

# **Study of How the Experience and Behavior of Consumers are Affected by User Experience (UX) Design in the Online Fashion Retailing Industry**

**AU Mei Yan, YOUNG Tsz Ting Angela, YEH Mau Wong**

Department of Industrial and Systems Engineering

Faculty of Engineering

The Hong Kong Polytechnic University, Hung Hom, HKSAR, CHINA

[19041809D@connect.polyu.hk](mailto:19041809D@connect.polyu.hk), [19063412D@connect.polyu.hk](mailto:19063412D@connect.polyu.hk),

[18063109D@connect.polyu.hk](mailto:18063109D@connect.polyu.hk)

**C.K.M. LEE**

Associate Professor, Department of Industrial and Systems Engineering

Faculty of Engineering

The Hong Kong Polytechnic University, Hung Hom, HKSAR, CHINA

Laboratory for Artificial Intelligence in Design, Hong Kong Science Park,

New Territories, Hong Kong SAR, China

[ckm.lee@polyu.edu.hk](mailto:ckm.lee@polyu.edu.hk)

## **Abstract**

With rapid technological development, human well-being was significantly enhanced with the invention of various advanced cyber-technologies. It is considered a fashion retailer that can grab this valuable opportunity and strengthen its competitive edge to cement its market position. E-commerce is becoming essential and causing influences currently. A significant proportion of fashion retailers are going to sell their products in the virtual platform which the online stores are generating increasingly contribution to the business and thus fashion retailers are more focusing on the user experience design of the online store. This research intends to analyze the relationship between the perception attributes of user experience design influence their perceived value and customer loyalty. In accordance with the hypotheses model that being developed with the foundation of technology acceptance model and other research models in investigating customer fulfilment, customers were required to complete a simulation of online fashion shopping along with evaluation of their shopping experience for the distinguishment for the crucial perception of user experience attributes that result to customer loyalty as well as the examination of the relationships among constructs. This research has verified the relationships of the perception attributes of user experience design and the formulation of customer loyalty.

## **Keywords**

User experience, fashion industry, structural equation model, customer loyalty, online shopping

## **Introduction**

In recent decades, the e-commerce industry is experiencing an exponential growth thanks to the rapid development of internet, mobile devices, and logistic services. According to Statista, the transaction volume of online fashion industry worth approximately 668 US billion in 2021 and is currently expected to reach 760 US billion in 2021 and predicted to grow continuously that exceed 1,000 US million in 2025. In addition, the market share through online platform for fashion industry is expected to account for approximately a quarter, whilst its penetration rate is expected in hitting a half in which its growth rate surge continuously from 3.5% in 2012 to 6.16% in 2020. It is also found that the growth in total e-commerce fashion and e-commerce apparel growth in the year 2020 are 26.5% and 29.6% respectively while the average compounded annual growth rate between 2021 and 2025 is 7.2% per annum. It is obvious that all the categories in the fashion industry, including the apparel, footwear, and bags and accessories, are keeping an exponential growth in the foreseeable future, in particular, apparel is expected to accelerate for the highest

extent among the other two categories. As a result, more and more brands, especially those international well-known brands, are more focusing on the online market and trying to capture the blooming market by creating a good appearance website to attract and retain customer in better selling their products. Besides, the fashion brands wondered how to build a comfortable environment and the customers fulfilment in this neoteric median.

With the speedy development of the online commerce industry, there are more and more companies engaging in the neoteric median, regardless the scale of the business, with the evolve of simple website builder that consists of transaction system and social-commerce platform which reduce the barrier and costs in setting online store. It is discovered that the total number of e-commerce websites surge exponentially during the recent two decades, reaching nearly 2 billion as of 2018. In addition, it is also clear that the sales volume of global retailing industry also keeps accenting substantially in the past decade and is expected to be quadrupled in 2023 compared to 2014. Such phenomenon also happened in China, one of the largest electronic commerce markets that is experiencing a mounting growth in the transaction values to achieve a steady growth rate of online shopping. As a result, the difficulty is increasing in retaining customers and building their brand loyalty since it is easy for customers to obtain information from competitors to compare with the raising of transparency in the market. Therefore, it is believed that the customer behaviours and the linkage among the user experience design website and the customer intention on purchasing along with the creation of their loyalty is also significant to enhance the sustainable growth of an e-commerce business.

The design of the entire process in using fashion store application has been significantly improved and the features are being continuously enriched in recent years to enhance the entire process to be more affluent and convenient. However, the software developers of these online websites / applications only have limited sources for their reference in reforming the wireframes, information architect along with the interaction design of the web system and they are concerning on any change of the application with adverse impact of customers' usage will seriously affect the user experience of customers. As a result, they may need to spend more time getting familiar with the new interface and may consider it not user-friendly, posing risks in reducing sales volume.

As a result, it is believed that there is lack of study on the user experience (UX) design of fashion store application for the sake of achieving the major goals which are enhancing customers' purchasing experience and building of customer fulfilment with the boosting sales volume of the platform and building customers loyalty in long run. It is also suggested that majority of existing findings are relying on the data collection by questionnaire approach in understanding how can those fashion store application can perform to raise their user experience design in achieving designed outcomes while other approaches should be introduced in knowing the behaviours of customers more comprehensively.

With the emerging growth of mobile gadgets development, it provides a new format of online retailing for electronic commerce sellers in promoting their products and services with their potential customers more directly. It also evolves the purchasing habit of customers in browsing and purchasing from online retailers as customers can just complete the entire online transaction easily with simply a few clicks without the barrier of time and location that enables customer to browse and shop at anytime and anywhere, for instance, relaxing themselves on a comfort seat at their home with hearing on relaxing music during their online purchasing, that solely requires a mobile device with internet connection. The revamp of online shopping process also offers a valuable chance to the fashion retailing industry specialists as they can promote their products and brands in a modern way that is more economically and timely when it compares to the traditional approaches.

In addition to the change of purchasing habits, the transformation of online fashion purchasing has altered the devices used by customers from traditional desktop computer to just simply a smartphone or tablet. Majority of online fashion retailers in the markets have developed an alternative site for mobile users to cater to the blooming growth of customers using mobile devices. Unlike watching on a large monitor and using the mouse in commending, the deployment of mobile gadgets reform their usage that only consist of a small screen and control by touching on the screen. The great advancement achieved from the transformation would indeed change the perception of attributes on the online website usage and therefore it is considered that the previous scholars in the evaluation of user experience design attributes may not be entirely applicable in the current era with the significant change on the website usage.

## **Objectives**

The research has four major objectives to be achieved:

- 1) To understand the formulation of customer loyalty with the perception attributes of user experience design of online fashion retailers.
- 2) To distinguish how the perceived values on technology acceptance result in customer loyalty and other customer fulfilment constructs and determine the direct and indirect relationship in between.
- 3) To explore the relationship between the users' behaviours and their judgement of user experience constructs through vision-tracking experiment for the provision of cement evidence in user experience design of web interface.
- 4) To guide the online fashion retailers in recognizing and distinguishing the market insights and opportunity in developing corporate strategies to enhance and strengthen the sales performance and retention of loyal customers.

