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The Effects of Experienced Utility and PEEIM on the Purchase Intention of Cross-Border E-Commerce

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Abstract: Due to the rapid development of the internet, cross-border e-commerce (CBEC) is gaining popularity. With CBEC, consumers from different countries can overcome the limits of languages and currencies to buy desired products directly. However, compared to domestic e-commerce, CBEC confronts significant challenges, such as risky distribution channels, dependency on third-party logistics, customs clearance, etc. Therefore, multi-faceted efforts are needed to promote CBEC. Traditional studies probe CBEC through a logistics and operational perspective; this study bridges a research gap by stressing a human–computer interaction perspective. Under the premise that technical infrastructure keeps improving, consumers' expectations of switching to CBEC has been an essential issue. Specifically, this study develops a theoretical model that emphasizes website cues as experienced utility and the perceived effectiveness of e-commerce institutional mechanisms (PEEIM) as decision utility to investigate their effects on the purchase intention of CBEC. This study applied Smart PLS 3.0 to verify the research model with 300 valid responses from online questionnaires. Research findings confirmed the proposed model. Practical strategies for promoting CEBC were suggested accordingly.

Keywords: cross-border e-commerce; purchase intention; PEEIM; website cues

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1. Introduction

Due to the rapid development of the internet, cross-border e-commerce (CBEC) is gaining popularity. For example, according to [1], more than 1 billion consumers participated in CBEC, and between 2011 and 2018, its gross value reached about USD 35 billion. Furthermore, it is forecasted to grow to around USD 4820 billion in 2026 [2]. With CBEC, consumers from different countries can overcome the limits of languages and currencies to buy desired products directly. Compared to domestic e-commerce, CBEC confronts significant challenges, such as risky distribution channels due to longer delivery times, dependency on third-party logistics, customs clearance, and legal requirements. In addition, CBEC involves diverse cultures which influences its logistics management.

Liu, Osewe [1] conducted an intensive systemic literature review on CBEC in China and identified the following categories of challenges: (1) efficiency and supervision of custom clearance, (2) levies declarations and tax compensation, (3) logistics cost and risks, (4) payment risks, and (5) management guidance and talents. These findings reveal the need for CBEC hosts to conduct multi-faceted efforts to promote CBEC.

This study recognizes the importance of these factors in several studies that focus on the logistics and operational perspective (e.g., [3–7]). Nevertheless, a human–computer interaction perspective appears to be a critical research gap. Since the occurrence of accompanying technical infrastructure improvements, consumers' expectations of switching to CBEC has been a significant concern. Specifically, in the highly competitive CBEC environment, engaging consumers on their websites and enhancing their purchase intentions from their perceived experience and decision utility deserve in-depth exploration.

Pine and Gilmore [8] proposed that we have now entered the era of the experience economy, where symbolic concepts and meanings determine the economic value of goods represented as "experienced utility" [9,10]. Since people increasingly treasure experiential values beyond goods and services, they are more likely to spend according to a degree of enjoyment [11]. Under the experience economy, several information technologies are applied to marketing to enhance consumers' good impression of a specific brand or product through digital interaction. For example, Vacanza Accessory's app uses A.I. technology to allow consumers to match accessories before purchasing products, which is fun and helpful and gives people the desire to share, thus achieving marketing effectiveness. In general, consumer experience comes from the e-commerce provider's deliberate design of website cues, such as website informativeness, entertainment, and content performance. By managing customer experiences, companies enhance their purchase intention and corporate profits [12,13]

In contrast to experienced utility which focuses on the hedonic quality individuals enjoy [14], under traditional economic theories, decision utility assumes that the consumer makes rational choices to maximize utility based on a balance between costs and benefits. To fulfil consumers' shopping needs and deal with numerous online trading volumes, including information, money, logistics, and business flows, the perceived effectiveness of e-commerce institutional mechanisms (PEEIM) becomes increasingly important [15]. The PEEIM refers to online consumers' belief that there is a third-party guarantee mechanism in the transaction process, such as online credit card guarantees, escrow services, and privacy protection [16]. PEEIM can protect consumers from the potential risks of an e-commerce transaction. Consequently, PEEIM is essential to decision utility. All aspects of the environment are considered, that is, external stimuli that influence an individual's internal cognition and emotions, thus triggering a behavioral response. Therefore, it is reasonable to think that both website cues and PEEIM impact consumers' perceived value and purchase intention.

The purpose of this study is as follows: (1) explore the impact of website cues as an experienced utility on the perceived value of CBEC websites, (2) investigate the moderating effect of the PEEIM on the relationship between website cues and perceived value, and (3) suggest suppliers with strategies for the sustainable development of CBEC.

2. Theoretical Background

Based on the stimulus–organism–response (S-O-R) framework established in environmental psychology [17], this study identifies website cues as the stimulus for experienced utility, perceived values as the organism, and purchase intention as the response. The related literature was summarized as follows.

2.1. Website Cues as Experienced Utility

Website cues relate to the atmospherics of online stores. Kotler and Armstrong [18] defined the atmospherics of physical stores as a "conscious designing of space to create specific effects on buyers." When consumers enter the physical store, its environment will become their first impression that stimulates their senses. Excellent atmospherics (or cues) will promote consumers' attitudes and purchase intentions. Atmospherics in service encounters usually has more persuasive power than marketing mixes [19].

According to Rayburn and Voss [20], the atmospherics of websites is similar to that of traditional physical stores, providing vital clues about the store, which will affect consumers' shopping attitudes. Eighmey [21] described the website as an "infotainment" platform, since information and entertainment are its two critical features. Hoffman and Novak [12] described a website's informational nature as a portal's ability to provide information to shoppers. Furthermore, Pearson, Tadisina [22] posited that the type of information provided and its presentation are equally critical, consistent with Richard's [23] observations on the effectiveness of information content. Website entertainment relates to shoppers' emotional responses, like perceived enjoyment, generated by the website [24]. Chen and

Wells [25] argued that "entertainment" is an exciting, enjoyable, relaxed, exhilarating, and imaginative experience.

