen Y generation, and Hypotheses H37−H45 were tested for Gen Z generation.

RESEARCH METHODOLOGY

Research Tools

An online questionnaire, using Google Forms, was used in order to capture the data required to test the hypothesized correlations. Data was collected from respondents in Thailand who have used chat commerce platforms with their smartphone or tablet/pad apps to purchase products, using texting/emoticons, as well as photo/video attachments (without in-person voice/audio/video interaction) within the last 1 year.

Questionnaire Development

A total of 38 question items to measure the 10 factors were prepared in English, and the questionnaire was backward translated (i.e., translating the questions from English to Thai, and again from Thai to English, comparing both versions, and resolving the identified discrepancies), in order to ensure consistency between the translated Thai and the original English versions. After finalizing the questions content in English and Thai, the questionnaire was prepared in Google Forms format, with the number of questions (i.e., attributes) per factor as shown in Table 2 below.

Table 2: Number of Attributes per Factor.

Factor #	Factor Name	Factor Abbreviation	Number of Attributes
(1)	Service Rep's Reliability	REL	3
(2)	Service Rep's Assurance	ASS	4
(3)	Service Rep's Responsiveness	RES	5
(4)	Service Rep's Empathy	EMP	4
(5)	Perceived Information Quality	PIQ	4
(6)	Perceived Appropriate Wait Time	PWT	3
(7)	Trust in the Platform	TIP	4
(8)	Perceived Ease of Use	PEU	3
(9)	Perceived Usefulness	PUS	5
(10)	Satisfaction with the Experience	SAT	3
		Total:	**38**

The questionnaire was first tested in a pilot study with 22 respondents, which had 4 male and 18 female respondents, and 2 Baby Boomer, 7 Gen X, 7 Gen Y, and 6 Gen Z respondents. After adjusting wording of some of the questions, the final English and Thai versions of the questionnaire were deployed for the actual data collection. It had 3 parts.

- Part-1 — Definition of Chat Commerce
- Part-2 — Demographics
- Part-3 — Opinions on Chat Commerce Usage Experience

Part-1 ─ Definition of Chat Commerce

The first part gave definition and examples of chat commerce, with sample screenshots from a typical chat commerce transaction.
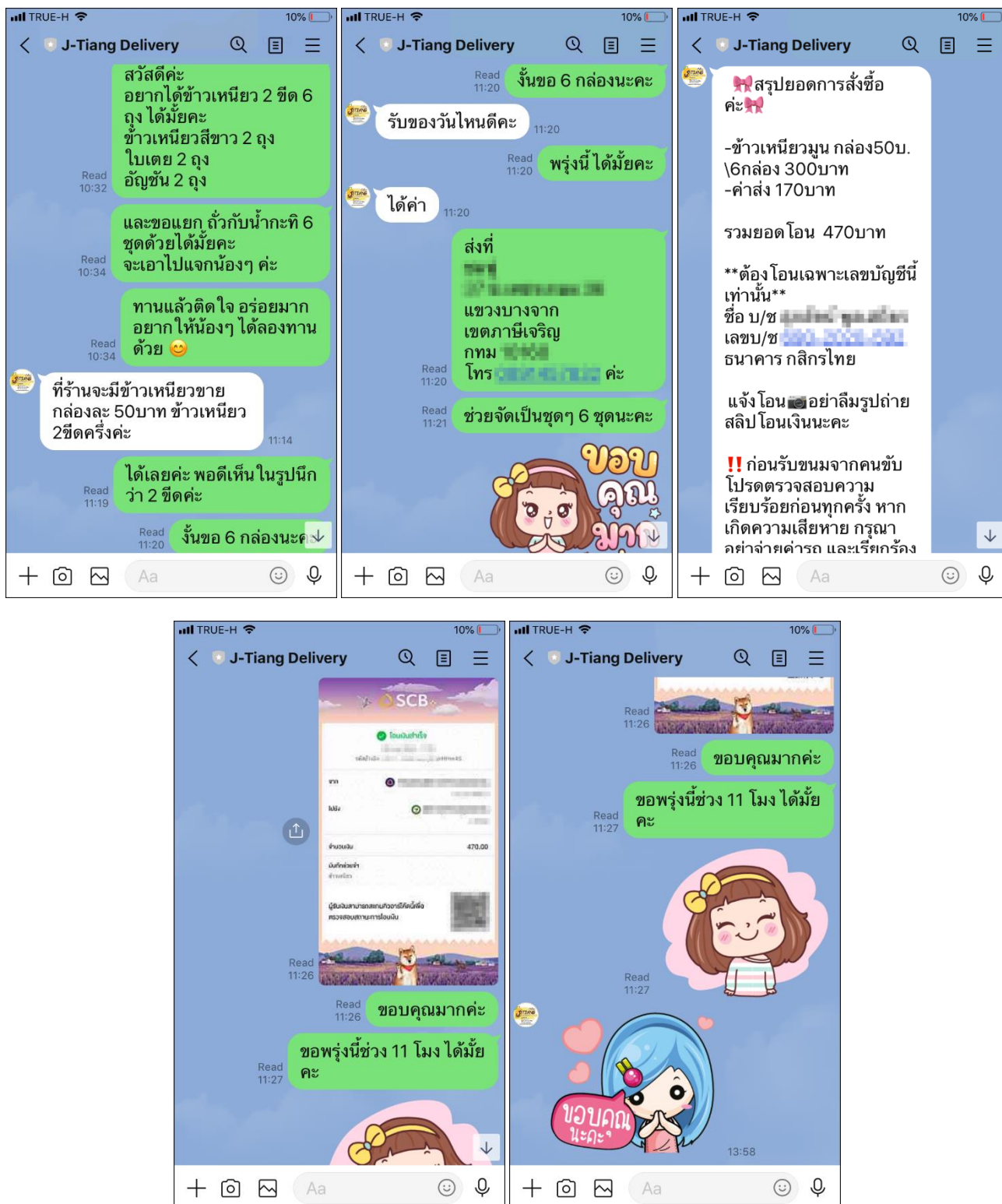

Figure 3: Sample screenshots from a typical chat commerce transaction.

