

An Empirical Study on the Attitude towards Live Commerce by Adopting the Technology Acceptance Model (TAM)

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Abstract

Live Commerce is the new e-commerce trend that started through the rapid expansion of live commerce in China in 2016. This type of online shopping became more popular worldwide during the COVID-19 pandemic lockdown period. This research aims to explore the attitude towards live commerce in Thailand by adopting the extended model of the Technology Acceptance Model (TAM). The data were collected through an online questionnaire based on a quantitative method. Convenience sampling was applied, and the data from 235 respondents from Bangkok and vicinities. Multiple Regression methods are applied in data processing and interpretation. The results offer insights into understanding the influence on attitudes towards live commerce, which can be a basic application in consumer behaviour studies, as well as the development of theory and suggestions for marketing practitioners.

Keywords: live commerce, technology acceptance model (TAM), perceived usefulness, perceived ease of use, perceived playfulness, sales promotion

INTRODUCTION

The past decade has witnessed a significant transformation in the way people shop, with a pronounced shift from offline to online platforms. This transformation has been further accelerated by the rising trend of live commerce. Live commerce involves the integration of live streaming, real-time interaction, and instant purchase functionalities into online shopping experiences. Live Commerce integrates live streaming, real-time interaction, and instant purchase functions, contributing to its popularity in our digitalized society (Yin, J., Huang, Y. & Ma, Z., 2023). Various platforms like Shopee, Lazada, TikTok, Line, and Instagram have embraced Live Commerce, providing users with a more engaging and impulsive shopping experience. Customers feel free when they do online shopping compared with in-store ones and likely turn to impulsive buying (Chan, T.K.H., Cheung, C.M.K. & Lee, Z.W.Y., 2017). They do not have any constraints when they browse and make purchases online. It is

It is noticeable that most prior studies have been conducted and only focused on the Impact of the Technology Acceptance Model (TAM) (Davis, 1989) on attitude towards Live Commerce; some studies have explored the role of Playfulness (Moon, J.W. & Kim, Y.G., 2001). However, limited research has employed Sales Promotion in the study of TAM. This study aims to address this gap by considering a broader set of factors, including TAM, Playfulness, and Sales Promotion, to understand their collective impact on attitudes towards Live Commerce. This approach provides a more comprehensive view of the factors influencing consumer behavior in the Live Commerce context.

LITERATURE REVIEW AND HYPOTHESES

According to the previous study, the success of live-streaming shopping or Live Commerce can be attributed to its unique real-time interactivity. Interactivity can significantly differentiate Live Commerce from E-commerce. The concept of "shoppertainment", where consumers do mobile shopping while enjoying watching video content on the internet (Chen, W.K., Chen,C.W., & Silalahi,A.D.K., 2022) with the interactive features of social media platforms allow streamers to communicate with shoppers in real-time. This can strengthen the relationship between streamers and shoppers and finally influence shoppers' purchase decisions (Lina, J., Luo, Z., Chengb,X. & Li L., 2019). Livestream purchasing or Live Commerce allows showing and advertising products to a live, online audience who can interact in this live experience through online videos, chats, or other tools, and promoters connect directly with customers. Since platform interactivity is very important in building customer engagement (Md. Hossain, A., Kalam, A., Md. Nuruzzaman & Kim, M., 2023), that is why Artificial intelligence (AI) technology needs to be involved and become very useful.

Over the past decades, artificial intelligence (AI), which is considered new and high technology, has grown to be crucial to e-commerce technologies. The way customers shop online has changed as a result of this AI technology rapid expansion. (Wang, C. et al., 2023). Artificial Intelligence Technology has gradually developed into a powerful tool to boost sales growth and optimize e-commerce operations (Song,X. et al., 2019). When it comes to Live Commerce, in addition to human streamers, AI streamers with 3D images and human-like voices exist now in order to perform routine live streaming tasks automatically, processing information for problem-solving and learning from it, while also exhibiting adaptability in response to many different circumstances (Huang, M.-H., & Rust, R. T., 2018). AI live streamers are struggling to establish emotional connections with consumers though. However, with the advanced information technology, such as neural network learning technology, could potentially enhance the emotional expression capabilities of AI live streamers by leveraging digital technology and data applications to improve emotional connections in AI-driven live streamers further. (Chen,N.&Yang,Y.,2023). Since AI and Interactivity are important technologies to Live Commerce, it is interesting and essential to know if these key technologies of Live Commerce are well accepted. Therefore, we have applied some related theories in this study as follows.

