

**DEVELOPING DESIGN PROCESS MODEL AND
MEASURING ACCEPTANCE OF POLYTECHNIC CO-
OPERATIVE E-RETAIL WEBSITE**

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**DEVELOPING DESIGN PROCESS MODEL AND
MEASURING ACCEPTANCE OF POLYTECHNIC CO-
OPERATIVE E-RETAIL WEBSITE**

**BY
Rashdan bin Rashid**

**A Thesis submitted to the Othman Yeop Abdullah Graduate School
of Business Universiti Utara Malaysia in
fulfillment of the requirements for the degree of Doctor of Philosophy**

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ABSTRACT

Research on the process model of e-retail web design using Content Management System (CMS) remains scarce. CMS is one way of developing website quickly, with less cost and usage of IT expertise. Researchers mostly focus on identifying the significant relationship towards particular website especially on web design and suggest for practical implementation. Previous studies on web development are on the architecture of CMS while the use of CMS attracts little interest among researchers. Only a number of researchers concentrate on the process development of e-retail website especially using CMS. To fill the practical gap, this research proposed a process model of e-retail website through SDLC and extended the model with the introduction of internet marketing. It was tested in the development of a e-retail website. Each stage is discussed in details along the way of the web development. After the website was successfully developed, this research examined the acceptance of e-retail website by measuring consumers' behavioural intention and actual usage using Unified Theory of Acceptance and Use of Technology (UTAUT). In addressing the theoretical gap, this research provides an empirical test of three forms of self-efficacy (Computer Self-efficacy, Internet Self-efficacy, and Online Shopping Self-efficacy) and anxiety (Computer Anxiety, Internet Anxiety, and Online Shopping Anxiety) towards behavioural intention to shop online. The research subjects were 91,830 polytechnic students from 33 polytechnics in Malaysia. A total of 357 full-time polytechnic students from five polytechnics in Malaysia have been involved in this research. From a list of students' name, self-administered survey questionnaires were distributed at response rate of 77.8%. Correlation and Multiple Regression were used to test the significant relationship while Hierarchical Regression was used to test the moderator of gender. The research reveals that Performance Expectancy, Social Influence, Facilitating Condition and Online shopping Self-Efficacy are found to have significant effect on students Behavioural Intention to use polytechnic co-operative e-retail business. E-retailer needs to encourage the potential customer to make on-line purchasing because it is no longer a norm against the use of the Internet and computer. The process model is readily transferable to another website so that it describes as sufficient for use. The future research shall apply the extended UTAUT in different subject (adult) and the process model shall extend until the Return on Investment (ROI).

Keywords: Process model, Participant observation, Content Management System (CMS), Unified Theory of Acceptance and Use of Technology, e-retail website, polytechnic co-operative.

ABSTRAK

Penyelidikan berkaitan model proses mereka bentuk laman web e-peruncitan menggunakan Sistem Pengurusan Kandungan atau *Content Management System* (CMS) masih sukar didapati. Penyelidik kebanyakannya tertumpu kepada usaha mengenal pasti hubungan yang signifikan ke atas laman web tertentu terutamanya terhadap reka bentuk laman dan menyarankan pelaksanaannya secara praktikal. Dalam kajian-kajian lepas mengenai pembangunan laman web, tumpuannya adalah seni bina CMS, manakala penggunaan CMS pula kurang menarik minat para penyelidik. Hanya beberapa penyelidik menumpukan perhatian kepada pembangunan proses laman web e-peruncitan terutamanya yang menggunakan CMS. Bagi mengisi jurang praktikal, kajian ini mencadangkan satu model proses laman web e-peruncitan melalui SDLC dan memperluaskan model tersebut dengan memperkenalkan pemasaran internet. Model ini telah diuji dalam pembangunan sebuah laman web e-peruncitan. Setiap peringkat sepanjang proses pembangunan web dibincangkan secara terperinci. Selepas laman web ini berjaya dibangunkan, kajian ini mengkaji pula penerimaan laman web e-peruncitan dengan mengukur niat tingkah laku dan penggunaan sebenar dengan menggunakan Teori Bersepadu Penerimaan dan Penggunaan Teknologi atau *Unified Theory of Acceptance and Use of Technology* (UTAUT). Dalam menangani jurang teori, kajian ini menjalankan ujian empirikal ke atas tiga bentuk efikasi kendiri (Efikasi kendiri Komputer, Efikasi kendiri Internet dan Efikasi kendiri Pembelian atas talian) dan kebimbangan (Kebimbangan Komputer, Kebimbangan Internet dan Kebimbangan Pembelian atas talian) terhadap niat tingkah laku untuk membeli-belah dalam talian. Subjek kajian terdiri daripada 91,830 orang pelajar politeknik dari 33 buah politeknik di Malaysia. Seramai 357 pelajar politeknik sepenuh masa dari lima politeknik di Malaysia terlibat dalam kajian ini. Berdasarkan senarai nama pelajar, soal selidik pemerhatian (tadbir kendiri) diedarkan dengan kadar maklum balas 77.8%. Korelasi dan Regresi Berganda telah digunakan untuk menguji hubungan yang signifikan, manakala Regresi Hierarki digunakan untuk menguji moderator bagi jantina. Dapatan kajian ini mendedahkan bahawa Jangkaan Prestasi, Pengaruh Sosial, Keadaan Fasiliti dan Efikasi Kendiri dalam pembelian atas talian didapati mempunyai kesan yang besar ke atas niat tingkah laku pelajar untuk menggunakan perniagaan e-peruncitan koperasi politeknik. Peruncit E-peruncitan perlu menggalakkan pelanggan yang berpotensi untuk membuat pembelian dalam talian kerana ia tidak lagi menjadi perkara biasa berbanding penggunaan internet dan komputer. Model proses ini sedia untuk dipindahkan ke laman web yang lain bagi menggambarkan keberkesanannya. Kajian masa hadapan seharusnya menggunakan UTAUT lanjutan terhadap subjek yang berbeza (dewasa) dan model proses boleh dilanjutkan sehingga proses membawa pulangan ke atas pelaburan atau *Return on Investment* (ROI).

Kata Kunci: Model proses, pemerhatian peserta, Sistem Pengurusan Kandungan (CMS), Teori Bersepadu Penerimaan dan Penggunaan Teknologi (UTAUT), Laman web e-peruncitan, Koperasi Politeknik.

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CHAPTER ONE

INTRODUCTION

This chapter introduces the background of research followed by the problem statement, research questions and objectives, significance of the study and, limitations and scope of the study. It also includes the definition of relevant key terms and structure of the research framework.

1.1 Background of the Research

The government intends to boost online business in Malaysia through multiple initiatives and programmes. Through the Economic Transformation Programme (ETP), for example, the government seeks to modernize the retail sector by building a more dynamic retail market. The government modernize retail sector by assisting small operators through improvement initiatives in skills and information technology. The government wants to provide global exposure to our small and medium enterprises (SMEs) through the virtual mall (*Economic Transformation Programme: A Roadmap For Malaysia*, 2010). According to the Deputy Prime Minister, Tan Sri Dato' Hj Muhyiddin in his speech at the opening ceremony of The Native Entrepreneurs' Expo on 8th July 2011, the initiated Entry Point Projects (EPP) under ETP has been designed to boost the growth of Gross National Income (GNI) through expanding online retail revenue. In addition, the Digital Malaysia Masterplan has been introduced as an effort to improve socio-economic development of the country by focusing on ICT and e-commerce ("Tangani Digital Malaysia," 2013)

In line with the government's Economic Transformation Programme (ETP) initiative such as Retail Transformation Project (TUKAR) and National Co-operative Policy

(DKN), co-operative retail businesses can expand their businesses through effective utilization of ICT. Changes in the economy, politics, environment, market liberalization, emergence of new technologies and development of Information and Computer Technology (ICT) demand the co-operatives to be more innovative to enhance their competitiveness and resilience (*Dasar Koperasi Negara 2011-2020*, 2010). The Malaysian business community has been urged to penetrate the global market thru electronic commerce and enhance revenue streams which can contribute to Malaysian gross domestic product (GDP) (“SME’s Urged To Tap The Global Market Via-E-commerce,” 2014)

TUKAR is an initiative plan which aims to modernize the traditional retail stores and to enhance their competitiveness in a highly competitive retail business environment. TUKAR was launched in January 2011 and it has already transformed 237 retailers across the country (Melati, 2012). For co-operative, RM3 million was allocated in 2011 for 61 co-operative (Suruhanjaya Koperasi Malaysia, 2012). TUKAR is in line with the National Co-operative Policy (DKN) strategies because DKN attempts to increase co-operative contribution to the Gross National Product (GDP) co-operative by enhancing the capabilities of co-operative through application of modern technology. TUKAR is designed to enhance business competitiveness in a highly competitive retail business environment through developing local retail shops of 'mom and pop'. TUKAR also aims to increase the level of competitiveness among retailers, and small and medium enterprises (SMEs), improve their customer service capabilities, consistency in quality of the overall business process and promote supply chain and cost-effectiveness of the SMEs. TUKAR is also designed to improve the efficiency of the SMEs and encourage the sale of quality products through various measures, and prepare retailers for the implementation of Goods and Services Tax

(GST). TUKAR has listed four (4) strategies to be implemented respectively to modernise the existing premises of traditional retailers, to upgrade the existing traditional retailers' premises, to encourage the participation of co-operatives in the retail sector and lastly, to create a local distribution centre. One of the future implementations is to transform traditional retail shops into e-retail businesses with the intention of venturing into a bigger market (Melati, 2012; "Small Retailer Transformation Programme (TUKAR)", 2011). Furthermore, Malaysian Communications and Multimedia Commission (MCMC) introduces "Get Malaysian Business Online" (GMBO) to help micro entrepreneurs in online sales. The incentives allocate an amount ranging from a minimum of RM1,000 to RM50 millions for each entrepreneur.

These initiatives and programmes have been introduced by the government due to the potential of the Internet to enhance business and allow the enterprise to operate e-commerce at a low cost. Despite the government's initiatives and programmes to spearhead the utilisation of the Internet for business, little is known about how traditional business can provide competitive advantage and make it appealing to customer in the e-retail business market (Delafrooz, Laily, & Khatibi, 2010; Haque, Sadeghzadeh, & Khatibi, 2006). Traditionally, SMEs and some co-operative use web to advertise and promote company products rather than to sell it (Küster & Vila, 2011). Although average consumers in Malaysia may not be keen to shop online, by offering customers good responsiveness and service, online shopping retailers can build brand equity, and generate repeat business that penetrate the market in this industry. In Malaysia, conventional supermarkets are improving value to the consumers to gain consumer acceptance through IT (Zetty Madina *et al.*, 2011).

Indeed, the Internet has become the means for firms and consumers to conduct businesses. The impact of the World Wide Web (WWW) has been so huge in the retail sector which has resulted in a new form of retail format. It is known as electronic retailing or e-tailing (Zetty Madina *et al.*, 2011). It is probably due to the increase of the Internet service subscribers. Table 1.1 shows household broadband penetration in Malaysia had reached 67%, in 2014 despite the National Broadband Plan target of only 15% penetration by 2010 (Evans, 2014).

Table 1.1
Broadband Subscribers 2011-2014

Broadband:	2011	Early 2014
Total no. of subscribers	5.75 million	6 million
Broadband Penetration	55.6%	67%

Source: Evans (2014)

The growth of broadband technologies has made shopping experience richer and more engaging (Hausman & Siekpe, 2009). In a research carried out by Perez-Hernandez and Sanches-Mangas (2011) on Household Survey of ICT Equipment and Usage in Spain, it was found that having an Internet connection at home increased individual's probability to shop online up to 14% . Delafrooz, Laily, and Khatibi (2010) found that young consumers in Malaysia spend an average of 20 hours a week surfing the Internet and had wireless access to the Internet. Their ranked order of product purchase behaviour was dominated by computers/electronics/software while products such as books, DVDs and CDs come second. Auctions and department stores dominate online spending by 47%, followed by homeware, furniture, appliances and electronics (20%), recreation, toys, music, movies and books (20%) and 13% on groceries, liquor and specialized food (National Australia Bank, 2012). Amazon and

e-Bay are the two main players in the industry, even though they only comprise 14.5% of the US market (“Siemer eCommerce Report,” 2013). In Malaysia, there is a change noted in the trend of online shopping among Malaysians (Ling, Dazmin, Hoi, Keoy, & Hassan, 2011). Online shopping is becoming increasingly popular among consumers (Chung & Park, 2009) and business must adapt to the technology changes due to the increasing number of companies marketing their products over the Internet is more than ever before (Amoroso & Hunsinger, 2009).

While shopping on the Internet is more comfortable than traditional shopping, the retailing business is still extremely competitive although the total cost of entering a new marketplace into the web e-tailing market is low (Laudron & Traver, 2008). It is contradictory to Syed (2009) which stated that setting up a portal site for online shopping in Malaysia was costly. He also stated that the problem was getting consumers to buy online. Therefore, e-retailers need to respond and develop strategies to enhance consumers power in marketing through social network sites, growing their brand, differentiating their product offering and working hard to ensure their website provides consumer enjoyable and reliable experience. In Malaysia, traditional supermarkets are improving value to the consumers to gain consumer acceptance (Zetty Madina *et al.*, 2011).

The National ICT Association of Malaysia (PIKOM) reported that Malaysia’s online business to consumer (B2C) transaction soared to a total of USD3 billion in 2010. Pay Pal studied on Malaysians online shopping estimated that online shopping was set to reach RM5 billion in 2014 (Enterprise IT News, 2012). In Western countries, online shopping is doing very well. In the United States, online retail sales grew to USD198 billion in 2011 and total retail sales were USD227 billion in 2012 (Thomas, Davie, &

Weidenhamer, 2012). In Europe, online retail sales in the UK were GBP50.34 billion or 12% of UK retail trade (Center for Retail Research, 2012). In Australia, even the growth in online sales were slow, it still outpaces the traditional retail sales. Australia's total online spending was around AUSD 11.5 billion in the year ended June 2012 (National Australia Bank, 2012). The world's economic power is now shifting to the Asia-Pacific region. Data forecasted by Forrester Research indicates that the return on investment (ROI) in e-commerce for Asia Pacific region is expected to increase from 2010-2015 (Wigder, Sehgal, Evans, & Johnson, 2010). Global e-commerce spending in 2012 reached US\$20.5 billion with 6.5% penetration ("Siemer eCommerce Report," 2013).

