

Demographic Differences and the Relationships Among Perceived Ease of Use, Perceived Usefulness, and Satisfaction toward Online Purchases of Clothing Brand XYZ

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Abstract

This research explored two focal areas: (1) the extent to which perceived ease of use and perceived usefulness vary among consumers with different demographic characteristics when purchasing clothing from Brand XYZ online, and (2) the degree to which these two perceptual factors are associated with consumer satisfaction. The study involved 385 Thai consumers who had previously purchased Brand XYZ products through online channels, recruited through convenience sampling via an online survey. Data were processed using descriptive statistics and inferential analytical techniques, including t-test, one-way ANOVA with pairwise comparisons using Games-Hewell Post-hoc, effect size calculations, and simple regression analysis. The findings demonstrated statistically significant variation in perceived ease of use across gender, age groups, educational attainment, and occupational categories,

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while perceived usefulness differed significantly by gender, educational level, and occupation. Furthermore, regression outcomes revealed that both perceived ease of use and perceived usefulness exerted positive effects on consumer satisfaction, with perceived usefulness serving as the stronger predictor. These empirical insights offer value for enhancing online marketing approaches, refining user experience design, and informing consumer segmentation strategies within Thailand's digital fashion marketplace.

Keywords

Perceived Ease of Use, Perceived Usefulness, Customer Satisfaction; Online Fashion Purchasing, Demographic Variation

Introduction

The rapid expansion of digital commerce has transformed purchasing patterns within Thailand's fashion sector, supported by steady growth in the country's online retail market. Recent industry reports indicate that Thailand's e-commerce value increased by about 14% in 2024, reaching roughly 1.1 trillion baht, a trend reflecting consumers' growing preference for online shopping across product categories (Nation Thailand, 2025). Regionally, Southeast Asia has experienced similar momentum, with fashion and apparel emerging as one of the largest and fastest-growing online segments, driven by widespread mobile adoption and the demand for convenient digital shopping experiences (Mordor Intelligence, 2024). Despite this growth, online apparel purchasing continues to present challenges related to product fit, information accuracy, and post-purchase satisfaction. These concerns highlight the importance of understanding how shoppers evaluate the usability and functional value of online fashion platforms such as Brand XYZ.

While the Technology Acceptance Model (TAM) remains central to explaining technology attitudes, prior research in online fashion commerce has largely focused on purchase intention rather than post-purchase satisfaction, resulting in limited insight into how users assess their actual experience (Lim & Ting, 2014; Kim & Forsythe, 2008). Moreover, empirical findings on demographic influences, such as age, gender, education, and occupation, on perceived ease of use and perceived usefulness remain inconsistent in Thailand's e-commerce environment, particularly in the context of online apparel. This reveals a gap concerning how demographic variation shapes technology perceptions and satisfaction among

Thai online fashion consumers. Brand XYZ, a minimalist clothing label with a steadily expanding online customer base, offers a relevant setting for investigating these issues because its purchasing experience is fully mediated by digital interface interaction. Given that usability and perceived functional value are key determinants of consumer evaluations in online fashion shopping, this study employs the two core TAM constructs, perceived ease of use and perceived usefulness, to assess how they influence satisfaction within a real brand-specific online purchasing environment.

Accordingly, the study aims to (1) determine whether demographic characteristics generate significant differences in perceived ease of use and perceived usefulness among online consumers of Brand XYZ, and (2) examine the relationships among perceived ease of use, perceived usefulness, and customer satisfaction. The findings are expected to contribute theoretically by extending TAM applications into the online apparel context and to offer practical implications for consumer segmentation, platform design, and digital marketing strategies in Thailand's evolving fashion e-commerce ecosystem.

Research Questions

1. Are there significant differences in perceived ease of use and perceived usefulness across demographic characteristics among consumers purchasing clothing from Brand XYZ online?
2. How are perceived ease of use and perceived usefulness related to consumer satisfaction with online purchases of Brand XYZ?

Research Objectives

1. To examine the differences in perceived ease of use and perceived usefulness of technology across demographic in the context of online purchases of the XYZ clothing brand.
2. To analyze the relationships among perceived ease of use, perceived usefulness, and consumer satisfaction with the XYZ clothing brand.

Literature Review

1. Technology Acceptance Model (PEOU and PU in Online Apparel Context)

The Technology Acceptance Model (TAM), introduced by Davis (1989, 319-340), positions perceived ease of use (PEOU) and perceived usefulness (PU) as core determinants

of how individuals evaluate and adopt digital systems. PEOU concerns the degree of effort required to navigate the interface, whereas PU captures the extent to which the system enhances task performance and decision efficiency. Prior research shows that both constructs play essential roles in shaping post-adoption evaluations in online shopping environments, particularly where information accuracy, visualization, and transaction processes are central to the consumer experience (Ha & Stoel, 2009, 565-571). Evidence from broader e-commerce and mobile service contexts further confirms that PEOU and PU strongly influence consumers' assessments of digital platforms (Oliveira et al., 2016; Zheng et al., 2020).

