

FACTORS IMPACTING UNDERGRADUATE ATTITUDE AND BEHAVIORAL INTENTION TO USE ONLINE FOOD DELIVERY IN CHENGDU, CHINA

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Abstract

This study explores the factors influencing undergraduate students' behavioral intention to use online food delivery services at three public universities in Chengdu, China. Key factors such as perceived ease of use, attitude, usefulness, trust, performance expectancy, social influence, effort expectancy, and behavioral intention were examined. A sample of 500 students was surveyed using a multistage sampling strategy, and the data was analyzed using Confirmatory Factor Analysis and Structural Equation Modeling. The results showed that social influence strongly impacted students' behavioral intentions. The study suggests that online food delivery service providers improve service quality and app design to enhance the user experience. Additionally, university administrators should use these findings to improve off-campus restaurants, platforms, and on-campus dining services, promoting healthier eating habits among students.

Keywords: Online Food Delivery, Perceived Ease of Use, Attitude, Perceived Usefulness, Trust

Introduction

In the past decade, the Internet and electronic commerce have profoundly shaped individuals' thoughts and lifestyles (Liang et al., 2021). China has actively embraced this transformation, with the rapid proliferation of smartphones fueling the rise of mobile commerce (m-commerce) and reshaping customer behaviors and e-commerce landscapes (Tsai et al., 2015)—online food delivery (OFD) platforms like MeiTuan and Ele.I have expanded services, enabling users to order food for delivery or pickup via websites and apps. OFD includes fresh produce, frozen goods, and ready-to-eat meals from restaurants and virtual kitchens, sparking a "delivery revolution" (Meemken et al., 2022).

Undergraduates, who widely own smartphones, have embraced OFD applications as an essential tool, especially during COVID-19 (Radu & Popescu, 2022). Consumers have shifted from in-person and telephone orders to online platforms, finding mobile devices ideal for OFD (Li, 2020). OFD is valued for its efficiency, user-friendliness, and time savings, with two main models: restaurant-to-consumer and platform-to-consumer delivery (Li et al., 2020; Ray et al., 2019). Youths favor OFD for its convenience, internet accessibility, and variety of options (Alagoz & Hekimoğlu, 2012).

Literature Review

1. Perceived Ease of Use

Usually, a questionnaire is used to assess perceived ease of use (PEOU). As proposed by Davis (1989), this refers to the degree to which an individual perceives utilizing a certain system would be straightforward. The challenge is solved whether the technology is used easily. No one has a favorable opinion if the interface is complicated to use. A five-point scale has been proposed to demonstrate a lower degree of misunderstanding and save participants' time, which raises the response rate for measuring purposes (Bouranta et al., 2009). Whether or not the OFD software is user-friendly becomes important to those who use it.

H1: Perceived ease of use has a significant impact on perceived usefulness.

H2: Perceived ease of use has a significant impact on attitude.

2. Perceived Usefulness

According to Davis (1989), perceived usefulness is "the degree to which a person believes that using a particular system would enhance their job performance." As explained by the TEM theory, a person's attitude may be impacted by their perceptions of the service's usefulness and ease (Yusra et al., 2019). "The degree to which the customer contends that the online purchase will deliver them with useful information, help to ease offer comparison, and will accelerate the purchasing process" is how Vijayasathy (2004) defines perceived usefulness. In the context of the internet, perceived usefulness makes it clear how utilizing a specific technology could assist someone in reaching a specific objective (Liébana-Cabanillas et al., 2014).

H3: Perceived usefulness has a significant impact on attitude.

3. Trust

Other behaviors, such as honesty, frequently follow a person's beliefs and intentions (Li et al., 2020). Additionally, TAM 3 has been created for use in online commerce; It considers the impact of trust and perceived risk on system usage (Venkatesh & Bala, 2008). Since trust (TR) is a key component in creating enthusiasm for its use, Liu (2012) observed that consumers who lack faith in the services are less likely to embrace technology-based services (Grabner-Kraeuter, 2002). As Hong et al. (2021) noted, trust is a crucial variable that significantly influences the behavioral intention to use OFD products and services.

H4: Trust has a significant impact on attitude.