Part-2 ─ Demographics

The second part collected demographic data, including respondent's year range of birth, gender, experiences with online shopping and chat commerce.

Part-3 ─ Opinions on Chat Commerce Usage Experience

In the third part, respondents were asked to rate their opinions on the above mentioned 10 factors. Each factor had its own list of attributes (i.e., questions), ranging from 3 to 5 questions. These 10 factors and their related attributes were adapted from previous relevant research with minor adjustments. Ratings for each question ranged from "[5] Strongly agree" to "[1] Strongly disagree", while rating "[3] Neutral" being the middle rating (a.k.a., Likert scale). Table 3 below presents the wording of the questions, as adapted from various previous studies, that were be used in the final questionnaire.

Table 3: Wording of the factors and the questions (i.e., attributes) used in the final questionnaire.

Factor #	Factor	Q#	Question
(1)	Service Rep's Reliability	REL1	When the Service Rep promised to do something, he/she did so.
		REL2	When I have a problem, the Service Rep showed a sincere interest in solving it.
		REL3	The Service Rep performed the service correctly on the first time.
(2)	Service Rep's Assurance	ASS1	I felt certain that the Service Rep understood me clearly in our discussion.
		ASS2	The Service Rep had the knowledge to answer my questions.
		ASS3	The Service Rep was consistently kind and polite to me.
		ASS4	The behavior of the Service Rep gave me confidence.
(3)	Service Rep's Responsiveness	RES1	The Service Rep was available at convenient business hours.
		RES2	The Service Rep provided prompt service.
		RES3	The Service Rep told me exactly when he/she will perform the service.
		RES4	The Service Rep was always willing to help me.
		RES5	The Service Rep was never too busy to respond to my requests.
(4)	Service Rep's Empathy	EMP1	The Service Rep gave me close attention.
		EMP2	The Service Rep was patient with my requests.
		EMP3	The Service Rep understood my special needs.
		EMP4	The Service Rep had my interests as his/her priority.
(5)	Perceived Information Quality	PIQ1	The information provided by the Service Rep was current and up-to-date.
		PIQ2	The information provided by the Service Rep was complete and comprehensive.
		PIQ3	The information provided by the Service Rep was relevant and accurate.
		PIQ4	The information provided by the Service Rep was easily understandable.
(6)	Perceived Appropriate Wait Time	PWT1	I waited an appropriate length of time for my various requests during the chat commerce session.
		PWT2	The overall length of time I waited during the chat commerce session was acceptable.
		PWT3	Chat commerce session took the length of time I expected.
(7)	Trust in the Platform	TIP1	Technology that supports chat commerce was available whenever I wanted to use it.
		TIP2	Technology that supports chat commerce was reliable.
		TIP3	Technology that supports chat commerce was safe and secure.
		TIP4	Overall, I have confidence in the technology that supports the chat commerce.
(8)	Perceived Ease of Use	PEU1	It was easy to learn and understand the chat commerce.
		PEU2	It was easy to perform the necessary steps in the chat commerce.
		PEU3	It was easy to become skillful at using the chat commerce.
(9)	Perceived Usefulness	PUS1	Chat commerce helped me to get the information I needed about the products and the purchase process.
		PUS2	I could use chat commerce to inquire about discounts or promotions.
		PUS3	I could use chat commerce for agreeing on payment and delivery of purchased products.
		PUS4	Chat commerce made online shopping convenient and fast for me.
		PUS5	I could use chat commerce for asking help, if there was a problem with my online shopping.
(10)	Satisfaction with the Experience	SAT1	My chat commerce experience was exactly what I had expected.
		SAT2	I am satisfied with my chat commerce online purchasing experience.
		SAT3	I would be willing and happy to use the chat commerce as a purchasing channel in the future.

DATA ANALYSIS AND RESEARCH RESULTS

Demographic Distribution

Overall

The survey, which ran on Google Forms, collected a total of 256 responses. From those 256 responses, 29 of them answered as "No online or Chat Commerce shopping experience at all", deeming them "unusable" for the other statistical analysis, and leaving 227 "usable" responses. Table 4 below documents the demographical distribution of the collected "usable" data.

Table 4: Demographical statistics for the actual study.

Demographics	Distribution
Generation	Baby Boomer (born in 1946-1964) : 26 / 227 (11.5%) Gen X (born in 1965-1980) : 63 / 227 (27.7%) Gen Y (born in 1981-1996) : 47 / 227 (20.7%) Gen Z (born in 1997-2009) : 91 / 227 (40.1%)
Gender	Male : 75 / 227 (33.0%) Female : 150 / 227 (66.1%) Prefer not to answer : 2 / 227 (0.9%)
Chat Commerce Experience (shopping within the last 1 year)	Some (1-4 transactions) : 82 / 227 (36.1%) Male : 35 / 82 (42.7%) Female : 47 / 82 (57.3%) Prefer not to answer : 0 / 82 (0.0%) Numerous (5 or more transactions) : 145 / 227 (63.9%) Male : 40 / 145 (27.6% Female : 103 / 145 (71.0%) Prefer not to answer : 2 / 145 (1.4%)

Generations

The distribution of the generations of the respondents seemed reasonable. Gen Z generation, being the digital natives, had the biggest share at 40.1%; and Baby Boomers, being technology averse, had the smallest share at 11.5%. Gen X generation and Gen Y generation shared the middle of the distribution with 27.7% and 20.7% respectively.