According to Doherty and Ellis-Chadwick (2009), it was quite clear that the market share and influence of online retailing continued to rise. With the continued growth of online shopping, retailers are investigating on how to target online consumers. Once the target market is identified, retailers conduct market research to identify the market segmentations within the target market. Then, retailers determine the marketing strategies that are adopted for consumers in the target market (Kotler & Armstrong, 2010). The Internet is easily accessible in Malaysia, but it is not mainly used for online shopping. For this reason, to penetrate the market in this industry especially to younger consumers as the target market, it must extend sensitive orientations on ways of boosting online sales. Malaysia needs to create awareness and encouragement for online shopping (Delafrooz, Paim, & Khatibi, 2011b). According to Science, Technology and Innovation (MOSTI) Minister Datuk Dr. Ewon Ebin, Malaysia e-commerce market size was valued at RM3.65 billion in 2013 ("SME's Urged To Tap The Global Market Via-E-commerce.,," 2014).

Due to the importance of identifying a target market and market segmentation, retailers can focus on polytechnic students. The average ages of polytechnic students are between 18-21 years of age, and there are 27 polytechnics (Premier and Conventional Polytechnic) in Malaysia. The total number of enrolments in September 2012 was 91,830 students involving 59 programmes (excluding Metro Polytechnic). As for graduates, there are 15,308 polytechnic graduates from various polytechnics as in September 2012 (Jabatan Pengajian Politeknik, 2012). Polytechnic students can also be referred to as Generation Y (Millennials) who were born between 1977 and 2000 (Kotler & Armstrong, 2010). They are the target market and also the target population of this research. They are special consumer group that grow up with technology and the Internet and there is a need for a study on actual online purchase since the consumer behaviour on online shopping justify whether or not there is a need for polytechnic co-operative to venture into the e-retail business. Almost all polytechnics have established consumer retail co-operative to manage and fulfil the demand for grocery products among the students. In China, the government has taken active part in the steady development of e-commerce and the task for nurturing the e-commerce personnel has fallen upon the shoulders of the higher education institution (Du, 2005). In addition, it provides great convenience to the campus staff and students study and life to have the what so called campus e-commerce (Du, 2005; Guiwei Zhang & Liu, 2010).

Despite the fact that each polytechnic consumer co-operative is managed by different management, their objectives of the establishment are relatively the same. At present, polytechnic co-operatives are facing fierce competition from retail industries around the campus which are building bigger stores and offering competitive prices, services

and entertainment to gain market share. Due to stiff competition and challenges from other institutions that are also expanding, co-operatives in Malaysia are at a crossroad regardless of there are opportunities in and outside Malaysia (Azmah & Fatimah, 2008).

Since Malaysia is considered to be at its early stage of Internet shopping, more efforts (such as competitive price, variety of products) are needed to understand consumers' attitudes towards online shopping and factors that influence their attitude (Delafrooz *et al.*, 2010; Haque *et al.*, 2006) before venturing in e-retail business. Online shopping is relatively an easy task that does not require high education (Zhou, Dai, & Zhang, 2007), but learning about e-retail website leads to greater intention to purchase (Johnson, 2008). Thatcher and Perrewe (2002) concluded that knowledge can be gained through education and can be evaluated or examined through action (online purchasing). Technology is required in an academic course and affects computer self-efficacy or anxiety. Agarwal and Karahanna (2000) also stated that training and course influence individual beliefs about their capabilities.

In polytechnic, the introduction of a diploma in information technology programme during late 2000 and e-commerce programme that started in 2010 may have had affected the perception of online shopping among students nowadays. As for an example, Programme Educational Objectives (PEO) of Diploma in Business Studies programme is to produce semi-professionals who are adaptable to changes in business and information technology environment. There are also courses like PE301 E-commerce, PB201 Entrepreneurship, FP 601 Cyberpreneurship and FP331 Marketing

in IT that expose polytechnic students to e-retail. The programme was aimed at strengthening students' cognition and understanding of online shopping as well as promoting consciousness of legal rights in online trade (Su & Huang, 2011).

The current situation of the retail business at polytechnic consumer co-operatives is based on the traditional business model. However, there are views that local firms and small companies seem to be anxious about going into e-retail in Malaysia (Khatibi, Haque, & Khaizurah, 2006). It is due to the reason that customers are not very familiar and are sceptical towards online shopping (Delafrooz *et al.*, 2010). Empirical evidence indicates that there are several reasons as to why there are less attention and interest given to e-retail. Ultimately, cost is the major reason found to be linked with the less participation of doing online business (Burke, 2002; Haque *et al.*, 2006; Kauffman & Walden, 2001; Norzieiriani, Azizah, & Ramayah, 2010; Paynter & Lim, 2001). In 2000, Maxis Communication Bhd launched an Internet-based shopping mall. The mall was known as e365 mall, and it employed an easy-to-use and intuitive interface to ensure that all merchants were able to register very easily. The package cost RM80 a month that enabled a merchant to list up to 30 products and allowed off-line transactions (Maxis, 2000). However, it was a failure. Since then, many web provider companies provide packages for installing e-commerce capabilities on the web site with less cost and minimum technical expertise. As an example, the Interbase Resource Sdn Bhd or Lelong.my collaborated with Telekom Malaysia (TM) and introduced almost the same concept in 2012 with Small and Medium Business ("TM and Lelong.my in pact to aid SMEs," 2012). Whether it can be a success or a failure might depend on various factors but many organizations are not successful in achieving the implementation of IT due to lack of understanding and different views

of business and IT managers on system development methodology in current system development (Suratida & Settapong, 2005). In particular, system development methodology can give guidance in understanding the new organizational setting and improvisation learned in practice to close the gaps between published academic research and industry practitioners (Iacono, Brown, & Holtham, 2009). As presented in Table 1.2, the personality at work also differs among academics and practitioners with regard to type of solution valued, source of data, dealing with uncertainty, cost-benefit analysis (Furnham, 1992).

Table 1.2
Personality at work

Items	Academics	Consultants
Type of solution valued	Low Urgency	High Urgency
Source of data	Direct Empirical Base	Second-hand empirical base
Dealing with uncertainty	Dealt with statistically	Dealt with personally
Cost benefits analysis	Irrelevant	Crucial

Source: Furnham (1992)

Previous discussions reveal that co-operatives need to respond fast and migrate from the traditional way of information technology compliant to succeed. A study on web design and consumer behaviour on technology acceptance of online shopping should be carried out to understand this phenomenon.

1.2 Problem Statement

Business must adapt to the technology changes because of the increasing number of companies market their products over the Internet than ever before (Amoroso & Hunsinger, 2009). In the background of the research presented earlier, it was highlighted how ETP encourages the transformation of business to e-retail. Then, the Internet penetration among students, the introduction of e-commerce and information technology programme that contribute to the importance of adopting to e-retail business. In order to embark into e-retail, understanding consumers' online shopping behaviour should be given priority (Prasad & Aryasri, 2009). Unfortunately, as for local firms, small companies and co-operatives find that it is very challenging to attract traffic to their online stores without significant marketing funds. The reasons for less attention and interest to e-retail are because of organizational low level of readiness, lack of knowledge, technology concerns and lack of resources (MacGregor & Vrazalic, 2005; Nikolaeva, 2006; Rosli & Noor Azizi, 2009; Stockdale & Standing, 2006). Most of the retail owners are not aware of online business due to lack of skilled personnel (Syed, 2009). Understanding the process model on e-retail web development is a good platform for a new e-retail business and this is in line with the Science, Technology and Innovation Ministry's aims to provide assistance in research, development and commercialization of e-commerce ("SME's Urged To Tap The Global Market Via-E-commerce," 2014).

E-retail is a new avenue for business. Retail co-operatives, in particular, can gain advantage from online shopping. Ezlika, Adam and Nurul Azlinawatee (2006) studied on e-retailer such as PasarBorong.com, SubangGrocer.com, CGdeMART.com and citrasspicemart.com and found that these companies showed less interest in doing e-

retail after the sites were launched based on inactive domain. Presently, other retailers such as zalora.com.my, doorstep.com.my, lelong.my, 1shopping.com.my, superbuy.my, imal2u.co, easy.my and qoo10.my are aggressively advertising their e-retail businesses. As a new player, co-operative should focus on other niche area of business scope which differs from big competitor (Irfan, 2015). Nonetheless, recent works on web design or site building in online shopping appear to rely on a single methodology, which is a quantitative methodology, and many are related to identifying web design variables.

Through literature on web design research method, most empirical studies focus on web design variables at the level of web interface (such as Ha & Stoel, 2009; Hassanein & Head, 2007; Noorfadzilah, Wan Fatimah, & Goh, 2010; Ozdemir & Kilic, 2011). Some used prototype website or experimental website (e.g. Hassanein & Head, 2007; Noorfadzilah *et al.*, 2010) and others used popular existing website such as dell.com or landsend.com (e.g. Ha & Stoel, 2009; Hausman & Siekpe, 2009; Ozdemir & Kilic, 2011). Meanwhile, Küster and Vila (2011) identified the web design variable for SME's through focus groups method. Li and Sun (2009) suggested for future research methodology not only to focus on web design but also to study its relationship with user acceptance. Further understanding can be gained by understanding web design process model because there is a factor related to vendor (service system) that could be important determinants of consumer acceptance of online shopping (Bonera, 2011). Then, on practical contribution and suggestion, previous researchers provide ideas and practical suggestions that can be implemented by IS practitioners and e-retailer (Haque *et al.*, 2006; Norzieiriani *et al.*, 2010) or challenges faced in the design of website (Dholakia & Zhao, 2008). The suggestion

should be extended by other researcher or e-retailer practically in the real business such as Distante, Risi and Scanniello (2014) did in the context of Joomla.

Researchers use two terms “web design” and “web development” interchangeably. Web design relates to the interface of the website such as the site look, appeal and how customers interact with the pages while web development relates to the back end of the website such as the programming and interactions of the pages (Kyrnin, 2013). Although research papers have been published during the past few years on various issues on online shopping such as adoption among SME’s and behaviour acceptance, better understanding of web development is critical for effective web design that can help attract and retain online customers (Ozdemir & Kilic, 2011). Web development work should be carried out in an efficient and effective manner and, therefore, e-retailers (practitioners) should have some form of methodology/standard/best practise guide for web development project (Taylor, McWilliam, Forsyth, & Wade, 2002). So, there is a necessity to look at the whole design process and not just to focus on web design variables, website guidelines or based on the fragmented stage.

The whole process of web development regularly has been discussed by IS researchers. Previous studies in terms of web design and the implementation are focusing on the stages in the web application such as user-centered design (UCD) (such as Long, Lage, & Cronin, 2005; Williams, 2009), systems development and web engineering (such as Awad, 2006; Goi, 2007a) and the participants are mostly skilled IT personnel or professional developers (such as Gong & Zhu, 2009; Han, 2004; Liu, Yang, & Gu, 2010; Souer, Urlings, Helms, & Brinkkemper, 2011; Zhao & Du, 2010). The current works in web development is based on web architecture among professional developers using programming languages such as Java, ASP and

PHP, and ends with system maintenance. While in e-retail website development, internet marketing plays a major role in web development. Most available tools to create web pages are suggested to be applied especially to people who are experienced in designing websites (Pressman & Lowe, 2009; Seman, Idyawati, & Sura, 2009) but according to Cunliffe (2000), non-professional developers are less experienced in web development that results in many web sites being poorly designed. That is why web developer introduces Content Management System (CMS) in helping web designers to solve issues in the web design process so that the non-professional can easily and quickly develop website in the practical application (Zhao & Du, 2010). CMS in web design package selection is a tool that can make the website design less complicated (Nurminen, Wikman, Kokkinen, Muilu, & Grönholm, 2008; Zhao & Du, 2010). Usage on CMS has made maintenance and operation of website is no longer need professional or technical skills (Liu, Zhou, Dang, & Chen, 2010). CMS package selections range from portals, blogs, e-commerce, educational, forums and customers support. It can be viewed as off-the-shelf software (COTS). Since IS development is no longer limited to in-house development, COTS still attract little interest in participatory design (Bergvall-kåreborn & Stahlbrost, 2008).

In e-commerce industry, web hosting providers are offering CMS packages selections to businesses that are seeking development in e-retail that can be maintained by non-professional web designers. CMS is commonly being discussed on Portal (such as Cheek, Shehab, Ung, & Williams, 2011; Nurminen *et al.*, 2008; Zhao & Du, 2010), e-commerce (such as Kiatruangkrai, Phusayangkul, Vinyakul, Prompoon, & Kanongchaiyos, 2010; Souer, Joor, Helms, & Brinkkemper, 2011), Library (such as Benzing, 2006; Han, 2004) and education (such as Islam, 2011; Marchewka, Liu, &

Kostiwa, 2007) whether adapting system analysis approach, web engineering approach in web development or testing acceptance theory. Han (2004) adapted system analysis approach in findings from CMS for a suitable information system for a digital library. While Souer, Urlings, *et al.* (2011) adapted web engineering approach in developing CMS for e-commerce from the view of an IT engineer. Nurminen *et al.* (2008) demonstrated existing CMS named Drupal in a personal website (portal) running on a mobile phone and also from the view of an IT engineer. Lack of studies among academic researchers on web design package selection using CMS approach are due to lack of sufficient depth to satisfy academic objectives or challenge in academic assignment (Weaver, 2004) and attract little interest (Bergvall-kåreborn & Stahlbrost, 2008). Previous studies on web design in CMS are either in the process of developing the CMS (Liu *et al.*, 2010) or evaluating the acceptance of website which was developed using the CMS (Islam, 2011). Previous researchers have focused on overcoming users' obstacles of using CMS and process in developing CMS by using process model in web development, web engineering and system development (such as Benzing, 2006; Gong & Zhu, 2009; Han, 2004; Souer, Joor, *et al.*, 2011; Souer, Urlings, *et al.*, 2011).

Considering the vast and dynamic business environment in the era of innovation, it is crucial for co-operatives to be in the mode of competitive advantage. The rapid growth of e-retail business requires co-operatives to move forward in providing fast, easy and trendy tools of doing business. Taylor, McWilliam, Forsyth, and Wade (2002) suggested businesses to innovate a form of method for a web development project. In order to benefit from this innovative technology, co-operatives should be able to adapt to this new paradigm shift of doing business. However, the opposite is found in the co-operatives business environment in Malaysia. There is limited website

among the retail co-operatives establishment found. From the literature, there are a few co-operatives in Malaysia venturing into e-retail business. The Cooperative Commission of Malaysia has listed the top 100 co-operatives in Malaysia. Only four out of all the co-operatives being listed have websites, and none provides e-retail services (Cooperative Commission of Malaysia, 2011). It was discovered that those website only display the products or services without the transaction features. For example, the popular government website such as coop1Malaysia.com.my, developed by Felda Trading Sdn Bhd and Cooperative Commission of Malaysia (SKM), displays only the available products without enabling users to perform online transaction in order to purchase the product.