4. Attitude

According to Rini et al. (2017), attitude (ATT) is a person's expression of their likes and dislikes toward a specific thing. Attitudes greatly impact how consumers behave; they determine whether they like or dislike products, reach for them, or stay away from them. Conversely, most companies would want to fit their product into an established pattern as attitudes are hard to modify once set in stone (Kotler & Armstrong, 2018). An individual's attitude includes their ideas and feelings about things, people, and concepts, according to Davis et al. (1989). People's opinion of a system's utility is called their attitude toward it (Ajzen & Fishbein, 1980). How involved and worried a person was with the system in the future was correlated with their attitude (Bajaj & Nidumolu, 1998).

H5: Attitude has a significant impact on behavioral intention.

5. Performance Expectancy

The degree to which a good or service improves a person's quality of life or productivity at work is a measure of performance expectations (Puriwat & Tripopsakul, 2021). The Unified Theory of Acceptance and Usage of Technology (UTAUT) model includes performance expectancy (PE) as one of its constructs. This model has drawn significant attention from researchers in various human endeavors (Bugembe, 2010; Khayati, & Zouaoui, 2013; Tossy, 2014; Venkatesh et al., 2003). According to these studies, performance expectancy significantly affects the adoption and final use of information systems. Factors that greatly impact performance expectancy include perceived value, internal and external motivation, job fit, relative advantage, and result expectancies of online technology (Wu et al., 2012).

H6: Performance expectancy has a significant impact on behavioral intention.

7. Social Influence

According to Muangmee et al. (2021), social impact influences behavior and the intention to adopt new technologies. Social influence (SI) encompasses how people modify their conduct to conform to social norms (Kelman, 1958). Friends, family, coworkers, and coworkers can inspire people to try new technology through a process known as social influence. Social influence positively influences users' propensity to employ new technology

(Muangmee et al., 2021). This element can determine if the user plans to continue using OFD services. Social impact is thought to be the catalyst for people's behavioral intentions (El-Gayar et al., 2011).

H7: Social Influence has a significant impact on behavioral intention.

7. Effort Expectancy

Eccles and associates introduced the modern expectancy-value theory (EVT), which aims to illustrate people's decision-making, perseverance, diligence, and behavior in an academic setting (Eccles & Wigfeld, 1995; Wigfield & Cambria, 2010). The effort expectation of a technology can be used to anticipate its future adoption based on its perceived ease of use (Sair & Danish, 2018). The premise upon which effort expectancy (EE) rests, as stated by Ghalandari (2012), is that one may reasonably anticipate a correlation between one's level of exertion on the job and the relative merits of various outputs.

H8: Effort expectancy has a significant impact on behavioral intention.

7. Behavioral Intention

Ajzen (2002) proposed, behavioral intention is an immediate predictor of behavior. It alludes to a person's willingness to engage in a particular conduct. The subjective norm, described as "the perceived social pressure to perform or not perform the behavior," is an analogous word first incorporated in TPB as behavioral intention (Ajzen, 1991). Davis et al. (1989) introduced the technology acceptance model (TAM), used to analyze, and understand people's intentions to accept new technologies. TAM has no component about social impact behavioral intention (Venkatesh & Davis, 2000), and academics questioned this as a serious flaw.

Research Framework

These elements formed the basis for developing the conceptual framework, as illustrated in Figure 1.



Figure 1 Conceptual Framework

The hypotheses of the research variables based on the conceptual framework are;

H1: Perceived ease of use has a significant impact on perceived usefulness.

- H2: Perceived ease of use has a significant impact on attitude.
- H3: Perceived usefulness has a significant impact on attitude.
- H4: Trust has a significant impact on attitude.
- H5: Attitude has a significant impact on behavioral intention.
- H6: Performance expectancy has a significant impact on behavioral intention.
- H7: Social Influence has a significant impact on behavioral intention.
- H8: Effort expectancy has a significant impact on behavioral intention.

Research Methodology

This research will examine undergraduates at XiHua University (XHU), Chengdu University of Information Technology (CUIT), and Southwest JiaoTong University (SWJTU) regarding their behavioral intentions about OFD. We employed a quantitative survey method, which has been demonstrated to be the most effective tool for gathering attitude data from students and assessing their behavioral intention responses.

1. Population and Sample Size

The survey targeted undergraduate students from three prominent universities in Chengdu, China: Chengdu University of Information Technology (CUIT), Southwest JiaoTong University (SWJTU), and XiHua University (XHU). Following Hair et al.'s (2010) recommendation of 200–500 respondents for structural equation modeling, 500 student survey forms were finalized from a population of 88,414, based on screening and quota selection from 1,286 responses.

