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# EXPLORING THE SOCIAL AND PERSONAL FACTORS INFLUENCING ORGANIZATIONAL INTERNAL LINE GROUP BUYING INTENTIONS BASED ON THE TECHNOLOGY ACCEPTANCE MODEL

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## Abstract

**Objective**: This study explores factors influencing Taiwanese consumers' use of LINE group buying within organizations, integrating social media and e-commerce. Using the Technology Acceptance Model (TAM) and concepts from social psychology such as subjective norms, envy, and enjoyment, the study analyzes their effects on usage intention and behavior. The goal is to identify key influencers of usage intentions and support marketing strategies for LINE group buying platforms.

**Method**: Convenience sampling was used to collect 291 valid questionnaires. Data analysis with SmartPLS 4.0 software assessed the validity of measurement and structural models. Methods included descriptive statistics, reliability testing, validity testing, and regression analysis to ensure the reliability and validity of results.

**Results**: Significant findings indicate that perceived ease of use ($\beta = 0.142$, $t = 2.047$, $p = 0.041$), subjective norms ($\beta = 0.349$, $t = 5.471$, $p < 0.001$), and envy ($\beta = 0.147$, $t = 2.345$, $p = 0.019$) positively impact usage intention. Perceived usefulness ($\beta = 0.123$, $t = 1.423$, $p = 0.155$) and enjoyment ($\beta = 0.143$, $t = 1.708$, $p = 0.088$) are not significant. These suggest that ease of use, social influence, and envy are key drivers of usage intentions, providing valuable marketing insights.

**Conclusion**: LINE group buying platforms should emphasize simplicity, leverage social influence, and design incentives to utilize envy and boost purchasing behavior. Though the sample is limited to Taiwan, future research could expand, include more variables, and conduct longitudinal studies to comprehensively understand factors influencing LINE group buying and strengthen marketing strategies.

**Keywords:** Technology Acceptance Model (TAM), Group Buying, LINE Group, Social Influence.

## Introduction

With the rapid advancement of internet technology, social media has evolved from merely a platform for information exchange into a new form of e-commerce known as social commerce. LINE group buying within organizations is a prime example of this model, combining the convenience of instant messaging with the interactivity of social networks to provide consumers with a novel shopping experience. This shopping method allows users to explore and purchase products within a familiar social environment, changing how people shop and influencing their purchasing decisions (Huang & Benyoucef, 2013).

In Taiwan, LINE group buying within organizational office cultures has increased annually, attracting significant attention from market researchers and business operators. However, research on how consumers accept and adapt to this emerging shopping method remains relatively scarce (Huang & Benyoucef, 2013). This study aims to fill this gap by investigating the key factors influencing consumers' adoption of LINE group buying, including perceived usefulness, ease of use, social influence, envy, and enjoyment (Venkatesh, Thong, & Xu, 2012). Additionally, with the continuous evolution of consumer behavior, researchers have begun to explore the impact of demographic variables such as gender and age on consumer behavior (Venkatesh et al., 2012). Since LINE group buying occurs within organizational settings where group members share similar backgrounds and are often familiar with each other, this study simplifies by not examining these demographic variables' influence on consumer acceptance of LINE group buying.

Despite the commercial opportunities presented by the popularity of LINE group buying, there is still a lack of research on how consumers evaluate this shopping method. This study is motivated by the exploration of several key issues:

1.   Perceived usefulness and ease of use: How do consumers evaluate the efficiency and operational convenience of LINE group buying, and how do these perceptions influence their intention to use it (Davis, 1989)?

2. Social influence factors: How do friends and family affect consumers' use of LINE group buying, and how do social norms shape their shopping behavior (Ajzen, 1991)?
3. Envy and enjoyment: What roles do envy and entertainment value play in the social shopping environment, and how do they drive consumers' purchasing decisions (Hennig-Thurau et al., 2004)?

In summary, this study aims to deeply understand the context of organizations, consumers' attitudes toward LINE group buying, and how various psychological and social factors influence their intentions and behaviors. This will provide strategic guidance for the industry to design and promote social commerce platforms more effectively and offer academia a new perspective on studying consumer behavior in social commerce (Zhou, Lu, & Wang, 2010).

This study explores consumers' behavioral intentions using LINE group buying and the factors influencing these intentions. The specific research objectives include:

1. Analyzing the Impact of Perceived Usefulness on Usage Intention: Evaluate how consumers perceive LINE group buying's usefulness in shopping efficiency and timesaving and how these perceptions influence their usage intentions.
2. Investigating the Role of Perceived Ease of Use on Usage Intention: Study consumers' perceptions of the ease of operation of LINE group buying and how these perceptions facilitate usage intentions.
3. Assessing the Influence of Subjective Norms on Usage Intention: Examine how the attitudes and behaviors of family, friends, and colleagues towards using LINE group buying create social pressure, thereby influencing consumers' usage intentions.
4. Exploring the Effect of Envy on Usage Intention: Analyze consumers' feelings of envy towards others benefiting from using LINE group buying and how this psychological factor drives their usage intentions.
5. Investigating the Contribution of Enjoyment to Usage Intention: Assess how LINE group buying's fun and emotional satisfaction influences consumers' usage intentions.

## 1. Literature Review
### 2.1 Definition and Characteristics of Group Buying
The concept of group buying originated in the early 2000s. With the proliferation of the internet and the rise of social networks, group buying has quickly developed into a popular online shopping method. From the early days of Groupon to today's diversified platforms, group buying has become essential in global e-commerce. Studies indicate that during the COVID-19 pandemic, community group buying platforms catered to consumer needs by reducing contact and consolidating purchases, although consumer engagement on some platforms remained low (Zhang, Hassan, & Migin, 2023).