There are mainly two expected deliverables that expected to be achieved in this study. To commence with, this study wishes to discover on how the user experience design attributes influence on customer loyalty. Moreover, the research also tries to examine on the relationship between the user behaviours and the attributes of user experience design. The two above-mentioned expected deliverables are significant as it can bridge the gap in literature due to the majority of past scholars usually prefer to focus on the acceptance and behavioural intension of end-users on user experience design attributes and lack investigation on the users' performance in online store system. The findings of this project are considered could help the online fashion retailers in the market to develop their user experience design of their web store along with the formulation of corporate strategies.

This paper focus on the user experience design (UX) of online fashion store site and the formulation of customer loyalty through the review of literatures related to user experience design and the perceptions of UX design, vision-tracking, consumer fulfilment formulation. It assesses on both the customer attributes on different constructs as well as the entire procedures encountered during the online transaction while the effect of perception attributes of the user experience design on customer loyalty is the major attention in the study. This research targeted to reach people who have used online fashion store previously, who are being tagged as online shopper. The major characteristic for online shoppers is that they are experienced in using technologies and rely on the manipulate on internet and therefore they are likely to browse and purchase through online platform instead of traditional in person approach. As a result, it is obvious that the target group of the research is familiar with the command and process of online fashion shopping site in different fashion retailers. It is considered that significant insight could be unveiled throughout the understanding of the attributes and the behaviours of respondent in their usage in online shopping platform. The research of perception attributes on customers loyalty is based on the conceptual model of technology acceptance model (TAM) that introduced by Davis (1989). Questionnaire was being set according to the research model as proposed while both the questionnaire and experiment were supported by the relevant research. The collected data was then being analysed in providing worthwhile results and findings regarding to the hypotheses. The paper was then concluded with raising its implications and recommendations for the achievement of the intended outcome as proposed along with the limitation of the study.

## **Literature Review**

User experience is a comprehensive view of the interaction among human and computer. Lallemand et al. (2015) argued that the user experience can provide an integrated view towards how the satisfaction of users are being reached by the consideration of the involvement of both cognition and emotional that can embed the usability of a web interface. In addition, Normal et al. (1995) and Alben (1996) concluded that the aspect of user experience design become a significant factor for marketers together with web designers since it could play a detrimental effect towards both objective factors of usability and situation factors of emotional state for users.

There are several focuses on the design of user experience that including the creation of enjoyable online experience, generation of high conversion rates together with positive perception towards brand by the removal of overload information, easily apprehensible, and keeping things simple. Li et al. (2017); Sauro and Lewis (2012) suggested that the key factors can hence be adopted in achieving the marvellous web design that could enhance the satisfaction and trust of consumers along with website visit and purchase. It is also considered that the favorable user experience design can offer a web system that could be used by users in achieving designated goals with efficiency, effectiveness,

together with fulfilment under a specific context of usage. The studies also considered that the qualitative user experience design would positively influence the website familiarity and memory of users that demonstrate there are close relation with both the customer satisfaction and loyalty.

The implement of vision tracking offers clues for user interaction along with user cognition in diverse areas of computer science that is widely being adopted in knowing the user cognitive and behaviours strategies (Jacob & Karn, 2003; Rayner 1998). It is also found that the technology of vision tracking can be used in determining how the users interact with the web elements in detail and hence can achieve improvement of web usage performance (Kelly, 2006; Lorigo et al. 2006). As a result, vision tracking has been widely adopted in various aspects including but not limited to marketing, cognitive psychology, as well as web accessibility (Christian et al. 2015; Eraslan et al. 2019). Granka et al. (2004) also concluded that the implementation of vision tracking could be used in enhancing the web pages design and layout for better evaluation of its usability.

The tracking of gaze points can demonstrate which particular part of the web interface gain attention of users that facilitates the understanding towards the user experience. (Buscher et al. 2010; Cutrell & Guan 2007; Dumais, Buscher, & Cutrell 2010). There are two major observations were being made for the analysing of gaze point which are fixations along with saccades. Fixations could be described as the movement of eye when it is comparably stagnant that normally ranged from 50 - 600 ms for the sake of acquiring information. On the contrary, saccades are the continuous movements of eyes among fixations. It is considered that both the fixations and saccades offer hints in searching the behaviours of users from their direction and number of fixations in which the scan paths can hence be completed depicted (Rayner 1998 2009; Poole & Ball 2006).

Goldberg and Kotval (1999) discovered that although the optimal scan path, which is the sequences of fixations and saccades, task execution consists of less fixation along with shorter duration of fixation demonstrates less hesitation in effective searching may also indicates that they are having challenges in commending the web because of usability issue. However, scholars unveiled that the higher number of fixations imply that the system with well-designed usability which users are generally more interested in the content and willing to look and retrieve different information from the system (Alt 2012; Caltenco et al. 2012; Poole et al. 2004). When it comes to the area and duration of gazing on fixation area, research also the greater proportion of fixations in a certain Area of Interest (AOI) represents that the information there is relatively critical compared to the other area while the longer duration for fixation indicates that the complexity of tasks (Poole et al. 2005; Just & Carpenter 1976; Rayner 1998). In addition, various of studies also found that the longer duration of gazing on products details, as an important area of interest (AOI), represents that the reduction of their cognitive effect which can eventually foster their confidence and hence formulating their sense of fulfilment that brought from the shopping experience.

Colour can affect users' experience by providing unique means in building emotional appeal from different aspects, including cognitive process, aesthetic perception, satisfaction, trust, aesthetic perception, and loyalty. The empirical findings illustrate that the colour of a website design together with font, shapes, layouts, and photographs probably driver the experience and feelings of website users (Khuong et al. 2018). The appropriate and sufficient use of colour was recommended in facilitating the effectiveness and efficient in presenting information (Lee et al. 2017). It is found that there are certain interrelations among the judgements of users and the system prosperities in the software context on aesthetic perception from the use of colour (Khuong et al. 2018). The information of colour, for instant, brightness, hue, along with saturation that cause potential in affecting users' perception, reaction of physiological and emotional, along with behaviour intension. It is also concluded that the increase in colour appeal will resulted in greater extent of satisfaction, trust, along with loyalty by conducting experiments to respondents with different colour scheme (Cyr. et al.2010). As a result, a good combination of colour in website could make information be clearly presented as well as building emotional appeal for customers.