A. The Technology Acceptance Model (TAM)

The Technology Acceptance Model was well introduced by Fred Davis in 1989 (Davis, F.D., 1989). It is one of the most popular models of technology acceptance of people for new technology. TAM explains the two factors that cause people to accept or reject information technology: Perceived Usefulness and Perceived Ease of Use. In 2003, Gefen (Gefen & Straub, 2003) introduced the TAM model to e-commerce. He studied online shopping behaviour and then constructed an online consumer trust model based on TAM theory. According to the findings of Koufaris (Koufaris, 2002), the attitude towards e-commerce and its effect and acceptance of purchasing over the Internet can be examined by the TAM. Since Live Commerce Platforms are also considered as a new technology, it is therefore hypothesized that:

H1: Perceived Usefulness has a positive effect on Attitude towards Live Commerce.

H2: Perceived Ease of Use has a positive effect on Attitude towards Live Commerce.

B. The Extended Technology Acceptance Model (ETAM) - Perceived Playfulness

In 2001, Moon and Kim (Moon, J.W. & Kim, Y.G., 2001) further studied to extend “Perceived Playfulness” to TAM based on the research of Davis (Davis, F.D., BAGOZZI, R.P., & WARSHA, P.R., 1992) on the relationship between the Usefulness and Ease of use using computers in the workplace. Then, Moon and Kim (Moon, J.W. & Kim, Y.G., 2001) proposed “Perceived Playfulness” as the extension of TAM to explain the motivation of individual behaviour on human-computer interaction focusing on the internet. The purpose of their study is to extend the Technology Acceptance Model (TAM) in the WWW context. Since Live Commerce now usually comes with games and entertainment, it is therefore hypothesized that:

H3: Perceived Playfulness has a positive effect on Attitude towards Live Commerce.

C. New E-commerce Model: Live Commerce Platforms

Live Commerce is considered a new E-commerce platform. Live Commerce is significantly different from other E-commerce platforms in terms of interactivity, personalization, social features, sales conversion rates and sales promotion. High engagement and an interactive shopping experience are what Live Commerce can offer to its customers, as well as sales promotions. There are many Sales Promotion schemes available on Live Commerce, which are discount coupons, flash sales, free delivery, bulk deals and etc. The Sales Promotion on Live Commerce is often limited by time so as to encourage customers or viewers to make a purchase during the live session of Live Commerce for the very special Sales Promotion. Therefore, it is interesting to study Sales Promotion as one of the variable factors to determine whether it has a significant impact on attitude towards Live Commerce.

D. Sales Promotion on Live Commerce

Sales Promotion is a Promotional Mix of the Marketing Mix (4P's: Product, Price, Place and Promotion), which was introduced globally through the book “Basic Marketing, a Managerial Approach” written by Edmund Jerome McCarthy, a Marketing Professor at Michigan State University, in 1960s (McCarthy, 1960). This Marketing Mix, including Sales Promotion, has been well accepted and applied in the Marketing context of many organizations worldwide after that. Sales Promotion has been

implemented and benefited in both offline and online channels, including E-commerce. When using Live Streaming for product promotion or E-commerce, it is necessary to provide a convenient way to watch live streaming and interact with and buy products as well (Nisa, 2023). This is to enhance a good experience for customers to feel free to interact and engage more in Live Streaming or Live Commerce and also generate more sales. Since Sales Promotion also plays an important role in Live Commerce, it is therefore hypothesized that:

H4: Sales Promotion has a positive effect on Attitude towards Live Commerce.