It is worth mentioning that there are two factions in the past research literature regarding the environmental characteristics of websites. One revolves around manipulating interface designs, including color, font, text size, and whether music is available. Studies have noted that these basic cues strongly influence consumers' emotional arousal and pleasure, and their impact is automatic and subconscious (e.g., [26,27]). In contrast, the other set of studies involves evaluating websites in terms of features such as information and effectiveness.

2.2. Perceived Value

Perceived value represents value assessment and mainly includes emotional, social, procedural, and functional aspects [28]. Among the different dimensions of perceived value, the most widely investigated and used in recent social media communication and marketing research are the utilitarian and hedonistic perspectives [29,30].

2.2.1. Perceived Utilitarian Value

Utility is the comprehensive evaluation of functions and tools based on benefits and sacrifices [31,32]. Perceived utilitarian values are closely related to efficiency, goal orientation, and economic purpose when using mass customization products and services. Thus, perceived utilitarian values include more perceptual–cognitive dimensions, such as efficiency, convenience, and value-for-money features [31,33].

2.2.2. Perceived Hedonic Value

The hedonic dimension of perceived value can be obtained from a product or service's emotional, physical, reputation, and aesthetic aspects [34,35]. This concept defines hedonic value as a consumer's overall judgment of the benefits and sacrifices of the experience, including intrinsic features such as entertainment and avoidance [33]. Therefore, hedonic value is usually associated with consumers' multisensory emotional experience of goods and services, especially the desire for enjoyment, indulgence, fantasy, and excitement [36,37].

2.3. Perceived Effectiveness of E-Commerce Institutional Mechanisms

The PEEIM refers to online consumers' belief that a third-party guarantee mechanism exists in the transaction process [15]. Examples of PEEIM include online credit card guarantees, escrow services, privacy protection, and so on [15,38,39].

Online hosting service providers (such as PayPal and Safe Trader) authorize payment only after the customer accepts the transaction and agrees to pay, providing a safety net against potential risks of order fulfillment [15]. Credit card online payment guarantees provide resources from financial institutions (such as credit card companies) to compensate buyers against potentially fraudulent seller behavior [15].

These third-party services are considered prevalent institutional mechanisms to protect today's e-commerce environment [15,40] and consumers from potential risks. In other words, when customers' perceived effectiveness of the system mechanism is high, the perceived risk and uncertainty are relatively low, so they will enhance their trust in the supplier.

2.4. Cross-Border Purchase Intention

Purchase intention is a consumer's decision to buy a particular product [41]. Ajzen and Fishbein [42] believed that attitude, the degree of a consumer's preference for a specific target object, is antecedent to their purchase intention. Various studies have empirically validated consumers' positive attitudes and online purchase intentions.

For example, Shankar, Smith [43] confirmed that a shopper's purchase intention toward an online retailer is determined by their positive attitude towards that site, majorly

from the overall satisfaction with the online service encounter. Similarly, Anderson and Srinivasan [44] recognized that satisfaction with specific websites leads to purchase and repurchase intentions. In addition, Yen and Gwinner [45] maintained that total satisfaction with online retailers has a positive effect on continuing to buy from the same e-retailer.

3. Research Model

Our theoretical model aims to investigate the roles of website cues and PEEIM on perceived values and CBEC purchase intention. Influenced by the global COVID-19 epidemic, consumers rely more on e-commerce platforms for shopping. In this study, we believe that a consumer's first impression is crucial before establishing consumer trust. Therefore, we identify website cues as a stimulus, perceived value as an organism, and purchase intention as a response, considering the effects of PEEIM. The proposed research framework is shown in Figure 1.

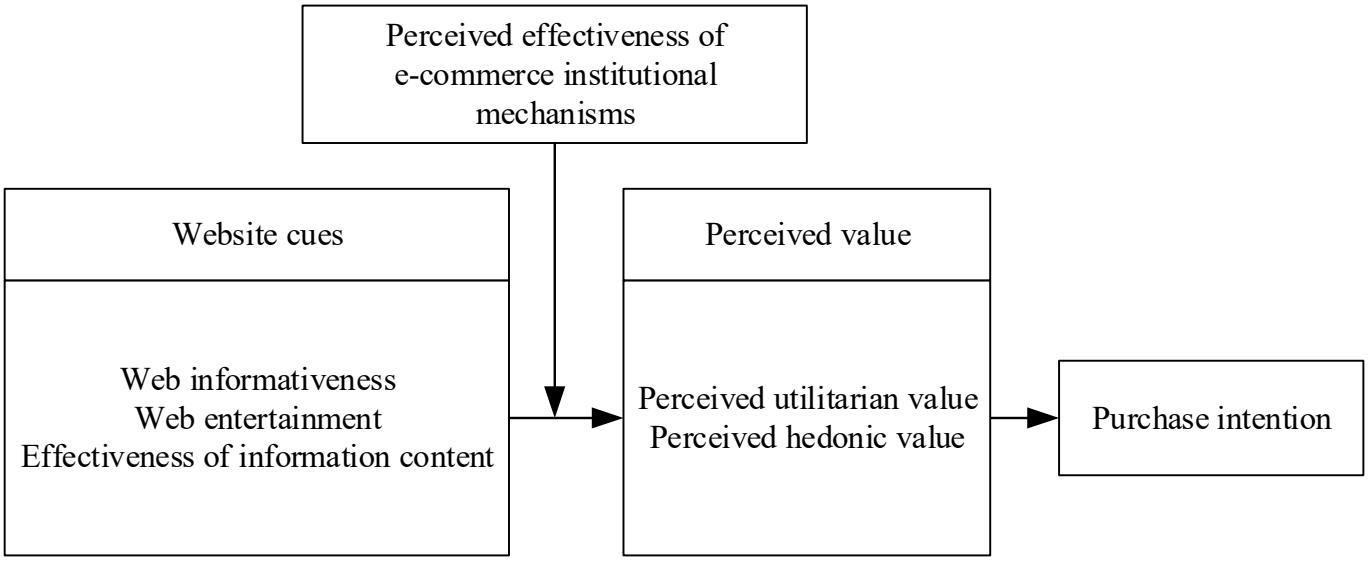

Figure 1. Research Framework.