2. Sampling Techniques

The study collected 1,286 questionnaires from Chengdu undergraduates, selecting 500 valid responses. Data were analyzed using JAMOV, AMOS, CFA, and SEM to assess reliability and validity and test eight hypotheses.

Results and Discussion

1. Demographic Information

Table 1 provides a summary of the 500 respondents' complete demographic characteristics.

Table 1 Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	272	54.40 %
	Female	228	45.60 %
University Belong	XHU	195	39.00 %
	SWJTU	164	32.80 %
	CUIT	141	28.20 %
Academic Year	Sophomore	168	33.60 %
	Junior	163	32.60 %
	Senior	169	33.80 %

Participants included 54.40% males and 45.60% females. The university distribution was 39.00% XHU, 32.80% SWJTU, and 28.20% CUIT. The academic years were 33.60% sophomores, 32.60% juniors, and 33.80% seniors.

2. Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was employed to assess whether the scale items' components and loading counts aligned with theoretical expectations or assumptions. The factor loading results and acceptable values for each observed variable demonstrated the research model's goodness of fit (Hair et al., 2010).

Table 2 Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Latent Variables	Source of Questionnaire	No. of Items	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Ease of Use (PEOU)	Davis (1989)	3	0.787	0.628-0.713	0.720	0.462
Perceived Usefulness (PU)	Davis (1989)	3	0.805	0.695-0.778	0.777	0.538
Trust (TR)	Li et al. (2020)	4	0.774	0.806-0.831	0.889	0.667
Attitude (ATT)	Rini et al. (2017)	3	0.861	0.737-0.854	0.856	0.665
Performance Expectancy (PE)	Venkatesh et al. (2003)	4	0.893	0.742-0.776	0.804	0.578
Effort Expectancy (EE)	Ghalandari (2012)	4	0.867	0.516-0.853	0.783	0.487
Social Influence (SI)	Muangmee et al. (2021)	3	0.835	0.680-0.789	0.788	0.555
Behavioral Intention (BI)	Ajzen (2002)	4	0.863	0.641-0.759	0.775	0.464

Source: Created by the author.

Per the general rule of 0.70 or higher for acceptability (Dikko, 2016), Table 2 shows all constructs meet internal consistency. Factor loadings exceeded 0.50, CR surpassed 0.70, and AVE values were above 0.50 (Bagozzi & Yi, 1988; Hulland, 1999).

Table 3 Goodness of Fit for Measurement Model

Index	Acceptable Values	Statistical Values After Adjustment
CMIN/df	<5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	465.213/322 or 1.445
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.939
AGFI	≥0.80 (Sica & Ghisi, 2007)	0.923
NFI	≥0.80 (Wu & Wang, 2006)	0.923
CFI	≥ 0.80 (Bentler, 1990)	0.975
TLI	≥ 0.80 (Sharma et al., 2005)	0.970
RMSEA	< 0.08 (Pedroso et al., 2016)	0.030
Model summary		Acceptable Model Fit

Note: CMIN/DF = the ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index, and RMSEA = root mean square error of approximation

Table 3 shows that all thresholds for incremental fit indices (NFI, CFI, TLI) and absolute fit measures (CMIN/DF, AGFI, GFI, RMSEA) met the criteria, confirming satisfactory goodness-of-fit in the CFA evaluation.

Table 4 Discriminant Validity

	PEOU	PU	TR	ATT	PE	EE	SI	BI
PEOU	0.680							
PU	0.133	0.734						
TR	0.238	0.216	0.817					
ATT	0.259	0.264	0.659	0.815				
PE	0.142	0.222	0.353	0.398	0.760			
EE	0.121	0.170	0.322	0.293	0.246	0.698		
SI	0.229	0.175	0.316	0.300	0.302	0.366	0.745	
BI	0.183	0.149	0.264	0.321	0.280	0.331	0.435	0.681

Note: The diagonally listed value is the AVE square roots of the variables.

Fornell and Larcker (1981) calculated the square root of each Average Variance Extracted (AVE) to assess discriminant validity. This study validates discriminant validity by demonstrating that these values exceed all inter-construct or factor correlations. The findings provide robust evidence for construct validity, as both convergent and discriminant validity have been established.