METHODOLOGY

This study applied the quantitative research method, and the data were collected online. Target respondents are among those who live in Bangkok and vicinity (Nonthaburi, Samut Prakan, Pathum Thani, Samut Sakhon and Nakhon Pathom) in Thailand. All the target respondents for this study have experience in online shopping on Live Commerce platforms (Shopee, Lazada, Facebook, Line and TikTok) either as viewers or buyers. Therefore, the data of 235 target respondents were collected through convenience sampling to complete the purpose and objectives of this research study. Most of the respondents are in the age range between 15-22 years old (184 = 78.3%), with a higher number of females (163 = 69.4%) than males (72 = 30.6%). Almost all of them are students (215 = 91.5%), and most of their education level is a Bachelor's Degree (223 = 94.9%). (see Table 1)

Previous measurements and questions are applied in this study. There are 7 parts to this questionnaire, which are screening questions, experience in Live Commerce, general behaviour, factors for participating in live commerce, attitude towards Live Commerce, purchase behaviour on live commerce and personal information. The measurements applied in each variable will be elaborated more below:

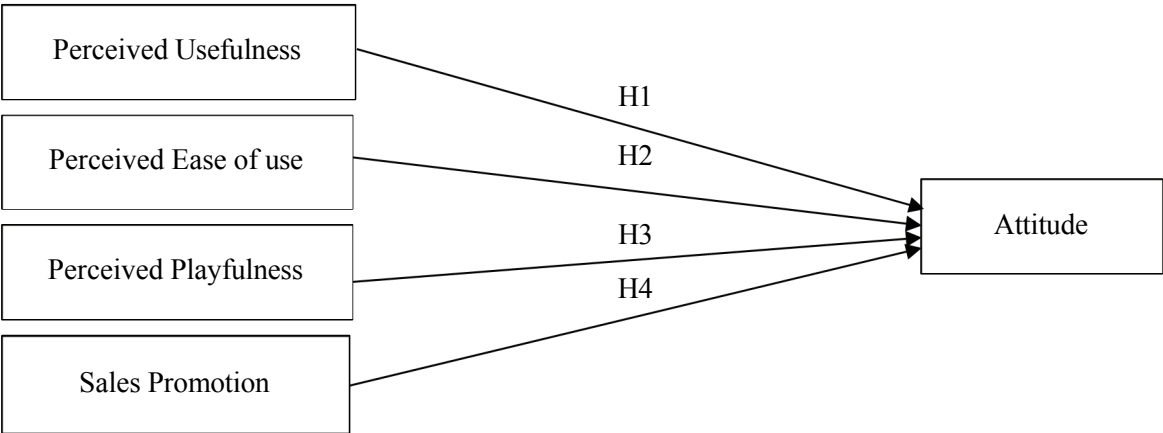
The Perceived Usefulness measure and the Perceived Ease of Use measure were adopted from Junic Kim et al. (Kim, J., He, N. & Miles, I., 2023), who surveyed Live Commerce Platforms by applying the Technology Acceptance Model (TAM) by Fred Davis (1989). Respondents were requested to rate their responses on a five-point Likert scale ranging from “Strongly Disagree = 1 to Strongly Agree = 5”. A few samples of the Perceived Usefulness questions are as follows. “Live commerce platforms allow me to purchase the right product more efficiently.”, “On live commerce platforms, recommendations can provide me with a more comprehensive understanding of products.”, “Shopping on Live commerce platforms helps my consumption.”. The alpha reliability coefficient of this scale was 0.91 (M = 3.61, SD = 0.73). Furthermore, a few samples of the Perceived Ease of Use questions are as follows. “Live commerce platforms can adapt quickly without consuming a lot of energy.”, “The interface of live commerce platforms makes interactions simple.” “It is easy to make purchase and provide payments on live commerce platforms.”. The alpha reliability coefficient of this scale was 0.88 (M = 3.59, SD = 0.70).