The usability is being as one of the key measures on evaluating quality of website (Sivaji and Tzuaan 2012) and it is a major component that determine if the websites are commercial successfully (Lowry et al. 2006). The usability would usually be being measured and evaluated by conducting usability test to explain the effectiveness in using the website by analysing the errors occurred in completing specific tasks in commanding the features of the website. The lower the number of errors, the diminish degree of uninformative and unresponsive the website is, and the higher level of customer satisfaction achieved, vice versa. There are mainly six major criteria including attractive of the user's impression towards the products or services, dependability on the interaction and users' feeling, efficiency of the speed and effort spent in completing tasks, novelty on the extent of innovation that grabs users' attention, perspicuity of the

ease to learn, understand, and get familiar with the website, and simulation on users' feeling on exciting products in describing the result of user experience (Hartomo and Bakal 2021). The results can be applied by different industries for the sake of better prioritize efforts to their potential customers (Bucko and Kakaleick 2018). Therefore, a well-developed website should be easy to be understood along with attracting customers that free from errors.

Aesthetics is one of the major principles in design that defining the pleasing qualities of a design. The aesthetics of the computer system become a significant non-functional requirement that affect the users from a variety of dimensions including behaviour, and emotions (Waldeilson and Ana 2016). It is being used as complement of the usability for the sake of enhancing the functionality and attractiveness by considering a variety of factors including colour, balance, movement, shape, scale, pattern along with visual weight in the interface. A well aesthetics construction can lead to boosting of traffic and time spent on website along with lower the bounce rate by the creation on attractiveness bias. There are two major types of aesthetic design according to people's perception on web which are classical aesthetics that characterised by order and familiarity with raise sense making and understanding as well as expressive aesthetics that characterised by the complexity along with increasing in involvement and arousal (Van and Ling 2009). It is found that the scientific and engineering method can be used in studying the aesthetics concepts in the design of system and those methods can be incorporated in aesthetic design and hence to evaluate the process apart from intuitions of designer (Mahlke 2008). Thus, aesthetics is the element tend to enhance the whole picture and can be evaluated by different approaches.

### **Research Gap**

The majority of prior scholars have applied structural equation modelling (SEM) in investigating on the perception attributes of the behaviours of customers. As being mentioned in the literature review previously, it is obvious that an immense number of literatures have examined the relationship among the user experience attributes on the satisfaction of customers, for instance, the E-Satisfaction Model and Kano Customer Satisfaction. As time flows, there are also extensive studies that focus on more aspects of customer fulfilment, such as trust along with loyalty, have been developed in enriching the literature. Various scholars on user experience are well documented which also acknowledge that this topic is critical that causing tremendous importance and beneficial towards the society.

However, it is discovered that the past studies have almost exclusively focused on the direct relationship between the attributes constructs and the certain type of customer fulfilment, for instance, satisfaction or loyalty, instead of placing different customer fulfilment elements in the same research model. It is worth noting that an increasing number of scholars have investigate the trust as one of a fulfilment element (Kaveh et al. 2012; Erciş et al. 2012). It is obvious that trust is demonstrating a rising position in user experience of users. As a result, although there are many studies on user experience design are available, the research on the indirect relationship on various customer fulfilment constructs for the inclusive of both satisfaction, trust, and loyalty still remains limited.

Moreover, although various scholars have illuminated how the perceived values, including the perceived usefulness as well as perceived ease of use, influence the intention of the users, while there is lack of study aims in unveiling the relationship among the perceived values on customer fulfilment, as a mediating factor. It is considered that the perceived usefulness and perceived ease of use are significant indicators in deciding the affirmation of end-users and it also should be included in research in finding customer fulfilments for better understanding how the perceived values influence on the customer fulfilments.

### **Methodology**

The above literature review illustrates on the brief information of the research topic, along with methodologies being applied in past scholars from similar aspects that offers a clear understanding and direction towards this research. The literature review also figured out the limitation of past research as the research gap. It provides the researcher in prioritise the discovery of the unexplored insights in this study, for instance, including the fundamental attributes in the user experience design that consists of colour, usability, and aesthetics, inserting of perceived values of both perceived usefulness as well as perceived ease of use from the technology acceptance model as mediating constructs, the combination of three major customer fulfilment attributes of satisfaction, trust, and loyalty in finding both the direct along with indirect relationship among the constructs mentioned previously and the indirect relationship between the fulfilment constructs. And more importantly, the research would also deploy vision tracking techniques in the simulation on online fashion shopping before the completion of questionnaire as an alternative source of primary

data in offering a deeper insight from the actual behaviours of end-users. The detail of the research model and methodology would then be discussed in more detail in the later part.

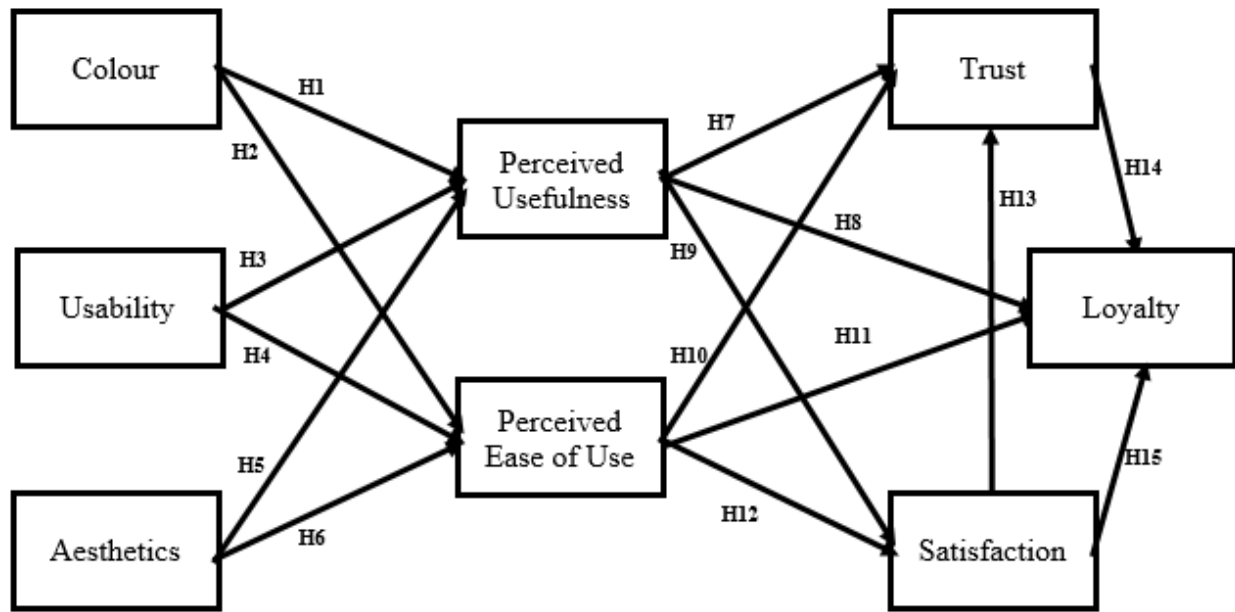


Figure 1. The proposed hypothesis model

- H1: Colour is positively related to Perceived Usefulness
- H2: Colour is positively related to Perceived Ease of Use
- H3: Usability is positively related to Perceived Usefulness
- H4: Usability is positively related to Perceived Ease of Use
- H5: Aesthetics is positively related to Perceived Usefulness
- H6: Aesthetics is positively related to Perceived Ease of Use
- H7: Perceived Usefulness is positively related to Trust
- H8: Perceived Usefulness is positively related to Customer Loyalty
- H9: Perceived Usefulness is positively related to Satisfaction
- H10: Perceived Ease of Use is positively related to Trust
- H11: Perceived Ease of Use is positively related to Customer Loyalty
- H12: Perceived Ease of Use is positively related to Satisfaction
- H13: Satisfaction is positively related to Trust
- H14: Trust is positively related to Customer Loyalty
- H15: Satisfaction is positively related to Customer Loyalty