3.1. The Influence of Website Cues on Perceived Value

Mehrabian and Russell [17] established the S-O-R framework to explain and analyze the impact of environment on human behavior. Later, it was used in the research of the physical retail environment by environmental psychologists [46], showing that the stimulation of a store's atmospherics will affect the internal mood of individuals and then promote purchase intention and behavior.

Due to the development of information technology and the rise of the era of e-commerce, the transfer of the atmospherics of physical stores to websites has been emphasized [27,47]. Website cues are the stimulation that CBEC consumers receive while shopping online. Hausman and Siekpe [48] posited that the informativeness and effectiveness of a website positively impact utilitarian shoppers' attitudes towards it and purchase intention. Similarly, Bui and Kemp [49] recognized that hedonic shoppers have stronger links to purchase intention and behavior.

In sum, the richer the web informativeness, web entertainment, and the effectiveness of information content, the better a consumer's overall judgment of the experience, including perceived hedonic and utilitarian values. Therefore, the following hypothesis can be inferred:

H1a. *Web informativeness is positively related to the perceived utilitarian value of CBEC;*

H1b. *Web entertainment is positively related to the perceived utilitarian value of CBEC;*

H1c. *The effectiveness of information content is positively related to the perceived utilitarian value of CBEC;*

H2a. *Web informativeness is positively related to the perceived hedonic value of CBEC;*

H2b. *Web entertainment is positively related to the perceived hedonic value of CBEC;*

H2c. *The effectiveness of information content is positively related to the perceived hedonic value of CBEC.*

3.2. The Influence of Perceived Value on Purchase Intention

Hedonic value is usually associated with a consumer's multisensory emotional experience of goods and services, especially with regard to the desire for enjoyment, indulgence, fantasy, and excitement [36]. Utilitarian values include more perception–cognitive dimensions, such as efficiency, convenience, excellent quality, and reasonable price characteristics [31,33].

According to Sorce, Perotti [50], shoppers with utilitarian motives emphasize the functional attributes of online experiences, such as the price, quality, usability, etc, of a product. In contrast, Wolfinbarger and Gilly [51] and To, Liao [52] observed that shoppers with a hedonic motivation prefer to have pleasure and entertainment experiences when shopping online.

When consumers' perceived value is positively enhanced, the shopping experience on behalf of consumers will obtain a certain degree of satisfaction, and such perception will drive consumers to improve their willingness to repurchase. Therefore, the perceived value of e-commerce consumers can be expected to affect their repurchase intention, so the following hypotheses can be inferred:

H3. *The perceived utilitarian value is positively related to the purchase intention of CBEC;*

H4. *The perceived hedonic value is positively related to the purchase intention of CBEC.*

3.3. The Moderating Effects of PEEIM

Online shopping differs from physical store consumption with a critical third-party guarantee as PEEIM. The PEEIM service can mitigate the customer's perception of background risks in a general e-commerce environment [53]. Therefore, PEEIM can protect the trading environment with high PEEIM and low uncertainty. Such a secure and stable environment will help enhance the relationship between website cues and perceived values. Consequently, the following hypotheses can be inferred:

H5. *The PEEIM positively moderates the relationship between website cues and perceived utilitarian value;*

H6. *The PEEIM positively moderates the relationship between website cues and perceived hedonic value.*

4. Methodology

This study is based on a popular platform, Shoppe in Taiwan, with agents of overseas shopping and consignment Taobao products, which supports CBEC functions. IBM SPSS 22.0 was used for descriptive statistics of collected samples; the SEM part uses Smart PLS 3.0, including measurement and structural model analyses. Below we describe the procedures for data analysis.

4.1. Data Collection and Sample

This study uses data collected from an online survey of consumers of Shopee from April to June 2021, with 300 valid responses. The sampling frame consisted of consumers who had shopping experiences on the Shoppe website.

4.2. Questionnaire Design

A survey based on Kerlinger's [54] suggestion was designed to test the proposed model. The questionnaire includes the basic information of the respondent in the first part and questions about the main research constructs in the second part. Questions were measured on a Likert seven-point scale, ranging from "strongly disagree" (1) to "strongly agree" (7). Before the questionnaire was officially issued, a pre-test was conducted by five experts in the field and qualified samples to check whether the questionnaire questions and translations were appropriate and whether the meaning of the questions was clear. After adjusting the questionnaire according to the revised suggestions, another 50 samples were tested to further confirm the appropriateness of the questionnaire questions before being fully distributed.

4.3. Measure

Our measures were adapted from the previous literature (see Appendix A). These items were rated on a 7-point Likert scale, ranging from "strongly disagree" to "strongly agree".

5. Results

5.1. Descriptive Statistics

The profile of the research samples is summarized in Table 1 below. The distribution of genders is similar, with more males than females. Most of the respondents are 21–30 years old. The education level is mainly junior college and university. The majority of occupations are students, followed by those in the technology industry. The average monthly income is NTD 10,000 to 30,000. The average monthly spend on online shopping is between NTD 1000 and 4000. Most of them have more than three years of online shopping experience.