3. Structural Equation Model (SEM)

This study employed structural equation modeling (SEM) to evaluate the proposed causal relationships. SEM analyzed linear coefficients, assessed variable interactions, and accounted for potential biases in the results (Rattanaburi et al., 2022).

Table 5 Goodness of Fit for Measurement and Structural Model

Index	Acceptable Values	Statistical Values After Adjustment
CMIN/df	<5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.189
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.903
AGFI	≥0.80 (Sica & Ghisi, 2007)	0.870
NFI	≥0.80 (Wu & Wang, 2006)	0.048
CFI	≥ 0.80 (Bentler, 1990)	0.847
TLI	≥ 0.80 (Sharma et al., 2005)	0.905
RMSEA	< 0.08 (Pedroso et al., 2016)	0.940
Model summary		Acceptable Model Fit

Note: CMIN/DF = the ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index, and RMSEA = root mean square error of approximation

Table 5 indicates that aggregate values for CMIN/DF, GFI, AGFI, CFI, NFI, TLI, and RMSEA surpassed acceptable thresholds. These findings suggest that the SEM achieved an adequate goodness of fit.

4. Hypothesis Testing Result

The findings of the hypotheses' examination are assembled in Table 6.

Table 6 Hypothesis Results of the Structural Equation Model

Hypothesis	(β)	t-value	Result
H1: PEOU→PU	0.171	2.827 **	Supported
H2: PEOU→ATT	0.114	2.600 **	Supported
H3: PU→ATT	0.142	3.366 ***	Supported
H4: TR→ATT	0.742	15.168 ***	Supported
H5: ATT→BI	0.207	3.919 ***	Supported
H6: PE→BI	0.126	2.387 *	Supported
H7: SI→BI	0.362	5.988 ***	Supported
H8: EE→BI	0.185	3.354 ***	Supported

Note: *** $p < 0.001$

Source: Created by the author

Table 7 confirms the significant impact of various factors on behavioral intentions toward online food delivery. Perceived ease of use influences perceived usefulness and attitude, supported by prior research (de Freitas & Stedefeldt, 2020; Kumar & Shah, 2021). Perceived usefulness also positively affects attitude (Agarwal & Prasad, 1999). Trust is a key driver of attitude, emphasizing its importance in adoption (Gefen, 2000). Attitude impacts behavioral intention (Kang & Namkung, 2019), while performance expectancy and social influence moderate behavioral intentions (Marinković et al., 2020; El-Gayar et al., 2011). Effort expectancy influences adoption behavior (Chiu & Wang, 2008; Ghalandari, 2012). These results highlight the major factors shaping users' behavioral intentions.

Conclusions, Recommendations, Limitations and Future Research

1. Conclusions

This study examines the behavioral intentions of undergraduate students from three public universities in Chengdu, China, toward using OFD services. A conceptual framework explores the relationships among perceived usefulness, ease of use, trust, performance expectancy, effort expectancy, attitude, social influence, and behavioral intention. Using data from 500 students, CFA validated the measurement model, and SEM tested eight hypotheses. Results show social influence as the strongest predictor of behavioral intention, with attitude as a key mediator. Trust significantly impacted attitude, while perceived ease of use and usefulness also influenced it. Performance expectancy had the least impact on intention.

2. Recommendations

Based on survey results, several recommendations for improving OFD services are suggested. First, since social influence is the most significant factor, school catering units should create a supportive social environment, offering convenient and nutritious food options to

compete with off-campus restaurants. Second, trust is the key to shaping positive attitudes, so restaurants should focus on food quality, speed, and taste, while platforms should protect privacy and use AI to personalize the user experience. To improve ease of use and usefulness, platforms should simplify app navigation and enhance operational intuitiveness. Additionally, refining recommendation algorithms, leveraging peer and expert advice, and improving publicity and reputation for on-campus restaurants will boost engagement. Focusing on these areas can increase undergraduates' behavioral intention to use OFD.

3. Limitations and Future Research

The restrictions for this investigation's practical condition include time: the quantitative research takes around a year. Furthermore, only eight latent variables were included in the conceptual framework, and the population and sample were restricted to three public universities in Chengdu, China. Thus, the next two points of view are about more research: broadening the scope of the study to include other areas of China. In order to create the conceptual framework, it is also necessary to investigate various theories of technology adoption, such as the Information System Success Model (ISSM), the Theory of Reasoned Action (TRA), and the Theory of Planning Behavior (TPB).

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