As a result, Interbase Resource Sdn. Bhd. (as an example) which operates Lelong.my site has set up a project offered to SME where it can push businesses to e-retail without high hardware investment or technical knowledge. Lelong.my has offered the CMS web store package solution but it is necessary to have clear guidelines on web design process because according to Goi (2007b), website design has significant positive impact on Internet marketing in Malaysia. Furthermore, web design does have a significant relationship with customer satisfaction (Ballantine, 2005) and successful e-retail business and customer technology acceptance (Küster & Vila, 2011; Li & Sun, 2009). Such CMS tools in web design are attractive to e-retailer because of easy installation and easy to manage. Consequently, there is a need to have a clear model of web design process by using CMS. However, while having a proper web design process, the target customers' perspective must also be considered. According to Islam (2011), the success of such technology (CMS) depends on the customers willingness to utilise the technology. In addition, e-retailers do not have

other choices rather than to leave the technology if the target customers choose to discontinue or are reluctant to use the technology.

This research differs as it proposes a design process for the development of co-operative website specifically using CMS. The design process is built on a case study that employed participant observation technique. CMS package selection in e-commerce is still rarely studied and should be revised to accommodate the need for non-professional developers. The process in web application, site building, web engineering, web development and system development life cycle can also be applied in the web design process. From the literature, it is quite rare to find a case study method that employed participant observation technique with respect to the web design process of e-retail. In traditional retail, Sinha and Uniyal (2005) observed the behaviour of shoppers from a physical store in India. Other cases such as observing teaching (Alexander, 1982), observing politician (Glaser, 1996), logistic (Palsson, 2007) and event (Jaimangal-Jones, 2014; Mackellar, 2013) are in the field of sociology. In the field of information system (IS), participatory design that involves user participation is widely used (Bergvall-kåreborn & Stahlbrost, 2008; Butler & Eireann, 1997).

Previous researchers tend to enhance CMS features to overcome users' difficulties, but there is very little research addressing the challenge on the application of the existing CMS in a real e-commerce environment. According to Norshuhada and Shahizan (2010), developing an innovative system alone, such as website, is not a contribution. It must be accompanied by an explicit and precise contribution such as better efficiency, better performance; time spent and better model in system design or development. There is no easy way to participative development within real

organizational context (Butler & Eireann, 1997). Through the adoption of the proposed design process model and methods, some of the limitations in small scale business such as a limited resource and limited technical expertise can be reduced. It can help managers in adapting the process from business strategy to IT implementation. As the results of this research, it leads to proposing the web design process model.

In studying the utilisation of information technology systems, researchers depend on behaviour theories. There are several theories being utilised in customer technology acceptance on online shopping. Many studies do not capture the characteristics, to which are specific to online shopping although Theories of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviour (TPB) (Ajzen, 1991), IS success model of DeLone and McLean (Delone & Mclean, 2002), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003). Venkatesh *et al.*, (2003) discovered the intention to technology acceptance (Use Behaviour). The determinants of intention and use behaviour are discussed based on the technology acceptance model and the information success model. With regards to online shopping, most researchers tend to use technology acceptance model as the underpinning theory rather than model of buyer behaviour on traditional shopping (Kotler & Armstrong, 2010). Online shopping environment is to entice consumers to shop online and is not just a generic information system (Zhou *et al.*, 2007). Numerous studies have validated TAM in a variety of online shopping area such as on consumer buying intention (Yulihasri, Md.Aminul, & Ku Amir, 2011), demographic factor (Chiu, Lin, & Tang, 2005; Hernandez, Jimenez, & Martin, 2008); customers' adoption (Celik, 2011), product (Kim & Forsythe, 2010; Yao, 2009), website quality

(Cao, Zhang, & Seydel, 2005), cultural consideration (Adapa, 2008), and web interface (Hausman & Siekpe, 2009). Previous studies have integrated TAM with another acceptance model such as UTAUT (Amoroso & Hunsinger, 2009) and DeLone and McLean IS Success Model (Celik, 2011) in the online shopping environment. Previous study by Chen and Cheng (2009) and Li and Sun (2009) have validated DeLone and McLean IS Success model with the intention to online shopping (Licker, 2001; Wang, 2008). Zhou *et al.* (2007) has integrated TAM in his online shopping acceptance model (OSAM) on online shopping but OSAM unfortunately did not focus on related journal on psychology, even though, there have been argumentation on the inclusion of attitude and anxiety variables on technology acceptance (Gbenga, 2010). Despite the increasing number of studies in information technology, it is considered important to continue investigating the field e-commerce (Escobar-Rodríguez & Carvajal-Trujillo, 2014). Only a few researchers integrate UTAUT in online shopping environment (such as Amoroso & Hunsinger, 2009; Michael, Nripendra, & Yogesh, 2011). Furthermore, Al-Qeisi, Dennis, Alamanos and Jayawardhena (2014) suggested validating extended UTAUT model to online behaviour such as e-shopping. Thus, further application and modification of underpinning theories such as UTAUT needs to be conducted because it does not construct self-efficacy as potential effects as suggested by Naseri and Elliott (2011).

There are only a few empirical studies exploring self-efficacy effect on online shopping behaviour (Shen, Liu, & Wang, 2009). Thatcher and Perrewe (2002) stated that the technology required for attending course / participating in training course could affect computer self-efficacy or anxiety. In addition, discipline of study could be an important factor in determining computer self-efficacy (Sam, Abang Ekhsan, &

Zaimuarifuddin Shukri, 2005). A few studies have attempted to approach self-efficacy and anxiety with the intention of online purchase, but their attempts have been isolated and fragmented. Some of the studies measure perceived self-efficacy (Perez-Hernandez & Sanches-Mangas, 2011), Internet self-efficacy (Keisidou, Sarigiannidis, & Maditinos, 2011), computer self-efficacy (Abdulhameed Rakan, Abdul Malik, & Arsaythamby, 2010; Naseri & Elliott, 2011), self-efficacy (Delafrooz *et al.*, 2011b), Internet anxiety (Yao & Liao, 2011), computer anxiety (Abdulhameed Rakan *et al.*, 2010; Han, Yang, & Du, 2009; Thatcher & Perrewe, 2002) and Internet shopping anxiety (Celik, 2011; Yao & Liao, 2011) in various fields or contexts. The findings for computer self-efficacy have to be considered with caution because only two user acceptance relationships are available in performing the meta-analysis by Hameed and Counsell (2014). Anxiety has received considerable attention in the literature, but it has remained to be under-researched within the online shopping context (Celik, 2011). The relationship between self-efficacy, anxiety and behavioural intention proposed by Venkatesh, Morris and Ackerman (2000) are inconclusive as mentioned by Im, Hong and Kang (2011). Those are complex phenomena and difficult to understand (Yulihasri *et al.*, 2011). In addition, self-efficacy has mixed the influence on behaviour intention (BI). That is the reason this research intends to adapt UTAUT model in the context of co-operative e-retail business because it is a good foundation for future research on online shopping (Amoroso & Hunsinger, 2009). This approach has the strength to generate better understanding and explanation of the customer intention to online shopping especially towards higher learning students.

Higher learning students are a segment of the targeted market in the effort to earn greater income for businesses (Jariah, Husniyah, Laily, & Britt, 2004). This segment

constitutes a huge and attractive market (Kotler & Armstrong, 2010). They are potential customers in the sense of being fresh, IT literate and willing to try making their first purchase (Hernandez *et al.*, 2008). Polytechnic students as young consumers are potential customers for online retail polytechnics co-operative. By testing the relevant variables on online shopping, researchers can obtain more understanding of the reasons why students in public institution of higher learning accept or refuse online shopping (Yulihasri *et al.*, 2011). Researchers also can obtain whether e-retail businesses are being perceived by students as reliable (Teo, 2006) and helping in decision making (Zetty Madina *et al.*, 2011).

The shopping intentions of young consumers over the Internet are expected to be dissimilar from adults and from conventional shopping environment because the Internet is rapidly becoming a preferred shopping environment for young consumers (Atilgan-Inan & Karaca, 2011). Usually, when shopping, consumers could try, touch, taste and watch to experience the products before making a purchase decision. However, online shopping deprives customers of all these (Geng Zhang & Liu, 2011). Although average consumers in Malaysia are not keen to shop online, by offering customers good responsiveness and service, online shopping retailers can build brand equity, and generate repeat business that penetrate the market in this industry (Zetty Madina *et al.*, 2011). For this reason, consumer demographic characteristics can identify co-operative target market easily, and the probable prosperity of co-operative e-retail business (Delafrooz, Paim, & Khatibi, 2011a). That is why, Choon Ling, Hoi Piew and Teck-Chai (2010) proposed evaluating shopping orientation among the potential customers who have strong intention to engage in online purchasing activities. Polytechnic students are co-operatives shareholders who take part in the

decision-making process. They vote for major policies and elect members of the board of directors in the Annual General Meeting. These are possibilities to increase online shopping (So, Wong, & Sculli, 2005). Better understanding of students' attitudes in the marketplace is important for retailers (Delafrooz *et al.*, 2010) and more detailed studies should be under consideration for young consumer perspectives (Atilgan-Inan & Karaca, 2011). Furthermore, most researchers have suggested to study on online shopping environment in various subjects and region in Malaysia (Belkhamza & Azizi Wafa, 2014; Choon Ling *et al.*, 2011; Hill & Beatty, 2011).

Studies on demographic factors such as gender, age, income, and culture and their impacts on intention to purchase have been paid a lot of attention. However, according to Dennis, Merrilees, Jayawardhena and Wright (2009) the role of education in e-retail has been given little attention. Some studies only suggested the moderating effect of gender, age, experience and voluntaries on behavioural intention (Venkatesh & Davis, 2000).

On the method of identifying the mediation effect in online purchasing, Baron and Kenny (1986) wrote that it was based on three conditions. First if there is a significant relationship between the independent variable and the dependent variable. Second if there is a significant relationship between mediator variable and the independent variable; and third, testing the concurrent relationship between the independent variable and the mediator variable with the dependent variable. If the relationship between the mediator and the dependent variable is significant and the relationship between the independent and the dependent variables ceases to be significant, then full mediation is obtained whereas if the latter relationship decreases but remains significant, partial mediation is obtained.

Extensive review of the online shopping literature by Zhou *et al.* (2007) showed that there were mixed effects of educational level. Some findings identified positive relationships (Naseri & Elliott, 2011; Teo, 2006) while others did not (Haque *et al.*, 2006; Khatibi *et al.*, 2006). Furthermore, data collected by previous researchers on education background were based on level of education such as postgraduate, undergraduate, high school, polytechnic, college or types of students (Spake, Finney, & Joseph, 2011). Teo (2006) studied demographic factors on IT related and non-IT related occupation but not on the types of education programme, such as business, e-commerce, non e-commerce, non-information technology and information technology. Lin (2007) on the other hand, has selected sampling among undergraduates who enrolled in the electronic commerce programme but did not compare it with other programmes. Han, Yang and Du (2009) focused selected subject in grades such as freshman, sophomore (a student in the second year) and junior. Broekhuizen and Huizingh (2009) suggested that it was interesting to study the impact of an online purchase from a socio-demographic perspective (age, sex, gender, education, income). For this reason, this research helps polytechnic co-operatives on which demographic group of online buyers have the desire to perform online shopping based on academic programme and gender.

A number of companies are adopting virtual store and relying on e-retail as a source of revenue. To date there have been a lot of studies done on online shopping for small medium enterprises (SMEs) (Husnayati, Rafidah, & Mohd Adam, 2008; Küster & Vila, 2011; Rosli & Noor Azizi, 2009) but there have not been many studies done on co-operative businesses. Understanding consumers' needs help retailers to position their services and be more competitive (Zetty Madina *et al.*, 2011). Now, efforts should be taken to study other groups of consumers, and cross culture in developed

and developing countries so that we can understand the differences and/or similarities (Atilgan-Inan & Karaca, 2011; Celik, 2011; Yu & Fu, 2010).

Recent studies in the actual purchase (use behaviour) are not well explored compared to research on intention to purchase (Mohammad, 2013). Most of the studies concentrate on the intention and only a few addressing the actual purchase (Dennis *et al.*, 2009; Lee, Shi, Cheung, Lim, & Sia, 2011; So *et al.*, 2005). Numerous studies recommend further research on actual purchasing behaviour (Bonera, 2011; Delafrooz *et al.*, 2011b). According to Naseri and Elliott (2011), empirical evidence in actual online purchase was relatively rare. It could be due to the difficulty faced by researchers in collecting data on the actual purchase and company confidentiality policy. In marketing concept, organization must understand their customers and stay close to them. Organization should understand customers' need for services and products (Kotler & Armstrong, 2010). The major reason organization shifts to focus on consumers is because nowadays technology such as company database can obtain details from actual purchaser and user of their products. Companies can track down consumers' reaction to their products and services (Peter & Olson, 2008). By researcher involvement through participant observation, the issue of confidentiality can be minimized. It is further suggested by Rosli and Noor Azizi (2009), to stress on the use behaviour rather than perception towards electronic commerce by using the case study or examinations of web content.

There is still a need for a study on online shopping in Malaysia because little is known about consumers' behaviour toward Internet shopping in Malaysia (Delafrooz *et al.*, 2010; Haque *et al.*, 2006; Norazah, Ramayah, & Norbayah, 2008; Norazah, 2010) especially in co-operative retail business and in the different regions of the country

(Choon Ling *et al.*, 2011). Prospects for consumer co-operative and retail internationalization are also taking consideration to offer online store/order among members or non-members (Davies & Burt, 2007).

1.3 Research Questions

To address the problems highlighted earlier, the following research questions are presented.

1. How can polytechnic co-operative design its e-retail website successfully by using the Content Management Software (CMS)?
2. To what extent does the polytechnic co-operative e-retail website is accepted by its customers?
3. Can UTAUT be adapted to measure the acceptance of polytechnic co-operative e-retail website?

1.4 Research Objectives

From the research questions, the following objectives are formulated. The research objectives are;

1. To propose a web design process model for polytechnic co-operative e-retail website using the Content Management Software (CMS) package selection.
2. To develop a polytechnic co-operative e-retail website using the proposed web design process model as listed in objective 1.
3. To measure the acceptance of the polytechnic co-operative e-retail website through the use of modified UTAUT. The sub-objectives are:

- a. To determine the significant effect of Education Programme, self-efficacy and anxiety in measuring students' behavioural intention to perform online shopping at the polytechnic co-operative e-retail website.
- b. To examine the moderating effects of gender on the relationship between determinants of students behavioural intention on online shopping of the polytechnic co-operative website.