The measure of Perceived Playfulness was also adopted from Junic Kim et al (Kim, J., He, N. & Miles, I., 2023) applying the Perceived Playfulness study of Moon and Kim (Moon, J.W. & Kim, Y.G., 2001) about Extending the Technology Acceptance Model for the World-Wide-Web Context: Playfulness as a Salient Belief. To standardize the measures and questionnaires, the five-point Likert scale, the same as in the Perceived Usefulness measure, and the Perceived Ease of Use measure, as mentioned earlier, were applied in the measure of Perceived Playfulness as well. A few samples of the questions are as

follows. “I think the live commerce platform adds to the fun of shopping.”, “The process of shopping with a live commerce platform is fun”, and “The visual effects of live commerce are fascinating to me.”. The alpha reliability coefficient of this scale was 0.92 (M = 3.48, SD = 0.79).

For the Sales Promotion measure, it was adopted by Arsil and Ayu (Arsil, I. and Ayu, E., 2020), who surveyed and researched on brand-trust enhancing sales promotion through online shopping. The five-point Likert scale ranging from Strongly Disagree to Strongly Agree is also applied in this measure. A few samples of the questions are as follows. “I prefer to buy products on Live Commerce when available at a packaged price (for example: purchasing 2 or more products at a lower price.” “I tend to buy products on Live Commerce due to discounts (e.g. cashback).” “I consider discounts when shopping.”. The alpha reliability coefficient of this scale was 0.88 (M = 3.45, SD = 0.73).

Picture 1: CONCEPTUAL FRAMEWORK



RESULTS

The examination of Descriptive statistics and Pearson correlations was conducted to preliminarily check the data as shown in Table 1 and Table 2. According to Table 2, all reliability coefficients were above 0.70 which is acceptable (Nunnally, 1978) as shown in the Cronbach’s Alpha column (Perceived Usefulness = 0.91, Perceived Ease of Use = 0.88, Perceived Playfulness = 0.92 and Sales Promotion = 0.88).

Table 1: Descriptive Statistics

| Demographic Data | | Frequency | Percentage |
|-----------------------|-------------------------------|-----------|-------------|
| Gender | Male | 72 | 30.6 |
| | Female | 163 | 69.4 |
| Status | Single | 229 | 97.4 |
| | Married | 6 | 2.6 |
| Education | Lower than Bachelor's Degree | 7 | 3.0 |
| | Bachelor's Degree | 223 | 94.9 |
| | Higher than Bachelor's Degree | 5 | 2.1 |
| Age (Years) | below 15 | 0 | 0.0 |
| | 15 - 22 | 184 | 78.3 |
| | 23 - 30 | 41 | 17.4 |
| | 31 - 40 | 3 | 1.3 |
| | 41 - 50 | 6 | 2.6 |
| | Above 60 | 1 | 0.4 |
| Monthly Income (THB) | Below 10,000 | 118 | 50.2 |
| | 10,001 – 30,000 | 100 | 42.6 |
| | 30,001 – 50,000 | 7 | 3.0 |
| | 50,001 – 100,000 | 7 | 3.0 |
| | From 100,001 up | 3 | 1.3 |
| Occupation | Student | 215 | 91.5 |
| | Company Employee | 16 | 6.8 |
| | Business Owner | 3 | 1.3 |
| | Others | 1 | 0.4 |
| Perceived Usefulness | | | 3.61 (0.73) |
| Perceived Ease of use | | | 3.59 (0.70) |
| Perceived Playfulness | | | 3.48 (0.79) |
| Sales Promotion | | | 3.45 (0.73) |
| Attitude | | | 3.45 (0.79) |

Table 2: Correlations

| | Cronbach's alpha | 1 | 2 | 3 | 4 | 5 |
|--------------------------|------------------|--------|--------|--------|--------|--------|
| 1. Perceived Usefulness | 0.91 | 1 | .771** | .777** | .710** | .685** |
| 2. Perceived Ease of use | 0.88 | .771** | 1 | .744** | .722** | .732** |
| 3. Perceived Playfulness | 0.92 | .777** | .744** | 1 | .653** | .783** |
| 4. Sales Promotion | 0.88 | .710** | .722** | .653** | 1 | .717** |
| 5. Attitude | 0.89 | .685** | .732** | .783** | .717** | 1 |

**Correlation is significant at the 0.01 level (2-tailed).

For statistical analysis, this study applied Multiple linear regression to test the hypothesis developed from the Technology Acceptance Model (TAM). The assumption check for multiple regression on linearity are employed before conducting the data analysis.