As an e-commerce model, group buying refers to consumers leveraging collective purchasing power to obtain discounts on goods and services. This model's characteristics include time limitations, a required number of buyers, and price discounts (Kauffman & Wang, 2001). By aggregating the demand of many consumers, group buying creates a new dynamic in the transactions between consumers and merchants.

Consumers' motivations for group buying are diverse, including seeking price advantages, product or service quality, social influence, and shopping convenience (Liu, Li, & Hu, 2013). These motivations reflect consumers' expectations and needs for group buying platforms and drive their purchasing decisions.

Trust is a critical factor influencing consumers' willingness to purchase on group buying platforms. Trust can reduce transaction uncertainty and perceived risk, which includes concerns about product quality, transaction security, and privacy protection (Pavlou & Gefen, 2004). Therefore, group buying platforms must establish effective trust mechanisms to attract and retain consumers.

### 2.2 The Relationship between the Technology Acceptance Model (TAM) and Group Buying
The Technology Acceptance Model (TAM) provides a robust theoretical framework for explaining consumers' acceptance of online group buying platforms. In group buying, perceived usefulness and ease of use are key factors influencing consumers' decision to engage in group buying on online platforms (Huang & Benyoucef, 2017).

Perceived Usefulness (PU) and Group Buying: In group buying, perceived usefulness may be associated with consumers' belief that they can obtain better prices and deals through group buying (Zhou, 2012).

Perceived Ease of Use (PEOU) and Group Buying: For group buying platforms, perceived ease of use may involve the design of the user interface and the convenience for consumers in finding and purchasing group buying deals (Huang & Benyoucef, 2017).

The success of group buying platforms depends not only on the usefulness and ease of use of the technology but also on social factors and trust building. These dimensions are considered crucial for understanding and predicting consumers' acceptance of group buying platforms (Wang, Gu, Wang, & Wang, 2019). Trust in the group buying platform can reduce perceived transaction risk, increasing usage intention (Liu, Marchewka, Lu, & Yu, 2005).

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Social influences on group buying platforms, such as recommendations from friends and online reviews, can also impact consumers' acceptance (Chen & Shen, 2015). Since this study examines LINE group buying behavior within organizations where consumers are colleagues who know and trust each other, these factors are not discussed.

**2.3 Social Influence Factors**
Subjective norms refer to the perceived pressure from essential others regarding whether one should or should not perform a specific behavior. In the context of group buying, this may include the views of family, friends, or colleagues on using or not using group buying platforms (Ajzen, 1991). These norms can significantly influence an individual's purchasing decisions and behavior.
Social influence involves how individuals form attitudes and behaviors under the influence of groups. In group buying, group behavior may promote or inhibit purchase intentions through sharing and recommendations within social networks (Cheung & Lee, 2006). This influence can be amplified by the power of social media, thus having a significant impact on group buying behavior.
Social comparison is the process by which individuals compare themselves with others, which may lead to feelings of envy, especially when others gain certain advantages or benefits (Smith & Kim, 2007). Consumers may feel motivated to participate in group buying because they see others getting discounts or products.

**2.4 Personal Influence Factors**
Personal innovativeness refers to an individual's tendency to adopt new things. In the context of technology acceptance, this may affect how quickly and enthusiastically individuals adopt group buying platforms (Agarwal & Prasad, 1998). Innovative consumers may adopt group buying early and become early spreaders of new platforms or services.
Enjoyment refers to the fun and pleasure individuals experience when using technology. In group buying, enjoyment may come from finding and securing deals or interacting with other users (Childers, Carr, Peck, & Carson, 2001). An enjoyable experience can increase user satisfaction and loyalty.

**2.5 Usage Intention**
Usage intention refers to an individual's plan or prediction of whether to perform a specific behavior. According to the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM), usage intention is considered a direct precursor to behavior execution (Ajzen, 1991; Davis, 1989). These models emphasize the influence of attitude, subjective norms, perceived behavioral control (TPB), perceived usefulness, and perceived ease of use (TAM) on usage intention.
The relationship between usage intention and actual usage behavior has been confirmed in many studies. Generally, stronger usage intention increases the likelihood of actual usage behavior (Sheppard, Hartwick, & Warshaw, 1988). In an organizational setting with spontaneously formed group buying environments, this relationship may be influenced by promotional activities, user evaluations, and platform availability.
In the context of group buying, predictors of usage intention may include personal attitude, social influence, experience, perceived risk, and trust. These factors influence individuals' perceptions of group buying platforms, affecting their usage intention (Venkatesh & Davis, 2000).

**2.   Research Methodology**
**3.1 Research Framework**
This study explores the social influence and personal perception factors that affect consumers' acceptance and use of LINE group buying. A research framework was constructed based on the Technology Acceptance Model and related theories (see Figure 1). The study selected personal variables (perceived usefulness, perceived ease of use, and enjoyment) and social variables (subjective norms and envy) to investigate how these personal and social variables influence consumers' intentions to use LINE group buying.

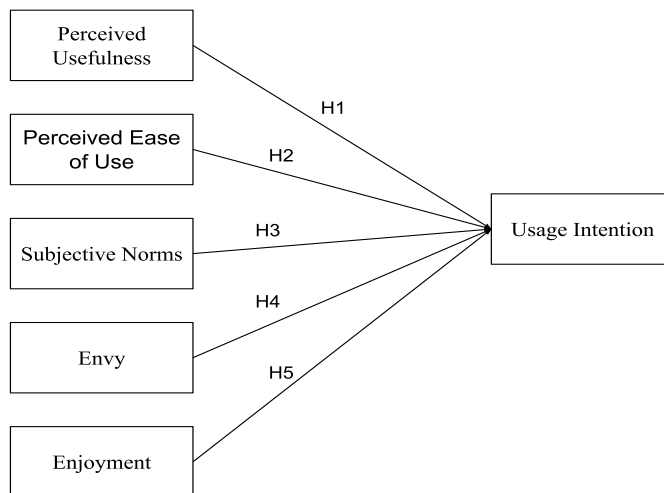INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT



Figure 1 Research Framework

The meanings of each dimension are as follows:
1. Perceived Usefulness: The extent to which LINE group buying benefits consumers. This includes whether LINE group buying can increase shopping efficiency and save time.
2. Perceived Ease of Use: LINE group buying is simple. This refers to whether consumers find the LINE group buying process and functions easy to understand and use.
3. Subjective Norms: Whether essential others in the consumer's life encourage or approve LINE group buying.
4. Envy: Whether consumers feel envy or jealousy towards others who benefit from using LINE group buying.
5. Enjoyment: The amount of fun experienced using LINE group buying. This includes whether consumers gain entertainment or emotional satisfaction from using it.
6. Usage Intention: Whether consumers plan or are willing to use LINE group buying.

**3.2 Research Hypotheses**

**Perceived Usefulness (PU)** refers to the degree to which an individual believes using a particular system would enhance their job performance (Davis, 1989). It is a core concept in the Technology Acceptance Model (TAM) and has consistently been linked to behavioral intentions to use technology (Venkatesh & Bala, 2008). In online group buying, PU reflects consumers' belief that using the service will improve efficiency and save time and effort (Liew & Falahat, 2019). This belief is crucial for technologies relying on group coordination and social interaction, such as LINE group buying, because perceived benefits can significantly drive user adoption and usage intentions (Chai, 2019).

Recent studies have further reinforced the importance of PU in predicting online group buying participation intentions. For example, Liew and Falahat (2019) found that PU strongly predicted purchase intention in Malaysia's online group buying market. Similarly, Chai (2019) reported that PU significantly impacted consumers' intention to use online group-buying websites in Malaysia.

Given the established relationship between PU and usage intentions in the existing literature, this study proposes the following hypothesis:

**H1: Perceived usefulness will positively influence consumers' intention to use LINE group buying.**

**Perceived Ease of Use (PEOU)** is the belief that using a particular technology will be effort-free (Davis, 1989). In a social commerce environment, if consumers perceive the LINE group buying platform as easy to use, they are more likely to adopt it because it reduces the psychological burden of learning new technology (Venkatesh, Morris, Davis, & Davis, 2003). Recent research indicates that PEOU significantly impacts usage intentions for social commerce platforms (Zhou, 2011; Wu & Chen, 2017).

Zhou (2011) found that PEOU significantly positively affected consumers' intentions to shop using social networks. Wu and Chen (2017) supported this finding, indicating that PEOU enhances usage intentions by increasing user satisfaction with social commerce platforms.

Based on the above literature, this study proposes:

**H2: Perceived ease of use will positively influence consumers' intention to buy the LINE group.**

**Subjective Norms (SN)** refer to the perceived social pressure to perform or not perform a particular behavior. In online group buying, these pressures may come from family members, friends, or influencers on social media. According to Nguyen, Nguyen, and Le (2022), subjective norms significantly impacted Vietnamese consumers' online shopping decisions during the COVID-19 pandemic. This suggests that consumers are more likely to be influenced by others' opinions during health crises and external environmental changes, further reinforcing online shopping intentions.

Additionally, Sangkakoon (2014) found that in Thailand, the intention to purchase a family house was influenced by various reference groups, including spouses, children, parents, and friends. These influences were manifested through the dimension of subjective norms, emphasizing the role of social influence in significant purchase decisions.

Boßow-Thies, Preuss**,** and Schwarz (2021) explored consumers' intentions to purchase unpackaged food products and found that subjective norms significantly influenced purchase intentions. This indicates that others' opinions and expectations influence consumer behavior, even in everyday activities such as food purchasing.

In summary, we can reasonably infer that subjective norms are essential in online group buying purchase intentions. Therefore, this study proposes:

**H3: Subjective norms will positively influence purchase intentions in online group buying.**

**Envy** is the psychological feeling that arises when an individual envies others for having advantages they lack (Tai et al., 2012). According to social comparison theory, individuals experience envy through comparisons with others, subsequently influencing their behavior and decisions (Festinger, 1954). A recent meta-analysis showed that envy prompts consumers to engage in purchasing behavior to acquire the envied products (Crusius & Mussweiler, 2012). Thus, this study hypothesizes that envy will also positively influence the intention to use LINE group buying. Therefore, this study proposes the following hypothesis:

**H4: Envy will positively influence the intention to use LINE group buying.**

Online shopping has become a ubiquitous part of modern life, and understanding the factors that drive consumer behavior in this context is crucial for businesses and researchers alike. One key aspect that has received significant attention is the role of enjoyment, or the pleasure users derive from the shopping experience (To et al., 2007; Kim et al., 2012; Overby & Lee, 2006).

Existing research has demonstrated that enjoyment predicts consumer usage intentions in various online shopping settings. Chen et al. (2023) found that enjoyment was a key factor influencing consumers' continued usage intentions for mobile shopping apps (To et al., 2007). Similarly, Lin et al. revealed that enjoyment significantly positively affected consumers' intention to use social commerce platforms (Kim et al., 2012).