1.5 Significance of Study

In terms of practical contribution, this research is significant because web design process model has not been applied in the context of co-operative business in Malaysia. The reasons are due to the cost of developing and managing online website and lack of business culture concerning online business opportunities (Küster & Vila, 2011). This research use participant observation in web design process model. The participant observation demonstrates the application of the process model. It can also help e-retail business especially webmaster to work on developing e-retail business and to satisfy the needs of small business. Retailers could benefit it by gaining new insights in setting up their new virtual mall because many retailers still struggle to determine factors influencing consumer behaviour (Lee *et al.*, 2011). This research attempts a more naturalistic setting and uses multiple item measures as suggested by Abendroth (2011). This research can give some guidance in understanding the new organizational setting and improvisation learned in practise to close the gaps between published academic research and industry practitioners in e-retail environment (Iacono *et al.*, 2009).

The expected findings can be useful for co-operative (practitioners) before venturing into e-retail business. Such understanding in consumers' shopping and purchasing patterns would enable co-operative to gain better insights into consumers' online shopping motivation and facilitates them in developing effective strategies and improving relationship with consumers. This research also provides guidelines to co-operative consumers to start and achieve success in designing e-retail websites.

This research can help co-operatives to reach objectives in building e-retail website and also study the buying behaviour on online shopping because previous studies have shown that 82% of online shoppers drop items from their shopping carts without completing the transaction (Hausman & Siekpe, 2009). Consequently, the expectation of this study is to provide relevant results for the polytechnic co-operative to encourage students to engage in online shopping. By doing so, polytechnic co-operatives can retain a special relationship with their members as co-operative grows (Davies & Burt, 2007).

This research attempts to fill the gap in the theoretical contribution because it is adding new information by developing modification in UTAUT as a comprehensive model to investigate a set of construct (Computer self-efficacy, Internet self-efficacy and Online Shopping self-efficacy, Computer Anxiety, Internet Anxiety, Online Shopping Anxiety and Education Programme) that have influence in the acceptance of e-retail website particularly polytechnic co-operative. Previously, majority of existing studies concentrated on SMEs and not in the field of co-operative in Malaysia. Finally, this research values to polytechnics in the context of evaluating their curriculum development on IT and e-commerce.

1.6 Scope of Study

This study focuses on a web design process model of the polytechnic co-operative e-retail website and attempts to determine the significant effect on students' behavioural intention and acceptance of online shopping. The scopes of study are as follows:

1. The population involves polytechnic students in campuses. Students are relatively homogeneous subjects that can have a significant impact on country level (Lee *et al.*, 2011).
2. The field of research is in Malaysia polytechnic co-operative context. Hence, the outcome of this research is applicable to similar setting of co-operative especially retail consumer co-operative.
3. This study focuses on the researcher's self-developed website and polytechnic students because they are the target market.
4. Researcher uses the Content Management System (CMS) which has already been designed by an IT software engineer (service provider).
5. The behaviour on online shopping might be influenced by other online shopping services experience. However this study did not consider the effect of experience.
6. Cluster random sampling technique was used as this research could not cover all academic programmes offered at Malaysian Polytechnics due to the fact that no single polytechnic offers all academic programmes.

1.7 Definition of Key Terms

The following terms are defined in the context of this research construct.

Table 1.3

Definition of key terms

Construct	Definition
Online Shopping	Online shopping is the process consumers go through to purchase products or services over the Internet (Norazah <i>et al.</i> , 2008).
Online Shopping Intention	Situation where a consumer is willing and intends to make online transactions. Online shopping intention defined as a consumer's intention to build an online relationship and have transactions with an e-retailer (Pavlou, 2003).
E- Retail	Retail business that runs online shopping business.
Package Selection	Evaluating, acquiring, tailoring and installing third party software (Cervone, 2008).
Co-operative	A business registered in Co-operative Commission of Malaysia (SKM).
Polytechnic	Educational Institution under the Ministry of Education
Performance Expectancy	The degree to which an individual believes that using the system will help him/her to attain gains in job performance (Venkatesh <i>et al.</i> , 2003).
Effort Expectancy	The degree of ease associated with the use of the system (Venkatesh <i>et al.</i> , 2003).
Social Influence	The degree to which an individual perceives that important others believe he/she should use the system (Venkatesh <i>et al.</i> , 2003).

Table 1.3 (Continued)

Construct	Definition
Facilitating Conditions	The degree to which a person believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh <i>et al.</i> , 2003).
Use Behaviour	Actual use of the system (Delone & Mclean, 2003)
Self- Efficacy	Judgments of one's ability to use technology to accomplish (Venkatesh <i>et al.</i> , 2003). Self-efficacy reflects the beliefs of the individual about his or her capacity to act in a specific way and to achieve the results desired (Bandura, 2006).
Computer self- efficacy	Individuals' judgment of their capabilities to use computers in diverse situations (Thatcher & Perrewe, 2002).
Internet self-efficacy	An individual's judgment of efficacy across multiple Internet application domains (Hsu & Chiu, 2004).
Web specific self-efficacy (in this case www.ptsscoop.com.my)	An individual's perception of efficacy in using a specific WWW application (service) within the domain of general Internet computing'(Hsu & Chiu, 2004).
Anxiety	Evoking anxious or emotional reactions when it comes to performing a behaviour (Venkatesh <i>et al.</i> , 2003).
Internet anxiety	Negative emotion resulted from individual experience of using the Internet (Yao & Liao, 2011).
e-shopping anxiety	Negative emotion that results from an individual's experience with online shopping, in particular (Yao & Liao, 2011).
Computer Anxiety	Anxiety about the implication of computer use such as loss of important data or fear about possible mistake (Thatcher & Perrewe, 2002).
Education Programme www.ptsscoop.com.my	Academic Programme in a certain field at the level of Diploma and Advance Diploma Level run by polytechnics.
	Researcher builds case study website consists of all links and Facebook™.

Table 1.3 (Continued)

Construct	Definition
Web designer	Person who is concerned with website appearance and how the customers interact with it. They know how to put together the principles of design to create a site that looks great. They also understand about usability and how to create a website that is user-friendly (Kyrnin, 2013).
Web developer	Person who focuses on how a website works and how the customers get things done on it. They know how to program CGI and scripts like PHP, ASP, C. They understand how web forms work and how to keep a website running effectively (Kyrnin, 2013).
Webmaster	Person who is responsible for particular pages of information on the World Wide Web (Hornby, 2000).
Content Management System (CMS)	Website application platform for web design. It enables the user to quickly develop, maintain, manage the dynamic website and lend structure and manage contents online (Islam, 2011).

1.8 The research framework

This research is divided into two phases. The first phase is to develop the process model of polytechnic co-operative consumer e-retail website using case study method. The second phase is to measure acceptance of polytechnic co-operative consumer e-retail website by using a quantitative method. The existing phenomena of online shopping are explained in Chapter One. It leads to two contributions, theoretical and practical gaps. Chapter Two discusses the background of co-operative and e-commerce. Literature review in Chapter Three focuses on previous researches, the antecedents, review of underpinning theories, self-efficacy and anxiety. Chapter Four provides the research theoretical framework and hypotheses. Chapter Five presents the methodology and justifies the methods used. This is followed by a discussion of the research design including the case study, the population, sample, data collection and development of the instrument. The research framework is shown in Figure 1.1.

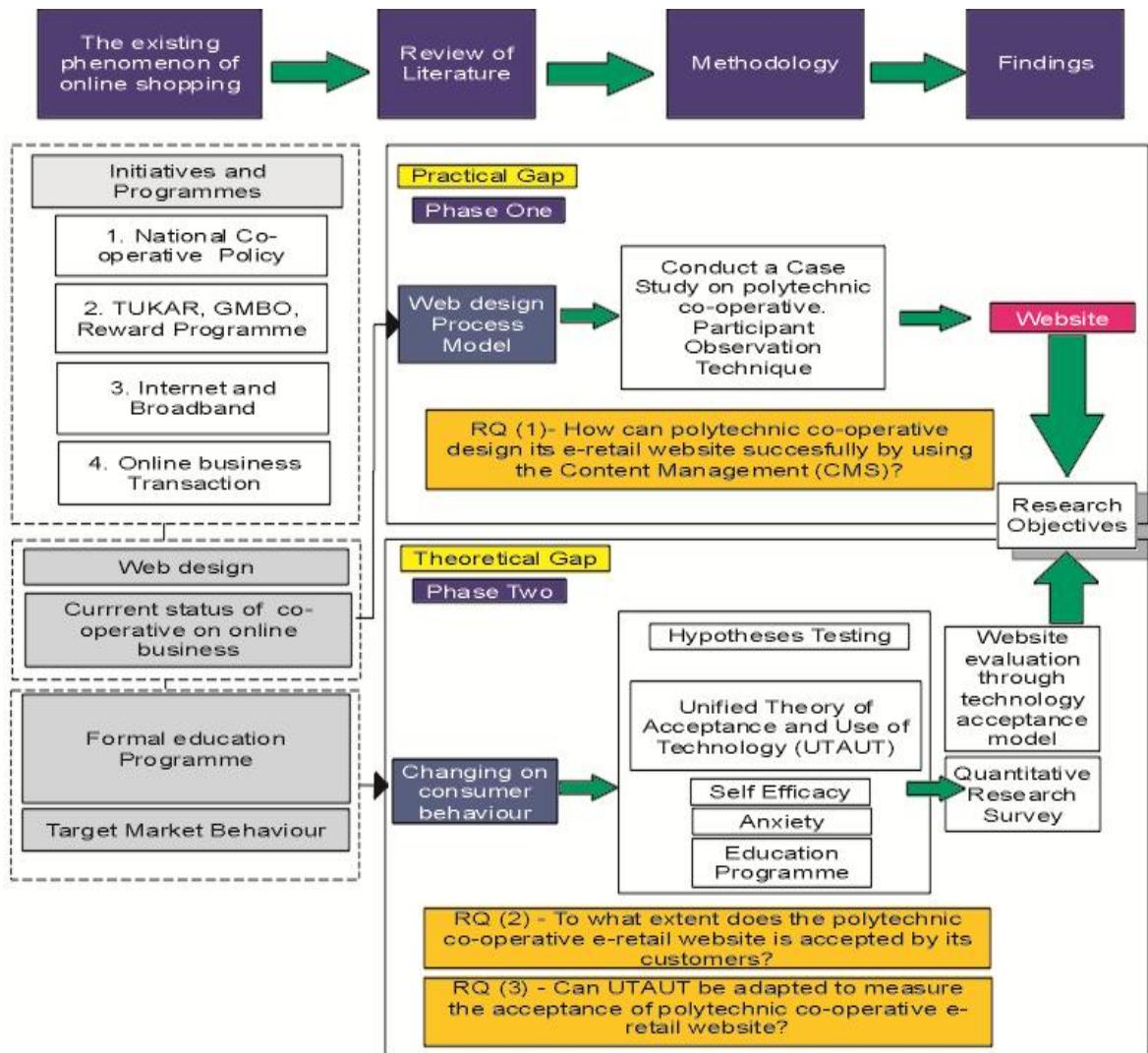


Figure 1. 1 The Research Framework

CHAPTER TWO

THE BACKGROUND OF CO-OPERATIVE AND E-COMMERCE

2.0 Introduction

This chapter presents an overview of co-operative in Malaysia, e-commerce history and e-retail. The organization chosen for this study is Tuanku Syed Sirajuddin Polytechnic co-operative. It is to understand the co-operative business, the involvement of co-operative in e-retail business and the reason Tuanku Syed Sirajuddin Polytechnic was chosen as the case study.

2.1 Co-operative in Malaysia

In 1922, the first co-operative law (Co-operative Societies Enactment 1922) was approved, and Mr. A. Cavendish was appointed as the First Registrar. The chronology of the co-operative movement is stated in Table 2.1.

Table 2.1
Chronology summary of co-operative events

Date /Year	Chronology of Events
28 June 1922	The first co-operative law, Co-operative Societies Enactment 1922, was approved resulted from the research and certification made by Mr. A. Cavendish.
1 July 1922	Co-operation Development Office was established and headed by Mr. A. Cavendish (the First Registrar).
21 July 1922	Syarikat Bekerjasama-sama Jimat Cermat dan Pinjam Wang Pekerja-pekerja Jabatan Pos dan Telekom Berhad was registered.
3 December 1923	Syarikat Kampung Tebuk Haji Musa Bekerjasama-sama Dengan Tanggungan Berhad, Parit Buntar, Krian, Perak was registered.
1924	Captain Noor M. Hashim appointed as an Assistant Registrar (the first Malay appointed to the post).

Table 2.1: (Continued)

Date /Year	Chronology of Events
1935	Enactment 1922 was revised and published as FMS Cap. 97.
1938	A total of 76 credit co-operatives were established with individual membership totalling 30,626 and fees totalling RM6,393,100.
1939	Total co-operatives were 515.
1941-1945	Co-operative movement was inactive due to World War II.
1948	Co-operative Societies Enactment 1922 was abolished and replaced with Co-operative Societies Ordinance 1948.
1949	Sarawak Co-operative Ordinance 1949 was approved.
1949	Malaya Co-operative Wholesalers (MCWS) was established.
1954	A total of 172 marketing co-operatives were registered with working capital of RM10.5 million.
2 August 1954	Koperasi Insurans se Malaysia (MCIS) was registered.
1954	Bank Persatuan Kerjasama was established. Subsequently, the bank merged with Bank Agung Kampung Bekerjasama Persekutuan Tanah Melayu. This co-operative bank was later known as Bank Kerjasama Rakyat Malaysia Berhad (Bank Rakyat).
1955	A total of 22 housing co-operatives were registered.
1956	Co-Operative College of Malaysia (MKM) was established. Datuk Abdul Majid b. Haji Mohamed was appointed as the first headmaster.
1957	Total registered co-operatives were 2,243 with working capital totalling RM74,051,354 and individual membership totalling 267,685.
1958	Sabah Co-operative Ordinance 1958 was approved.
1965	Koperasi Sekolah-sekolah Tamil Kedah Berhad was registered.
1966	School co-operative was first introduced.
1971	The first Malaysia Co-operative Congress was held with the objective to establish national co-operative union. The union aims to unite all the co-operatives in a more comprehensive movement.
1972	National Co-operative Organization of Malaysia (ANGKASA) was established during the second Malaysia Co-operative Congress.
1975	Farmers Organization Authority (LPP) was established. Simultaneously, 1,550 agro-based co-operatives were placed under the supervision of LPP.

Table 2.1: (Continued)

Date /Year	Chronology of Events
1976	Fisheries Development Authority of Malaysia (LKIM) was established and 76 fishermen co-operatives were placed under the supervision of LKIM.
28 January 1982	Co-operative Societies Ordinance 1948 was amended to include co-operative principles and to use new definition and term.
1983	The New Era of Co-operative was launched with the introduction of four (4) types of co-operatives namely KPD, KIK, KPP and KPN.
1986	Co-operative Societies Ordinance 1948 was revised and renamed as Co-operative Societies Act 1948 (revised in 1983).
1987	Total registered co-operatives in Malaysia were 2,913 which consist of 2,138 in Peninsular Malaysia, 322 in Sabah and 443 in Sarawak. Total individual membership was over 2.8 million.

