

Factors Affecting Behavioral Intention to Use E-Commerce Systems in Gen-Z, Case Study: Experience involving Artificial Intelligence

Kritiya Ransom¹, Wasun Khan-Am²

¹Information Systems dept.
Faculty of Business Administration, RMUTT
Pathum-Thani, Thailand
e-mail: gritiya_r@rmutt.ac.th
²Information Systems dept.
Faculty of Business Administration, RMUTT
Pathum-Thani, Thailand
e-mail: wasun_k@rmutt.ac.th

Abstract—This article aims to apply the theory of planned behavior to study the effect of experiences involving artificial intelligence on Electronic Commerce in Gen Z people. The research population is Gen Z people. The number of samples was 150 samples that were 75 males and 75 females. They all had to have e-commerce experience in the past six months. The data collection was conducted by using a questionnaire. This research's statistics were descriptive statistics such as arithmetic mean, and standard deviation, hypothesis tests such as Cronbach alpha test, correlation test, and multiple regression analysis. Firstly, descriptive statistic results showed most of the respondents had experiences involving artificial intelligence at a much level. Then, the multiple regression analysis results showed experiences involving artificial intelligence had no statistical significance on electronic commerce usage behavioral intention in this research. However, the correlation test result state an artificial intelligence usage experience has a statistical significance with attitude, subject norm, and personal control.

Keywords-component; AI; E-commerce; TPB; Artificial Intelligence; Chat bot;

I. INTRODUCTION

A. Background

With the recent economic situation in Thailand, many businesses tend to enter a period of digital transformation. In addition, the situation of Coronavirus 19 epidemic that makes every business under pressure to figure out a way to survive their own business from this crisis. Almost business uses the same solution to maintain their own business and start to use an electronic commerce system in their operations. Using electronic commerce systems may be split into both replacement and complement the original business mechanism. With the adoption of e-commerce systems almost every business has resulted in the storage

of large amounts of data. However, the large amount of information and also the competition in having important and appropriate information to manage customers has increased. This competitive use of data for customer management has become an important strategy for businesses to win over their competitors. Artificial intelligence has become a tool that has attracted the attention of many businesses who want to utilize such systems.

When the e-commerce system to become an additional system or the main system for doing business, many businesses also implement an artificial intelligence system in electronic commerce. This approach can be seen in various reports. Currently, the mechanism for artificial intelligence that can be used include chatbots, Augmentation Reality, Virtual Searching, and Face Recognition. The approach raises the question for example: *Can these Artificial Intelligence mechanisms encourage more business customers to use the business commerce system?* and *How much should businesses invest in these mechanisms?*

The future customer of the business should be a person who will be in Gen Z, which has characteristics that are different from the previous generation: They are a group of people who have been living with gadgets since the beginning of their learning life. This group will be different from current customers who will start using digital when entering university or working, who may be more easily excited by the newness than Gen Z people, it's an interesting question: *Using various artificial intelligence mechanisms will it be a tool that attracts them into the electronic commerce system or not?*

This research aims to answer questions about existing artificial intelligence mechanisms with people in Gen Z saying: *Can these mechanisms attract this group of people or not? The presence or absence of these mechanisms can have any effect on the currently e-commerce system?*

B. Research Objective

1. To study the Artificial Intelligence experience level in the Gen Z people.
2. Analyze factors influencing behavioral intention toward E-commerce in the Gen Z people.

C. Research Framework

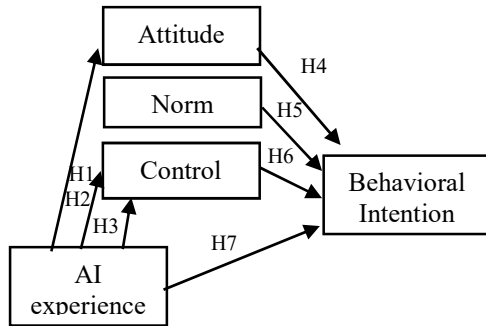


Figure 1. Research Framework

D. Hypothesis

From research framework, the hypothesis was defined as follows:

- H1: AI experience has influence on Attitude
- H2: AI experience has influence on Subject Norm
- H3: AI experience has influence on Control
- H4: Attitude has influence on Behavioral Intention
- H5: Subject Norm influence on Behavioral Intention
- H6: Control has influence on Behavioral Intention
- H7: AI experience has influence on Behavioral Intention

II. LITURATURE REVIEW

A. Generation Z

Our World in Data [1] reports that there will be more than 8 billion world population in 2023 and is expected to increase to ten billion by 2060. [2-3] The population group that is to become the most influential generation in society is The group of people aged between 0 and 25 years, simply referred to as the new generation, is in Gen Z (Generation Z) who born in 1997–2009 and Gen Alpha (Generation Alpha) who born in 2010 onwards. There are over 3 billion people on every continent of the world. These “new generations” are born with social media and many technological advances have been made, as “consumers”, they have become a group of customers with unique behaviors, new and different from the Gen Y or Millennials who grew up in the previous era. In an age where businessmen, marketers, and consumers feel the world is spinning faster and faster, today they are turning their attention to Gen Z and Gen Alpha consumers.