Table 1. Descriptive statistics.

Construct	Features	Amount	Percentage
Gender	Men	160	53.33%
	Women	140	46.67%
Age	Under the age of 20	29	9.67%
	21–30 years old	169	56.33%
	31–40 years old	86	28.67%
	41–50 years old	13	4.33%
	Above the age of 51	3	1.00%
Degree of education	Senior high school	9	3.00%
	Bachelor Degree	193	64.33%
	Master degree	96	32.00%
	Doctor's degree	2	0.67%

Table 1. *Cont.*

Construct	Features	Amount	Percentage
The current career	Student	96	32.00%
	Military and public education	18	6.00%
	Science and technology industry	63	21.00%
	The financial sector	10	3.33%
	Services	30	10.00%
	Industrial	26	8.67%
	Agricultural	1	0.33%
	The medical industry	13	4.33%
	Free industry	21	7.00%
	Other	22	7.33%
Average monthly income	Under NTD 10,000	126	42.00%
	NTD 10,001–30,000	132	44.00%
	NTD 30,001–50,000	21	7.00%
	NTD 50,001–70,000	5	1.67%
	Above NTD 70,000	16	5.33%
Average monthly amount spent on e-commerce	Under NTD 1000	126	42.00%
	NTD 1001–4000	132	44.00%
	NTD 4001–7000	21	7.00%
	NTD 7001–10,000	5	1.67%
	Above NTD 10,001	16	5.33%
Online shopping experience	Less than one month	14	4.67%
	Over one month and within six months	13	4.33%
	Over six months and within one year	6	2.00%
	Over one year and within two years	17	5.67%
	Over two years and within three years	20	6.67%
	More than three years	229	76.33%

5.2. Measurement Model Analysis

The measurement models in this study were reflective, so according to the suggestions of Hair and Hollingsworth [55], the reliability and validity were evaluated as follows: (1) internal consistency reliability: Cronbach's alpha and composite reliability (CR); (2) convergent validity: outer loadings and average variance extracted (Ave); and (3) discriminative validity: cross-loadings and Fornell–Larcker criteria were used to evaluate the discriminative validity, and the correlation analysis was described as follows.

5.2.1. Internal Consistency Reliability

The traditional criterion for assessing internal consistency is Cronbach's alpha greater than 0.7. Since Cronbach's alpha assumes that all indicators have the same outer loading, which differs from the calculation rule of PLS-SEM, composite reliability is the more suitable indicator. Cronbach's alpha estimates are relatively conservative, while those of composite reliability are the opposite. Thus, both can be presented simultaneously. Cronbach's alpha and the composite reliability of the major factors in this study are summarized in Table 2. Since both are greater than 0.7, they reveal a good internal consistency reliability.

Table 2. Internal consistency reliability.

Construct	Cronbach's Alpha	Composite Reliability (CR)
Web Informativeness (WI)	0.856	0.904
Web Entertainment (WE)	0.912	0.935
Effectiveness of Information Content (EIC)	0.91	0.934
Perceived Utilitarian Value (UV)	0.871	0.913
Perceived Hedonic Value (HV)	0.852	0.896
PEEIM (IM)	0.861	0.916
Purchase Intention (PI)	0.777	0.87

5.2.2. Convergent Validity

Convergent validity measures the degree of correlation between different measurement variables (or indicators) of the same factor [55]. The outer loading usually measures the convergent validity of the reflecting factors, and the square of the outer loading is also called indicator reliability. The average variance extracted was the overall mean of indicator reliability of each factor. The criterion of outer loading was 0.7, the indicator reliability was 0.5, and the average variance extracted was 0.5. The outer loading and AVE of the major factors in this study are combined. as shown in Table 3. It can be judged that all the factors in this study have good convergent validity.

Table 3. Convergent validity: outer loadings and average variance extracted.

	WI	WE	EIC	UV	HV	IM	PI
AVE	**0.702**	**0.742**	**0.738**	**0.724**	**0.683**	**0.783**	**0.691**
WI1	**0.893**	0.515	0.71	0.589	0.278	0.302	0.505
WI2	**0.907**	0.539	0.728	0.602	0.284	0.323	0.518
WI3	**0.816**	0.492	0.603	0.663	0.326	0.37	0.594
WI4	**0.724**	0.531	0.577	0.399	0.391	0.355	0.323
WE1	0.552	**0.884**	0.511	0.447	0.425	0.265	0.429
WE2	0.509	**0.897**	0.516	0.413	0.499	0.275	0.462
WE3	0.502	**0.909**	0.512	0.406	0.502	0.262	0.479
WE4	0.452	**0.796**	0.45	0.31	0.492	0.294	0.387
WE5	0.622	**0.814**	0.616	0.608	0.404	0.412	0.611
EIC1	0.705	0.544	**0.809**	0.613	0.274	0.353	0.525
EIC2	0.662	0.464	**0.856**	0.591	0.24	0.444	0.442
EIC3	0.67	0.537	**0.904**	0.604	0.292	0.492	0.493
EIC4	0.621	0.527	**0.845**	0.592	0.292	0.422	0.507
EIC5	0.698	0.544	**0.879**	0.667	0.293	0.472	0.577
UV1	0.587	0.476	0.589	**0.752**	0.285	0.386	0.479
UV2	0.614	0.435	0.662	**0.896**	0.25	0.285	0.547
UV3	0.591	0.458	0.604	**0.874**	0.218	0.343	0.516
UV4	0.532	0.386	0.575	**0.874**	0.223	0.299	0.55
HV1	0.456	0.576	0.397	0.439	**0.838**	0.211	0.561