Studies conducted in emerging markets, including Thailand, suggest that these technology perceptions may also vary by contextual conditions such as consumers' prior digital experience, payment familiarity, and platform characteristics (Phonthanukitithaworn et al., 2016, 37–54). These patterns underscore the need to validate the relevance of PEOU and PU within specific online retail environments. Because the present study examines actual users of Brand XYZ's online apparel platform, applying TAM with a focus on these two constructs is appropriate for explaining post-purchase satisfaction rather than behavioral intention. This theoretical foundation directly aligns with Research Objective 2 and supports the hypotheses that both PEOU and PU exert positive influences on customer satisfaction.

2. Customer Satisfaction in Online Apparel Purchasing

Customer satisfaction in online purchasing environments is commonly defined as the consumer's evaluative judgment comparing expected benefits with actual post-purchase performance (Kotler et al., 2020). Within online fashion contexts, satisfaction is influenced by the accuracy of product representation, clarity of information display, usability of ordering processes, convenience of delivery and return services, and perceptions of transaction security. Prior research in digital retail environments shows that perceived usefulness plays a central role in shaping satisfaction, as consumers evaluate online purchasing favorably when the platform enhances decision efficiency and overall task performance (Ha & Stoel, 2009; Zheng et al., 2020). Perceived ease of use also contributes to satisfaction by minimizing cognitive effort and facilitating seamless browsing and checkout experiences, particularly for users who may be sensitive to interface complexity (Oliveira et al., 2016, 404–414).

Empirical findings, however, reveal variation in the relative influence of PEOU and PU across contexts. Some studies report that PU is the dominant predictor of satisfaction, while others indicate that PEOU becomes more salient among users with lower digital literacy or

limited experience with online shopping systems (Phonthanakitithaworn et al., 2016, 37–54). These inconsistencies highlight the importance of examining satisfaction within specific platform designs and user segments. Brand XYZ’s minimalist interface, simplified navigation, and emphasis on visual product presentation provide an appropriate setting for evaluating how users form satisfaction judgments based on perceived ease of use and perceived usefulness.

This review supports Research Objective 2, establishing a theoretical foundation for the hypotheses that both perceived ease of use and perceived usefulness exert positive effects on customer satisfaction within the online purchasing environment of Brand XYZ.

3. Demographic Characteristics and Their Influence on Perceived Ease of Use and Perceived Usefulness

Demographic characteristics constitute an important source of variation in how consumers evaluate digital systems. Prior studies show that factors such as gender, age, education, and occupation influence individuals’ cognitive processing and interaction with technology (Chaichan, 2008; Kamnoetsin, 2022). Evidence from Southeast Asia further indicates that younger users and individuals with higher educational attainment generally report higher perceived ease of use because of greater familiarity with digital tools, while perceived usefulness tends to be stronger among users who prioritize task efficiency and functional benefits (Sombultawee & Saisanit, 2022). Research in technology adoption also suggests that occupations requiring frequent digital engagement are associated with elevated perceptions of both ease of use and usefulness, as these users encounter fewer barriers to interacting with online systems (Oliveira et al., 2016; Phonthanakitithaworn et al., 2016).

Although these demographic patterns are well-documented in broader e-commerce and mobile-service contexts, empirical evidence specific to Thailand’s online apparel sector remains limited. This gap underscores the need to examine whether demographic variations meaningfully differentiate perceptions of ease of use and usefulness within Brand XYZ’s online shopping environment. This line of reasoning directly aligns with Research Objective 1, supporting the hypotheses that demographic characteristics produce significant differences in perceived ease of use and perceived usefulness among online consumers.

Research Framework

The conceptual framework for this study is presented in Figure 1, as follows.