Gender

Taking a look at the statistics on gender, we discovered that two-thirds of the respondents were females at 66.1%, and only one-third were males at 33.0%. According to Kneoma.com (2020), male to female ratio of the total population in Thailand is 94.79 to 100. In percentage terms, this approximately equates to 48.7% male and 51.3% female. The reason that we had female respondents twice as many as male respondents may be attributed to females being more amenable to participate in surveys, and do not mind to spending a few minutes of their time to fill in the survey questions for the purpose of helping others.

Also, there were 2 (0.9%) respondents who preferred not to answer the question on gender.

Chat Commerce Experience

In terms of chat commerce experience, we discovered that almost twice the number of respondents (63.9%) had numerous chat commerce shopping experiences compared to only 36.1%. This indicated that there are greater number of respondents who are willing to purchase goods/services using chat commerce in the last 1 year.

Reviewing the gender distribution of respondents with some chat commerce experience indicated that they are almost same, at 42.7% male and 57.3% female. However, for the respondents with numerous chat commerce experience, we saw that females outnumbered males more than 2.5 times, at 27.6% male and 71.0% female.

Perhaps, this is the conclusive proof that females enjoy shopping a lot more than their male counterparts, whether in the physical world or in the digital world — at least in Thailand!

Descriptive Statistics

Table 5 below presents the descriptive statistics on the mean and standard deviation for the entire dataset, as well as for each of the 4 generations.

Table 5: Descriptive statistics for the actual study.

Factor #	Factor	Mean (Standard Deviation)				
		Entire Dataset	Baby Boomer	Gen X	Gen Y	Gen Z
(1)	REL	4.053 (0.565)	4.090 (0.608)	4.079 (0.586)	3.936 (0.464)	4.084 (0.587)
(2)	ASS	4.091 (0.565)	4.221 (0.526)	4.075 (0.595)	3.984 (0.456)	4.121 (0.601)

Factor #	Factor	Mean (Standard Deviation)				
		Entire Dataset	Baby Boomer	Gen X	Gen Y	Gen Z
(3)	RES	3.906 (0.605)	4.169 (0.514)	3.835 (0.664)	3.792 (0.532)	3.939 (0.604)
(4)	EMP	3.910 (0.637)	3.990 (0.638)	3.778 (0.604)	3.862 (0.587)	4.003 (0.674)
(5)	PIQ	4.077 (0.574)	4.144 (0.588)	3.885 (0.535)	4.016 (0.509)	4.223 (0.593)
(6)	PWT	3.931 (0.625)	4.077 (0.701)	3.873 (0.517)	3.780 (0.583)	4.007 (0.679)
(7)	TIP	3.960 (0.624)	4.096 (0.583)	3.917 (0.552)	3.867 (0.601)	4.000 (0.690)
(8)	PEU	4.234 (0.572)	4.256 (0.445)	4.085 (0.571)	4.128 (0.499)	4.385 (0.608)
(9)	PUS	4.172 (0.559)	4.200 (0.503)	4.070 (0.459)	4.081 (0.548)	4.281 (0.628)
(10)	SAT	4.085 (0.626)	4.167 (0.445)	4.053 (0.608)	3.993 (0.504)	4.132 (0.732)
	Average:	4.042 (0.595)	4.141 (0.555)	3.965 (0.569)	3.944 (0.528)	4.118 (0.640)

● The green highlighted cells above are discussed in further detail below.

The values for mean of the 10 factors among the 4 generations appeared to be hovering around 3.792 and 4.385, with an average for the entire dataset at 4.042. This means that, in general, there respondents had a "[4] Agree" level of opinion about their chat commerce experience.

Similarly, the values for standard deviation of the 10 factors among the 4 generations appeared to be hovering around 0.445 and 0.732, with an average for the entire dataset at 0.595. Again, this means that, in general, the responses of all participants ranged from ~3.5 to ~4.5 (i.e., ±0.595 standard deviation from 4.042).

Questionnaire Reliability Analysis and Results

Using the collected data from the actual survey in SPSS statistical analysis software, with 227 respondents having Chat Commerce experience, we performed a reliability analysis on our questionnaire based on Cronbach's Alpha test, with the results show in Table 6 below.

Table 6: Cronbach's Alpha test results for the actual survey.

Factor #	Factor (and question items, i.e., attributes)	Number of Attributes	Cronbach's Alpha
(1)	REL (REL1, REL2, REL3)	3	0.744
(2)	ASS (ASS1, ASS2, ASS3, ASS4)	4	0.784
(3)	RES (RES1, RES2, RES3, RES4, RES5)	5	0.814
(4)	EMP (EMP1, EMP2, EMP3, EMP4)	4	0.848
(5)	PIQ (PIQ1, PIQ2, PIQ3, PIQ4)	4	0.841
(6)	PWT (PWT1, PWT2, PWT3)	3	0.789
(7)	TIP (TIP1, TIP2, TIP3, TIP4)	4	0.793
(8)	PEU (PEU1, PEU2, PEU3)	3	0.870
(9)	PUS (PUS1, PUS2, PUS3, PUS4, PUS5)	5	0.811
(10)	SAT (SAT1, SAT2, SAT3)	3	0.805

According to statistical criteria, Cronbach's Alpha values higher than 0.7 indicate that question items in each of the 10 groups are considered reliable and quality. Therefore, with all 10 factors being above 0.7, this meant that our questionnaire was measuring what it is intended to measure (i.e., responses are not jumping around in a wide range within each set).

Normality Analysis

Before performing correlation analysis, we tested our collected data for normality (i.e., whether it demonstrates normal distribution behavior), again using SPSS statistical analysis software. Table 7 below presents Kolmogorov-Smirnov and Shapiro-Wilk normality test results.

Table 7: Normality analysis for the actual survey.