Table 3. *Cont.*

	WI	WE	EIC	UV	HV	IM	PI
HV2	0.269	0.392	0.22	0.124	**0.881**	0.225	0.343
HV3	0.241	0.417	0.217	0.109	**0.839**	0.262	0.278
HV4	0.169	0.29	0.139	0.14	**0.744**	0.22	0.253
IM1	0.346	0.282	0.445	0.383	0.232	**0.844**	0.349
IM2	0.354	0.337	0.472	0.321	0.269	**0.912**	0.389
IM3	0.37	0.319	0.433	0.321	0.223	**0.898**	0.357
PI1	0.602	0.522	0.596	0.631	0.393	0.357	**0.873**
PI2	0.435	0.472	0.458	0.386	0.478	0.373	**0.81**
PI3	0.414	0.383	0.408	0.495	0.308	0.3	**0.809**

Note: Indicators' outer loadings under the specific construct are highlighted in bold.

5.2.3. Discriminative Validity

Discriminative validity refers to the degree to which a factor differs from others. Therefore, factors with discriminative validity represent their uniqueness and can grasp the phenomena not represented by other factors in the model. The first traditional method to test discriminative validity is a cross-loading test; that is, the outer loading of each index in its factor should be greater than that of other factors. The outer loading of each factor in this study is summarized as shown in Table 3, indicating good discriminative validity. The Fornell–Larcker criterion is the second test of discriminative validity. This criterion compares the correlation coefficients between the square root of AVE and the latent variables. Specifically, the square root of the AVE of each factor should be greater than the maximum of the correlation coefficients with other factors. The Fornell–Larcker criterion of this study was analyzed and is summarized in Table 4. The AVE square root of each factor was greater than the correlation coefficient between horizontal and vertical, so it had good discriminative validity.

Table 4. Discriminative validity: Fornell–Larcker test.

	WI	WE	EIC	UV	HV	IM	PI
WI	**0.838**						
WE	0.617	**0.861**					
EIC	0.782	0.61	**0.859**				
UV	0.683	0.515	0.715	**0.851**			
HV	0.377	0.538	0.325	0.287	**0.827**		
IM	0.403	0.354	0.509	0.384	0.273	**0.885**	
PI	0.591	0.557	0.595	0.615	0.472	0.413	**0.831**

Note: The square root of the AVE of each factor is highlighted in bold.

Recent studies have found that neither the cross-loading method nor the Fornell–Larcker criterion can reliably detect the issue of discriminative validity [56]. For example, cross-loading does not identify poor discriminative validity when the two factors are perfectly correlated. Furthermore, the performance of the Fornell–Larcker criterion is not good when the difference in the outer loading of indicators is not significant. Therefore, Henseler, Ringle [56] suggested evaluating the related heterotrait–monotrait ratio (HTMT) and indicated that the criteria for factors with similar concepts should be below 0.9, while those with significant conceptual differences should be below 0.85. The HTMT values of this study are summarized in Table 5, which also meet the criteria of discriminative validity.

Table 5. HTMT test.

	WI	WE	EIC	UV	HV	IM	PI
WI							
WE	0.802						
EIC	0.331	0.284					
UV	0.574	0.448	0.321				
HV	0.694	0.737	0.532	0.504			
IM	0.664	0.571	0.574	0.395	0.649		
PI	0.886	0.78	0.406	0.471	0.7	0.699	

5.3. Structure Model Analysis

After determining that the measurement model of the research framework has good reliability and validity, the structural model was analyzed as follows.

5.3.1. Evaluating Common Method Bias

Because the responses of all measurement items, including the independent and dependent variables, are provided by the same respondent, there may be a common method bias (CMV). According to the suggestion of [57], the data could be checked using Harmon's single-factor test. If, as a result of exploratory factor analysis, a single factor appears or a single factor explains most of the variability, it represents a common method bias.

In this study, the results of the exploratory factor analysis of all measurement items are shown in Table 6. There were five factors in total, and the first factor explained 41.389% of the variation, representing no significant common method bias.

Table 6. Common method bias.

Factor	Initial Eigenvalues		
	Total	**% of Variance**	**Cumulative %**
1	12.417	41.389	41.389
2	2.987	9.956	51.345
3	2.060	6.866	58.211
4	1.658	5.527	63.738
5	1.229	4.097	67.835

5.3.2. Evaluating Collinearity

Collinearity represents a high correlation among factors, which may cause problems in methodology or interpretation [55]. The degree of collinearity can be used as tolerance (tolerance; TOL.), which represents the degree to which other indicators do not explain the variation of a particular factor indicator. Another relevant evaluation index is the variance inflation factor (variance inflation factor; VIF), defined as the inverse of TOL. In the case of PLS-SEM, TOL is lower than or equal to 0.2; a VIF greater than or equal to 5 represents the existence of collinearity [58]. The VIF of this study is summarized in Table 7, in which the first column is the primary endogenous factors, and the following columns are the VIF values of related exogenous factors. Because all VIF values were below 5, there was no significant collinearity in the associated exogenous factors.

Table 7. Collinearity test: VIF.