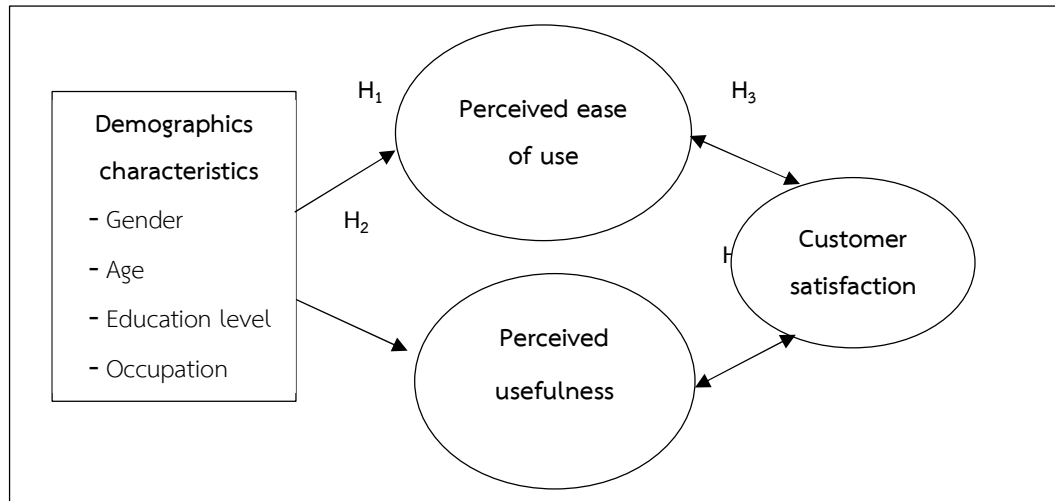


Figure 1: Conceptual framework of this study

Research Hypotheses

Previous studies demonstrate that demographic characteristics influence how individuals perceive the ease of using digital systems. Evidence from mobile service and technology adoption research shows that younger users and those with more frequent digital exposure tend to report higher perceived ease of use because repeated interaction with technology reduces the cognitive effort required for online tasks (Phonthanukitithaworn et al., 2016, 37–54). Cross-cultural studies on online platforms further indicate that education level contributes to ease-of-use perceptions, as individuals with higher educational attainment generally possess stronger digital competencies, leading to greater confidence in navigating online interfaces (Oliveira et al., 2016). In the Thai context, demographic attributes, particularly age, gender, and education, have been shown to moderate ease-of-use perceptions, with certain groups demonstrating greater familiarity with digital tools than others (Sombultawee & Saisanit, 2022). Based on this evidence, demographic variation is expected to produce significant differences in perceived ease of use among consumers using Brand XYZ’s online apparel platform.

H1: Perceived ease of use differs significantly across demographic characteristics.

Prior research also suggests that demographic characteristics can influence how users perceive the functional benefits of digital systems. Individuals with higher educational backgrounds or greater digital experience often report stronger perceived usefulness because they tend to rely on technology to enhance efficiency and task performance (Oliveira et al., 2016; Sombultawee & Saisanit, 2022). Accordingly, differences in demographic attributes may also lead to variations in perceived usefulness among Brand XYZ's online shoppers.

H2: Perceived usefulness of technology differs significantly by demographic characteristics.

Previous research shows that systems perceived as easy to navigate tend to improve users' overall evaluations because reduced effort and clearer interaction pathways create a smoother online shopping experience (Ha & Stoel, 2009; Oliveira et al., 2016). In apparel purchasing, where consumers must browse items, compare options, and complete checkout steps, usability becomes a key factor supporting satisfaction. Therefore, perceived ease of use is expected to positively influence satisfaction among Brand XYZ's customers.

H3: Perceived ease of use of technology is positively related to customer satisfaction.

Perceived usefulness has consistently been identified as a major driver of satisfaction in digital commerce, as systems that improve efficiency, decision-making, and task completion tend to yield stronger positive evaluations (Oliveira et al., 2016; Zheng et al., 2020). Evidence from Thai e-commerce users also shows that functional value plays a central role in shaping satisfaction (Sombultawee & Saisanit, 2022). Thus, perceived usefulness is expected to exert a positive effect on satisfaction among Brand XYZ's online shoppers.

H4: Perceived usefulness of technology is positively related to customer satisfaction.

Research Methodology

1. Population and Sample

1.1 This study employed a cross-sectional, quantitative survey design. Eligibility required respondents to be Thai consumers with prior experience purchasing the XYZ clothing brand via online channels. The individuals aged between 20 and 60.

1.2 Since the total population of customers who had purchased the XYZ clothing brand online was unknown, the minimum required sample size was estimated using Cochran's formula with a 95% confidence level and a $\pm 5\%$ margin of error. Following data screening for

completeness and attention checks, 385 valid responses were retained, which satisfied the minimum sample size requirement.

2. Instrument Development and Measurement

The questionnaire comprised four sections: (1) Demographics consists of 4 items: gender, age, education, and occupation level. (2) Perceived ease of use consists of 6 items: reflecting the degree to which the platform is easy and effortless to operate. (3) Perceived usefulness consists of 5 items: capturing the extent to which using the platform enhances task performance and shopping efficiency. (4) Customer satisfaction consists of 4 items: adapted from established satisfaction scales to reflect overall evaluative judgments of the online shopping experience. All construct items were measured on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree). Items were translated and proofread to ensure clarity and consistency; minor wording refinements were made to fit the online apparel context.