These findings suggest that when consumers perceive online shopping as a source of enjoyment and entertainment, they are more likely to continue using the associated services or platforms (Overby & Lee, 2006). This contrasts with utilitarian value, which is more closely tied to the task-oriented, functional benefits of online shopping (Chen & Kim, 2014). Therefore, this study proposes the following hypothesis:

**H5: Enjoyment will positively influence the intention to use LINE group buying.**

**3.3 Operational Definitions and Measurement Items**

1. Perceived Usefulness (PU)

Perceived usefulness is defined as the degree to which a user believes using a particular technology will enhance their job performance (Davis, 1989). This study is revised to the degree to which consumers believe that using LINE Group Buy can improve shopping efficiency and save time. Recent studies have adapted the items of perceived usefulness to the context of social shopping and mobile shopping (Venkatesh, Thong, & Xu, 2012). Below are the

PU1: Using LINE Group Buy allows me to find the needed products faster.
PU2: Using LINE Group Buy can get me better deals and discounts.
PU3: The information provided by LINE Group Buy helps me make purchasing decisions.
PU4: I think shopping with LINE Group Buy is more efficient than other methods.
PU5: Using LINE Group Buy makes my shopping process smoother.

2. Perceived Ease of Use (PEOU)

Perceived ease of use is the degree to which a user believes that using a particular technology will be free of effort (Davis, 1989). This study is revised to the degree to which consumers believe learning to use LINE Group Buy and operating its functions is easy. Recent studies combine perceived ease of use with mobile interfaces' intuitiveness and user experience (Venkatesh et al., 2012). Below are the Measurement Items:

PEOU1: I find learning how to use LINE Group Buy easy.
PEOU2: I think the interface design of LINE Group Buy is intuitive and easy to understand.
PEOU3: Shopping on LINE Group Buy does not require much mental effort.

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3. Subjective Norm (SN)

Subjective norm is the degree to which an individual feels social pressure or perceives that essential others believe they should perform a particular behavior (Ajzen, 1991). This study is revised to the degree of expectation and pressure consumers feel from friends, family, or colleagues to use LINE Group Buy. In studies of social media and online shopping, subjective norms may relate to the influence of online communities (Venkatesh et al., 2012). Below are the Measurement Items:

SN1: My friends and family think I should use LINE Group Buy.
SN2: Using LINE Group Buy is endorsed in my social circle.
SN3: If I do not use LINE Group Buy, I will fall behind others.
SN4: People around me expect me to use LINE Group Buy for shopping.
SN5: I use LINE Group Buy partly because I believe my friends and family expect it.

4. Envy (ENV)

Envy is the psychological feeling arising when an individual envies others for having advantages they lack (Tai, Narayanan, & McAllister, 2012). This study is revised to the envy consumers experience when they see others benefiting from LINE Group Buy (e.g., discounts, privileges, or social recognition). In social shopping environments, envy may relate to observing others' shopping experiences and the benefits they gain (Crusius & Mussweiler, 2012). Below are the Measurement Items:

ENV1: I feel envious when I see others having successful shopping experiences on LINE Group Buy.
ENV2: I envy those who can get special deals through LINE Group Buy.
ENV3: When I see friends benefiting from LINE Group Buy, I wish to have the same experience.
ENV4: I envy the deals I miss out on by not using LINE Group Buy.
ENV5: I want to receive the recognition and benefits my friends who use LINE Group Buy get.

5. Enjoyment (ENJ)

Enjoyment is the degree of pleasure users derive from adopting new technology (Childers et al., 2001). This study is revised to reflect the degree of entertainment and emotional satisfaction consumers gain from using LINE Group Buy. In studies of mobile apps and social shopping, enjoyment may relate to interactivity and the fun of the user experience (Suki & Suki, 2011). Below are the Measurement Items:

ENJ1: I find it enjoyable to shop on LINE Group Buy.
ENJ2: I often feel happy and entertained when using LINE Group Buy.
ENJ3: I like the interactivity and visual effects of LINE Group Buy.
ENJ4: I enjoy discovering new products on LINE Group Buy.
ENJ5: LINE Group Buy adds fun to my shopping experience.

6. Behavioral Intention (BI)

Behavioral intention is defined as an individual's plan or prediction of adopting a particular behavior in the future (Fishbein & Ajzen, 1975). This study is revised to the consumer's intention or willingness to use LINE Group Buy for group purchasing in the future. Behavioral intention is a critical antecedent variable in many technology acceptance models predicting usage behavior (Venkatesh & Davis, 2000). Below are the Measurement Items:

BI1: I plan to use LINE Group Buy for shopping in the future.
BI2: I will use LINE Group Buy for group buying if I can.
BI3: I am willing to recommend LINE Group Buy to my friends and family.
BI4: I expect to use LINE Group Buy to purchase needed products frequently.
BI5: I am open to using LINE Group Buy for group buying.

**3.  Data Analysis**

This study employed convenience sampling, which lasted three months over the first half of 2024. After examining and eliminating invalid questionnaires, 291 valid questionnaires were obtained. The data analysis was performed using SmartPLS 4.0 software, evaluating the validity of the measurement model (Outer model) and the structural model (Inner model). The analytical methods include descriptive statistical analysis, reliability testing, validity testing, and regression analysis.

1. Descriptive Statistical Analysis

Descriptive statistical analysis includes basic information such as gender, age, and education level. Frequencies and percentages were calculated to understand the basic structure of the sample. The primary demographic information of the sample is as follows:

**(1) Gender**

Female respondents: 207, accounting for 71.1% of the total sample.
Male respondents: 84, accounting for 28.9% of the total sample.

**(2) Age**

The age distribution of the respondents is as follows:
Under 20 years old: 18 respondents, 6.2% of the total sample.
21-30 years old: 138 respondents, 47.4% of the total sample.
31-40 years old: 31 respondents, 10.7% of the total sample.
41-50 years old: 73 respondents, 25.1% of the total sample.
Over 51 years old: 31 respondents, 10.7% of the total sample.

**(3) Education Level**
The educational distribution of the respondents is as follows:
High school or below 17 respondents, 5.8% of the total sample.
University (including junior college): 131 respondents, 45.0% of the total sample.
Graduate school and above 143 respondents, 49.1% of the total sample.
These statistics provide a basic descriptive overview of the sample's distribution regarding gender, age, and education level, laying the foundation for further analysis.