Table 3: DATA ANALYSIS

| Hypothesis | Data Analysis | | | | |
|------------|---------------|-------|-------|------|----------------|
| | b | Beta | t | Sig | Interpretation |
| H1 | -0.06 | -0.06 | -0.83 | 0.41 | Not Supported |
| H2 | 0.23 | 0.21 | 3.17 | 0.00 | Supported |
| H3 | 0.49 | 0.48 | 7.77 | 0.00 | Supported |
| H4 | 0.32 | 0.29 | 5.23 | 0.00 | Supported |

R-SQUARE = 0.699, F = 133.590 *P<0.05

The statistical analysis in Table 3, it demonstrates the relationship between the independent variables (Perceived Usefulness, Perceived Ease of Use, Perceived Playfulness and Sales Promotion) and the dependent variables which is Attitude towards streaming commerce. Regarding the R-square (0.699), it can be interpreted that 69.9% of the variance in Attitude is explained by Perceived Ease of Use,

Perceived Playfulness and Sales Promotion as shown in the model. However, Perceived Usefulness is insignificant and does not affect the attitude in the Technology acceptance model, as shown in Table 3.

The research findings show that Perceived Ease of Use (Sig = 0.00), Perceived Playfulness (Sig = 0.00) and Sales Promotion (Sig = 0.00) have positive effects on Attitude towards Live Commerce. This can be interpreted from the relationship shown in the “Supported” evidence in Table 3. Therefore, Hypothesis 2, 3 and 4 are confirmed. According to Table 3, Perceived Usefulness (Sig = 0.41) does not show a positive effect on Attitude towards Live Commerce as the relationship shows insignificant results with negative impact ($b = -0.06$, $t = -0.83$). Therefore, Hypothesis 1 is not supported.

DISCUSSION

The results of this study indicate that there are 3 out of 4 independent variables that directly impact Attitude. They are Perceived Ease of Use, Perceived Playfulness and Sales Promotion. The reason is that all of these 3 hypotheses of them were supported. Only the hypothesis of Perceived Usefulness was not supported.

Regarding the Technology Acceptance Model (TAM) (Davis, F.D., 1989), it is also focusing on this factor, which directly affects the attitude towards live commerce. It could be interpreted that as live commerce, which is considered as new technology now, is easy to use, it affects the good attitude to use or to participate in Live Commerce effortlessly. AI live streamers, high technology in Live Commerce, are also employed to handle routine tasks automatically (Huang, M.-H., & Rust, R. T., 2018) with the possibility to improve emotional connections in AI-driven live streamers further through leveraging digital technology and data applications (Chen, N. & Yang, Y., 2023)

However, Perceived Usefulness was not as significant as expected based on the model. The reason is that when it comes to live commerce, it will usually be more about the entertainment or promotion side rather than usefulness. This is also aligned with the previous study of T. Ramayah and Joshua Ignatius

(Ramayah, T. & Ignatius, J., 2005) indicated that Perceived usefulness (PU) was not a significant factor in determining the intention to shop online.

In the context of live commerce, people find pleasurable experiences during their online shopping. Also, Live Commerce can be an entertaining mode of shopping and reflects to playfulness, it could be interpreted that Perceived Playfulness affects the good attitude towards Live Commerce as expected. Similar to the results by Moon and Kim (Moon, J.W. & Kim, Y.G., 2001), the extension of the Technology Acceptance Model (TAM) indicated that “Perceived Playfulness” can explain the motivation of individual behaviour in human-computer interaction focusing on internet. As Live Commerce always comes with high interactivity, this is also aligned with the study of Wen-Kuo Chen, Chien-Wen Chen and Andri Dayarana K. Silalahi (Chen, W.K., Chen, C.W., & Silalahi, A.D.K., 2022) that the real-time interactivity is considered as “shoppertainment”, where consumers do the mobile shopping while watching video content on the internet.