B. Artificial intelligence mechanisms available in e-commerce system [4-5]

Many businesses sell products in retail form with starting to open their own E-Commerce channels and sell directly to customers, known as DTC. They used to have a selling offline, wholesale, or through traditional channels back then. Therefore, E-Commerce in this era is considered commonplace, any business can register a website domain. they also can create a basic E-Commerce website by themselves. One thing worth watching is the use of AI in the E-Commerce business. They can create a better experience for more customers resulting in increased sales. Many businesses are just starting and may not yet focus on this aspect.

According to PwC's survey on how a customer experience affects their decision-making, 43% of customers would be willing to pay more for convenience, 42% would pay more if a business had better and more friendly hospitality, and 65% said that the experience was good. The results from the business acting have more impact on decision-making than seeing cool ads from businesses.

According to a study by Acumen Research, the AI or Machine Learning market for retail is expected to grow at a compound annual growth rate of 34.9% between 2020 and 2027, reaching a value of \$6.76 billion.

The HardcoreCEO website said about the future of electronic commerce. It also said about using AI to capture data for efficiency increasing. It gives an advice for electronic commerce businesses too, one thing that can help company to create a good customer experience is the use of AI in business. The AI benefits are not only good experiences but also help to manage data, process data, and analyze data quickly. It said that there are six areas of AI that could impact e-commerce including Chat Bot, Augmented Reality (AR), Visual Searching (AKA image searching), Facial Recognition (AKA face detection), Product Recommendations, and Inventory Management.

C. Theory of Planned Behavior [6-8]

Theory of Planned Behavior, abbreviated as TPB, Isaac states that human behavior can be guided by three main factors:

1. Beliefs related to the consequences of that behavior. The experience associated with that behavior is called *belief behavior*.
2. Beliefs about normative expectations and the behavior of others who are important. It is called *normative beliefs*.
3. The belief about the existence of factors that may facilitate or hinder the expression of behavior. It is called *belief control*.

When sum of the three factors above, it will give a meaning as:

“Behavioral beliefs produce good or bad attitudes towards behavior. Normative beliefs result in societal or subjective normative pressures. and controlling beliefs produce perceived control over behavior or self-efficacy.”

The effect of attitudes on behavior and subjective norms will pass to intention. It is controlled by perceived behavioral control. The general rule, more conducive attitudes, and subjective norms; and the more perceived control the stronger person's willingness to exhibit behavior.

Finally, when there is a sufficient level of intrinsic control over behavior, Individuals are therefore expected to act on their will whenever the opportunity arises. The intention is thus assumed to be the immediately preceding behavior. In the scope of studies where behavioral control can be perceived as provable. It can act as an intermediary for controlling reality and leading to the prediction of behavior.

D. Theory Acceptance Model

This theory will help information systems scholar understand how people accept or reject technology. This theory was developed from Theory of Reasoned Action — TRA.

Let's start with the relationship between attitude and intention. [9] explains that the intention to use a system is usually formed if there is a positive attitude towards the system.

In TAM, to create a positive attitude towards the system. It's because the user feels and perceives that the system is useful (U) in terms of improving their own performance. In addition, they perceive and feel that the system is ease to use (E). They can use the system without an effort to understand how the system works. The more they feel the system is easy to use, and plus with the more the system makes them feel that the system is beneficial to themselves. Since they are easily increase their work efficiency. So why they do not use the system? They must want to use it.

III. RESEARCH METHODOLOGY

A. Population and Sample

The population of this study was people of Gen Z age (Born since 1997), which should have the same characteristics regardless of whether they live in any place in Thailand.

The sample was selected from the population with an important condition that is experienced in using electronic commerce systems. Therefore, quota random sampling was used. between males and women equal 50 percent.

the sample size was calculated from the number of variables in the framework. By using a sample size of 15 times the variable in the conceptual framework of the research, there are a total of five variables in the framework. The required number of samples is 75 samples [10]. The researcher wants to have equal groups of males and females; therefore, the sample group is double. the research sample size is 150 samples with a male quota of 75 samples, and a female quota of 75 samples.

B. Data Administration

The data is collected from respondents who qualify for the population and sampling condition. The questionnaires distribute with a convenient method. Two leading questions were asked before distributing the questionnaire: the age of the respondents to ensure that the respondents were within their Gen Z age; and the respondent has to have experience in using e-commerce systems in the past 6 months.

C. Statistics

There are two types of statistics used in this research. The first type is descriptive statistics, which are statistics used to describe the characteristics of the sample such as arithmetic mean and standard deviation. The second type of statistic is the test statistic such as reliability test with the Cronbach Alpha, Pearson correlation test, and multiple regression analysis.