Source: ("Sejarah Gerakan Koperasi di Malaysia," n.d.)

Until December 2011 there were 9,074 co-operatives in Malaysia with total asset of RM92 million. Co-operative can be divided into ten functions. The functions of the co-operative are shown in Table 2.2.

Table 2.2
Co-operative by Function as at 31 December 2011

NO	FUNCTION	NUMBER OF CO-OPERATIVE	TOTAL MEMBER (people)	TOTAL FEE/CAPITAL (RM)	REVENUE (RM)
1	BANKING	2	986,273	2,599,264,172	5,182,413,967
2	CREDIT	589	1,913,384	4,762,759,131	1,285,077,544
3	AGRICULTURE	1,798	416,200	426,053,335	858,106,734
4	HOUSING	134	147,633	175,076,985	66,736,687
5	INDUSTRIAL	162	13,349	2,463,672	28,876,377
6	CONSUMER ADULT	1,920	539,818	239,642,392	696,586,612
7	CONSUMER SCHOOL	2,216	2,087,254	19,762,144	263,556,644
8	CONSTRUCTION	151	112,088	25,081,547	85,068,091
9	TRANSPORTATION	418	137,899	57,285,563	557,856,033
10	SERVICES	1,684	686,411	2,178,160,174	14,063,977,634
TOTAL		9,074	7,040,309	10,485,549,113	23,088,256,324

Source: (Suruhanjaya Koperasi Malaysia, 2012)

According to International Co-operative Alliance (ICA), co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (International Co-Operative Alliance (ICA), 2012).

National Co-operative Policy (DKN) was introduced in 2002 and lasted for eight years until 2010. DKN outlined a number of implementation strategies to enable the cooperative movement involved in more active role in national development along with public and private sectors. Under DKN 2002 - 2010, members of the society have been placed under a ministry with the Cooperative Commission of Malaysia's (SKM) authority. Prior to this, agro-based cooperatives are monitored by the Farmers Organisation Authority (FOA) and cooperatives. Then, DKN was extended from 2011 until 2020 in line with Economic Transformation Programme (ETP). Co-operative registered under the Co-operative Societies Act 1993 and is regulated by the Co-operative Commission of Malaysia (CCM). The co-operative principles are shown in Table 2.3.

Table 2.3
Co-operative principles

Principles	Descriptions
Voluntary and open membership	Co-operatives are voluntary organisations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

Table 2.3: (Continued)

Principles	Descriptions
Democratic member control	Co-operatives are democratic organisations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary co-operatives members have equal voting rights (one member, one vote) and co-operatives at other levels are also organised in a democratic manner.
Member economic participation	Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the co-operative; and supporting other activities approved by the membership.
Autonomy and Independence	Co-operatives are autonomous; self-help organisations controlled by their members. If they enter into agreements with other organisations, including governments or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

Table 2.3: (Continued)

Principles	Descriptions
Co-operation among Co-operatives	Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures.
Concern for Community	Co-operatives work for the sustainable development of their communities through policies approved by their members.

Source: (International Co-Operative Alliance (ICA), 2012)

In order to run the e-retail business, an approval from Board of co-operative or through Annual General Meeting is a must because the principle of Co-operatives as autonomous and self-help organisations controlled by their members. Members participate in setting co-operative policies and making decisions as mentioned previously.

There are 28 polytechnic consumer co-operatives registered with the Co-operative Commission of Malaysia (CCM). Various activities have been carried out by consumer co-operatives, such as mini markets, cyber cafes, convenience stores, dry cleaners and bookstores. The goal of most co-operatives is to encourage the members who live an austere way of life to get quality products at affordable prices. Table 2.4 shows the summary of polytechnic consumer co-operatives in Malaysia.

Table 2.4
Summary of Polytechnic Co-operative.

Target Group	Number of Co-operative	Number of members	Total Share Capital and Fee (RM)	Total Asset (RM)	Revenue (RM)
Polytechnic	28	106,949	2,762,637	20,516,113	19,236,749

Source: (Suruhanjaya Koperasi Malaysia, 2012)

This research focuses on polytechnic co-operative in Malaysia with total members of 106,949. Among them are polytechnic students and staff. None of the polytechnic co-operative subscribes website domain name. Only a few have Facebook™ profiles or groups such as Kuching Polytechnic Co-operative Limited, Kota Bahru Polytechnic Co-operative Limited and Mukah Polytechnic Co-operative Limited. Some of the website focused on simple and static website. From the list of top 100 co-operative in Malaysia, only a few consumers co-operative subscribed to website domain name. Only Koperasi Pengusaha dan Penjaja Internet Selangor Berhad (IKOOP) with the registration number of B-4-0996 has domain address at <http://www.malaysia-sales.com/>, that provides online sales. Table 2.5 shows the summary.

Table 2.5

Summary of web addresses of consumer retail co-operative in Malaysia

Co-operative Name	Web address	Online business
Koperasi Kedai Buku UM Berhad	www.kkumb.coop	No
Koperasi Universiti Putra Malaysia Berhad	www.kuputra.upm.edu.my	Online bookstore but with broken link
Koperasi Pegawai-Pegawai KESEDAR Berhad	-	-
Koperasi Pelaburan Pekerja-Pekerja Kejora Kota Tinggi Berhad	-	-
Koperasi 3K Berhad	-	-
Koperasi Pasar Melayu Baling Berhad	-	-
Koperasi Serbaguna Iman Malaysia Berhad	-	-
Koperasi Pengguna Pahang Berhad	-	-
Koperasi Pekebun Kecil Daerah Kuala Terengganu	-	-
Koperasi Universiti Sains Malaysia Berhad	www.kusmb.com	No
Koperasi Unikeb Berhad	www.unikeb.koperasi.coop	No
Koperasi Perwaja Kemaman Berhad	-	-
Koperasi Universiti Teknologi Malaysia Berhad	www.kutmb.coop (broken link)	No

2.2 E-Commerce History

In the early 1970s, E-commerce application was first developed with the innovation of electronic funds transfer. Funds could be transferred electronically from one organization to another (Laudon & Traver, 2007). The history of e-commerce can be divided into three periods. Innovation (1995-2000) was a period of explosive growth and extraordinary innovation, Consolidation (2001-2006) was a period that emphasized on to more business driven rather than technology driven. Reinvention

(2006-present) was a period of extension of the Internet technology, the discovery of new business models based on consumer-generated content, social network and virtual online lives (Laudon & Traver, 2007).

There are several ways of looking at e-commerce. Awad (2006) viewed e-commerce in a form of communications, interface and business process. Laudron and Traver (2008) categorized e-commerce business model according to e-commerce sectors; B2C, B2B, C2C and P2P. Turban, King and Lang (2009) added the categorization into B2B2C, C2B, Mobile Commerce, Intrabusiness E-Commerce, B2E, Collaborative Commerce, C2C, E-Learning, E-Government, E2E and Non-business e-commerce by the nature of transaction or the relationship among participants.

Business-to-Consumer (B2C) E-Commerce is where online business attempts to reach the individual consumer through retail transaction of products or services. Within B2C, there are many types of business models: portal, online retailers, content providers, transaction brokers, service providers, and community providers. This electronic commerce type is also called e-tailing (Turban *et al.*, 2009). Business-to-Business (B2B) E-Commerce is a business or organization that focuses on selling to other businesses or organizations. The ultimate size of B2B E-commerce business is huge compared to B2C E-Commerce. Consumer-to-Consumer (C2C) E-Commerce is when consumers sell to each other with the help of online market maker such as auction site eBay. Peer-to-Peer (P2P) E-Commerce enables the Internet users to share data files, processing and computer resources directly without central web server. Business- to- Business-to-Consumer (B2B2C) is when a business provides some

products and services to clients. The business clients maintain their customers who might be their employees or to whom their products or services are provided without any added value. Consumer-to-Business (C2B) is when individuals use the Internet to sell products or services to either organizations or other individuals seek the users to bid on it (Turban *et al.*, 2009). Mobile Commerce refers to the transaction being conducted fully or partially using wireless environment technology involving mobile devices.

E-Commerce Intra-business involves exchange of goods, services or information among organizational units or individuals. It is performed over an intra-network or a corporate's website. Business to Employee (B2E) is a subset of intra-business category in which business delivers product, services and information to the individual employee.

Business to Consumer E-Commerce is a portal, content provider, the transaction broker, market creator, service provider and community provider. The portal has several variations such as horizontal/general variation that offers search, services, news, e-mail and chat (messenger). Vertical/Specialized variation offers services and products to specialized marketplace. Search Engine offers search service, and Virtual Merchant offers online retail store. Brick-and-click is a division of existing physical store. Catalogue Merchant offers an online version of direct mail catalogue because Manufacturer-direct offers manufacturers online channel to sell directly to customers. Some researchers differentiate between e-commerce, online retail, and e-business. E-commerce is selling goods and services at the retail level with anyone through the

Internet. E-business is the conduct of business on the Internet. Online retail then is a sector of e-commerce (Awad, 2006; Laudon & Traver, 2007). Du (2005) discussed on the model of campus e-commerce in China. Campus e-commerce is a brand new business model that involved micro perspectives (e-transaction) and macro perspectives (digital campus). They classify the campus e-commerce into three categories; B2C model, C2C model and C2B2C model.

2.3 Online retail

Online retail stores (often called e-tailers) are similar to the bricks and mortar storefront, except customers only have an internet connection to browse their inventory in order to place an order. E-tailer is an internet version of retailers of goods and services (Goi, 2007a). Other variations of e-tailer are without ties to physical locations such as Amazon.com and online version of online mall (Laudon & Traver, 2007). According to Nikolaeva (2006), e-commerce adoption in e-retail sector needs more emphasis in internal factors and retailers mimetically responded to the online entry of other retailers. AlGhamdi, Drew and AlGhaith (2011) conducted a qualitative research on factors influencing e-commerce by retailers in Saudi Arabia (KSA). They found that in the culture of KSA, people does not support online sales. They poses difficulty to offer a competitive advantage, issues in delivery, few online payment options, Moreover, KSA faces poor ICT infrastructure, lack of e-commerce legislation, lack of trust, types of business/product are not suitable to be sold online, lack of e-commerce experience, difficulty to gain profit, resistance to change and setup costs.

This research focuses on brick-and-click that emphasises on sales to the individual consumers from business to consumer (B2C) as explained earlier. The type of business is called e-retail due to the business nature of polytechnic co-operative that runs retail business.

2.4 The case: Tuanku Syed Sirajuddin Co-operative Limited

The case aimed at designing and building e-retail business platform to expand their business unit with online shopping transaction. Tuanku Syed Sirajuddin Co-operative Limited (KPTSSB) funded part of this research on introducing a new way of doing business. Most of the polytechnic students and lecturers are members of polytechnic co-operative at their polytechnic. At least 25 polytechnics established their own co-operative. Meanwhile, KPTSSB was established on 11th November 2004. In the annual report ending June 2011, KPTSSB had 5006 members with RM218,610 total amount of shares. The minimum share is RM10 share / person. KPTSSB involves in retail business to serve the community by fulfilling the demands of members, lecturers, and people nearby. The annual profit for KPTSSB in the financial year 2011 was RM233,349.50 with a turnover of RM 300,000. The annual sales for KPTSSB in 2011 was RM1,189,541.83. KPTSSB services include a cyber cafe, laundry, and photocopy. KPTSSB is managed by 15 Board of Co-operative. The daily business is managed by a manager with 11 workers. KPTSSB is a consumer co-operative in which individual members have just one vote. A critical difference between co-operative and most corporate retail chain is that the primary objective of corporate retail chain maximises value at the firm level. While co-operative seeks to maximise value at both the co-operative firm level and the member level (Davies & Burt, 2007).

Corporation is controlled based on the number of shares owned, and distributes profits based on investment. However, co-operatives operate on the basis of one member, one vote and return dividends based on patronage. Co-operative may be the best way to solve the problem, for example, to meet an economic or social need that cannot be met by individuals acting alone (Alberta Community and Co-operative Association, 2012).

PTSS is the sixteenth polytechnic under the Ministry of Higher Education. Eight (8) departments with eighteen (18) diploma programmes are offered by polytechnic. The total number of students was 4,340 in December 2011. Table 2.6 shows internet facilities in PTSS.

Table 2. 6
Internet Service Provider for PTSS

No	Service Provider	Coverage	Speed	Charge
1	TM Streamyx-by TM	Co-operative and Cafeteria	1 Mbps	Pre-paid Streamyx account
2	WiFi Koop	Hostel	1 Mbps	RM2.50 daily. RM105.00 per sem
3	Koop Streamyx – by KPTSSB	Co-operative and Cafeteria	1 Mbps	RM2/hour
4	Polytechnic	80% of PTSS campus	2 Mbps Leased-lined. 10 Mbps Myren. 2 Mbps Streamyx	Free

Only one domain name and web hosting are necessary enough to continue the whole process of e-retail business. This domain represents polytechnic co-operative e-retail website. Selection of cases is an important aspect of building process model from a

case study. KPTSSB is appropriate for this case study because, in order to conduct participant observation technique, ability to communicate with the board of co-operative is necessary. In addition, researcher can present to the board of co-operative meetings and able to work with an assigned team member (Manager). In addition, it helps the researcher to define the limitation for generalizing the findings because of the similarity among polytechnic co-operative. During the case study period (approximately 2 years from 2012-2014), KPTSSB is used as the prototype polytechnic co-operative e-retail website for the researcher to deploy the participant observation technique.

2.5 Summary

This chapter gives a brief discussion on the background of co-operative, e-commerce and online retail business. It shows that only a few co-operative ventures in e-retail or having a website although there are potential customers that can be targeted for e-retail through co-operative membership. E-commerce model that is based on B2C is a way that co-operative attempts to reach the individual consumer through e-retail. This chapter also explains the suitability of Tuanku Syed Sirajuddin Polytechnic Co-operative to be used as a case study.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

This chapter reviews previous researchers on web design that includes web design guidelines, web usability, process models and usage of CMS in web design. Subsequently, it also reviews the previous researches on online shopping that determine consumer buying behaviour. The review explains traditional shopping behaviour and online shopping behaviour so that the differences can be clearly comprehended. The chapter also addresses theoretical underpinning theory that has been used in previous studies on online shopping setting. It contains the Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Decomposed Theory of Planned Behaviour (DTPB), Social Cognitive Theory (SCT), Online Shopping Acceptance Model (OSAM) and DeLone and McLean IS Success Model. Literature on technology acceptance models is explored to gain understanding of the model of Unified Theory of Technology Acceptance and Use (UTAUT). Figure 3.1 shows the literature review diagram.