3. Data Collection

Data collection was conducted through an online self-administered questionnaire disseminated across fashion and lifestyle related digital communities, including Facebook groups, LINE networks, and consumer discussion forums. A non-probability convenience sampling method was employed because no comprehensive sampling frame exists for identifying all online purchasers of Brand XYZ, and individuals who engage in online shopping inherently constitute a self-selecting population of digital users. Convenience sampling is widely recognized in the literature as an appropriate strategy for web-based survey research, given its practicality in reaching active internet users and its consistency with participation patterns commonly observed in online marketplace environments (Etikan, 2016; Bethlehem, 2010; Callegaro et al., 2015).

To enhance the quality of the dataset, screening questions, attention-check items, and response-time assessments were incorporated prior to confirming valid responses. Although convenience sampling may introduce limitations related to representativeness and potential self-selection bias, its use in this study was justified by the exploratory nature of the research, the efficiency of online access, and the methodological suitability for capturing insights from actual users of online apparel platforms. Accordingly, this approach was deemed appropriate for investigating user perceptions within the digital purchasing context of Brand XYZ.

4. Content Validation and Reliability Analysis

4.1 Content validity was established via an expert panel of three academics and practitioners in e-commerce and consumer research, who evaluated item relevance and clarity. Feedback informed minor revisions to wording and item order. Cognitive debriefing with 10 target users was conducted to confirm comprehension and response process.

4.2 Pilot testing and reliability assessment: A pilot with 30 respondents from the target population was administered online to evaluate reliability and refine the instrument prior to the main survey. Internal consistency was assessed using Cronbach's alpha for each dimension, with $\alpha \geq 0.70$ considered acceptable. Item-total correlations (≥ 0.30) and alpha if item deleted diagnostics guided item retention.

4.3 Reliability Analysis Results: The reliability results for each construct were as follows: perceived ease of use (6 items, $\alpha = 0.816$), perceived usefulness (5 items, $\alpha = 0.863$), and customer satisfaction (4 items, $\alpha = 0.840$). The overall reliability across all 15 items was $\alpha = 0.933$. As all Cronbach's alpha values exceeded the recommended threshold of 0.70, the measurement scales were considered to demonstrate acceptable internal consistency.

5. Data Analysis and Statistical Methods

The statistical analysis incorporated both descriptive and inferential techniques. Descriptive statistic using percentages, means, and standard deviations to summarize participant profiles and key variables. Inferential tests were then applied to assess whether perceptions differed across demographic groups, using independent samples t-tests and one-way ANOVA. Effect sizes were quantified through Cohen's d and η^2 to enhance interpretation beyond significance levels (Cohen, 1988). When ANOVA identified significant group variation, the Games–Howell procedure was used to determine which subgroups differed, as this post-hoc method is appropriate under unequal variances and unequal sample sizes, which aligned with this dataset (Games & Howell, 1976; Field, 2018; Pallant, 2020). Simple regression models were subsequently performed to evaluate associations between perceived ease of use, perceived usefulness, and customer satisfaction. Effect size interpretations followed established thresholds to indicate the magnitude of relationships. The interpretations of the Cohen's d are: $|d| < 0.20$ means negligible effect; $0.20 \leq |d| < 0.50$ means small effect; $0.50 \leq |d| < 0.80$ means medium effect; $|d| \geq 0.80$ means large effect (Cohen, 1988).

Research Results

The results of this study are divided into 4 parts. Part 1 presented general information; Part 2 presented perceived ease of use results; part 3 presented perceived usefulness results; part 4 presented relationship between the various variables, as follows.

Part 1: General Information

Table 1: Number and percentage of respondents classified by demographic characteristics

Demographic characteristics		number	percentage
Gender	Male	139	36.10
	Female	246	63.89
Age (year-old)	20 – 30	221	57.40
	31 – 40	61	15.84
	41 – 50	53	13.77
	51 – 60	50	12.99
Education Level	Secondary school or lower	17	4.42
	High school or vocational certificate	30	7.79
	Diploma	73	18.96
	Bachelor's degree	210	54.54
	Higher than bachelor's degree	55	14.29
Occupation	Government officers	53	13.77
	Students	89	23.12
	Temporary employees	36	9.35
	Full-time employees	111	28.83
	Freelancers	96	24.93

According to Table 1, the study comprised 385 respondents, most of whom were female (63.9%). The majority were aged 20–30 years (57.4%), and over half held a bachelor's degree (54.5%). Full-time employees constituted the largest occupational group (28.8%), followed by freelancers and students. Overall, the sample reflected predominantly young, educated consumers actively engaged in online-related work and study contexts.

Part 2: Perceived ease of use results

Table 2: Independent Samples t-Test of Perceived Ease of Use by Gender

Gender	n	Mean	Std. Deviation	Interpretation	t	df	Sig. (2-tailed)	Cohen's d	Effect Size Interpretation
Male	139	3.81	0.64	Agree	-4.318	313.865	0.000*	0.46	small
Female	246	4.11	0.72	Agree					

* significant at 0.01 level.