Factor #	Factor	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	p-value	Statistic	df	p-value
(1)	REL	0.198	227	0.000**	0.933	227	0.000**
(2)	ASS	0.149	227	0.000**	0.957	227	0.000**
(3)	RES	0.121	227	0.000**	0.961	227	0.000**
(4)	EMP	0.169	227	0.000**	0.952	227	0.000**
(5)	PIQ	0.173	227	0.000**	0.943	227	0.000**

Factor #	Factor	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	p-value	Statistic	df	p-value
(6)	PWT	0.192	227	0.000**	0.931	227	0.000**
(7)	TIP	0.160	227	0.000**	0.955	227	0.000**
(8)	PEU	0.253	227	0.000**	0.863	227	0.000**
(9)	PUS	0.133	227	0.000**	0.935	227	0.000**
(10)	SAT	0.256	227	0.000**	0.868	227	0.000**

- * significant at 95% confidence level (alpha=0.05)
- ** significant at 99% confidence level (alpha=0.01)

According to statistical criteria, with confidence level significant at 95% (i.e., alpha=0.05), Kolmogorov-Smirnov test p-value being 0.000 (i.e., lower than alpha) for all the 10 factors indicate that our collected data does not demonstrate normal distribution behavior. This is still valid even at confidence level significant at 99% (i.e., alpha=0.01).

Similarly, for Shapiro-Wilk test p-value being 0.000 (i.e., lower than alpha) for all the 10 factors indicate that our collected data does not demonstrate normal distribution behavior. Yet again, this is still valid even at confidence level set at 99% (i.e., alpha=0.01).

The result of this finding meant to us that to perform correlation analysis was required to be based on Spearman's nonparametric statistics, as opposed to Pearson's parametric statistics for normal distribution.

Correlation Analysis

For the purpose of testing whether there are correlations among the 10 factors as proposed in the research model and hypotheses relationships (in Figure 2 above), we performed Spearman's nonparametric correlation analysis using SPSS statistical analysis software 5 times:

- [1] for the entire dataset;
- [2] for Baby Boomer generation;
- [3] for Gen X generation;
- [4] for Gen Y generation; and
- [5] for Gen Z generation.

Correlation Analysis for the Entire Dataset

Table 8 below presents Spearman's nonparametric correlation coefficients for the 9 hypotheses (H1−H9) among the 10 factors as proposed in the research model and hypotheses relationships.

Table 8: Correlation analysis for entire dataset (n=227).

Item	Hypothesis	Factors	Coefficient	Interpretation
[1]	H1	REL→PIQ	0.487**	moderate
[2]	H2	ASS→PIQ	0.598**	moderate
[3]	H3	RES→PWT	0.535**	moderate
[4]	H4	EMP→TIP	0.559**	moderate
[5]	H5	PIQ→TIP	0.540**	moderate
[6]	H6	PWT→TIP	0.554**	moderate
[7]	H7	TIP→SAT	0.505**	moderate
[8]	H8	PEU→SAT	0.476**	moderate
[9]	H9	PUS→SAT	0.630**	strong

- Coefficient: Spearman's nonparametric correlation coefficient
- Interpretation: Interpretation for Spearman's nonparametric correlation coefficient
- * significant at 95% confidence level (alpha=0.05)
- ** significant at 99% confidence level (alpha=0.01)

Under the "Interpretation" column above, we present simplified a way interpreting the Spearman's nonparametric correlation coefficients values in Table 9 below, as adopted from Newcastle University (2022) and Weir (2011).

Table 9: Simplified a way of interpreting the Spearman's coefficient values.

Item	Value	Interpretation
[1]	0.000	perfect weak correlation
[2]	0.000 > value ≥ 0.199	very weak correlation
[3]	0.200 > value ≥ 0.399	weak correlation

Item	Value	Interpretation
[4]	0.400 > value ≥ 0.599	moderate correlation
[5]	0.600 > value ≥ 0.799	strong correlation
[6]	0.800 > value ≥ 0.999	very strong correlation
[7]	1.000	perfect strong correlation

Correlation Analysis for Baby Boomer Generation
Table 10 below presents Spearman's nonparametric correlation coefficients for the 9 hypotheses (H10−H18) among the 10 factors for Baby Boomer generation as proposed in the research model and hypotheses relationships.

Table 10: Correlation analysis for Baby Boomer generation (n=26).

Item	Hypothesis	Factors	Coefficient	Interpretation
[1]	H10	REL→PIQ	0.732**	strong
[2]	H11	ASS→PIQ	0.785**	strong
[3]	H12	RES→PWT	0.578**	moderate
[4]	H13	EMP→TIP	0.489**	moderate
[5]	H14	PIQ→TIP	0.838**	very strong
[6]	H15	PWT→TIP	0.742**	strong
[7]	H16	TIP→SAT	0.469**	moderate
[8]	H17	PEU→SAT	0.666**	strong
[9]	H18	PUS→SAT	0.584**	moderate

Correlation Analysis for Gen X Generation
Table 11 below presents Spearman's nonparametric correlation coefficients for the 9 hypotheses (H19−H27) among the 10 factors for Gen X generation as proposed in the research model and hypotheses relationships.

Table 11: Correlation analysis for Gen X generation (n=63).

Item	Hypothesis	Factors	Coefficient	Interpretation
[1]	H19	REL→PIQ	0.586**	moderate
[2]	H20	ASS→PIQ	0.708**	strong
[3]	H21	RES→PWT	0.583**	moderate
[4]	H22	EMP→TIP	0.626**	strong
[5]	H23	PIQ→TIP	0.572**	moderate
[6]	H24	PWT→TIP	0.353**	weak
[7]	H25	TIP→SAT	0.435**	moderate
[8]	H26	PEU→SAT	0.511**	moderate
[9]	H27	PUS→SAT	0.463**	moderate

Correlation Analysis for Gen Y Generation
Table 12 below presents Spearman's nonparametric correlation coefficients for the 9 hypotheses (H28−H36) among the 10 factors for Gen Y generation as proposed in the research model and hypotheses relationships.