Questionnaire and experiment were being adopted in collecting data as the primary source of data in this study. The conduct of experiment together with questionnaire will mostly take place through face-to-face median in the hope to ensure the quality and accuracy for the collection of data as respondents can instantly obtain assistance for the researcher if needed. In addition, the respondents will be required to complete of the research study through mobile gadgets with reference to the purpose of the study that is to explore the users' online attributes and behaviours in which all the potential respondents are familiar with the use of internet and therefore it is considered that using online approach is more appropriate. Another reason for the entire procedures will be conducted through electronic platform is due to it is more economical to send out the experiment and questionnaire and it also foster the ease as well as accuracy of the data processing as it can be easily exported and analysed in electronic format that compatible with various data analytical tools. It is also found that respondents usually believe surveys in online form are more interesting with the strong interaction of both description texts and images and thus they become more enjoyable compared to traditional paper-based format. It represents that they are not only more in favour to online form of questionnaire, but also more probably to provide a more accurate response.

The questionnaire was being developed in accordance with the objectives along with findings from the literature review. The composition of the questions was recited from Technology Acceptance Model by Fred D. Davis (1986), and somewhat being stimulated by Conceptual model of E-Satisfaction Model, ECSI Model along with Erciş et al. (2012) Satisfaction-Commitment-Trust-Loyalty Model. 47 questions in total regarding the constructs were then developed and divided into several sections accordingly. The questions were established on the Technology Acceptance Model along with Satisfaction-Commitment-Trust-Loyalty Model and minor modifications were made in the hope to better fit with the hypotheses and foster better understanding for respondents. Besides, there are also 19 questions in the questionnaires in understanding the background as well as the online fashion purchasing behaviours of respondent.

The questionnaire was presented in both English and Traditional Chinese for the sake of catering with respondents that mainly come from Hong Kong, the city with bilingual environment, that most of the population there can master at least one of language among English and Traditional Chinese. Although the statement and the questions were being instanced from research scholars which were originated in English, it has been properly translated into Traditional Chinese to eliminate the discrepancy of meaning between the statement among two languages to harvest a superior accuracy and validity. In addition, majority of online fashion retail stores are only available in Chinese and English at present and thus it is considered that respondents for the questionnaire and experiment web portal would be qualified and able to recognize the interface and command it with bilingual configuration. The entire questionnaire is enclosed in the Appendix VII below.

The questionnaire contains six major sections. The First Section was about the conduct of experiment of online fashion store purchases with the monitor of vision tracking application, the Second Section explored the perceptions as external variables of their online attributes, the Third Section investigated their perceived feelings, the Forth Section dictated the satisfaction, trust, and hence loyalty, the Fifth Section studied their habit of online fashion shopping of respondents and the Sixth Section was the background information for the respondents.

IBM Statistical Package for Social Science (SPSS), a computing software, including the version of SPSS Statistics and AMOS, were being deployed in analysing data collected from the experiment together with the questionnaire survey. The data was then exported to Microsoft Excel (XLSX) format before being loaded into SPSS for the computation of various statistical testing.

## **Results and Discussion**

The questionnaire was being delivered using the online sampling platform, Google Form together with the experiment portal for fashion shopping simulation with the vision tracking monitor, Hawkeye from mid-February 2022 to mid-March 2022. Total number of 205 responses were collected between the approximately one-month period. There is no incomplete response since restriction has been set in preventing submission of unfinished questionnaire. After sorting the responses that the respondents with experience in online fashion shopping and without disturbance and difficulties during the completion of questionnaire and experiment, there are 200 effective responses will be useable for the data analysis with a yielding rate of 97.56% in which 2 of the respondents have not ever been used online fashion retailing store before while the remaining 3 respondents were being interrupted and/ or facing difficulties during the completion of questionnaire and hence their submission has been eliminated. The respondents are coming from diverse background for the sake of gathering data from different disparate opinions to achieve more accurate results. All the effect data was being imported to IBM SPSS 26.0 and AMOS 26.0 for statistical analysis. The below demographic profiles, behaviours in online shopping and relationship among constructs were therefore generated.

Table 1. Demographic profile of the respondents

Attributes	Total sample (n=200)	
	Freq.	Percent
Age		
18 or below	6	3.00%
19 – 24	92	46.00%
25 – 34	66	33.00%
35 – 44	26	13.00%

45 – 54	7	3.50%
55 or above	3	1.50%
<b>Gender</b>		
Male	141	70.50%
Female	59	29.50%
Prefer not to say	0	0.00%
<b>Highest Education Level</b>		
Primary Education or below	2	1.00%
Secondary Education	7	3.50%
Sub-Degree	17	8.50%
Bachelor's Degree	146	73.00%
Postgraduate Degree	27	13.50%
Prefer not to say	1	0.50%
<b>Monthly Income (HKD)</b>		
\$5,000 or below	34	17.00%
\$5,001 to \$15,000	42	21.00%
\$15,001 to \$25,000	41	20.50%
\$25,001 to \$35,000	40	20.00%
\$35,001 to \$45,000	28	14.00%
\$45,001 or above	12	6.00%
Prefer not to say	3	1.50%
<b>Employment Status</b>		
Full Time Employment	121	60.50%
Part Time Employment	9	4.50%
Self-employed	4	2.00%
Student	62	31.00%
Homemaker	2	1.00%
Unemployed	2	1.00%
Prefer not to say	0	0.00%

Attributes	Total sample (n=200)	
	Freq.	Present
<b>Occupations</b>		
Banking and Finance	22	11.00%
Business Service	70	35.00%
Construction Industry	3	1.50%
Education	5	2.50%
Fishery and Agriculture	0	0.00%
Government or Public Affairs	18	9.00%
Hotel or Catering	4	2.00%
Information Technology	17	8.50%
Insurance	2	1.00%
Law	0	0.00%
Manufacturing	8	4.00%
Medical or Health	1	0.50%
Multimedia /Entertainment	8	4.00%
Real Estate	1	0.50%
Trading	5	2.50%
Transportation or Logistics	15	7.50%
Wholesale or Retail	8	4.00%
Prefer not to say	13	6.50%



Table 2. Mean standard deviation of measurement items for the customer perceptions