According to Table 2, the independent samples t-test indicated a statistically significant gender difference in perceived ease of use, with females reporting higher scores ($M = 4.11$, $SD = 0.72$) than males ($M = 3.81$, $SD = 0.64$), $t(313.87) = -4.32$, $p < .001$. The effect size was small effect (Cohen's $d = 0.46$), suggesting that gender exerts a modest but meaningful influence on usability perceptions. Although both groups rated the system as easy to use, female respondents expressed slightly more favorable evaluations, implying that targeted interface enhancements may be beneficial for improving male customers perceived ease of use.

Table 3: ANOVA Results for Perceived Ease of Use by Age, Education Level, and Occupation

Demographic characteristics	df (Between)	Sum of Squares	Mean Square	F value	Sig.	η^2 (Effect Size)
Age	3	7.835	2.612	5.407	0.001*	0.041
Education Level	4	8.974	2.244	4.662	0.001*	0.047
Occupation	4	6.749	1.687	3.464	0.009*	0.035

* significant at 0.01 level

According to Table 3, the ANOVA results revealed that age, education level, and occupation significantly influenced perceived ease of use of technology at the 0.01 level. Differences across age groups were statistically significant ($F = 5.407$, $p = 0.001$, $\eta^2 = 0.041$), indicating a moderate effect size. Similarly, education level showed significant variation ($F = 4.662$, $p = 0.001$, $\eta^2 = .047$), also reflecting a near-moderate effect. Occupation was likewise significant ($F = 3.464$, $p = 0.009$, $\eta^2 = 0.035$), although the effect size was relatively small, suggesting that while occupation plays a role, its influence on perceived ease of use is less pronounced compared to age and education. Regarding results in Table 2 and 3, Hypothesis H1 is accepted.

Table 4: Games–Howell Post-hoc Comparisons of Perceived Ease of Use Across Age Groups

Age Group Comparison	Mean Difference	p-value	Cohen's d	Effect Size Interpretation
20–30 vs 31–40	0.13	0.658	0.19	negligible
20–30 vs 41–50	0.22	0.251	0.32	Small
20–30 vs 51–60	0.41	0.003*	0.59	medium
31–40 vs 41–50	0.09	0.928	0.13	negligible
31–40 vs 51–60	0.28	0.561	0.40	Small
41–50 vs 51–60	0.19	0.561	0.27	Small

* Positive mean differences indicate higher PEOU for the first group. Cohen's d reported as absolute values. *p < .01

According to Table 4, the Games–Howell post-hoc test indicated that most age-group comparisons for perceived ease of use were not statistically significant and showed only small practical differences. The exception occurred between respondents aged 20–30 and those aged 51–60, where younger participants reported notably higher perceived ease of use (Mean = 4.10 vs. 3.69, $p = 0.003$). The corresponding medium effect size (Cohen's $d = 0.59$) reflects a meaningful generation-based usability gap, suggesting that younger consumers interact with and evaluate online platforms more easily than older users. These findings highlight the role of age in shaping digital experiences and emphasize the need for online apparel interfaces that better support older consumers.

Table 5: Games–Howell Post-hoc Comparisons of Perceived Ease of Use Across Education Groups

Comparison	Mean Difference	P value	Cohen's d	Effect Size Interpretation
Secondary school or lower vs High school	-0.45	0.338	0.41	small
Secondary school or lower vs Diploma	-0.39	0.537	0.40	small
Secondary school or lower vs Bachelor degree	-0.66	0.006*	0.75	medium
Secondary school or lower vs Higher than bachelor	-0.57	0.069	0.56	medium
High school or vocational vs Diploma	0.06	0.999	0.07	negligible
High school or vocational vs Bachelor degree	-0.21	0.618	0.25	small
High school or vocational vs Higher than bachelor	-0.12	0.964	0.13	negligible
Diploma vs Bachelor's degree	-0.27	0.509	0.33	small
Diploma vs Higher than bachelor	-0.18	0.900	0.22	small
Bachelor's degree vs Higher than bachelor	0.09	0.926	0.11	negligible

* significant at 0.01 level

According to the Games–Howell post-hoc results in Table 5, most educational groups did not differ significantly in perceived ease of use, and the associated effect sizes were generally small. The exception was the comparison between respondents with secondary education and those holding a bachelor’s degree, where a statistically significant difference was observed ($p = 0.006$). Individuals with a bachelor’s degree reported markedly higher perceived ease of use, reflected by a medium effect size (Cohen’s $d = 0.75$). This pattern suggests that higher educational attainment is associated with greater confidence and fluency in navigating online purchase interfaces. Although other pairwise comparisons did not reach statistical significance, the small-to-moderate effect sizes indicate modest variations that may be linked to differences in digital exposure and information-processing ability across educational backgrounds.