Table 12: Correlation analysis for Gen Y generation (n=47).

Item	Hypothesis	Factors	Coefficient	Interpretation
[1]	H28	REL→PIQ	0.485**	moderate
[2]	H29	ASS→PIQ	0.404**	moderate
[3]	H30	RES→PWT	0.493**	moderate
[4]	H31	EMP→TIP	0.637**	strong
[5]	H32	PIQ→TIP	0.425**	moderate
[6]	H33	PWT→TIP	0.393**	weak
[7]	H34	TIP→SAT	0.504**	moderate
[8]	H35	PEU→SAT	0.230**	weak
[9]	H36	PUS→SAT	0.652**	strong

Correlation Analysis for Gen Z Generation
Table 13 below presents Spearman's nonparametric correlation coefficients for the 9 hypotheses (H36−H45) among the 10 factors for Gen Z generation as proposed in the research model and hypotheses relationships.

Table 13: Correlation analysis for Gen Z generation (n=91).

Item	Hypothesis	Factors	Coefficient	Interpretation
[1]	H37	REL→PIQ	0.406**	moderate
[2]	H38	ASS→PIQ	0.627**	strong
[3]	H39	RES→PWT	0.494**	moderate
[4]	H40	EMP→TIP	0.482**	moderate
[5]	H41	PIQ→TIP	0.458**	moderate
[6]	H42	PWT→TIP	0.618**	strong
[7]	H43	TIP→SAT	0.530**	moderate
[8]	H44	PEU→SAT	0.470**	moderate
[9]	H45	PUS→SAT	0.667**	strong

Summary

As a summary, Table 14 below combines all Spearman's nonparametric correlation coefficients for the entire dataset and for the 4 generations. With all of the numbers being positive values, all of our proposed hypotheses (H1–H45) therefore have positive influence on the proceeding factors influencing the satisfaction of chat commerce usage experience in Thailand, as designed in our research model depicted on Figure 2 above.

Table 14: Summary table combining all Spearman's nonparametric correlation coefficients.

Item	Influencing Factors	Spearman's Nonparametric Correlation Coefficient				
		Entire Dataset	Baby Boomer	Gen X	Gen Y	Gen Z
[1]	REL→PIQ	(H1) 0.487**	(H10) 0.732**	(H19) 0.586**	(H28) 0.485**	(H37) 0.406**
[2]	ASS→PIQ	(H2) 0.598**	(H11) 0.785**	(H20) 0.708**	(H29) 0.404**	(H38) 0.627**
[3]	RES→PWT	(H3) 0.535**	(H12) 0.578**	(H21) 0.583**	(H30) 0.493**	(H39) 0.494**
[4]	EMP→TIP	(H4) 0.559**	(H13) 0.489**	(H22) 0.626**	(H31) 0.637**	(H40) 0.482**
[5]	PIQ→TIP	(H5) 0.540**	(H14) 0.838**	(H23) 0.572**	(H32) 0.425**	(H41) 0.458**
[6]	PWT→TIP	(H6) 0.554**	(H15) 0.742**	(H24) 0.353**	(H33) 0.393**	(H42) 0.618**
[7]	TIP→SAT	(H7) 0.505**	(H16) 0.469**	(H25) 0.435**	(H34) 0.504**	(H43) 0.530**
[8]	PEU→SAT	(H8) 0.476**	(H17) 0.666**	(H26) 0.511**	(H35) 0.230**	(H44) 0.470**
[9]	PUS→SAT	(H9) 0.630**	(H18) 0.584**	(H27) 0.463**	(H36) 0.652**	(H45) 0.667**

● * significant at 95% confidence level (alpha=0.05)
● ** significant at 99% confidence level (alpha=0.01)
● The green highlighted cells above are discussed in further detail below.

Overall Results
Results for Entire Dataset
The objective of this research was to find out what factors may lead to the success of chat commerce in Thailand, and study the factors that positively influence the satisfaction of chat commerce usage experience. Ultimately, success of chat commerce is determined by positive outcomes that the customers have with Satisfaction with their chat commerce experience (SAT), as proposed in our research model and hypotheses relationships (in Figure 2 above).

Reviewing the Spearman's nonparametric correlation coefficients in Table 14 above for the entire database, we noticed that among the 3 factors (TIP, PEU, PUS) that influence SAT, PUS ("Perceived Usefulness") had the highest value at 0.630, indicating that the respondents pay highest attention the usefulness of the chat commerce platform.

Reviewing the Spearman's coefficients for the factors in one tier backwards, we noticed that TIP, as influenced by EMP, PIQ and PWT, which had about the similar level of influence on TIP.

And, at the beginning of the research model, REL and ASS also had the similar level of influence on PIQ, while ASS showing slightly higher influence at 0.598, indicating that the respondents paid higher attention to assurance concepts like Service Rep understanding customers, knowledge to answer questions, and demonstrating confidence.

Results for Baby Boomers Generation
Baby Boomer generation, being older and more conservative, and not too savvy with digital technology, are instinctively technology averse, and rely on more human nature principles, like assurance and quality and simplicity. Reviewing the Spearman's coefficients for Baby Boomers, we discover that the data is consistent with this behavior.

For the 3 factors (TIP, PEU, PUS) that influence SAT in our research model, highest among them was PEU at 0.666, indicating that ease of use (i.e., simplicity and ease of learning) was Baby Boomer generation's most important factor for satisfaction.

For the 3 factors (EMP, PIQ, PWT) that influence TIP in our research model, highest among them was PIQ at 0.838, indicating that Baby Boomers deemed quality of information in the chat commerce platform signified highest importance to them, as higher information quality leads to greater trust in the platform.

For the 2 factors (REL, ASS) that influence PIQ in our research model, highest between them was ASS at 0.785, indicating that Baby Boomers pay attention to Service Rep's assurance, like understanding customers, knowledge to answer questions, and demonstrating confidence, which are quite essential human traits, as personal touch is important to older generation persons.