The promotional activities have an immediate and direct impact on consumers’ purchasing behaviour (Akram et al, 2018). This result is also applicable in Live Commerce as well since the results show the relationship between Sales Promotion and Attitude in Live Commerce (P-Value <0.05). Moreover, there are many sales promotions supported in Live Commerce today: discount coupons, free delivery, flash

sale, etc. It is necessary to provide a convenient way to watch live streaming, and interact with and buy products as well (Nisa, 2023). This is to enhance good experience for customers to feel free to interact and engage more in Live Streaming or Live Commerce and also generate more sales. Therefore, it could be interpreted that Sales Promotion has an impact on Attitude towards Live Commerce as hypothesized.

The results confirmed that Perceived Ease of Use, Perceived Playfulness and Sales Promotion have an impact on the Attitude towards Live Commerce. Therefore, Live Commerce should focus more on these and cannot ignore them. Moreover, as Perceived Ease of Use and Perceived Playfulness represent convenience and entertainment, respectively, this is also aligned with the study of Yang (Yang, K.C.C., 2005), who introduced two important interaction factors, which are convenience and entertainment in mobile-commerce-related research. It could be interpreted that the more convenient and entertaining, the more interaction on Live Commerce would be. Last but not least, a Sales promotion strategy with a short-term incentive should be available to attract Live Commerce customers (Sieber, 2000).

CONCLUSION

This study aimed to explore the relationship between Perceived Usefulness, Perceived Ease of Use, Perceived Playfulness, Sales Promotion and Attitude. Three of the most important results and findings in this study were to show that the extended Technology Acceptance Model (TAM) (Davis, F.D., 1989) can explain the use of live commerce context only on the Perceived Usefulness, which was not significant. The Perceived Playfulness in terms of entertainment based on the study of Moon and Kim (Moon, J.W. & Kim, Y.G., 2001) also well accepted by consumers. Furthermore, sales Promotions through short-term incentives have a relationship with the attitude towards live commerce as they can attract live commerce customers (Sieber, 2000). It means Live Commerce is supposed to be easy to use and more entertaining with sales promotion support so as to enhance positive attitude towards Live Commerce to customers.

Therefore, this study helps to explain the factors that impact the attitude toward Live Commerce. It can be useful for future studies in developing a theoretical model in explaining the attitude on Live Commerce associated with Perceived Ease of Use, Perceived Playfulness and Sales Promotion. This study also helps to obtain a better understanding of the consumers' attitudes on Live Commerce so that e-commerce businesses can improve their Live Commerce platforms and functions to respond well to consumers' attitudes accordingly.

Limitations, Future Research Recommendations and Business Implications

This study was conducted mainly in Bangkok and the majority of the collected data were from teenagers because of their high tendency to be more comfortable using E-commerce platforms, Live commerce in particular, for both shopping and entertainment. The results or findings may not be applicable to different areas in Thailand. Moreover, it is also interesting to explore and focus more on working adults as they are another group with high purchasing power. Besides the limitations of geographical and demographic coverage, the dependent variables could be explored more if the positive attitude leads to either impulse purchase or purchase intention. The research methodology and data analysis applied in this study was totally involved with quantitative data, not qualitative data.

Furthermore, other factors relating to products, including packaging and product quality, can be further investigated. Some categories like fashion and food may create excitement when conducting live commerce, but not in some categories (i.e., necessity products). Future studies should explore more variables, and other potential respondent groups and apply qualitative data to explain the findings, especially regarding the insignificant of perceived usefulness based on the original model.

This study has proved that Perceived Ease of Use, perceived playfulness and Sales Promotion have an impact on the attitude towards Live Commerce. Without these factors, it can cause lower engagement and lower customers. Live Streamers or Influencers should not ignore these factors because customers usually look for easy-to-use Live Commerce platforms which come up with entertainment and sales promotion support. After all, these factors will create a good attitude and good experience in online shopping, which can lead customers to do online shopping through Live Commerce.

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