Table 6: Games–Howell Post-hoc Comparisons of Perceived Ease of Use Across Occupation Groups

Comparison	Mean Difference	p-value	Cohen's d	Effect Size Interpretation
Government officers vs Students	-0.33	0.273	0.40	small
Government officers vs Temporary employees	-0.06	0.994	0.07	negligible
Government officers vs Full-time employees	-0.09	0.966	0.10	negligible
Government officers vs Freelancers	-0.14	0.867	0.17	negligible
Students vs Temporary employees	0.39	0.075	0.41	small
Students vs Full-time employees	0.42	0.033*	0.50	medium
Students vs Freelancers	0.47	0.015*	0.58	medium
Temporary employees vs Full-time employees	0.03	0.999	0.03	negligible
Temporary employees vs Freelancers	0.08	0.967	0.08	negligible
Full-time employees vs Freelancers	0.05	0.994	0.06	negligible

* significant at 0.05 level

According to the Games–Howell post-hoc results in Table 6, most occupational groups did not show statistically significant differences in perceived ease of use, and the associated effect sizes were negligible. The only meaningful contrasts involved students, who reported significantly lower perceived ease of use compared with full-time employees ($p = 0.033$, $d = 0.50$) and freelancers ($p = 0.015$, $d = 0.58$). Both represent medium effects based on Cohen’s criteria, indicating that students experience noticeably greater difficulty when interacting with

online purchasing systems than working adults. Although differences among other occupational groups were not significant, the pattern suggests that employment experience, particularly roles requiring regular digital engagement, may contribute to higher usability perceptions. These findings highlight the need for targeted support for student users who may have less consistent exposure to e-commerce interfaces.

Part 3: Perceived usefulness results

Table 7: Independent Samples t-Test of Perceived Usefulness by Gender

Gender	n	Mean	Std. Deviation	Interpretation	t	df	p value	Cohen's d	Effect Size Interpretation
Male	139	3.7511	0.72305	Agree	-	302.400	0.000*	0.39	small
Female	246	4.0455	0.77209	Agree	3.744				

* significant at 0.01 level

According to Table 7, the results showed a significant difference in perceived usefulness between male and female respondents. Males (Mean = 3.75, SD = 0.72) reported lower scores than females (Mean = 4.05, SD = 0.77). This difference was statistically significant, $t = -3.744$, $p < 0.001$. Although the effect size was small (Cohen's $d = 0.39$), it still indicates a meaningful difference. Overall, females viewed the system as more useful than males, suggesting that gender has some influence on perceptions of usefulness.

Table 8: ANOVA Results for Perceived Usefulness by Age, Education Level, and Occupation

Demographic characteristics	df (Between)	Sum of Squares	Mean Square	F value	Sig.	η^2 (Effect Size)	Effect Size Interpretation
Age	3	4.781	1.594	2.746	0.043**	0.021	Small
Education Level	4	8.68	2.17	3.796	0.005*	0.038	Small
Occupation	4	10.398	2.599	4.584	0.001*	0.046	Small

* significant at 0.01 level, ** significant at 0.05 level

According to Table 8, the ANOVA results showed that age, education, and occupation significantly affected perceived usefulness ($p < 0.05$). Effect sizes were small ($\eta^2 = 0.021$ – 0.046), indicating limited practical impact. Differences existed, but perceived usefulness remained fairly consistent across groups. Practical strategies therefore should not have relied

solely on demographic characteristics but rather focused on broader approaches, such as inclusive design and targeted support, to enhance perceived usefulness across all user groups. Based on the results of Tables 7 and 8, Hypothesis H2 is accepted.

Table 9 Games–Howell Post-hoc Comparisons of Perceived Usefulness Across Age Groups

Age Group Comparison	Mean Difference	p-value	Cohen's d	Effect Size Interpretation
20-30 vs 31-40	-0.09	0.893	0.11	negligible
20-30 vs 41-50	-0.21	0.375	0.25	small
20-30 vs 51-60	-0.31	0.090	0.35	small
31-40 vs 41-50	-0.12	0.874	0.14	negligible
31-40 vs 51-60	-0.22	0.521	0.22	small
41-50 vs 51-60	-0.10	0.933	0.10	negligible

According to Table 9, the Games–Howell post-hoc analysis indicated that none of the age-group comparisons reached statistical significance, and all effect sizes were negligible to small (Cohen's $d = 0.10$ – 0.35). These results suggest that perceived usefulness was relatively consistent across age groups, with no meaningful practical differences detected. Although slight variations appeared in comparisons involving older age groups, the small effect sizes indicate minimal impact. Overall, the findings imply that age does not play a substantial role in shaping usefulness perceptions, highlighting the value of adopting inclusive design strategies that accommodate users across all age ranges.