2. Reliability Analysis
The study conducted factor loadings (outer loading) analysis on a total of 28 items in the scale, with the results shown in Table 1. Hulland (1999) suggests that the outer loading value should be greater than 0.7. In this study, all outer loading values ranged from 0.736 to 0.907, indicating that the scales used possess good reliability and stability.

Table 1. Factor Loadings (Outer Loading) Analysis

|        | PU    | EOU   | SN    | ENV   | ENJ   | BI    |
|--------|-------|-------|-------|-------|-------|-------|
| PU1    | 0.821 |       |       |       |       |       |
| PU2    | 0.759 |       |       |       |       |       |
| PU3    | 0.819 |       |       |       |       |       |
| PU4    | 0.816 |       |       |       |       |       |
| PU5    | 0.877 |       |       |       |       |       |
| PEOU1  |       | 0.862 |       |       |       |       |
| PEOU2  |       | 0.850 |       |       |       |       |
| PEOU3  |       | 0.830 |       |       |       |       |
| SN1    |       |       | 0.846 |       |       |       |
| SN2    |       |       | 0.854 |       |       |       |
| SN3    |       |       | 0.827 |       |       |       |
| SN4    |       |       | 0.907 |       |       |       |
| SN5    |       |       | 0.841 |       |       |       |
| ENV1   |       |       |       | 0.819 |       |       |
| ENV2   |       |       |       | 0.879 |       |       |
| ENV3   |       |       |       | 0.873 |       |       |
| ENV4   |       |       |       | 0.820 |       |       |
| ENV5   |       |       |       | 0.876 |       |       |
| ENJ1   |       |       |       |       | 0.898 |       |
| ENJ2   |       |       |       |       | 0.894 |       |
| ENJ3   |       |       |       |       | 0.832 |       |
| ENJ4   |       |       |       |       | 0.793 |       |
| ENJ5   |       |       |       |       | 0.896 |       |
| BI1    |       |       |       |       |       | 0.889 |

| BI2 | | | | | | **0.881** |
|-----|--|--|--|--|--|-----------|
| BI3 | | | | | | **0.897** |
| BI4 | | | | | | **0.840** |
| BI5 | | | | | | **0.736** |

In this study, Cronbach's α and Composite Reliability (CR) were used as indicators to assess the reliability of the questionnaire. The purpose of Cronbach's α is to measure the internal consistency of the items within each construct. According to Hair, Anderson, Tatham, and Black (1998), the recommended standard values for both Cronbach's α and Composite Reliability should be higher than 0.7 to indicate the high reliability of the construct. The reliability analysis for each construct in this study is shown in Table 2. The Cronbach's α and Composite Reliability values for each construct are above the recommended value of 0.7. The highest Cronbach's α is 0.914 for ENJ, and the lowest is 0.877 for PU. The highest Composite Reliability is 0.936 for ENJ, and the lowest is 0.884 for PEOU.

Table 2. Reliability Analysis

| | Cronbach Alpha | Composite reliability (rho_c) |
|------|----------------|-------------------------------|
| PU | 0.877 | 0.911 |
| PEOU | 0.804 | 0.884 |
| SN | 0.909 | 0.932 |
| ENV | 0.907 | 0.931 |
| ENJ | 0.914 | 0.936 |
| BI | 0.903 | 0.929 |

3.    Validity Analysis

The scales in this study were adapted from existing literature and modified according to the research context, thereby possessing a certain degree of content validity. Therefore, convergent and discriminant validity were used to assess whether each construct met the validity indicators recommended by scholars.

Convergent validity refers to the degree to which variables within the exact construct correlate. This study used the Average Variance Extracted (AVE) to determine the convergent validity of each construct. Fornell & Larcker (1981) and Bagozzi & Yi (1988) suggested that the AVE of each construct should be greater than 0.5, indicating good convergent validity for the measured variables of the construct. As shown in Table 4, the AVE for each construct in this study is above the recommended value of 0.5, with the highest being ENJ at 0.746 and the lowest being PU at 0.671.

Discriminant validity assesses the distinctiveness and differentiation between different constructs. Three methods were used to test this. The first method, proposed by Fornell et al. (1981), states that in the cross-loading matrix, the square root of the AVE should be higher than the correlation coefficients between the construct and other constructs. As shown in Table 3, the square root of the AVE for each construct in this study is higher than the correlation coefficients between the construct and other constructs, indicating good discriminant validity for each construct.

Table 3. Validity Analysis

| | Convergent validity | | Discriminant validity | | | | | |
|------|----------------|-------|-------|-------|-------|-------|-------|-------|
| | Cronbach Alpha | AVE | PU | PEOU | SN | ENV | ENJ | BI |
| PU | 0.877 | 0.671 | 0.819 | | | | | |
| PEOU | 0.804 | 0.718 | 0.714 | 0.847 | | | | |
| SN | 0.909 | 0.732 | 0.543 | 0.416 | 0.855 | | | |
| ENV | 0.907 | 0.729 | 0.439 | 0.442 | 0.630 | 0.854 | | |
| ENJ | 0.914 | 0.746 | 0.682 | 0.664 | 0.559 | 0.556 | 0.864 | |
| BI | 0.903 | 0.723 | 0.576 | 0.535 | 0.647 | 0.563 | 0.598 | 0.850 |

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Note:The diagonal values represent the square root of the AVE, and the lower triangle shows the Pearson correlations between constructs.

The second method for testing discriminant validity is that the cross-factor loadings of the items for a construct should be higher than the factor loadings of items for other constructs. Additionally, it is recommended that factor loadings should be greater than 0.7, indicating good convergent validity (Hair et al., 1998; Chin, 1998). Table 4 shows the cross-loading matrix for each construct in this study, and all constructs meet the standards above, indicating sufficient discriminant validity.