<b>Items</b>	<b>Measures</b>	<b><math>\bar{x}</math></b>	<b><math>\sigma</math></b>
Color	COL1: The color of the online fashion store is visually appealing.	5.32	0.84
	COL2: The combination of color in the online fashion store is appropriate.	5.31	0.96
	COL3: The use of color in the online fashion store can help me quickly identify necessary objects.	5.28	1.00
	COL4: The online fashion store presents uncluttered colors for browsing.	5.30	0.91
Usability	USA1: It is easy for me to navigate to the page that I wish to visit in the online fashion store.	5.33	0.97
	USA2: It is easy for me to get around and identify what I want at the online fashion store.	5.29	1.02
	USA3: The content of the online fashion store is well-categorized.	5.28	1.02
	USA4: The layout and organization of the online fashion store facilitates the searching process for products.	5.37	0.95
Aesthetics	AES1: The interface of the online fashion store is well-organized.	5.39	0.94
	AES2: The design of the online fashion store can let me feel relax.	5.25	0.99
	AES3: The layout of the online fashion store looks good.	5.38	0.98
	AES4: The overall design of the online fashion store is charismatic.	5.29	0.95
Perceived Usefulness	PU1: The using of online fashion store improves my process in fashion purchasing.	5.21	0.98
	PU2: The using of online fashion store enhances my effectiveness in fashion purchasing.	5.05	1.01
	PU3: The using of online fashion store help me finish fashion purchasing more quickly.	4.99	1.03
	PU4: The using of online fashion store boosts my productivity in the browsing of products.	5.10	1.04
	PU5: The design of website is useful for my online fashion shopping activities overall.	5.30	1.04
Perceived Ease of Use	PE1: The using of online fashion store improves my process in fashion purchasing.	5.47	0.86
	PE2: The using of online fashion store enhances my effectiveness in fashion purchasing.	5.47	0.96
	PE3: The using of online fashion store help me finish fashion purchasing more quickly.	5.50	0.91
	PE4: The using of online fashion store boosts my productivity in the browsing of products.	5.38	0.92
	PE5: The design of website is useful for my online fashion shopping activities overall.	5.51	0.95
Trust	TRU1: I think the information offered in the online fashion store is sincere and honest.	5.06	0.97
	TRU2: The interaction of online fashion store instils confidence in customers.	5.04	0.99
	TRU3: The accessible of the website make me believe the online fashion store is reliable and trustworthy.	5.06	0.99
	TRU4: I feel safe in my purchase with the online fashion store.	5.03	1.00
	TRU5: I can truthfully trust the performance of the online fashion retailer to be good.	5.01	0.99
Satisfaction	SAT1: I am satisfied with the online fashion store with good appearance.	5.27	0.99
	SAT2: I enjoy the shopping experience at the online fashion store.	5.23	0.99
	SAT3: I feel pleasure about the content and layout of the online fashion store.	5.20	0.99
	SAT4: Clear presentation of information can make me more satisfied with the online fashion purchasing experience.	5.27	0.99
	SAT5: My overall evaluation of the services that are provided by the online fashion store is favorable.	5.34	0.99

Loyalty	LOY1: I would browse this online fashion retail store again in the coming future.	5.30	0.95
	LOY2: In the future, I intend to keep buying the products from this online store.	5.17	0.95
	LOY3: I would recommend this online fashion store to someone who seeks my advice.	5.21	0.93
	LOY4: I will prefer to keep using the online fashion store with good layout and system design.	5.22	0.91
	LOY5: I would consider myself to be a loyal customer towards this online fashion store.	5.26	0.95

The convergent validity along with the measurement reliability of collected data were being computed by the computation of Cronbach's alpha, Composite Reliability, Average Variance Extracted as well as the standardised factor loading of the measurement items. Ibrahim et al. (2012) advised that that the scope of measurement will be regarded as satisfactory if it can meet with the criteria listed below: The standardised factor loading for all of them items should at least 0.5 and preferably for greater than 0.70; the acceptable threshold of Cronbach's alpha should be exceed 0.70; the composite reliability for all the latent constructs should greater than the suggested level of 0.70; and the average variances extracted (AVE) that indicated the overall number of variance in the indicators that presented by the underlying construct should below the suggested level of 0.50. Table 3 below outlines the result for the confirmatory factor analysis including the constructs as well as the items for measurement and all the factors have demonstrated for its satisfactory internal consistency. The standardised factor loading of the measurement items were ranged from 0.662 to 0.868. Among the 37 measurement items, all of them have reached the satisfactory level of 0.5 and (28) 75.7% of them have fulfilled the preferably level. As a result, no item was being remove for the analysis. The Cronbach's alpha ( $\alpha$ ) for each factor was ranged among 0.796 to 0.909. The Composite Reliability (CR) was ranged among 0.804 to 0.914, and the value of Average Variance Extracted (AVE) was ranged among 0.506 to 0.680. Therefore, the analysis of the hypothesis model was then being proved reliable and valid. Thus, the constructs proposed were considered as appropriate.

Table 3. Confirmatory factor analysis: standardized factor loading, Cronbach's alpha ( $\alpha$ ), composite reliabilities (C.R.) and average variance extracted (AVE).

Factors (Internal Consistency)	No. of items	No. of items deleted	Standardized factor loading	$\alpha$	C.R.	AVE
<b>Color</b>	<b>4</b>	<b>0</b>		<b>0.796</b>	<b>0.804</b>	<b>0.506</b>
<b>COL1:</b> The color of the online fashion store is visually appealing.			<b>0.712</b>			
<b>COL2:</b> The combination of color in the online fashion store is appropriate.			<b>0.710</b>			
<b>COL3:</b> The use of color in the online fashion store can help me quickly identify necessary objects.			<b>0.712</b>			
<b>COL4:</b> The online fashion store presents uncluttered colors for browsing.			<b>0.712</b>			
<b>Usability</b>	<b>4</b>	<b>0</b>		<b>0.808</b>	<b>0.809</b>	<b>0.515</b>
<b>USA1:</b> It is easy for me to navigate to the page that I wish to visit in the online fashion store.			<b>0.759</b>			
<b>USA2:</b> It is easy for me to get around and identify what I want at the online fashion store.			<b>0.691</b>			
<b>USA3:</b> The content of the online fashion store is well-categorized.			<b>0.662</b>			