IV. RESULT

A. Descriptive Statistics Result

The result described the characteristics of experience involving artificial intelligence and other factors of the framework and showed as follows:

TABLE I. AI EXPERIENCING

Items	Mean	SD.
Chat Bot	2.580	1.387
AR	2.178	1.270
Virtual Search	3.134	1.487
Face Recognition	3.560	1.477
Overall	2.863	1.080

From table I, the overall opinion of respondents had some experience involving artificial intelligence at quite a much level. When considering each aspect in the table, it also found that they had an experience at a much level for visual searching and face recognition. However, they had yet a less experience in chatbots and AR.

TABLE II. NEED OF THE ARTIFICIAL INTELLIGENCE

Items	Mean	SD.
Chat Bot	4.16	.828
AR	3.82	.956
Virtual Search	4.05	.982
Face Recognition	4.25	.785
Overall	4.07	.670

From table II, the overall opinion of respondents was that artificial intelligence was an essential part of the use of electronic commerce at a much level. When considering each aspect, it was found that all of them need the e-

commerce system they use to have artificial intelligence at a much level also.

TABLE III. MEAN OF ALL VARIABLE

Items	Mean	SD.
AI experience	2.863	1.080
Attitude (A)	3.971	.583
Subject Norm (S)	3.840	.585
Control Behavioral (C)	4.132	.622

From table II, it was found that only the respondents' experience of using artificial intelligence had a moderate average. For other aspects, including Attitude, Subject Norm, Control Behavioral, and Behavioral Intention, the respondents had a high average level.

B. Hypothesis Test Result

Firstly, the reliability test of all scale variable was done and the result of test showed in the next table.

TABLE IV. RELIABILITY TEST RESULT OF ALL SCALE VARIABLE

Items	No. of Items	α
Attitude (A)	4	.786
Subject Norm (S)	4	.675
Control Behavioral (C)	6	.826
Behavioral Intention (BI)	4	.689

From table IV, it was found that all variables had an alpha coefficient greater than .6, suitable for correlation test and multiple regression analysis

TABLE V. CORRELATION TEST RESULT OF ALL SCALE VARIABLE

Items	Correlation value			
	A	S	C	BI
AI experience	.358**	.293**	.274**	.323**
Attitude (A)	-	.763**	.739**	.803**
Subject Norm (S)		-	.658**	.755**
Behavioral Control (C)			-	.751**
Behavioral Intention(BI)				-

** .01 significant

From the correlation test results table, it was found that all variables had a statistic significance of .01. With behavioral intention had a high correlation with attitude, subject norm, and behavioral control (greater than .66), but had a low correlation with AI experience (less than.33),

while AI experience had a low correlation with all variables (less than .33).

TABLE VI. MEAN OF ALL VARIABLE

Variable	B	95% CI	β	t	p
(constant)	.119	[-.267,.505]		1.566	.120
A	.393	[.236,.550]	.378	5.306	.000
S	.284	[.158,.411]	.291	3.132	.002
C	.285	[.145,.425]	.275	2.374	.019

Note: $R^2_{adj} = 0.724$ (N=150, p=0.000) CI= confidence interval for B

After implementing multiple regression analysis, it was found that there were only three factors that could be used to explain the Behavioral Intention variant, namely Attitude (A), Subject Norm (S), and Behavioral Control (C). the equation of this analysis is:

$$BI = .378A + .291S + .275C \quad (1)$$

V. CONCLUSION AND DISCUSSION

A. Conclusion

From the research results, it can be concluded that respondents belonging to Gen Z had attitude, subject norm, behavioral Control, and behavioral intention at high levels. Hypothesis testing found that only three factors affected behavioral intention: attitude, subject norm, and behavioral control. The AI experience factor had no effect on behavioral intention.

B. Discussion

Referring to the multiple regression analysis, it was found that the variance of behavioral intention could be explained by attitude, subject norm, and behavioral control which was consistent with the Theory of Planned Behavior.

Even with the addition of the AI experience factor into the model, the AI experience still cannot influence the behavioral intention of Electronic commerce usage, which has been presented in many articles as what drives businesses to use AI in the electronic commerce system. When considering the correlation between AI experience and behavioral intention, although found a significant correlation, was still low. However, this research focused on Gen-Z, who are expected to be highly active in the future e-commerce, so the AI experience factor was not prominent. Obviously, If the survey is conducted with all groups of people, this factor may have a clear effect.

VI. FUTURE RESEARCH

This research is limited to the Gen Z group, and the findings showed the result from the Gen Z survey was experience factors do not have an impact on respondents' behavioral intention. Future research should expand the

group of the survey to other groups with a more diverse group of people.

Later, the research questionnaire was done in the overall e-commerce system. It could not analyze the efficiency of electronic commerce systems in each business. Those interested may be able to narrow down the e-commerce system more clearly. The result may be different.

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