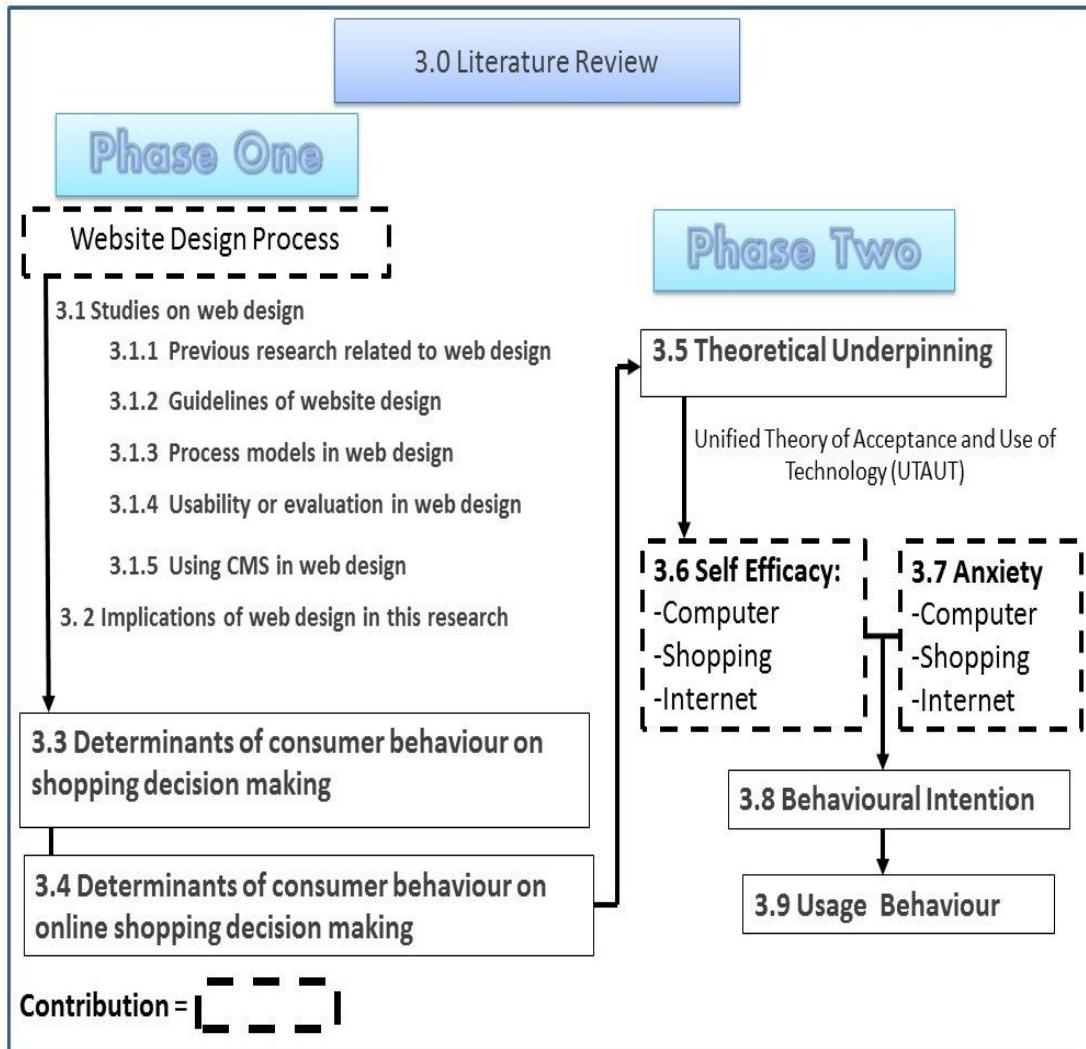


Figure 3.1 Literature review diagram

3.1 Studies on web design

Research on web design, in general, can be divided into identification of web design construct, impact of web design on the website, guideline of website design, process model of web design and website usability.

3.1.1 Previous research related to web design approaches

In website design, an online transaction models are related either as brokerage model, retail model, mall model, advertising model, subscription model, community model, manufacture model and customization model. Impacts of website credibility on consumers rely on these models of websites (Bailey, 2005). For online transactional design, there was a qualitative research on IT project conducted by the Ministry of Science, Technology and Innovation (MOSTI) called ‘Program Pembangunan e-usahawan’ for women entrepreneur that was started in 2010. The link to the website is www.1nita.my (Nasir, 2010). According to Dr Norizan Abdul Razak (the key researcher), this project is a good example of running a business through website. Entrepreneurs are exposed to the technical aspect of web development through free training. It is a grant project that is associated with MOSTI, UKM and .my domain registry (currently known as MYNIC Berhad). The main drawbacks of this project are that they are cost extensive and highly reliant on technical expertise.

Another case study by Yousept and Li (2005) used ASDA.com to describe the challenges in building and developing an online grocery business in the UK. The research illustrates the development stage and critical aspects of ASDA.com’s web store. The illustrations are more on managerial aspects experience but not on technical aspects on the development of the web store. In a case study of e-learning, Liu, Yang

and Gu (2010) designed and implemented website of data structure course through customized template. The system has a friendly interface and is easy to operate so that it can facilitate teachers to operate, update and manage the website. It shows how the website is designed and implemented through a template, module and columns.

In a study of designing websites, credibility of the website is extremely important (Bailey, 2005). Factors such as clear information, responses to frequently asked questions (FAQ) and e-mail, information about security of consumers' transaction, payment and credit policies, shipping and handling costs and guarantees about product quality should be highlighted to get consumers' confidence (Teo, 2006). According to Delafrooz, Laily and Khatibi (2010) website design needs special attention to attract and ensure the conversion of consumer navigation into purchases. Effective interaction should be created between website and consumers to ensure success in online business. Moreover, according to Wu (2003), homepage design and company name familiarity have significant influence on online shopping. The website design should be simple and should not confuse potential customers who might not be familiar with online shopping (Khatibi *et al.*, 2006). Thus, it is essential that online shopping through websites is designed to make it easy, simple and convenient (Haque *et al.*, 2006). It is important to have a website that is easy to use in order to succeed in the competitive environment because consumers might in a different way perceive consumer-operated websites from company-operated websites (Noorfadzilah *et al.*, 2010).

Hausman and Siekpe (2009) revealed that tool bars (e.g. button, dropdown menu, check box, etc.) and web design features (e.g. background colour, visual images, information density, etc.) have had an impact on usefulness, informativeness and entertainment. According to Ozdemir and Kilic (2011), there are significant differences in website visualization based on gender. The male prefers straight lines, fewer colours in texts and visualization, information that portrays some expertise, graphics and female figures. On the contrary, female consumers prefer websites that are colourful, with simple language, prose-like presentation of information, rounded lines and colourful features. Also, there is a significant relationship between gender and online shopping.

The ways consumers depend on the sources of information offered on the websites is likely to be different across cultures. It is recommended that co-operative should pay close attention to the perceptual fluency of its website especially when they are targeting Generation Y (Im & Ha, 2011). When consumers become familiar with co-operative and the website, there are a possibility of occurrence of the consideration set as well as the possibility of making website an effectiveness (So *et al.*, 2005). According to Sharma *et al.* (2007), website effectiveness consists of ease of use, navigation structure, updated, effective, search options and accessibility. Bonera (2011) mentioned that websites with attractive and enhanced interactive features and control generate a positive attitude towards online shopping. However, Syed, Zaharah, Hishamuddin and Nilufar (2008) indicated in their study that there is no significant relationship between web design and online shopping in Malaysia. According to Haag, Cummings and Rea (2004), successful B2C e-commerce business must personalize shopping experience, create a website that people want to visit frequently,

provide effective market and advertise the sites. Web personalize where customer can customize web page according to a customer's preference.

According to Ozdemir and Kilic (2011), better understanding of web development is critical for effective web design because it can help attract and retain online customers. E-retailers (practitioners) should have some form of methodology/standard/best practise guide for web development project (Taylor *et al.*, 2002). Table 3.1 shows the summary of previous research on web design. It shows construct on web design studies, methods that are being used and types of website.

Table 3. 1
Summary of previous research on variables and methodology.

Researcher	Variables	Method	Types of website/system
Butler and Eireann (1997)	-	Participatory Design	System development in Telecom
Ellis and Kurniawan (2000)		Participatory Design	Online information for the older user
Oostveen and Besselaar (2004)		Participatory Design	e-Government system
Siddiqui, O'Malley, McColl and Birtwistle (2003)	Retail Information, Customer Information, Site Features, Online shopping capabilities, Online Payment Method, Distribution Capacity and fulfilment customer expectations.	Exploratory Qualitative Method	Online fashion website
Bailey (2005)	Consumer awareness, Use	Questionnaire	Product review website
Brandt (2006)	-	Participatory Design	Games Design
Hausman and Siekp (2009)	Web interface: Usefulness Informativeness Entertainment Irritation	Lab experiment and Questionnaire	Dell.com and Landsend.com website
Seman <i>et al.</i> (2009)	Attractiveness, Visual Style, Motivation	Experimental and Interview, Questionnaire	Telecommunication website in Malaysia
Bamasoud (2010)	User Interface	Usability Testing	e-commerce website
Noorfadzilah <i>et al.</i> , Web development (2010)		Case study	Shopping2u.com

Table 3.1: (Continued)

Researcher	Variables	Method	Types of website/system
Liu <i>et al.</i> (2010)	Web design and Implementation	Case study	Customized Course website
Im and Ha (2011)	Enjoyment, Involvement,	Situational survey	Online experiment Two mock website
Lee <i>et al.</i> (2011)	Social influence	Experiment group and questionnaire	www.cinema.com.nk
Al-Qeisi, Dennis, Alamanos and Jayawardhena (2014)	Web design (Technical, Appearance, General)	Questionnaire	Internet Banking
Zhang, Cheung and Lee (2014)	Trust, Review by Gender	Experiment group and questionnaire	www.easywatch.com
		Questionnaire	

The studies of the relationship in web design towards the intention of online shopping are widely used. Previous researchers propose practical contribution among e-retailer to place emphasis on certain factors and some researchers provide a guideline in order to design the web interface. Previous researchers suggested various idea for a website before launching. Delafrooz *et al.* (2010) suggested that website should be special attention while Wu (2003), suggested a website should be effective interaction and familiarity. In the other hand Haque *et al.* (2006) and Khatibi *et al.* (2006) suggested website to be simple. Ozdemir and Kilic (2011) suggested that tool bars and web design feature have an impact on the usefulness. Clear information, responses to the FAQ, payment, credit policies, shipping and handling costs and guarantees about product quality should be emphasized to get consumers' confidence as mention by Teo (2006). According to Sharma *et al.* (2007), website effectiveness consists of ease of use, navigation structure, updated, effective, search options and accessibility. Mostly, those suggestions are not deploy by the researchers in the actual website development. From the methodology view, previous researchers seem to rely on a single methodology, which is the quantitative methodology and determine the

relationships. So, this research deploys the process of web development through participant observation.

According to Jorgensen (1989), the methodology of participant observation is mainly used for studying processes, but it does not relate specifically to web design because Butler and Eireann (1997) did a case study of participation in the information systems development process. Participant observation is especially appropriate for scholarly problems when there are important differences between the views of insiders, as opposed to outsiders. The phenomenon is somehow obscured from the view of outsiders, and the phenomenon is hidden from public view. The term participant observation is mostly used in social science research that is quite similar to the terms participatory design in IS researches. Both methods involve participation in the design process and hands-on experience in a work setting (Bergvall-kåreborn & Stahlbrost, 2008). Participatory design also draws on ethnographic observation (Spinuzzi, 2005). According to Brandt (2006), participatory design is the direct involvement of people in the shaping of future artefacts. In the case of web development, webmaster involves in the staging of a design process of website (artefacts) involving the participation of people (users and stakeholders). It involves active involvement of people who designed and other stakeholders in the design work. The limitation of participatory design according to Spinuzzi (2005) is that, it tends to focus too narrowly on artefacts rather than the overall workflow process as what this research is. The advantages of participant observation can uncover hidden activities and highlight contextual sensitivity (Palsson, 2007).

Previous researchers tend to identify web design variables or constructs for specific websites/system and to find the significant relationship towards specific website/system. The case study by Liu *et al.* (2010), and Noorfadzilah *et al.* (2010) do not show researcher or user participation in the process of web design. While in participatory design, researchers approach mostly focus on end user participation throughout the web or system design but not on the workflow process development.

3.1.2 Guidelines on website design

From the research on identifying web design variables or constructs, a few researchers come out with web design guidelines. Website design refers to the way content is made available for its visitors. Website content refers to the information, features or services that are offered on a website (Ozdemir & Kilic, 2011). Website developers should evaluate existing similar sites to gain insights, comparing design alternatives to determine the most effective interface and use usability measures (Cao *et al.*, 2005). Noorfadzilah, Wan Fatimah and Goh (2010) discussed the guidelines for designing user interface to help developers of e-retail websites. They developed a prototype of e-commerce website named shopping2u.com. To the researcher's knowledge, it is no longer an active domain. Table 3.2 shows the summary of the guidelines for designing an e-commerce website.

Table 3. 2
Guidelines for e-commerce website design

Components	Rules
Homepage	<ul style="list-style-type: none"> i. Web page should be clean and not cluttered with text and graphics. ii. The width of a page should be less than the width of the browser window to avoid horizontal scrolling. iii. Make use of fewer colours. iv. Italicized words are rarely used in good pages. v. Adverts are more commonly found on poor websites rather than a good websites.
Navigation	<ul style="list-style-type: none"> i. Text or the links or buttons should be self-explained and descriptive. ii. When linking to another product related web site, link to the exact product page instead of the homepage of that site. iii. Good pages contain more interactive link than poor pages. iv. Poor pages contain fewer links than average pages, but good pages have the highest number of links. v. Put navigation controls at the same location on each page.
Search Function	<ul style="list-style-type: none"> i. Must be visible and easy to find. ii. Use search features that suggest common searches as user type in the keyword.
Product Catalogue	<ul style="list-style-type: none"> iii. Allow users to search by product name, product category, brand, model/item number and price. iv. Provide a function to filter search result i. Present accurate, consistent, and detailed descriptions of products. ii. Provide accurate and full pictures of products. iii. Present the inventory information of a product in the beginning. iv. Present products in a table with enough information to make a purchasing decision such as prices and features or easy comparison. v. Present related charges up front and in an accurate way. vi. Same products should be presented in the same page, the same position. vii. Products shouldn't be removed from the page because out-of-stock. viii. Provide "related product" function. ix. The website must never require users to register to see the product catalogue x. Organization of the products must be in the way users expect the products to be organized. xi. Users must be allowed to browse the products by using filtering tools. (E.g. browse by brands, colours etc.) xii. Product details such as products specification, reviews, or add-on items can be hidden behind individuals' tabs to prevent page clutter and improve the organization. xiii. Product review and "bestseller product" will help users to choose the products.