<b>USA4:</b> The layout and organization of the online fashion store facilitates the searching process for products.			<b>0.753</b>			
<b>Aesthetics</b>	<b>4</b>	<b>0</b>		<b>0.799</b>	<b>0.806</b>	<b>0.509</b>
<b>AES1:</b> The interface of the online fashion store is well-organized.			<b>0.736</b>			
<b>AES2:</b> The design of the online fashion store can let me feel relax.			<b>0.692</b>			
<b>AES3:</b> The layout of the online fashion store looks good.			<b>0.726</b>			
<b>AES4:</b> The overall design of the online fashion store is charismatic.			<b>0.699</b>			
<b>Perceived Usefulness</b>	<b>5</b>	<b>0</b>		<b>0.846</b>	<b>0.862</b>	<b>0.556</b>
<b>PU1:</b> The using of online fashion store improves my process in fashion purchasing.			<b>0.767</b>			
<b>PU2:</b> The using of online fashion store enhances my effectiveness in fashion purchasing.			<b>0.694</b>			
<b>PU3:</b> The using of online fashion store help me finish fashion purchasing more quickly.			<b>0.707</b>			
<b>PU4:</b> The using of online fashion store boosts my productivity in the browsing of products.			<b>0.731</b>			
<b>PU5:</b> The design of website is useful for my online fashion shopping activities overall.			<b>0.822</b>			
<b>Perceived Ease of Use</b>	<b>5</b>	<b>0</b>		<b>0.909</b>	<b>0.914</b>	<b>0.680</b>
<b>PE1:</b> The using of online fashion store improves my process in fashion purchasing.			<b>0.868</b>			
<b>PE2:</b> The using of online fashion store enhances my effectiveness in fashion purchasing.			<b>0.787</b>			
<b>PE3:</b> The using of online fashion store help me finish fashion purchasing more quickly.			<b>0.850</b>			
<b>PE4:</b> The using of online fashion store boosts my productivity in the browsing of products.			<b>0.801</b>			
<b>PE5:</b> The design of website is useful for my online fashion shopping activities overall.			<b>0.814</b>			
<b>Trust</b>	<b>5</b>	<b>0</b>		<b>0.839</b>	<b>0.839</b>	<b>0.510</b>
<b>TRU1:</b> I think the information offered in the online fashion store is sincere and honest.			<b>0.751</b>			

<b>TRU2: The interaction of online fashion store instils confidence in customers.</b>			<b>0.711</b>			
<b>TRU3: The accessible of the website make me believe the online fashion store is reliable and trustworthy.</b>			<b>0.700</b>			
<b>TRU4: I feel safe in my purchase with the online fashion store.</b>			<b>0.732</b>			
<b>TRU5: I can truthfully trust the performance of the online fashion retailer to be good.</b>			<b>0.674</b>			
<b>Satisfaction</b>	5	0		0.864	0.867	0.567
<b>SAT1: I am satisfied with the online fashion store with good appearance.</b>			<b>0.796</b>			
<b>SAT2: I enjoy the shopping experience at the online fashion store.</b>			<b>0.691</b>			
<b>SAT3: I feel pleasure about the content and layout of the online fashion store.</b>			<b>0.715</b>			
<b>SAT4: Clear presentation of information can make me more satisfied with the online fashion purchasing experience.</b>			<b>0.761</b>			
<b>SAT5: My overall evaluation of the services that are provided by the online fashion store is favorable.</b>			<b>0.794</b>			
<b>Customer Loyalty</b>	5	0		0.859	0.859	0.550
<b>LOY1: I would browse this online fashion retail store again in the coming future.</b>			<b>0.773</b>			
<b>LOY2: In the future, I intend to keep buying the products from this online store.</b>			<b>0.712</b>			
<b>LOY3: I would recommend this online fashion store to someone who seeks my advice.</b>			<b>0.741</b>			
<b>LOY4: I will prefer to keep using the online fashion store with good layout and system design.</b>			<b>0.700</b>			
<b>LOY5: I would consider myself to be a loyal customer towards this online fashion store.</b>			<b>0.780</b>			

In the hope to determine the fitness for the collected data, the indices of model fit were being evaluated in proving the validity along with the adequacy of the measurement (Veale 2014; Ibrahim et al. 2012; Terluin et al. 2016). The values for the acceptance of model fitness indices are listed as below: the p-value is respectable among 0.05 – 0.10 and regarded as excellent if its value below 0.05 (Jaimie 2014). However, Tanaka (1993) and Maruyama (1998) concluded that almost all research have significant p-value of 0.05 or below when its sample size is 200 or above and therefore other indices should also be adopted in determining model fitness; the Chi-square test of  $\chi^2/df$  in testing

whether the population along with the covariance matrix for the sample are identical is considered satisfactory when its value is ranged from 1 to 3 (Koufteros 2009; Schermelleh et al. 2003); Comparative Fit Index (CFI) that correlate the model proposed with the baseline model that determine of the model proposed is satisfactory or not is treated for acceptable fit when its value is ranged from 0.90 – 0.95 and regarded as excellent if its value exceeds 0.95 (Hu and Bentler 1999); Goodness of Fit Index (GFI) is the measurement of model fit among the hypothesized model and the observed covariance matrix and it is suggested that when GFI is greater than 0.9 representing good model fitting (Bentler, 1982; Hu and Bentler, 1993); Adjusted Goodness of Fit Index (AGFI) correct the GFI that taking the degree of freedom into account with alter by the amount of indicators for each of the latent variable and it is suggested that when AGFI is greater than 0.9 representing good model fitting (Bentler, 1982; Hu and Bentler, 1993).

However, it is also considered hard for the AGFI reaching 0.9 once there are more variables in the model and the sample size is insufficient and thus it is suggested that the value AGFI can relax to 0.8 as regarded as appropriate (Bollen, 1990; Hu and Bentler, 1995; MacCallum and Hong, 1997); Normed-fit Index (NFI) examine the discrepancy among the value of chi-square of hypothesized model and the value of chi-square in the null model which its value is acceptable when it ranged from 0.90 – 0.95 and regarded as excellent if its value exceeds 0.95 (Schumacker and Lomax 2004); Tucker-Lewis Index (TLI), that also known as Non-normed-fit Index (NNFI), evaluate a related decline in outsider for each degree of freedom is suggested for representing good model fitting when its value is greater than 0.900 (Kline, 2016); Relative Fit Index (RFI) is similar than NFI, that comprises a factor in representing deviations from a null model which is regarded as acceptable when its value greater than 0.9 while excellent when its value greater than 0.95 (Bollen 1989; Hu & Bentler, 1999); Incremental Fit Index (IFI) is also being adopted in assessing the fitness of structural equation models by comparing the model targeted and the null model which is regarded as adequate when its value greater than 0.9 while excellent when its value greater than 0.95 (Marsh et al., 1996); the Root Mean Square Error of Approximation (RMSEA) compute the number of error when adopting the model proposed in predicting the sample is advised as good along with descript the extent that how the data is consistent to the research model (Kelley and Lai, 2011).

The value of RMSEA is ranged from 0.06-0.08 and regarded as excellent if its value below 0.06 (Hu and Bentler, 1999); the Root Mean Square Residual (RMR) calculate the square root of discrepancy among the covariance matrix of the sample along with the covariance matrix of the implied model is satisfied and the Standardized Root Mean Square Residual (SRMR) calculate the standardize square root of discrepancy of the abovementioned RMR to prevent the difficulty to interpret is satisfied when both RMR and SRMR value is ranged from 0.08-0.10 and regarded as excellent if its value below 0.08 (Bollen and Long 1993).