Table 4. Cross-Loading Matrix for Each Construct

|        | PU    | PEOU  | SN    | ENV   | ENJ   | BI    |
|--------|-------|-------|-------|-------|-------|-------|
| PU1    | **0.821** | 0.506 | 0.477 | 0.334 | 0.519 | 0.481 |
| PU2    | **0.759** | 0.579 | 0.364 | 0.382 | 0.591 | 0.438 |
| PU3    | **0.819** | 0.624 | 0.415 | 0.373 | 0.561 | 0.487 |
| PU4    | **0.816** | 0.539 | 0.447 | 0.317 | 0.550 | 0.401 |
| PU5    | **0.877** | 0.664 | 0.512 | 0.386 | 0.579 | 0.535 |
| PEOU1  | 0.607 | **0.862** | 0.321 | 0.379 | 0.568 | 0.437 |
| PEOU2  | 0.639 | **0.850** | 0.363 | 0.399 | 0.553 | 0.469 |
| PEOU3  | 0.567 | **0.830** | 0.371 | 0.344 | 0.567 | 0.452 |
| SN1    | 0.543 | 0.456 | **0.846** | 0.524 | 0.575 | 0.602 |
| SN2    | 0.529 | 0.470 | **0.854** | 0.524 | 0.574 | 0.614 |
| SN3    | 0.388 | 0.220 | **0.827** | 0.522 | 0.381 | 0.426 |
| SN4    | 0.448 | 0.321 | **0.907** | 0.575 | 0.443 | 0.580 |
| SN5    | 0.379 | 0.254 | **0.841** | 0.550 | 0.374 | 0.506 |
| ENV1   | 0.431 | 0.373 | 0.683 | **0.819** | 0.452 | 0.527 |
| ENV2   | 0.384 | 0.390 | 0.465 | **0.879** | 0.481 | 0.462 |
| ENV3   | 0.362 | 0.412 | 0.461 | **0.873** | 0.511 | 0.480 |
| ENV4   | 0.273 | 0.261 | 0.494 | **0.820** | 0.360 | 0.389 |
| ENV5   | 0.397 | 0.427 | 0.561 | **0.876** | 0.548 | 0.521 |
| ENJ1   | 0.588 | 0.587 | 0.509 | 0.472 | **0.898** | 0.543 |
| ENJ2   | 0.609 | 0.574 | 0.491 | 0.505 | **0.894** | 0.520 |
| ENJ3   | 0.549 | 0.559 | 0.491 | 0.463 | **0.832** | 0.504 |
| ENJ4   | 0.563 | 0.525 | 0.456 | 0.472 | **0.793** | 0.490 |
| ENJ5   | 0.634 | 0.620 | 0.465 | 0.491 | **0.896** | 0.524 |
| BI1    | 0.538 | 0.475 | 0.571 | 0.510 | 0.570 | **0.889** |
| BI2    | 0.516 | 0.487 | 0.522 | 0.480 | 0.545 | **0.881** |
| BI3    | 0.484 | 0.438 | 0.667 | 0.499 | 0.506 | **0.897** |
| BI4    | 0.464 | 0.384 | 0.634 | 0.512 | 0.422 | **0.840** |
| BI5    | 0.447 | 0.515 | 0.310 | 0.380 | 0.510 | **0.736** |

The third method for testing discriminant validity is the HTMT (Heterotrait-Monotrait Ratio). Kline (2023) suggests that all HTMT values should be less than 0.85. As shown in Table 5, all HTMT values in this study are below 0.85, indicating that all constructs have sufficient discriminant validity.

**Table 5. HTMT Values**

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|      | PU    | PEOU  | SN    | ENV   | ENJ   | BI |
|------|-------|-------|-------|-------|-------|----|
| PU   |       |       |       |       |       |    |
| PEOU | 0.847 |       |       |       |       |    |
| SN   | 0.597 | 0.470 |       |       |       |    |
| ENV  | 0.484 | 0.510 | 0.687 |       |       |    |
| ENJ  | 0.764 | 0.775 | 0.602 | 0.605 |       |    |
| BI   | 0.644 | 0.635 | 0.692 | 0.613 | 0.662 |    |

**Structural Model Validation**

This study used SmartPLS 4.0 software to validate the structural model (Inner Model). Parameter estimation was conducted using the bootstrapping method for resampling. Resampling of the collected sample data was performed to estimate the significance of the paths. According to Chin's (1998) recommendation for PLS, the number of resamples was 5000. The resulting path coefficients and their significance are summarized in Table 6. Finally, the model structure was measured using the Coefficient of Determination ($R^2$) and the Path Coefficient. The value of $R^2$ ranges between 0 and 1, with higher values indicating greater explanatory power of the model for the dependent variable (Fornell et al., 1981).

Table 6. Path Coefficients

| Independent Variable --> Dependent Variable | $\beta$ | $t$ | $p$ |                  |
|---------------------------------------------|---------|-------|-------|-----------------|
| PU -> BI                                    | 0.123   | 1.423 | 0.155 | not significant |
| PEOU -> BI                                  | 0.142   | 2.047 | 0.041 | significantly   |
| SN -> BI                                    | 0.349   | 5.471 | 0.000 | significantly   |
| ENV -> BI                                   | 0.147   | 2.345 | 0.019 | significantly   |
| ENJ -> BI                                   | 0.143   | 1.708 | 0.088 | not significant |

Combining these results, we can conclude that PEOU, SN, and ENV significantly impact BI, while the effects of PU and ENJ are the same.

In the field of structural equation modeling, the assessment of model fit is a crucial step in the research process. SmartPLS, a widely used software for partial least squares (PLS) analysis, provides various model fit indices to evaluate the adequacy of the research model. One such index is the Standardized Root Mean Square Residual (SRMR), which is considered a goodness-of-fit measure (Hamid et al., 2017; Yusr et al., 2020; Ratmono & Darsono, 2022; Durak et al., 2022).