Results for Gen X Generation
Gen X generation generally demonstrate both physical world skills as well as digital world skills, as they grew up using personal computers from their early ages in 1990s.

From a satisfaction viewpoint, nothing important stand out from the 3 factors (TIP, PEU, PUS) that influence SAT in our research model, with PEU slightly above the other two, at 0.511.

In terms of trusting the chat commerce platform, we discovered that, from the 3 factors (EMP, PIQ, PWT) that influence TIP, Gen X respondents rated EMP the highest, at 0.626, as, perhaps feeling lost between the two large generations, their give higher priority to being paid closer attention to their special needs and interests.

Similarly, in terms of influencing information quality (PIQ), Gen X generation see assurance (ASS), at 0.708, more important factor than reliability (REL).

Results for Gen Y Generation
Interestingly, for Gen Y generation, among the 3 factors (TIP, PEU, PUS) that influence SAT in our research model, the least important factor for them happened to be PEU, at 0.230, as being the technology savvy generation, they can easily move through any app, no matter how badly designed it may be, and complete the chat commerce transaction with ease.

At the same time, PUS, at 0.652, emerged as the most important factor for Gen Y generation, among the 3 factors (TIP, PEU, PUS) that influence SAT in our research model. This can be attributed to the fact that Gen Y generation was present at the beginning of technological explosion of the Internet and social media during the 2000s, and usefulness of the platform weighted heavily in their satisfaction to use the chat commerce apps.

Similar to Gen X generation, Gen Y generation also considered EMP, at 0.637, an important factor that influence their trust in the chat commerce platform (TIP).

Results for Gen Z Generation
Gen Z generation, being the youngest of all, and growing up using the smartphone in their early ages in 2010s, among the 3 factors (TIP, PEU, PUS) that influence SAT in our research model, they rated PUS as their highest priority, at 0.667, as the masters of technology use, their main focus was on the usefulness of the chat commerce platform to satisfy their purchasing needs.

Another significant trait of Gen Z generation emerged in the area of trust in the platform. Being the most impatient generation, among the 3 factors (EMP, PIQ, PWT) that influence TIP, the respondents indicated PWT as their highest ranked factor, at 0.618, pointing the fact that time is an important element in their shopping behavior.

Equally important for the Gen Z generation was identified in the area of information quality. Being the generation with attention to social responsibility, assurance concepts like Service Rep understanding customers, knowledge to answer questions, and demonstrating confidence, emerged ASS as an important factor, at 0.627.

DISCUSSION AND CONCLUSION
From this study, it can be concluded that all 10 proposed factors ultimately have positive influence on Satisfaction with chat commerce usage experience, and may lead to the success of chat commerce in Thailand, while the 2 most important factors being Assurance [ASS] and Perceived Usefulness [PUS]. This was true for ASS for 3 of the generations (Baby Boomer, Gen X, Gen Z), as well as for the entire dataset; and for PUS for 2 of the generations (Gen Y, Gen Z), as well as the entire dataset. This confirms that ASS and PUS as the 2 main factors of McLean *et al.*'s (2016) research model, who, in turn took the idea from Technology Acceptance Model (TAM) of Davis (1989). In fact, Davis's TAM, is accepted as a basic and classic model for users' acceptance and use of technology including, in our case, chat commerce platforms.

We believe that the theoretical contribution of this research for the scientific community was to generate a new research model by integrating Rattanawicha *et al.*'s (2003a) "Trust in the Platform" factor into McLean *et al.*'s (2017) research model, and applying it to Thailand chat commerce market, with a view of generations of chat commerce users. The practical contribution

of this research is that the chat commerce merchants would be able to study the results of this research, and apply it to their chat commerce platforms and e-business processes for improved customer satisfaction, and ideally, increased revenues.

For the purpose of promoting chat commerce in Thailand even further, businesses can delve into the attributes of each factor to obtain greater understanding on how users from various generations perceive their experience on chat commerce platforms, by using Structural Equation Modeling (SEM) techniques. This has the potential to lead to better goods/services and increased uses of chat commerce in Thailand. Also, using the same research model, further research can be performed in markets that are neighbors of Thailand, for the purpose of analyzing Satisfaction with Chat Commerce usage experience in Southeast Asia.

REFERENCES

Antonides, G., Verhoef, P.C., Van Alast, M. (2002); "Customer Perception and Evaluation of Waiting Time: A Field Experiment"; Journal of Customer Psychology, Vol. 12, No. 3, pp. 193-202.

Chaisiri, S. (2016); "Attitudes of Thais and Westerners in Khon Kaen Towards 'Farang': An Intercultural Communication Analysis" (Master's Thesis in English Language Studies); Thammasat University; Oct/2016.

Chase, R.B., Dasu, S. (2001); "Want to perfect your company's service? Use behavioral science"; Harvard Business Review, Vol. 76, No. 6, pp. 78-84.

Chattaraman, V., Kwon, W.S., Gilbert, J.E. (2012); "Virtual agents in retail web sites: Benefits of simulated social interaction for older users"; Computers in Human Behavior, Vol. 28, pp.2055-2066.

Clemmer, E.C., Schneider, B. (1989); "Towards understanding and controlling customer dissatisfaction during peak demand times"; In: Bitner, M.J., Crosby, L.A. (Editors), Designing a Winning Service Strategy, Proceedings of the 7th Annual Services Marketing Conference; Chicago, Illinois, USA.

Davis, F. (1989); "Perceived usefulness, perceived ease of use, and user acceptance of information technology"; MIS Quarterly, Vol. 13, No. 2, pp. 319-340.

Davis, M.M., Heineke, J. (1998); "How disconfirmation, perception and actual waiting times impact customer satisfaction"; International Journal of Service Industry Management, Vol. 9, No. 1, pp. 64-73.