The result of path analysis is listed below in (Table 4) in which hypotheses H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13, and H15 were accepted while hypothesis H14 was rejected in the hypotheses model. The perception of colour (H1:  $\beta = 0.328$ ,  $p < 0.01$ ; H2:  $\beta = 0.380$ ,  $p < 0.01$ ) demonstrates a positive relationship on perceived usefulness along with perceived ease of use respectively, the perception of usability (H3:  $\beta = 0.360$ ,  $p < 0.01$ ; H4:  $\beta = 0.379$ ,  $p < 0.01$ ) determines a positive relationship with perceived usefulness along with perceived ease of use respectively, and the perception of aesthetics (H5:  $\beta = 0.393$ ,  $p < 0.01$ ; H6:  $\beta = 0.361$ ,  $p < 0.01$ ) indicates a positive relationship with perceived usefulness along with perceived ease of use respectively. The relationship among perceived usefulness on trust (H7:  $\beta = 0.413$ ,  $p < 0.01$ ) was accepted, the relationship among perceived usefulness on customer loyalty (H8:  $\beta = 0.574$ ;  $p < 0.01$ ) was accepted, along with the relationship among perceived usefulness on satisfaction (H9:  $\beta = 0.507$ ,  $p < 0.01$ ) was accepted. Moreover, the relationship among perceived ease of use on trust (H10:  $\beta = 0.452$ ,  $p < 0.01$ ) was accepted, the relationship among perceived ease of use on customer loyalty (H11:  $\beta = 0.493$ ,  $p < 0.01$ ) was accepted, along with the relationship among perceived ease of use on satisfaction (H12:  $\beta = 0.495$ ,  $p < 0.01$ ) was accepted. Nonetheless, the relationship among satisfaction on trust (H13:  $\beta = 0.135$ ,  $p < 0.01$ ) was accepted and the relationship among satisfaction on loyalty (H15:  $\beta = 0.186$ ,  $p < 0.10$ ) was accepted. However, although there is significant effect of trust was found in influencing the customer loyalty being proved, it is found that the effect of trust on loyalty is negatively (H14:  $\beta = -0.245$ ,  $p < 0.01$ ) and thus the hypothesis is being rejected. The coefficient as well as the significant value are different in which Table 4 below illustrate the path coefficient in the hypothesis model.

Table 4. Path coefficient in the hypothesis model

Hypothesis	Path	$\beta$	Sign.	Result
Hypothesis 1	Color → Perceived Usefulness	0.328	<0.01	Accepted
Hypothesis 2	Color → Perceived Ease of Use	0.380	<0.01	Accepted
Hypothesis 3	Usability → Perceived Usefulness	0.360	<0.01	Accepted
Hypothesis 4	Usability → Perceived Ease of Use	0.379	<0.01	Accepted
Hypothesis 5	Aesthetics → Perceived Usefulness	0.393	<0.01	Accepted
Hypothesis 6	Aesthetics → Perceived Ease of Use	0.361	<0.01	Accepted
Hypothesis 7	Perceived Usefulness → Trust	0.413	<0.01	Accepted
Hypothesis 8	Perceived Usefulness → Customer Loyalty	0.507	<0.01	Accepted
Hypothesis 9	Perceived Usefulness → Satisfaction	0.574	<0.01	Accepted
Hypothesis 10	Perceived Ease of Use → Trust	0.452	<0.01	Accepted
Hypothesis 11	Perceived Ease of Use → Customer Loyalty	0.495	<0.01	Accepted
Hypothesis 12	Perceived Ease of Use → Satisfaction	0.793	<0.01	Accepted
Hypothesis 13	Satisfaction → Trust	0.135	<0.01	Accepted
Hypothesis 14	Trust → Customer Loyalty	-0.245	<0.01	Rejected
Hypothesis 15	Satisfaction → Customer Loyalty	0.186	<0.10	Accepted

## Conclusion

The research unveils the effect of the external perception attributes on perceived values and hence customer fulfilments is supported. There is significant effect from all the external perception values included in this study including color, usability, and aesthetics on both perceived usefulness as well as perceived ease of use. It also illustrates the mechanism in enriching web usability through the deployment of vision tracking experiment. There is strong prove in demonstrating customers from online fashion store are focusing on the above-mentioned external perception. Among the external perception values constructs, aesthetics has the most significant effect towards the perceived value of users. Indeed, aesthetics is a critical element among the three external perception attributes for customers in feeling comfort and foster their experience in online shopping. The effect of perceived values on customer fulfilments are also being supported. Particularly, the effect of perceived ease of use is a compelling anterior on customer fulfilments in which there is compelling indirect effect caused by satisfaction towards loyalty in enhancing the revisit and repurchase decision of customers. It is found that more and more online fashion retail store start to target on the website/ application design with the consideration of the three chief external attributes of color, usability, and aesthetics in enhancing the user experience of the browsing and shopping in enhancing customer loyalty due to the rapid development and the intense competitive environment of e-commerce while the study demonstrate that the three external perception attributes have positive significant effect towards both perceived usefulness and perceived ease of use and hence affecting the customers loyalty.

The outcome from the research could help the enterprise especially for fashion retailing industry in evaluating the deploying user experience design their website/ application interface in fulfilling customers' needs and more importantly, attracting customers to ensure sustainable business growth. The future research should deploy a larger sampling size for the sake of enhancing the representative of the analysis and the fitness of the model in generating result with higher significance. Besides, this study is only limited to respondents in Hong Kong while the future research should also attempt the investigation from different market segments or geographical locations for multiple group analysis, for instance, customers between traditional fashion stores and fast fashion stores or customers from different countries/ regions, to make the study more favorable in comparing the difference of consumers from different markets and identifying the uniqueness of the customers each single market segment or location. The future study could also reinforce the constructs in exploring if there is any other positive significant relationship of user experience design attributes on customer fulfilment to let business in understanding more in defining their website interface with the achievement of diverse business objectives.