Table 10: Games–Howell Post-hoc Comparisons of Perceived Usefulness Across Education Groups

Comparison	Mean Difference	p-value	Cohen's d	Effect Size Interpretation
High school vs Secondary	0.61	0.134	0.51	medium
Diploma vs Secondary	0.59	0.209	0.57	medium
Diploma vs High school	-0.02	1.000	0.02	negligible
Bachelor vs Secondary	0.72	0.006*	0.85	large
Bachelor vs High school	0.11	0.967	0.13	negligible
Bachelor vs Diploma	0.13	0.956	0.16	negligible
Higher vs Secondary	0.62	0.077	0.57	medium
Higher vs High school	0.01	1.000	0.01	negligible
Higher vs Diploma	0.03	1.000	0.03	negligible
Higher vs Bachelor	-0.10	0.919	0.12	negligible

* significant at 0.01 level

According to Table 10, most educational groups did not show significant differences in perceived usefulness, and the associated effect sizes were generally negligible. The only meaningful contrast appeared between respondents with secondary education and those with a bachelor's degree, where a significant difference was observed ($p = 0.006$) with a large effect size (Cohen's $d = 0.85$). This indicates that individuals with higher educational attainment perceive the online platform as substantially more useful. Although other comparisons involving secondary education showed medium effect sizes, they were not statistically significant. Overall, the findings suggest that perceived usefulness tends to rise with education level, highlighting a potential need for additional support for users with lower educational backgrounds.

Table 11: Games–Howell Post-hoc Comparisons of Perceived Usefulness Across Occupation Groups

Comparison	Mean Difference	p-value	Cohen's d	Effect Size Interpretation
Government officers vs Students	-0.47	0.067	0.52	medium
Government officers vs Temporary employees	-0.04	0.999	0.04	negligible
Government officers vs Full-time employees	0.05	0.998	0.06	negligible
Government officers vs Freelancers	0.12	0.936	0.13	negligible
Students vs Temporary employees	0.43	0.061	0.45	small
Students vs Full-time employees	0.52	0.009*	0.59	medium
Students vs Freelancers	0.59	0.002*	0.64	medium
Temporary employees vs Full-time employees	-0.09	0.961	0.10	negligible
Temporary employees vs Freelancers	0.16	0.747	0.17	negligible
Full-time employees vs Freelancers	0.07	0.980	0.08	negligible

* significant at 0.01 level

According to Table 11, the Games–Howell post-hoc results showed that most occupational pairings did not differ significantly in perceived usefulness, with effect sizes largely in the negligible range. The only meaningful differences involved students, who reported significantly lower perceived usefulness than full-time employees ($p = 0.009$, $d = 0.59$) and freelancers ($p = 0.002$, $d = 0.64$), both reflecting medium effects. These findings indicate that students perceive the platform as less beneficial compared with working adults,

potentially due to differing levels of digital experience or task-efficiency expectations. Although other group contrasts were not significant, the results suggest that targeted support may help student users better recognize the functional value of the online system.

Part 4: Relationship between variables results

Table 12: Relationship between perceived ease of use and customer satisfaction.

Variable	b	SE _b	β	t	p-value
Constant	-0.056	0.137	-	-0.412	0.680
perceived ease of use	0.269	0.064	0.244	4.213	0.000*
$R^2 = 0.688$, Adjust $R^2 = 0.687$, $F = 449.257$, $SE_{est} = 0.46441$					

* significant at 0.01 level

According to Table 12, the regression analysis results showed that perceived ease of use had a significant positive effect on customer satisfaction ($b = 0.269$, $\beta = 0.244$, $t = 4.213$, $p < 0.001$). This indicated that as customers find the system easier to use, their satisfaction levels increase accordingly. The model explained a large proportion of the variance in customer satisfaction ($R^2 = 0.688$, Adjusted $R^2 = 0.687$), suggesting that perceived ease of use is a strong predictor of satisfaction. The overall model fit was significant ($F = 449.257$, $p < 0.001$), confirming the robustness of the findings. Therefore, hypothesis H3 is accepted.

Table 13: Relationship between the perceived usefulness and customer satisfaction.

Variable	b	SE _b	β	t	p-value
Constant	0.189	0.127	-	1.492	0.137
perceived usefulness	0.917	0.032	0.829	29.049	0.000*
$R^2 = 0.702$, Adjust $R^2 = 0.700$, $F = 843.865$, $SE_{est} = 0.47445$					

* significant at 0.01 level

According to Table 13, the regression analysis results showed that perceived usefulness had a significant positive influence on customer satisfaction ($b = 0.917$, $\beta = 0.829$, $t = 29.049$, $p < .001$). This indicated that when customers perceive the system or service as more useful, their satisfaction increases substantially. The model explained a very large proportion of the variance in satisfaction ($R^2 = 0.702$, Adjusted $R^2 = 0.700$), meaning that perceived usefulness is a very strong predictor of customer satisfaction. The regression model overall was highly

significant ($F = 843.865$, $p < 0.001$), demonstrating strong explanatory power. Therefore, hypothesis H4 is accepted.