	Perceived Utilitarian Value	Perceived Hedonic Value	Purchase Intention
Web Informativeness	3.133	2.801	
Web Entertainment	1.817	1.739	
Effectiveness of Information Content	3.326	3.071	
PEEIM	1.428	1.356	
Perceived Utilitarian Value			1.087
Perceived Hedonic Value			1.087

5.3.3. Evaluating Path Coefficient

After performing PLS-SEM, the estimated value of the structural model relationship (the path coefficient) can be obtained, representing the verification result of the research hypothesis. The path coefficient is between +1 and −1; approaching +1 represents a strong positive relationship, and approaching −1 represents a strong negative relationship. However, whether the path coefficient is statistically significant depends on the standard error obtained using the bootstrapping method and then calculating the *t*-value and *p*-value. The *t*-values of 1.65, 1.96, and 2.57 represent a significance degree of 10%, 5%, and 1% for the double-tailed test. As a result, we know that web informativeness significantly influences the perceived utilitarian value of CBEC. The effectiveness of information content has a significant positive influence on the perceived utilitarian value of CBEC. Web entertainment has a significant positive influence on the perceived hedonic value of e-commerce. Perceived utilitarian value has a significant positive influence on the repurchase intention of e-commerce. Perceived hedonic value has a significant positive influence on the purchase intention of CBEC. The path coefficients, *t*-values, and *p*-values of the main hypotheses in this study are summarized in Table 8.

Table 8. Path coefficient test.

Research Hypothesis	Relationship	Path Coefficient	*t*-Values	*p*-Values and Significance
Web Informativeness → Perceived Utilitarian Value	+	0.215	2.769	0.006 **
Web Entertainment → Perceived Utilitarian Value	+	0.079	1.478	0.14
Effectiveness of Information Content → Perceived Utilitarian Value	+	0.468	6.016	0 ***
Web Informativeness → Perceived Hedonic Value	+	0.133	1.477	0.14
Web Entertainment → Perceived Hedonic Value	+	0.502	6.883	0 ***
Effectiveness of Information Content → Perceived Hedonic Value	+	−0.149	1.579	0.114
Perceived Utilitarian Value →Purchase Intention	+	0.527	11.349	0 ***
Perceived Hedonic Value →Purchase Intention	+	0.318	6.6	0 ***

Note: A t value > 1.96 indicates a significance level of $p < 0.05$ and is denoted by *; a t value > 2.58 indicates a significance level of $p < 0.01$ and is denoted by **; a t value > 3.29 indicates that a significance level of $p < 0.001$ and is denoted by ***.

This study also examined the significance of the overall effect, as shown in Table 9.

Table 9. Total effect test.

Path	Total Effect	*t*-Values	*p*-Values and Significance
Web Informativeness → Perceived Utilitarian Value	0.215	2.769	0.006 **
Web Entertainment → Perceived Utilitarian Value	0.079	1.478	0.14
Effectiveness of Information Content → Perceived Utilitarian Value	0.468	6.016	0 ***
Web Informativeness → Perceived Hedonic Value	0.133	1.477	0.14
Web Entertainment → Perceived Hedonic Value	0.502	6.883	0 ***
Effectiveness of Information Content → Perceived Hedonic Value	−0.149	1.579	0.114
Web Informativeness → Repurchase Intention	0.156	3.091	0.002 ***
Web Entertainment → Repurchase Intention	0.201	4.59	0 ***
Effectiveness of Information Content → Repurchase Intention	0.199	3.837	0 ***
Perceived Utilitarian Value →Repurchase Intention	0.527	11.349	0 ***
Perceived Hedonic Value →Repurchase Intention	0.318	6.6	0 ***

Note: A t value > 1.96 indicates a significance level of $p < 0.05$ and is denoted by *; a t value > 2.58 indicates a significance level of $p < 0.01$ and is denoted by **; a t value > 3.29 indicates that a significance level of $p < 0.001$ and is denoted by ***.

5.3.4. Evaluating Moderating Relationship

The moderating relationship means that a third factor (the moderating variable) influences the relationship between two factors. The moderating variables change the strength and even the direction of the relationship between the two factors. The moderating relationship is illustrated below. Suppose a direct relationship exists between Y_1 and Y_2, while M is the moderating variable. Then, the moderating relationship can be expressed using Equation (1) and Figure 2.

$$Y_2 = P_1 \cdot Y_1 + P_2 \cdot \mathrm{M} + P_3 \cdot (Y_1 \cdot \mathrm{M}) \quad (1)$$

$Y_1 \cdot$M, also known as interaction item, is generally established in three ways: (1) product indicator approach, (2) orthogonalizing approach, and (3) two-stage approach. This study accepted the suggestions of [41] to adopt a two-stage approach to verify the moderating effect.

This study examined the moderating effects of PEEIM on the relationship between website cues and perceived value. The moderated model was established and analyzed using a two-stage approach. The bootstrapping results are summarized in Table 10, indicating that the PEEIM showed a significant negative moderating relationship between website informativeness and perceived utilitarian value. The PEEIM showed a significant positive moderating relationship between the effectiveness of information content and perceived utilitarian value.