## References

- Agarwal, & Venkatesh, V., Assessing a Firm's Web Presence: A Heuristic Evaluation Procedure for the Measurement of Usability. *Information Systems Research*, 13(2), 168–186,2002. <https://doi.org/10.1287/isre.13.2.168.84>
- Ahmad, Rahman, O., & Khan, M. N., Exploring the role of website quality and hedonism in the formation of e-satisfaction and e-loyalty. *Journal of Research in Interactive Marketing*, 11(3), 246–267,2017. <https://doi.org/10.1108/JRIM-04-2017-0022>
- Alben., Quality of experience. *Interactions (New York, N.Y.)*, 3(3), 11–15, 1996. <https://doi.org/10.1145/235008.235010>
- Bayol, De La Foye, A., Tenenhaus, M., & Tellier, C., Use of PLS Path Modelling to estimate the European Consumer Satisfaction Index (ECSI) model. *Statistica Applicata – Italian Journal of Applied Statistics*, 2000.
- Bentler., Confirmatory Factor Analysis via Noniterative Estimation: A Fast, Inexpensive Method. *Journal of Marketing Research*, 19(4), 417–424, 1982. <https://doi.org/10.1177/002224378201900403>
- Calisir, & Calisir, F. , The relation of interface usability characteristics, perceived usefulness, and perceived ease of use to end-user satisfaction with enterprise resource planning (ERP) systems. *Computers in Human Behavior*, 20(4), 505–515,2004. <https://doi.org/10.1016/j.chb.2003.10.004>
- Caltenco, Breidegard, B., Jönsson, B., & Andreasen Struijk, L. N. , Understanding Computer Users With Tetraplegia: Survey of Assistive Technology Users. *International Journal of Human-Computer Interaction*, 28(4), 258–268, 2012. <https://doi.org/10.1080/10447318.2011.586305>
- Chaudhuri, & Holbrook, M. B., The Chain of Effects from Brand Trust and Brand Affect to Brand Performance: The Role of Brand Loyalty. *Journal of Marketing*, 65(2), 81–93,2001. <https://doi.org/10.1509/jmkg.65.2.81.18255>
- Dedeke., Travel web-site design: Information task-fit, service quality and purchase intention. *Tourism Management (1982)*, 54, 541–554,2016. <https://doi.org/10.1016/j.tourman.2016.01.001>
- Deng, & Poole, M. S., Aesthetic design of e-commerce web pages – Webpage Complexity, Order and preference. *Electronic Commerce Research and Applications*, 11(4), 420–440,2012. <https://doi.org/10.1016/j.elerap.2012.06.004>
- Eraslan, Yaneva, V., Yesilada, Y., & Harper, S., Web users with autism: eye tracking evidence for differences. *Behaviour & Information Technology*, 38(7), 678–700,2019. <https://doi.org/10.1080/0144929X.2018.1551933>
- Erciş, Ünal, S., Candan, F. B., & Yıldırım, H., The Effect of Brand Satisfaction, Trust and Brand Commitment on Loyalty and Repurchase Intentions. *Procedia, Social and Behavioral Sciences*, 58, 1395–1404, 2012. <https://doi.org/10.1016/j.sbspro.2012.09.1124>
- Faith, D. O., & Agwu, E. , A review of the effect of pricing strategies on the purchase of consumer goods. *International Journal of Research in Management, Science & Technology (E-ISSN: 2321-3264) Vol, 2, 2018*.
- Homburg, C., & Baumgartner, H., Beurteilung von kausalmodellen: Bestandsaufnahme und anwendungsempfehlungen. *Marketing: Zeitschrift für Forschung und Praxis*, 162-176,1995.
- Jarvenpaa, Tractinsky, N., & Saarinen, L., Consumer Trust in an Internet Store: A Cross-Cultural Validation. *Journal of Computer-Mediated Communication*, 5(2), 0–0,1999. <https://doi.org/10.1111/j.1083-6101.1999.tb00337.x>
- Koufaris., Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research*, 13(2), 205–223, 2002. <https://doi.org/10.1287/isre.13.2.205.83>
- Koufteros., Testing a model of pull production: a paradigm for manufacturing research using structural equation modeling. *Journal of Operations Management*, 17(4), 467–488,1999. [https://doi.org/10.1016/S0272-6963\(99\)00002-9](https://doi.org/10.1016/S0272-6963(99)00002-9)
- Li, & Yeh, Y.-S., Increasing trust in mobile commerce through design aesthetics. *Computers in Human Behavior*, 26(4), 673–684, 2010.

- <https://doi.org/10.1016/j.chb.2010.01.004>  
Lin., The Impact of Website Quality Dimensions on Customer Satisfaction in the B2C E-commerce Context. *Total Quality Management & Business Excellence*, 18(4), 363–378, 2007.  
<https://doi.org/10.1080/14783360701231302>
- Mo, Sun, E., & Yang, X. Consumer visual attention and behaviour of online clothing. *International Journal of Clothing Science and Technology*, 33(3), 305–320, 2021 .  
<https://doi.org/10.1108/IJCST-02-2020-0029>
- Moon, Philip, G. C., & Moon, S., The Effects of Involvement on E-Satisfaction Models. *Services Marketing Quarterly*, 32(4), 332–342, 2011.  
<https://doi.org/10.1080/15332969.2011.606764>
- Singh, D.T. and Ginzberg, M.J., “An empirical investigation of the impact of process monitoring on computer mediated decision making performance”, *Organizational Behavior & Human Decision Processes*, Vol. 67 No. 2, pp. 156-69, 1996.
- Sivaji, & Soo Shi Tzuaan. (2012). Website user experience (UX) testing tool development using Open Source Software (OSS). *2012 Southeast Asian Network of Ergonomics Societies Conference (SEANES)*, 1–6. <https://doi.org/10.1109/SEANES.2012.6299576>
- Yoon., The antecedents and consequences of trust in online-purchase decisions. *Journal of Interactive Marketing*, 16(2), 47–63, 2002.  
<https://doi.org/10.1002/dir.10008>
- Zhou, Lu, Y., & Wang, B., The Relative Importance of Website Design Quality and Service Quality in Determining Consumers' Online Repurchase Behavior. *Information Systems Management*, 26(4), 327–337, 2009. <https://doi.org/10.1080/10580530903245663>

## **Biography**

**Au Mei Yan.** Ashley is a final year undergraduate student who study in BSc (Hons) Enterprise Engineering with Management at The Hong Kong Polytechnic University.

**Young Tsz Ting Angela.** Angela is a final year undergraduate student who study in BSc (Hons) Enterprise Engineering with Management at The Hong Kong Polytechnic University.

**Yeh Mau Wong.** Vincent is a graduate student who studied in BSc (Hons) Enterprise Engineering with Management at The Hong Kong Polytechnic University.

**C.K.M. LEE.** Dr C.K.M. LEE is currently an associate professor in the Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hong Kong. She directs the BSc(Hons) Enterprise Engineering with Management program. The Hong Kong Polytechnic University awarded her a PhD and a BEng degree. Industrial Engineering, Enterprise Resource Planning (ERP), Logistics and Supply Chain Management, Industrial Internet of Things (IIoT), Wireless Sensor and Actuator Network (WSAN), Cloud Computing, and Big Data Analytics are some of her key study interests. Dr. Lee has over 130 publications published in international journals and seminars to date. In 2019, she received a Silver Medal at the Geneva International Exhibition of Inventions and an Outstanding Paper Award from the Emerald Network Awards. Dr. Lee is also the Lab-in-Charge of the Cyber-Physical Systems Laboratory at The Hong Kong Polytechnic University's Department of Industrial and Systems Engineering.

## **Acknowledgments**

This research is funded by the Laboratory for Artificial Intelligence in Design (Project Code: RP2-2), Innovation and Technology Fund, Hong Kong Special Administrative Region. The authors would like to the Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University for supporting the research. Gratitude is extended to the Laboratory of Artificial Intelligence in Design Limited (AiDLab) for inspiring the research (Project Code: RP2-2).