Although the R^2 coefficients for both models appear relatively high for single-predictor regressions (perceived ease of use and consumer satisfaction: $R^2 = 0.688$; Perceived usefulness and consumer satisfaction: $R^2 = 0.702$), these values are consistent with theoretical expectations in TAM-based research. Prior literature indicates that perceived ease of use and perceived usefulness frequently exhibit strong linear associations with satisfaction and post-adoption evaluations, often producing high R^2 values in simple regression models (e.g., Ha & Stoel, 2009).

Additionally, multicollinearity is not a concern in simple regression, and the constructs were measured using validated reflective scales, which tend to yield stronger predictive power. The high R^2 coefficients therefore reflect the centrality of perceived ease of use and perceived usefulness in shaping satisfaction rather than model misspecification. Model diagnostics showed no violations of regression assumptions.

Discussion

The findings demonstrated that demographic characteristics influenced perceptions of technology in distinct ways. Gender, education, and occupation significantly affected perceived ease of use (PEOU), while age, education, and occupation affected perceived usefulness (PU). Female respondents reported higher ease of use than males, which aligns with studies suggesting that women often exhibit more careful and engaged online shopping behaviors and higher interaction with e-commerce interfaces (Kim & Forsythe, 2008). Likewise, individuals with higher educational attainment or those in digitally intensive occupations demonstrated stronger PEOU and PU, consistent with prior research linking digital literacy and professional exposure to technology with more favorable evaluations of system usability and functional benefits (Venkatesh et al., 2003; Oliveira et al., 2016).

Age effects appeared only for PEOU but not for PU. Younger users found the system easier to operate, which aligns with findings that younger cohorts adapt more readily to digital interfaces due to higher exposure to mobile technology (Sombultawee & Saisanit, 2022). In contrast, PU did not vary by age, indicating that usefulness evaluations depend more on functional performance and less on demographic traits. This supports TAM's proposition that usefulness is driven by task enhancement rather than personal characteristics (Davis, 1989; Lai,

2017). Once the system provides efficiency and reliability, users across all ages tend to perceive similar levels of usefulness.

Both perceived ease of use and perceived usefulness significantly influenced customer satisfaction, consistent with prior e-commerce research emphasizing the joint roles of usability and functional value (Venkatesh et al., 2003; Zheng et al., 2020). The stronger impact of perceived usefulness indicates that customers in online apparel shopping prioritize system performance and value-enhancing features when evaluating satisfaction.

Overall, the study contributes by clarifying how demographic factors shape usability perceptions more strongly than usefulness perceptions, and by confirming TAM's applicability in the online clothing context. Practically, the XYZ brand should improve interface simplicity for older or less tech-experienced users while simultaneously emphasizing performance, convenience, and functional benefits to strengthen PU across all segments.

Conclusion

This study investigated how demographic characteristics influence perceived ease of use and perceived usefulness within the online shopping system of Brand XYZ, and how these perceptions shape customer satisfaction. The findings showed that perceived ease of use differed significantly across gender, age, education, and occupation, while perceived usefulness varied by gender, education, and occupation but remained stable across age groups. These patterns highlight that users evaluate the usability of the XYZ platform differently depending on their digital familiarity, whereas assessments of its functional value are formed more consistently across generations.

Both perceived ease of use and perceived usefulness positively predicted satisfaction with the XYZ online platform, with perceived usefulness demonstrating the stronger effect. This indicates that although ease of interaction supports a smoother shopping process, customers place even greater importance on whether the platform assists them in making decisions efficiently, accessing accurate information, and completing purchases effectively.

For Brand XYZ, these findings provide clear managerial implications. The platform should enhance usability for demographic groups reporting lower perceived ease of use, particularly older users, males, and customers with lower educational backgrounds, by implementing clearer navigation, simplified workflows, and accessible user support. Because perceived usefulness had a strong influence on satisfaction across all customer segments,

Brand XYZ should consistently emphasize performance-related benefits such as convenience, reliability, and operational efficiency in both platform design and marketing communication. Enhancing both usability and functional value will help strengthen satisfaction and promote long-term engagement.

These empirical insights offer actionable guidance specifically for Brand XYZ in refining user experience design, developing targeted customer segmentation strategies, and optimizing digital marketing activities within Thailand's online fashion market. The findings also contribute to academic discussions by illustrating how demographic characteristics interact with key technology perception constructs in a brand-specific online retail context.

Future studies may incorporate qualitative interviews or longitudinal designs to explore how customer perceptions of the XYZ platform evolve over time, providing deeper insights that complement the present results.

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