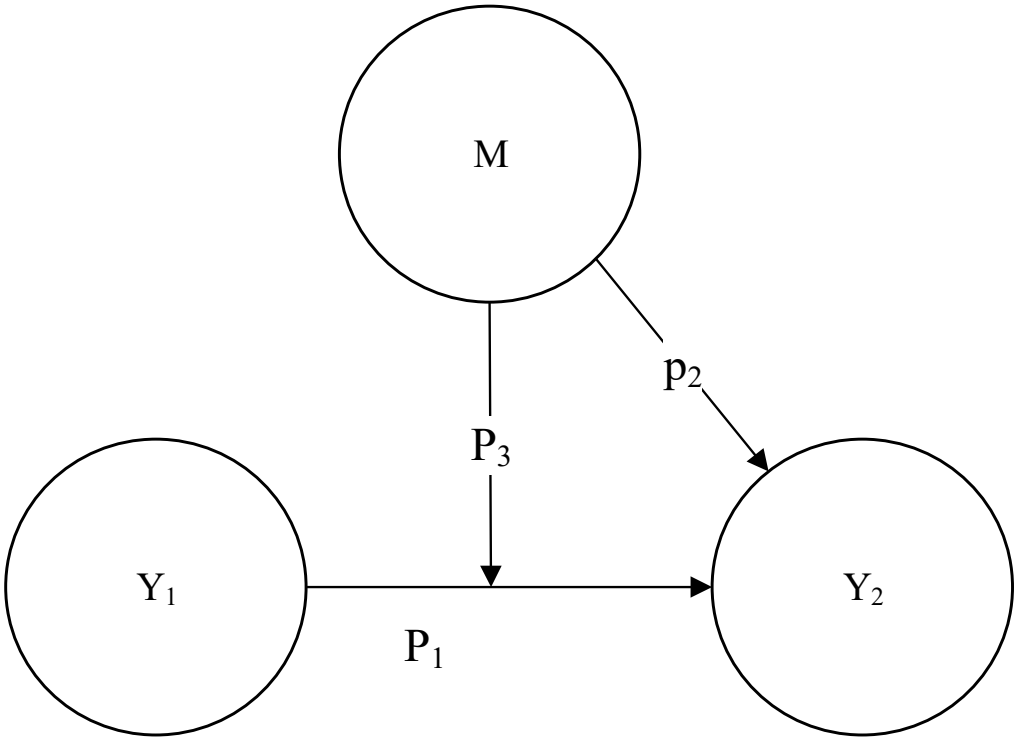

Figure 2. Moderating Relationship.

Table 10. Moderating relationship test.

Research Hypothesis	Relationship		*t*-Values	*p*-Values and Significance
Web Informativeness × PEEIM → Perceived Utilitarian Value	+	−0.214	2.58	0.01 **
Web Entertainment × PEEIM → Perceived Utilitarian Value	+	−0.053	1.046	0.296
Effectiveness of Information Content × PEEIM → Perceived Utilitarian Value	+	0.149	1.983	0.047 *
Web Informativeness × PEEIM → Perceived Hedonic Value	+	−0.054	0.571	0.568
Web Entertainment × PEEIM → Perceived Hedonic Value	+	−0.017	0.217	0.828
Effectiveness of Information Content × PEEIM → Perceived Hedonic Value	+	0.039	0.382	0.703

Note: A t value > 1.96 indicates a significance level of $p < 0.05$ and is denoted by *; a t value > 2.58 indicates a significance level of $p < 0.01$ and is denoted by **; a t value > 3.29 indicates that a significance level of $p < 0.001$ and is denoted by ***.

5.3.5. Evaluating the Accuracy of the Prediction

In structural models, the coefficient of determination (R^2) is most commonly used to evaluate predictive power. The determination coefficient represents the combined effect of the related exogenous factors on the endogenous factors, that is, the degree of variation of the endogenous factors that the related exogenous factors can explain. R^2 values range from 0 to 1; the higher the value, the more accurate the prediction. R^2 values of 0.25, 0.50, and 0.75 represent small, medium, and large correctness, respectively [58]. In the table below, the R^2 of the main endogenous factors ranged from 0.573 to 0.709, indicating moderate to higher accuracy. In addition to evaluating the R^2 values of all endogenous factors, the contribution of specific exogenous factors to the final R^2 can be measured if

they are removed from the model. This concept is defined as the value f^2, and is shown in Formula (2):

$$f^2 = \left(R^2_{included} - R^2_{excluded}\right) / \left(1 - R^2_{included}\right) \quad (2)$$

$R^2_{included}$ represents an R^2 value that includes a particular exogenous factor, and $R^2_{excluded}$ represents an R^2 value that does not. f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively [55]. The f^2 values of the main factors, such as perceived utilitarian value, perceived hedonic value, purchase intention, and related exogenous factors, are shown in Table 11 below. It can be seen that website entertainment has a great influence on perceived hedonic value, and perceived utilitarian value has a significant impact on purchase intention.

Table 11. R^2 and f^2 value.

	Perceived Utilitarian Value	**Perceived Hedonic Value**	**Purchase Intention**
R^2 value	0.554	0.303	0.474
	f^2 value		
Web Informativeness	0.071	0.009	
Web Entertainment	0.004	0.208	
Effectiveness of Information Content	0.137	0.01	
Perceived Utilitarian Value			0.485
Perceived Hedonic Value			0.177

5.3.6. Evaluating the Relevance of the Prediction

In addition to using R^2 to evaluate the accuracy of the prediction, Stone–Geisser's Q^2 values can be examined to measure the out-of-sample predictive power or predictive relevance of model indicators [59,60]. If the PLS-SEM path model can correctly predict the data that have not yet been used in the model estimation, it has the prediction correlation. The blindfolding technique of PLS-SEM can be used to obtain the Q^2 value. Blindfolding is a repeat sampling technique that fixes skip d data points for endogenous factors and estimates parameters from other data points [61,62]. The difference between actual and estimated data forms the basis for calculating Q^2. In the structural model, if the Q^2 value reflecting the endogenous factor is greater than zero, the path model has predictive relevance for this factor [55]. Just as R^2 and f^2 can evaluate the accuracy of the prediction, Q^2 and q^2 can calculate the relevance of the prediction as shown in Formula (3).

$$q^2 = \left(Q^2_{included} - Q^2_{excluded}\right) / \left(1 - Q^2_{included}\right) \quad (3)$$

$Q^2_{included}$ represents the Q^2 value that includes a particular exogenous factor, and $Q^2_{excluded}$ represents the Q^2 value that does not. q^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively [55]. The Q^2 and q^2 values of the primary endogenous factors in this study are summarized in Table 12, indicating good prediction relevance.

Table 12. Q^2 and q^2 value.