Table 3.2: (Continued)

Components	Rules
Shopping Cart	<ul style="list-style-type: none"> i. In the shopping cart page, provide a link that directs the customer back to the page he/she left for continuing shopping. ii. The best location is at the right top area. iii. Show visual indication whether the shopping cart contains products

Source: (Noorfadzilah *et al.*, 2010)

Table 3.3 shows the summary of the web design guidelines.

Table 3. 3

Others Components Guidelines for e-commerce website design

Components	Rules
Form Filing	<ul style="list-style-type: none"> i. Mistakes in data entries must be easily corrected. ii. There is an “undo” function in data entry. ii. Field labels must be brief, familiar, and descriptive v. The portal should have the ability to cancel tasks. v. Fields in data entry screens and dialog boxes must contain default values. vi. Each data entry screen must have a short, simple, clear, and unique title.
Error Message	<ul style="list-style-type: none"> i. Should not encounter many system errors. ii. The error messages should be displayed in a plain and understandable language and suggest a solution. ii. Error messages should suggest the cause of the problem. v. Potential errors can be recognized before becoming a problem. v. The portal should warn users if they are about to make a serious error.
Content	<ul style="list-style-type: none"> i. Each page must be labelled to show its relation to others. ii. The language used in the portal must be easy to understand. ii. All icons in the portal must have a label. v. Each window must have a title. v. All instructions, prompts, and error messages must appear in the same place. vi. In the portal, wording and buttons must be consistent. ii. The instructions in the portal should be easy to be retrieved. ii. White spaces should be used to create symmetry and guide the eye in the appropriate direction. x. The same colour must be used to group related elements. x. The portal should use colour highlighting to get the user’s attention. xi. The icons must be easily recognizable. ii. On first use of the portal, it must be easy to navigate. ii. The information must be in hierarchy form. v. The information should be broken into chunks (break into small parts), and links should be used to connect the relevant chunks. v. Less needed information can be accessible via a link. vi. The idea should be in one idea per paragraph. ii. The portal should be in short paragraphs, subheadings, and bulleted

Table 3.3: (Continued)

Components	Rules
Search Function	i. The portal must provide search engines
Link	i. The portal should not have broken link. ii. The portal should have good labels and descriptive links. iii. Wording in link must be consistent with the wording of page title or page header.
Text and Background contrast	i. There must be brightness contrast between image and background colours. i. Light and bright colours should be used to highlighted data, darker and duller colours for highlight data.
Online Documents	i. Instructions in help must follow the sequence of user actions. ii. The portal should have online help. iii. The instructions in help should be easily retrieved and relevant. iv. In online help, there should be links from the main sections into specific help. v. The portal must have help icons in form filing dialog.
Font Feedback	i. The content should use same font text i. I always know my location in the portal. ii. The portal should provide visual feedback in menus or dialog box.
Menu	iii. Feedback message must appear at the appropriate action. i. The menu titles must be grammatically correct. ii. Menu must be simple but complete. iii. The portal allows users to go back to previous menus. iv. A “home” button must be provided in every page. v. Menu titles should be left-justified. • In the portal, wordings and buttons must be consistent. vi. Icons used in portal should be relevant to its function and familiar to the user.

Source: (Bamasoud, 2010)

Practical implications and suggestion from previous studies proposed the guidelines of web interface design (Cao *et al.*, 2005). Since previous researchers tend to outline the web design guideline, this research derives the guideline and deploy it in the real scenario when developing co-operative e-retail website in design stage. However, in CMS package selection not all the rules in the above guidelines can be followed because the web tools in the CMS are limited. The web tools depend on webhosting service provider but having guidelines are helpful when designing the website.

3.1.3 Process models in web design

An example of the process model in web design studies, in general, can be seen in a few models and terms. Abels, White and Hahn (1999) implemented user-centred design (UCD) criteria for an academic business community web page in designing a website. Four stages in typical UCD process model in the research are information gathering, development, test and evaluation and implementation. User input for the research is solicited several times throughout the process. Even though the researcher suggested that user based design process should be tested on other websites, however, UCD is time-consuming and resource intensive (Long *et al.*, 2005).

Long *et al.* (2005) conducted a study specifically on usability testing in the context of UCD for Aerial Photographs of Colorado online access. After launching a functional prototype of Aerial Photographs of Colorado online access, UCD was conducted, and the results help the researcher to redesign the web page. Interviews, observation, heuristic evaluation and analysis of relevant documents were conducted during the evaluation stage in the research. The findings of the research specifically focus on usability testing in the evaluation stage of UCD and not on other stages.

In order to achieve effective business operations, IT organisations have to decide whether to develop custom built software or to purchase Commercial-Off-The-Shelf (COTS) products. COTS products such as Microsoft Office products can be bought in the market (Balzer *et al.*, 2007). Due to that, Hocko (2011) tested UCD on a software package called Microsoft SharePoint. The researcher then provides useful tips for a typical UCD process and for redesigning the web page as follows;

1. Team should have accurate project plan before doing a content inventory and gathering statistics from users on the existing website.
2. Team should get an agreement on company strategic and department level.
3. Access to a package can be useful in order to determine which content is being accessed.
4. Work with a project team. Focus and scope the project realistically.

The research focuses on Microsoft SharePoint only, and the process of UCD might relate to web design process model. COTS is a software package that relates to the discussion on CMS as a package selection (Weaver, 2004). However, UCD is a kind of the usability method.

Other terms in showing the web design process commonly used by IS researchers are web engineering and software engineering. Four basic principles of web engineering can be described similarly to system engineering: clearly defined goals, systematic development of a web application in phases, careful planning of the phases and continuous audit (Kappel, Proll, Reich, & Retschitzegger, 2003). Web engineering is based on the process as defined by Kappel *et al.* (2003), consists of five phases: Orientation, Definition, Design, Realization and Implementation. Depending on the degree of complexity and development history, it can be categorized into nine types as in Figure 3.2.

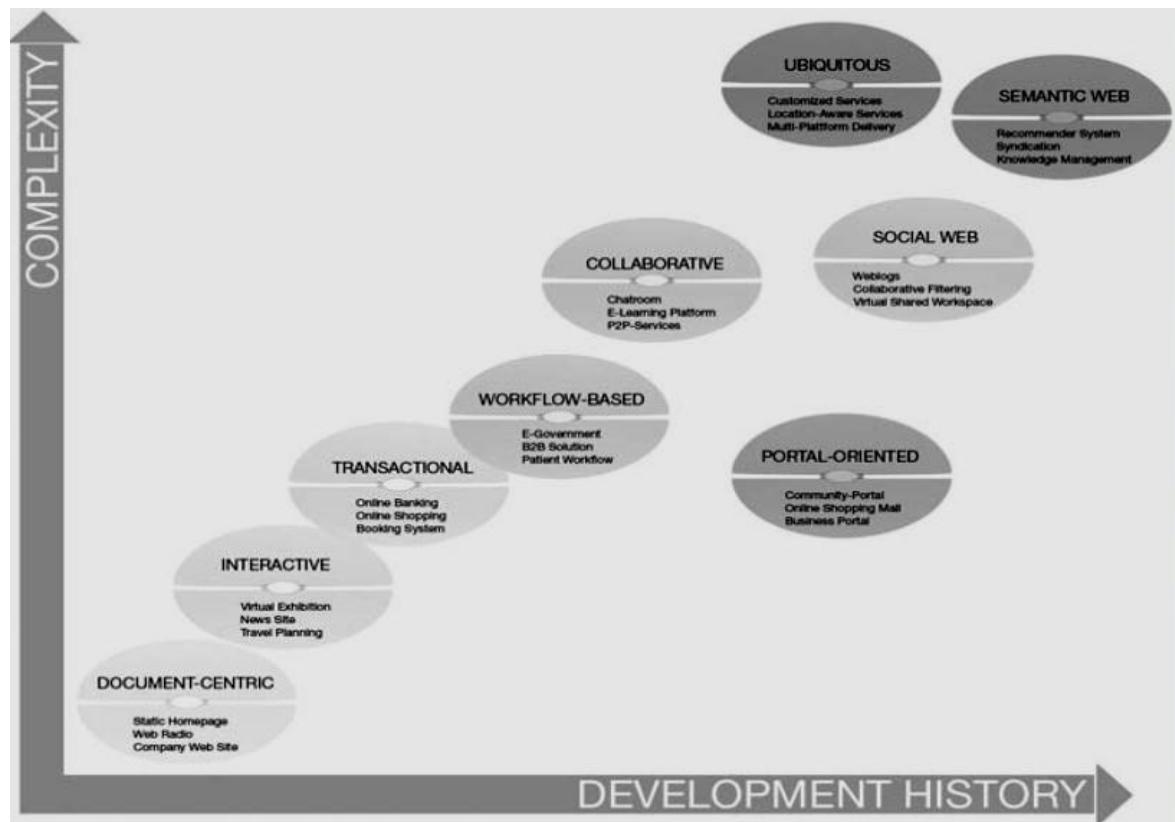


Figure 3.2 Categories of Web application (Kappel *et al.*, 2003)

Based on Figure 3.2, online shopping has been categorised as Transactional web application and Portal-oriented web application. In building industry-quality web application, web engineering proposes an agile as a disciplined framework (Pressman & Lowe, 2009). Agile means that the web application can appropriately respond to changes. Changes could be in the software being built, changes in team members, changes in technology, and changes that have an impact on product (Dillman, 2003). Web engineering adapts the process model of software engineering. Due to the pressure to produce more at lower cost, many small companies have shown interest in agile methods. Agile methods seek alternatives to the traditional software development methodologies, which are too cumbersome, bureaucratic, and inflexible. From a business viewpoint, delivering high-quality software on time and within estimated cost and effort are essential (Lindvall *et al.*, 2004).

Sellappan (2000), Dillman (2003), and Weaver (2004) also highlighted software engineering methodology models that are a process consisting of steps that encompass methods, tools and procedures. Among the software life cycle models are;

1. Build and fix model
2. Waterfall model/The Linear Sequential Model
3. Rapid prototyping model
4. Incremental model
5. Spiral model
6. Capability maturity model.

Various process models have features that are common with each other and tend to overlap among the phases and some web design process adopt those life cycle models. Weaver (2004) development approach and method consists of;

1. Structured Method
2. Object-oriented methods
3. RAD
4. Package Selection

In selecting the above approach, there are a number of things that need to be taken into account such as techniques and tools available to researcher, time available to learn new techniques and client policy (Weaver, 2004). However, web engineering approach may lead to complex applications that are difficult for non-professional web designer to use and to maintain (Cunliffe, 2000). Those life cycle models are suitable for professional web designer and use complex applications.

Some organisations tend to implement a package selection in order to overcome complex application. Weaver (2004) explained that some systems are being implemented using a package selection especially in standard applications such as accounting and in small businesses where resources are limited. Organizations also implement package selection without modification either because it fits their requirement very closely or because the organization has limited financial or technical resources. Haag, Cummings and Rea (2004) suggested organizations to turn to end user development. It is because, not all organizations have the IT resources to develop all the proposed systems. Some organizations turn to outsourcing by what the works are delegated to a group outside the organization for a specific length of time, cost and service. CMS (web design package) and COTS (software package) are an example of package selection. Hocko (2011) and Long *et al.*(2005) tend to evaluate COTS in helping in management decision making whether to buy or use the application or not.

Other researchers such as Cunliffe (2000) synthesised approaches and case study on development models for website into the following general models.

1. Establish the need before the web is adopted as a solution.
2. Gather information on any web development takes place.
3. Develop and evaluate before creating the complete website.
4. Implement only when all design decisions are finalised.
5. Maintain continuously after website is launched.

However, the limitations of the research are the development model based on a synthesis of published journal and case study. Furthermore, there is lack of validation on the effectiveness of the models. This research suggests for validation in order for this model to be accepted as a development approach.

Goi (2007a) reviewed the relevant website development models. The research mentioned that in a website design, the purpose of a particular website was developed either for information design, transactional design or both. The study categorised website development into four stages: The initial part of the study discussed the Planning and Preparation Stage which was to gather information about personnel and skills, facilities and equipment, software, financial investment and time commitment. Subsequently, the Development and Design Stage that focused on the tangible content and design was evaluated in the study. It is followed by the Management and Maintenance Strategy, which monitored and reviewed website pages. Lastly, the Internet Marketing, which involved in managing the function of communication, transaction and distribution. The study specifically reviewed the relevant website development models on the e-commerce website but not practically tested in end user business environment. Kiatruangkrai *et al.* (2010) proposed a method specifically in CMS and e-commerce environment to design and develop a website. This research has identified four stages for the development process. Table 3.4 describes the summary of stages in CMS for e-commerce.

Table 3. 4
Summary of CMS stages for e-commerce

Stages	Description
Requirement Gathering	Survey and Observation. Ask employers and interviews firms that used CMS.
Design	Involve System Architecture, System Functions, User Interface, System Security and database
Implementation	Develop using HTML, CSS and PHP Language
Testing	Unit testing, Integration Testing and System Testing

Source: (Kiatruangkrai *et al.*, 2010)

However, this research also focuses on overcoming users' difficulty in CMS. It is not tested in end user e-retail business. The implementation stage focuses on the added

features of CMS development but does not discuss the whole process of an end user actual e-retail business. Awad (2006) used site building life cycle as stages of web design. In the life cycle, the researcher divided it into several stages: planning, audiences, competitive analysis, the building site, site structure and finally visual design stage. Table 3.5 describes the summary of site building.

Table 3. 5
Summary of site building life cycle

Stages	Description
Planning Stage	Developing the site's goals and collecting client opinions
Audience Stage	Who are the users and what are the users goals and objectives
Competitive Analysis Stage	Be aware of what other sites are doing
Build Site Stage	Gathering the pieces for creating and organizing the structure of the site.
Site Structure Stage	Focusing on creating a good site structure, exploring various metaphors to represent content items, defining the architectural blueprints, and deciding how the user will navigate the site.
Visual Design Stage	How well the icons, buttons, banners, and other elements fit together. Page sites and form should be consistent

Source: (Awad, 2006)

As previous researches conclusion by Kiatruangkrai *et al.* (2010) and Goi (2007a, 2007b), Awad (2006) also did not discuss the implementation stage on the actual e-retail business. Kiatruangkrai *et al.* (2010) do focus on CMS for e-commerce but they ignore the internet marketing as what suggested by Goi (2007a). While Goi (2007a) does not explain in details the internet marketing stage. Practical implementation still remains to be studied in the internet marketing stage and actual e-retail business. The road map synthesises work in process model stages which are beneficial and helpful for this research shows in Table 3.6.