Davis, S., Saini S., Sipahimalani, R., Hoppe, F., Lee, W., Girona, I.M., Choi, C., Smittinet, W., (2019); "e-Conomy SEA 2019: Swipe up and to the right: Southeast Asia's $100 billion internet economy"; Retrieved from https://www.thinkwithgoogle.com/intl/en-apac/consumer-insights/consumer-trends/e-conomy-sea-2019-swipe-up-and-to-the-right-southeast-asias-100-billion-internet-economy/; ThinkWithGoogle.com; Oct/2019 (accessed on 05/Sep/2022).

DeLone, W.H., McLean, E.R. (2003); "The DeLone and McLean Model of Information Systems Success: A ten-year update"; Journal of Management Information Systems, Vol. 19, pp. 9-30.

Elmorshidy, A., Mostafa, M., El-Moughrabi, I., Al-Mezen, H. (2015); "Factors Influencing Live Customer Support Chat Services: An Empirical Investigation in Kuwait"; Journal of Theoretical and Applied Electronic Commerce Research, Vol. 10, No. 3, pp. 63-76.

Folkes, V., Kolestsky, S.; Graham, J.L. (1987); "A field study of causal inferences and consumer reaction: The view from the airport"; Journal of Consumer Research, Vol. 13, No. 4, pp. 534-539.

Gefen, D., Karahanna, E., Straub, D. (2003); "Trust and TAM in Online Shopping: An Integrated Model"; MIS Quarterly, Vol. 27, No. 1, pp. 57-90.

Guo, X., Ling, K. C., Liu, M. (2012); "Evaluating Factors Influencing Consumer Satisfaction Towards Online Shopping in China"; Asian Social Science, Vol. 8, No. 13, pp. 40 50.

Hui, M.K., Thakor, M.V., Gill, R. (1998); "The effects of delay type and service stage on consumers' reaction to waiting"; Journal of Consumer Research, Vol. 24, No. 4, pp. 469-479.

J.P. Morgan (2019); "E-commerce Payments Trends: Thailand"; Retrieved from https://www.jpmorgan.com/merchant-services/insights/reports/thailand; JPMorgan.com; Jan/2019 (accessed on 05/Sep/2022).

Kalia, P. (2013); "E-SERVQUAL and Electronic Retailing"; In: Bansal, M., Singla, B. (Editors); Proceedings of the 3rd National Conference on Trends and Issues in Product and Brand Management; pp. 84-87; Bathinda, India, 20-21/Mar/2013.

Katz, K.L., Larson, B., Larson, R.C. (1991); "Prescription for the waiting in line blues: Entertain, enlighten and engage"; Sloan Management Review, Vol. 32, No. 2, pp. 44-53.

Kim, M., Kim, J.H., Lennon, S.J. (2006); "Online service attributes available on apparel retail web sites: An E-S-QUAL approach", Managing Service Quality, Vol. 16, No. 1, pp. 51 77.

Kotler, P.; Kartajaya, H., Setiawan I. (2021); Marketing 5.0: Technology for Humanity; Wiley Press; Feb/2021.

Kneoma.com (2020); "Thailand - Male to female ratio of the total population"; Retrieved from https://knoema.com/atlas/Thailand/topics/Demographics/Population/Male-to-female-ratio; Kneoma.com; Sep/2022 (accessed on 04/Sep/2022).

Loiacono, E.T.; Watson, R.; Goodhue, D. (2007); "WebQual: An Instrument for Consumer Evaluation of Web Sites"; International Journal of Electronic Commerce, Vol. 11, No. 3, pp. 51-87.

Loiacono, E.T., Watson, R.T., Hoodhue, D.L. (2002); "WebQual: Measure of web site quality"; Marketing Educators Conference: Marketing Theory and Applications, Vol. 13, pp. 432-437.

Lucassen, T., Muilwijk, R., Noordzij, M.L., Schraagen, J.M. (2013); "Topic familiarity and information skills in online credibility evaluation"; Journal of The American Society for Information Science and Technology, Vol. 64, No. 2, pp. 254 264.

Martin, J., Mortimer, G., Andrews, L. (2015); "Re-examining online customer experience to include purchase frequency and perceived risk"; Journal of Retailing and Consumer Services, Vol. 25, pp. 81-95.

McLean, G., Osei-Frimpong, K. (2017); "Examining satisfaction with the experience during a live chat service encounter: Implications for website providers"; Computers in Human Behavior, Vol. 76, pp. 494-508.

McLean, G.; Wilson, A. (2016); "Evolving the online customer experience. Is there a role for online customer support?"; Computers in Human Behavior, Vol. 60, pp. 602-610.

Metzger, M.J., Flanagin, A.J. (2013); "Credibility and trust of information in online environments: The use of cognitive heuristics"; Journal of Pragmatics, Vol. 59, pp. 210-220.

Newcastle University (2022); "Strength of Correlation"; Retrieved from https://www.ncl.ac.uk/webtemplate/ask-assets/external/maths-resources/statistics/regression-and-correlation/strength-of-correlation.html; Newcastle University; Sep/2022 (accessed on 02/Sep/2022).

Parasuraman, A., Berry, L.L., Zeithaml, V.A. (1991); "Refinement and Reassessment of the SERVQUAL Scale"; Journal of Retailing; Vol 67, No. 4, pp. 420-450.

Peck, A. (2020); "The Current State & Future of Social Commerce in Thailand"; Retrieved from https://alexanderpeck.medium.com/the-future-of-social-commerce-in-thailand-b6a7e90163fe; Medium.com; 12/Sep/2020 (accessed on 16/Aug/2022).

Piyush, N., Choudhury, T., Kumar, P. (2016); "Conversational Commerce: A New Era of E Business"; Proceeding of the 5th International Conference on System Modeling and Advancement in Research Trends (SMART), Vol. 5; pp. 322-327; Moradabad, India; 25 27/Nov/2016.