The standardized root mean square residual (SRMR) represents the difference between the model's observed and predicted correlations (Hamid et al., 2017). Ratmono and Darsono (2022) and Yusr et al. (2020) state that an SRMR value of less than 0.08 is acceptable. In this study, the SRMR values for the Saturated Model and the Estimated Model are 0.066, which meet the recommended standards.

When the Goodness-of-Fit (GoF) values are 0.02, 0.15, and 0.35, they represent low, medium, and high effect sizes, respectively (Wetzels, Odekerken, Van, 2009). This study verified the overall model fit by calculating the Goodness-of-Fit (GoF) index. As shown in Table 7, the GoF value for this study is 0.624, indicating that the model has a good fit and can reasonably explain the variance in the data. Therefore, the model can be considered appropriate and reliable.

Table 7. PLS Result of Goodness-of-Fit (GoF) Index

|      | AVE   | R square |
|------|-------|----------|
| PU   | 0.671 |          |
| PEOU | 0.718 |          |
| SN   | 0.732 |          |
| ENV  | 0.729 |          |
| ENJ  | 0.746 |          |
| BI   | 0.723 | 0.541    |

| Average AVE & R square | 0.7198 | 0.541 |
|---|---|---|
| Average AVE * Average R square | 0.389 | |
| Square Root of Average AVE * Average R square | 0.624 | |

Although PLS minimizes collinearity during estimation, it does not eliminate the possibility of collinearity affecting parameter estimates. Therefore, Kock and Lynn (2012) recommend that the constructs' Variance Inflation Factor (VIF) should be less than 3.3. As shown in Table 8, the VIF values for each construct in this study are all below 3.3, confirming no collinearity issue in the regression model.

Table 8. Collinearity (Inner VIF Values)

| Independent Variable --> Dependent Variable | VIF |
|---|---|
| PU -> BI | 2.622 |
| PEOU -> BI | 2.362 |
| SN -> BI | 2.002 |
| ENV -> BI | 1.873 |
| ENJ -> BI | 2.483 |

Cohen (1988) suggests that f² values of 0.02, 0.15, and 0.35 represent small, medium, and large effect sizes. Table 9 presents the f² test results of this study, showing that SN -> BI has the most significant effect on the dependent variable BI, approaching a medium effect. The other independent variables have relatively more minor impacts on the dependent variable. This indicates that within the model of this study, the subjective norm has the most significant contribution to behavioral intention.

Table 9. f² Test Results

| Independent Variable --> Dependent Variable | f 平方 |
|---|---|
| PU -> BI | 0.013 |
| PEOU -> BI | 0.019 |
| SN -> BI | 0.133 |
| ENV -> BI | 0.025 |
| ENJ -> BI | 0.018 |

In addition, this study employs a non-parametric cross-validation method, the Stone-Geisser Q² test, to measure the predictive validity of the PLS model (Hair, Sarstedt, Hopkins, & Kupplewieser, 2014). The Stone-Geisser Q² test calculates predictive relevance using the Blindfolding Model, assessing the quality of the model by predicting observed variables with other latent variables. The model is evaluated using two Stone-Geisser Q² indicators: cv-communality for the measurement model's cross-validated commonality and cv-redundancy for the structural model's cross-validated redundancy. Q² values of 0.02, 0.15, and 0.35 represent small, medium, and large predictive relevance, respectively (Henseler, Ringle, & Sinkovics, 2009). Table 10 presents the Q² test results of this study, showing that, except for BI, the other constructs have limited predictive ability. BI demonstrates medium predictive ability within the model. Furthermore, most constructs have cv-communality indicators in the medium to high range, indicating good explanatory power of these constructs within the model. These results support the model's overall fit and predictive ability, especially for the critical construct BI.

Table 10. Q² Test Results

| | cv-redundancy | cv-communality |
|---|---|---|
| PU | 0.000 | 0.502 |
| PEOU | 0.000 | 0.419 |
| SN | 0.000 | 0.589 |
| ENV | 0.000 | 0.586 |
| ENJ | 0.000 | 0.611 |

| BI | 0.384 | 0.580 |
|---|---|---|

## 4.    Conclusion and Discussion

### 5.1 The Impact of Perceived Usefulness

Existing literature has widely recognized perceived usefulness (PU) as a crucial determinant of usage intention (Lowry et al., 1951). However, the present study's findings suggest that in the context of a Line group buying platform, perceived usefulness did not exert a significant influence on usage intention ($\beta = 0.123$, $t = 1.423$, $p = 0.155$) (Harizi et al., 2022; Handra, 2022; Ru et al., 2021; Gümüşsoy et al., 2007)

This unexpected result may be attributed to the unique nature of the Line group buying platform, where consumers place greater emphasis on other factors, such as perceived ease of use and social influence, rather than solely on the platform's usefulness (Harizi et al., 2022; Chen & Cheng, 2009; Handra, 2022)

Consistent with previous research in developing countries, the current study found that while perceived usefulness and perceived ease of use have an indirect impact on attitudes towards social commerce, their direct effect on usage intention is limited (Harizi et al., 2022; Ru et al., 2021)

Furthermore, the findings suggest that for social commerce platforms, fostering a sense of connectedness and engagement among users may be more crucial in influencing their purchase intentions than solely focusing on the platform's utilitarian aspects (Harizi et al., 2022; Ru et al., 2021)

Therefore, platform providers should not solely rely on enhancing the perceived usefulness of their offerings but also consider other factors that may drive consumer adoption, such as social interactions, enjoyment, and the overall user experience (Handra, 2022; Ru et al., 2021).