	Perceived Utilitarian Value	Perceived Hedonic Value	Purchase Intention
Q^2 value	0.354	0.177	0.319
	q^2 value		
Web Informativeness	0.366	0.175	0.319
Web Entertainment	0.383	0.081	0.32
Effectiveness of Information Content	0.334	0.176	0.319
Perceived Utilitarian Value		0.184	0.152
Perceived Hedonic Value	0.687		

6. Discussion

Impacted by the pandemic, people's consumption habits have changed a lot, with more and more people choosing to shop online. Under this trend, e-commerce expands to CBEC, for which websites are essential for online consumers' impressions and interactions with online retailers.

6.1. Theoretical Implications

This study investigated the purchase intention of CBEC under the consideration of website cues as experienced utility and PEEIM as decision utility. Significant theoretical implications can be described as follows.

First, this study confirmed that CBEC consumers are concerned about both experienced and decision utility during shopping. This finding complements traditional studies focusing on the logistic and operational perspective of the systematic literature review by [1].

Second, Prashar et al. [63] identify utilitarian and hedonic values as internal influence and website cues as external influence and claim that their effects on website satisfaction are independent. In contrast, this study recognizes the mediating role of perceived values on the relationship between website cues and satisfaction. This study further confirms the different effects of website cues on perceived values. As a result, it provides a more in-depth understanding of consumers' intrinsic and extrinsic psychological states.

Third, Fang and Qureshi [16] introduced PEEIM as a critical moderator and identified a positive moderating effect on the relationship between satisfaction with a vendor and trust in a vendor; meanwhile, there is a negative moderating effect on the relationship between trust in a vendor and repurchasing intention. Similarly, by investigating the moderating effects of IEEM on the relationship between website cues and perceived values, this study identified a positive moderating effect on the relationship between the effectiveness of information content and perceived utilitarian value and a negative moderating effect on the relationship between informativeness and perceived utilitarian value. This finding clarifies the nature of PEEIM and the benefits of leveraging it to promote CBEC.

6.2. Managerial Implications

According to the findings of this study, the following practical suggestions are proposed.

First, based on the finding that PEEIM has different moderating effects on the relationship between website cues and perceived value, this study recognizes that if the effective PEEIM is in place, perceived website informativeness is not as crucial as expected. Therefore, online retailers should focus more on the quality than the quantity of the information presented on the website.

Second, the possible adverse effect of website informativeness suggests consumers do not have the patience to spend a long time browsing a website. Therefore, online retailers should review the informativeness of their websites regularly.

Third, under the enhancement of PEEIM, consumers are more concerned about the quality of information presented on the website, so online retailers should focus on the effectiveness of the information content of the website. Expressly, they could stress information on the website is conveniently available, relevant, accurate, complete, and up-to-date.

6.3. Limitations and Future Research

Despite the presented contributions, this study acknowledged some specific limitations. First, due to sample size limitations, this study is based on the popular Shopee platform in Taiwan that includes foreign and local products; future studies could use cases with a higher degree of cross-border nature to check possible differences. Second, the empirical data were collected in Taiwan. However, different countries might have other preferences and behaviors. Future research could be conducted in different cultural backgrounds with a broader sample to enhance the applicability of research findings. Lastly, this research concentrated on the consumer side; it would be insightful to investigate CBEC issues from the supplier side.

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Appendix A

Table A1. Survey constructs.

Construct (Source)	Variable	Explanatory Items
Web Informativeness [39]	WI1	The Shopee website is useful to me
	WI2	The Shopee website is informative to me
	WI3	I find the Shopee website to be resourceful
	WI4	The Shopee website is knowledgeable for me
Web Entertainment [39]	WE1	It is fun to browse the Shopee website
	WE2	The Shopee website is entertaining
	WE3	I find the Shopee website to be exciting
	WE4	There is sufficient imaginativeness in the Shopee website.
	WE5	The Shopee website is attractive
Effectiveness of Information Content [39]	EIC1	The information on the Shopee website is conveniently available.
	EIC2	I find the information on the Shopee website to be accurate.
	EIC3	The information on the Shopee website is complete.
	EIC4	The Shopee website has up-to-date information.
	EIC5	The information on the Shopee website is relevant.

Table A1. *Cont.*

Construct (Source)	Variable	Explanatory Items
Perceived Utilitarian Value [39]	UV1	The products and services I purchase online are always right priced and are of good quality I am successful in my online shopping.
	UV2	While shopping online, I search for just the items I am looking for.
	UV3	I can buy what I need.
	UV4	I can accomplish just what I want on an online shopping trip.
Perceived Hedonic Value [39]	HV1	Online shopping is always exciting for me.
	HV2	Online shopping gives me more pleasure than what I get from the products purchased.
	HV3	Compared to other things I could do, online shopping is truly enjoyable.
	HV4	I continue to shop not because I have to but because I want to.
Perceived Effectiveness of E-commerce Institutional Mechanisms [10]	IM1	When buying online, I am confident that there are mechanisms in place to protect me against any potential risks (e.g., personal information leak, credit card fraud, goods not received, etc.) if something goes wrong.
	IM2	I have confidence in third parties (e.g., SafeTrader, TRUSTe) to protect me against any potential risks (e.g., personal information leak, credit card fraud, goods not received, etc.) if something goes wrong.
	IM3	I am sure that I cannot be taken advantage of (e.g., leaking of personal information, credit card fraud, goods not received, etc.) as a result of conducting purchases online.
	IM4	I believe other parties in online shopping (e.g., your credit card company) should protect me against any potential risks (e.g., personal information leak, credit card fraud, goods not received, etc.) if something goes wrong.
CBEC Purchase Intention [64]	PI1	I will seriously consider purchasing imported goods from the Shopee website.
	PI2	I am willing to buy imported goods on the Shopee website.
	PI3	I will now buy imported goods on the Shopee website.
	PI4	I will buy imported goods on the Shopee website within six months.

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