Pruyn, A., Smidts, A. (1998); "The effect of waiting on satisfaction with the service: beyond objective time measurements"; International Journal of Research in Marketing, Vol. 15, No. 4, pp. 321-34.

Rattanawicha, P., Esichaikul, V., Gullep, E. (2003a); "The Effect of Company Stature and System Properties on Consumer Trust in E-Commerce Systems: An Empirical Study"; Proceedings of the World Multiconference on Systemics, Cybernetics, and Informatics (SCI); pp. 100-106; Orlando, Florida, USA; 27-30/Jul/2003.

Rattanawicha, P., Esichaikul, V., Tangmanee, C., Gullep, E. (2003b); "Customer Trust in Internet Banking Systems: An Empirical Study of Thailand"; Proceedings of the 4th Annual Conference of the ACM Special Interest Group on Computer-Human Interaction; pp. 27-32; Dunedin, New Zealand; 3-4/Jul/2003.

Rattanawicha, P., Esichaikul, V., Tangmanee, C., Gullep, E. (2004); "Essential Interface Design Features for E-Business Web Sites"; Proceedings of the National Conference on Electronic Business; Bangkok, Thailand; 25-26/Dec/2004.

Rattanawicha, P., Esichaikul, V. (2005); "What makes websites trustworthy? A two-phase empirical study"; International Journal of Electronic Business, Vol. 2, No. 3, pp. 110-136.

Rattanawicha, P., Tangmanee, C., Gullep, E.; (2008); "User Expectation and Satisfaction on Information Quality of Websites in Different Domains"; Proceeding of the International Joint Conference on e-Commerce, e-Administration, e-Society, and e Education; Bangkok, Thailand; 25-31/Mar/2008.

Rattanawicha, P. (2013); "Internet mediated live communication with web vendor sales representative: An empirical study on embarrassing products"; Journal of American Academy of Business; Vol; 18(2), pp. 276-283.

Rattanawicha, P., Boonpatcharanon, S., Jongtavornvitaya, C., Mongkolnavin, J. (2021); "Success Factors of Chat Commerce in Thailand: An Emerging E-Business Platform in the Post COVID Era"; Proceedings of the International Conference on Electronic Business (ICEB), Vol. 21, pp. 436-446; Nanjing, China, 3-7/Dec/2021.

Reul, S. (2022); "Conversational Commerce 101: Complete Guide with Examples"; Retrieved from https://getvoip.com/blog/conversational-commerce/ and https://www.youtube.com/watch?v=GuXE3GdL_qU; GetVoip.com; 27/Apr/2022 (accessed on 01/May/202).

Rose, S., Clark, M., Samouel, P., Hair, N. (2012); "Online Customer Experience in e Retailing: An empirical model of Antecedents and Outcomes", Journal of Retailing, Vol. 88, No. 2, pp. 308-322.

Sangiamchit, C. (2017); "English as a Lingua Franca for Online Intercultural Communication among Thai International Students in the UK" (Ph.D. Thesis in Applied Linguistics and English Language Teaching); University of Southampton; Mar/2017.

Spring News (2021); "LINE delves into Chat Commerce, a business trend that is right for Thai people"; Retrieved from https://www.springnews.co.th/news/806832; SpringNews.co.th; 11/Mar/2021 (accessed on 22/Feb/2022).

Srisai, S. (2011); "Saang Kwaampratabjai: The Influence of Wattana-dharm Thai on Thai PR Practice" (Ph.D. Thesis in Film, Media and Journalism); University of Stirling; Jun/2011.

Statista.com (2021a); "Penetration rate of smartphones in selected countries 2021"; Retrieved from https://www.statista.com/statistics/539395/smartphone-penetration-worldwide-by-country/; Statista.com; 30/Mar/2021 (accessed on 31/Mar/2022).

Statista.com (2021b); "Share of preferred platforms for online shopping in Thailand in 2021"; Retrieved from https://www.statista.com/statistics/1096422/thailand-share-of-preferred-online-shopping-channels/; Statista.com; 07/Dec/2021 (accessed on 31/Mar/2022).

Turel, O., Connelly, C.E. (2013); "Too busy to help: Antecedents and outcomes of interactional justice in web-based service encounters"; International Journal of Information Management, Vol. 33, No. 4, pp. 674-683.

Verhoef, P., Lemon, K., Parasuraman, A., Roggeveen, A., Schlesinger, L., Tsiros, M. (2009); "Customer experience: determinants, dynamics and management strategies"; Journal of Retailing, Vol. 85, No. 1, pp. 31-41.

Voss, C., Roth, A.V., Chase, R.B. (2008); "Experience, service operations strategy, and services as destinations: foundations and exploratory investigation"; Production and Operations Management, Vol. 17, pp. 247-66.

Weir, I. (2011); "Spearman's correlation"; Retrieved from https://www.statstutor.ac.uk/resources/uploaded/spearmans.pdf; StatsTutor.ac.uk; 16/Dec/2011 (accessed on 02/Sep/2022).

Yang, Z., Peterson, R.T., Cal, S. (2003); "Services quality dimensions of Internet retailing: An exploratory analysis"; Journal of Services Marketing, Vol. 17, No. 7, pp. 685-701.

Yoo, B., Donthu, N. (2001); "Developing a scale to measure perceived quality of an Internet shopping site (SITEQUAL)"; Quarterly Journal of Electronic Commerce, Vol. 2, No. 1, pp. 31-46.

Zeithaml, V.A., Parasuraman, A.; Malhotra, A. (2000); "A conceptual framework for understanding e-service quality: Implications for future research and managerial practice"; MSI Working Paper Series, Vol. 115, pp. 1-49; Cambridge, Massachusetts, USA.