### 5.2 The Impact of Perceived Ease of Use

In this study, the researchers investigated the impact of perceived ease of use (PEOU) on user intention to adopt a LINE group buying platform. The results indicated that perceived ease of use significantly positively influenced user intention ($\beta = 0.142$, $t = 2.047$, $p = 0.041$), highlighting the crucial role of ease of use in driving consumer adoption of the platform (Davis et al., 1989). This finding is consistent with previous research demonstrating the importance of perceived ease of use in shaping user attitudes and intentions towards various information technology systems (Handra, 2022).

Prior literature has established that the extent to which users perceive a system as easy to use and requiring minimal effort typically shapes their willingness to adopt it (Sanjebad et al., 2020). Fortes and Rita have also emphasized that ease of use is related to the degree of effort the user requires to engage with a particular technology (Açikgöz & Perez-Vega, 2021). Indeed, studies in educational contexts have shown that students are more inclined to utilize user-friendly technological systems (Açikgöz & Perez-Vega, 2021).

### 5.3 The Impact of Subjective Norms

Subjective norms (SN) play a crucial role in shaping an individual's purchasing decisions, particularly in the context of emerging digital platforms like group buying websites (Arief et al., 2020). The present study examines the influence of subjective norms on consumers' intention to use LINE, a famous group-buying platform in Taiwan.

The findings indicate that subjective norms significantly affect users' intention to utilize the LINE group buying service ($\beta = 0.349$, $t = 5.471$, $p < 0.001$). (Arief et al., 2020; Chauhan & Bhagat, 2018; Budi et al., 2013)

This aligns with previous research, highlighting the importance of social pressure and perceived expectations of friends, family, and colleagues in the technology adoption process. (Asheq et al., 2022; Arief et al., 2020)

Subjective norms refer to the perceived social pressure from significant others, such as friends, family, and colleagues, to engage in a particular behavior. (Chauhan & Bhagat, 2018; Sawang et al., 2014)

### 5.4 The Impact of Envy

Envy, a complex emotional state characterized by a desire to possess the attributes or achievements of another individual, has been widely studied in consumer behavior research. Existing literature suggests that envy can significantly influence an individual's consumption intentions.

Sindhu et al. (2022) found that envy significantly positively impacted consumption intentions, indicating that consumers who experience envy towards others' benefits are likelier to engage in purchase behavior (Jin & Ryu, 2020). This aligns with the notion that envy can drive individuals to "catch up" with those they perceive as superior (Bonsteel, 2012). Consumers may be motivated to acquire similar products or services to reduce the gap between their status and the envied individual (Qattan & Khasawneh, 2020).

Moreover, the psychological factors underlying envy, such as status-seeking tendencies and the need for uniqueness, have contributed to "bandwagon" luxury consumption behavior (Kastanakis & Balabanis, 2012). Individuals may be inclined to purchase luxury goods to emulate the perceived success or social standing of others, fueled by feelings of envy.

Luxury brands have been found to capitalize on this social comparison process, with their strategic presence on social media platforms shaping consumer attitudes and preferences (Fetais et al., 2022). Consumers' desire for counterfeit luxury brands has also been linked to the social functions served by their luxury brand attitudes, underscoring the influential role of envy in driving conspicuous consumption (Wilcox et al., 2009).

In summary, existing research suggests that envy is a significant driver of consumer behavior, particularly in the context of luxury consumption.

**5.5 The influence of enjoyment (ENJ)**

The influence of enjoyment (ENJ) on usage intention in the context of group buying platforms is a topic of interest in the literature. (Mesatania, 2022) While some studies have emphasized the positive impact of enjoyment on technology acceptance intentions (Chuengprapa & Wongpinunwatana, 2018), the current research found that enjoyment (ENJ) did not significantly predict usage intention ($\beta = 0.143$, $t = 1.708$, $p = 0.088$) for LINE group buying.

This finding suggests that for group buying platforms like LINE, the primary drivers of usage intention may be more functional and utilitarian rather than hedonic. (Shiau & Luo, 2012) In other words, consumers' decisions to engage in group buying may be motivated more by the practical benefits and cost-savings than the entertainment value of the platform.

This contrasts prior research highlighting the importance of enjoyment in specific technology acceptance scenarios.(Chuengprapa & Wongpinunwatana, 2018) One possible explanation is that the utilitarian nature of group buying, focused on facilitating collective purchases, overshadows the role of enjoyment as a determinant of usage intention. (Lee et al., 2019)

Overall, the current study's findings indicate that while enjoyment can be a significant factor in technology adoption, its influence may be contingent on the specific context and characteristics of the technology or service. Future research should further explore the nuanced relationships between enjoyment, usefulness, and other drivers of intention in the group buying domain.

**5.6 Behavioral Intention**

This study confirms that Behavioral Intention (BI) is a crucial indicator for predicting usage behavior. Although Perceived Usefulness and Enjoyment were not statistically significant, Perceived Ease of Use, Subjective Norms, and Envy significantly influenced Behavioral Intention, driving consumers' actual usage behavior of LINE group buying.

**5.7 Practical Implications**

The results of this study provide valuable insights into the development and marketing strategies of the LINE group buying platform. First, the platform's ease of use and simplicity should be emphasized to enhance the user experience. Second, leveraging social influence by encouraging recommendations from friends and family can expand the user base. Additionally, designing incentive mechanisms that utilize the feeling of envy can promote consumer purchasing behavior.

**5.8 Research Limitations and Future Directions**

The limitations of this study include the sample being restricted to Taiwan, which may affect the generalizability of the results. Moreover, this study only examined a few key variables, excluding other potential factors that might influence Behavioral Intention, such as personal innovativeness and perceived risk. Future research could expand the sample scope and include more variables for a more comprehensive understanding. Additionally, longitudinal studies could be conducted to explore trends and patterns in consumer behavior over time.

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