Table 3. 6
The syntheses work from existing stages in the process model.

Researchers	Models	Stages			
Abels <i>et al.</i> (1999);	UCD	Information gathering	Development	Test and Evaluation	Implement
Long <i>et al.</i> (2005)	UCD	Information gathering	Development	Test and Evaluation	Implement
Hocko (2011)	UCD	Information gathering	Development	Test and Evaluation	Implement
Cunliffe (2000)	Website development model	Establish the need	Gather information	Develop and evaluate	Implement
Goi (2007a)	Website development model	Planning and Preparation Stage	Development and Design Stage	Management and Maintenance Stage	Internet Marketing
Awad (2006)	Site Building Process Model	Planning Stage	Audience Stage	Competitive Analysis Stage	Build Site Stage
Kappel <i>et al.</i> (2003)	Web Engineering Model	Orientation	Definition	Design	Realization
Haag <i>et al.</i> (2004)	SDLC	Systems Investigation	System Analysis	System Design	System Construction
Kiatruangkrai <i>et al.</i> (2010)	CMS for e-commerce	Requirement Gathering	Design	Implementation	Testing

The summary in UCD, web development models, site building and web engineering shows multiple stages in developing website.

It seems that;

1. The models focus on professional designer people that are more on Information technology implementation process rather than management perspective. As what was identified by Suratida and Settapong (2005) study in Thailand.

2. It does not specifically focus on actual e-retail business website context to test the stages.
3. Not every stage can be practically implemented in actual e-retail business.
4. In e-retail business, internet marketing is also important which is not further discussed in web development or SDLC.

The road map synthesises work in table 3.6 enhances the understanding of the researcher in forming web design process model in the methodology section. It gives an appropriate practical application methodology in web design process model since the researcher participates in developing the web. There are many terms used in explaining the process of web development. Meanwhile, this research is a web design process model case study that relies on using the CMS package selection for the polytechnic co-operative e-retail website. Since previous researchers used the term ‘web design’ and ‘web development’ interchangeably, the researcher also has to describe and review models in web design and web development. It also enhances the understanding whether the process in UCD, website building, web engineering and web development can also be applied or relevant in the web design process. According to Kappel *et al.* (2003), given an appropriate web design process model, inexperienced web designers may be able to reduce the complexity of the applications, improve usability, maintainability and can also achieve user acceptance. The web design process model by Kiatruangkrai *et al.* (2010) and Goi (2007a) deal with e-commerce environment, and the stages are suitable to be adapted for this research.

3.1.4 Usability evaluation in web design.

Most researchers carried out website design evaluation methods using usability testing, expert review, case study and benchmarking in order to clarify strategic opportunities and advantages for the particular website (Shahizan & Li, 2005). Evaluation has become an integral part of the development process (Long *et al.*, 2005). Usability testing is the most important issues of web design because poor usability highly likely potential user turn to other websites (Öncü & Sengel, 2010). Poor usability is a major factor, and more research needs to be conducted into user design in online shopping system (Freeman & Freeman, 2011). According to Battleson *et al.* (2001) usability testing can be divided into three categories; inquiry, inspection and formal usability testing. Inquiry involves requesting information about a particular website from the users using focus groups, interviews, questionnaires and surveys. Inspection involves web designer taking the role as testers and subjects, often putting themselves in the place of the users to perform various tasks using the website. Such examples are heuristic evaluation and cognitive walkthrough. Heuristic evaluation consists of experts' established guidelines or design principles (Hasan, Morris, & Probets, 2013) whereas cognitive walkthrough involves a group of evaluators going through a set of tasks to evaluate website (Cunliffe, 2000; Long *et al.*, 2005). A number of methods have been developed to evaluate the usability, and it can involve end user evaluation (Freeman & Freeman, 2011). Formal usability testing happens when users are being observed using a website or prototype to perform a given task. Prototype is based on developing a mock site that can be shown to users before the real site is launched and usability testing is widely accepted as an effective means of evaluating web interface (Long *et al.*, 2005). Table 3.7 shows the categories and techniques in usability testing.

Table 3. 7

Categories and Technique used Usability Testing

Categories	Techniques
Inquiry- Require users	Focus groups Interviews Questionnaires Survey, User Centred Design
Inspection- Do not require users	Heuristic evaluation Cognitive walkthrough
Formal usability testing	Prototype

However, although there are large numbers of technique available, selection of technique still unable to reach a consensus (Freeman & Freeman, 2011). Cunliffe (2000) suggested that for non-professional web designers, usability method should be;

1. Simple – methods should be easily applied by non-specialist and use facilities that are commonly available.
2. Effective – methods should identify what real user would experience and should identify all significant usability problems.
3. Participatory – methods should involve real users and information providers where possible. Ideally only a few people, not for a long period or often.
4. Reusable – Ideally a single method should be applicable at several website stages.

Noorfadzilah *et al.* (2010) performed a usability testing on lelong.my and my1stop.com to get some general ideas for the development of the prototype website that was shopping2u.com. Usability testing on a particular website was done by Battleson, Booth and Weintrop (2001), Long *et al.* (2005), Mustafa and Al-Zoua'bi (2008) and Noorfadzilah *et al.* (2010). UCD is a usability method that focuses on user involvement (Rogayah, Nor Laila, Wan Adilah, & Suria, 2010). Abels *et al.* (1999),

Junaini and Sidi(2007), and Long *et al.* (2005) described usability evaluation as part of user-centered design (UCD) process. This is to ensure the IT Team has a complete understanding of the target audience and their needs. Küster and Vila (2011) have done focus groups in identifying a successful web design in system variables. In system variables, price information and images are the most often mentioned variables in their research. Distante *et al.* (2014) have not conducted usability testing on the navigation panel structure of JOOMLA (as part of CMS). Hasan *et al.* (2013) performed usability evaluation on three e-commerce websites in Jordan using three different approaches (user testing, heuristic evaluation and Google AnalyticsTM). According to Hasan *et al.* (2013), there are several issues regarding of user testing and heuristic evaluation such as number of participants was too small, and heuristic evaluation methods uniquely identify more usability problem than user testing. Table 3.8 shows the summary of previous research.

Table 3. 8
Summary of research on usability testing

Researchers	Approach	Contexts
Battleson <i>et al.</i> (2001)	Usability Testing – Case study	Academic Library web site
Long <i>et al.</i> (2005)	Usability Testing -	Digital Library
	User centred design	Geo Library
Mustafa and Al-Zoua'bi(2008)	Usability Testing - Questionnaire	Jordan's Universities website
Noorfadzilah <i>et al.</i> (2010)	Usability Testing – Questionnaire	Two e-commerce website
Öncü and Sengel (2010)	Usability Testing	Lelong.my and my1stop.com
	Human Comp Interaction	Uludag Universiti
Bamasoud (2010)	Usability Testing Questionnaire	e-commerce website
Küster and Vila (2011)	Usability testing	SME web design
	Focus Group	
Hasan <i>et al.</i> (2013)	User testing, heuristic evaluation and Google Analytics TM	Three e-commerce website

According to Norshuhada and Shahizan (2010), in the process of system development, website can be evaluated in two conditions. The evaluation could be on

usability or theory of acceptance. The differences in these two evaluations are explained in Table 3.9.

Table 3. 9
Differences between usability testing and theory of acceptance

Usability Test	Theory of Acceptance
During product development or Design Process (Noorfadzilah <i>et al.</i> , 2010)	After usage of the system or product (Ha & Stoel, 2009; Hausman & Siekpe, 2009)
Using prototype web and keeps improving (Noorfadzilah <i>et al.</i> , 2010)	Actual web (Ha & Stoel, 2009; Ozdemir & Kilic, 2011)
Focus on human	Focus on human, facilities condition (Hausman & Siekpe, 2009; Ozdemir & Kilic, 2011)
Require technical know-how on programming and web designing to adapt to changing on system features	Less requirement on technical know-how on programming and web designing

In this research, during the process of web design methodology, the important elements are conducting usability testing and measuring customers' acceptance. Usability testing (focus group interview) was carried out during the design process while measuring customers' acceptance was executed on the usage using a set of questionnaire. Focus group interview was on real users (polytechnic students). In information systems discipline, user participation is necessary for successful systems development (Butler & Eireann, 1997). In other words, user are also member of co-operative. Among others, user participation refers to behaviour of users during the development process, and user involvement refers to the subjective psychological state that reflects the information system to users. Reviewing usability testing literature enhances the understanding of the researcher in web designs since the proposed web design process involves usability testing. In addition, usability testing and measuring customers' acceptance are among the contributions of this research.

3.1.5 Using Content Management System (CMS) in web design

According to Zhao and Du (2010), Website Content Management System is a website application platform for web design. It enables users to quickly develop, maintain, and manage the dynamic website and lend structure and manage contents online (Islam, 2011). According to Souer, Urlings, Helms and Brinkkemper (2011), CMS is a standardized fully fledged software system that can generate Just In Time (JIT) content that is stored in a centralized repository. The template can combine with the pages that can automatically generate the website. The web pages can be added easily and quickly by using built-in page elements.

Praised for its practical application, CMS can solve issues in the website development and perform maintenance for non-professional web designer. In academic, research on CMS package selection in e-commerce is quite rare and should be researched due to lack of sufficient depth to satisfy academic objectives or challenges in academic assignment (Weaver, 2004). Practitioners in web hosting provider company such as Exabytes Network Sdn. Bhd, use Softaculous. Softaculous is widely used in the Web Hosting industry, and it has helped millions of users to install applications with the click of a button. Other web hosting company examples are Interbase Resource Sdn. Bhd or Lelong.my and NetBuilder (M) Sdn. Bhd. CMS application is applied on sites such as portal, blog, business card, e-learning, e-commerce, community and thematic site. The popular CMS currently available are PHP-Nuke, Drupal, Wordpress, e107, and uCoz (Alekseev & Bondarenko, 2009). Softaculous Auto Installer easily integrates into leading Control Panels like cPanel, Plesk, DirectAdmin, InterWorx and H-Sphere. Among those installed applications are presented in Table 3.10.

Table 3. 10
Application Installed by Softaculous

CMS	Applications
Blogs	Serendipity, Open Blog, b2evolution, LifeType, Wordpress, Nucleus, Dotclear, Textpattern, eggBlog.
Portals	Zikula, Xoops, Joomla, Website Baker sNews, Drupal, Mambo, PHP-Nuke, e107, Tiki Wiki CMS, Pligg MODx, PHP-Fusion.
Forums	PhpBB, AEF, XMB, MyBB, Phorum, bbPress.
e-commerce	Zen Cart, Magento, osCommerce, PHP point of sales, TheHosting Tool, TomatoCart, Opencart.
Educational	Moodle, Claroline, ATutor, Omeka.
Customer Support	Help Center Live, Hesk, osTicket, PhpMyFAQ.

The previous studies on CMS focused on overcoming the users' difficulty in using it and the process of CMS implementation. Previous studies on web design in CMS are either on process of developing the CMS (Benzing, 2006; Gong & Zhu, 2009; Han, 2004; Souer, Joor, *et al.*, 2011; Souer, Urlings, *et al.*, 2011) or evaluating the acceptance of website which has been developed using the CMS (Islam, 2011). In information system (IS) research, Benzing (2006) discussed the implementation of content management system (CMS) named Luwak as a solution for integrating with a different browser and the mobile gadget for Rensselaer Library. This study is to overcome the obstacle for librarian to create or edit the content on the system using DreamWeaver software. For this reason, librarians are involved indirectly in web design and have to concern with the script writing in DreamWeaver.

Han (2004) discussed the selection of three digital library CMS by using system analysis approach. The requirement can either be a functional (needs for a system in content management area) or non-functional requirement (cost and team skills).

Seventeen (17) CMS were identified and narrowed down to three (Greenstone, Fedora, DSpace). Still, the team's developers must have Java programming experience.

Souer et al. (2011) discussed web engineering in the context of Content Management System (CMS). They argued that the development process of CMS in web application required a different approach and was developed in web engineering method. Web engineering consists of five phases, which are, Orientation, Definition, Design, Realization and Implementation phases, respectively. Their focuses are on Realization and Implementation in the view of IT engineers. In the research, client tests the acceptance according to the test plan and find out whether the components is fully functional. They came out with meta-model of Realization and Implementation Phase, but lack of discussion on the implementation after the system enters client service.

Gong and Zhu (2009) on the contrary, conducted a study on design and implementation of electronic commerce website of FEIYA science and technology bookstore. Both web development research was more towards using technical IT expertise by using C++Builder to develop the application.

Nurminen et al. (2008) demonstrated that existing CMS named Drupal can be used on a personal website running on a mobile phone. Therefore, users can easily create and configure a website using mobile devices. This research focuses on the architecture of personal website by IT engineer.

Islam (2011) focused on a Course Management Software named Moodle. Moodle has widely used in the e-learning platform. The empirical research suggested factors that encourage educators' sustained use of Moodle. The findings show perceived usefulness and access have a significant impact on usage intention of using Moodle. While compatibility, perceived behavioural control, perceived ease of use and social influence have no significant impact.

CMS research on e-commerce by Kiatruangkrai *et al.*, (2010) developed extra features in CMS for e-commerce. An open source CMS, PrestaShop, was used with add-on features on real-time communication feature using PHP language. The discussion is more on how developers develop the new features in CMS. The research lacks of discussion on how users applied CMS in the context of real e-commerce environment. Distante *et al.* (2014) approached to extend the navigation structure of the website developed using Joomla and the results of an empirical evaluation involving two real world website (www.ballettodelsud.it and www.ilgazzettinobr.it) using the CMS. The empirical evaluation is not on the acceptance but the insight data statistics of the particular website.

The review so far shows that a proper web design process using CMS package selection in e-commerce is uncommon, not well documented, more on web development and need to be researched. The reviews also check on whether the process in site building, web engineering, web development and system development life cycle can also be applied in web design process. The reviews of related works give justification and explain the practical gaps.

3.2 Implications of web design in this research.

Reviewing the related works studies on identification of web design construct, impact of web design on the website, guideline of website design, website usability and process model of web design play major roles in the success of a particular website. In order to utilise information technology systems, studies on website design and customers' acceptance are necessary to ensure success in online business. Venkatesh and Davis (2000) also suggested that practical alternatives to usage should be developed and tested which in addition to designing system, better match job relevant needs, improving user output or making easier to use may provide important leverage for increasing user acceptance. The success of such technology (CMS) depends on the customers willingness to utilise the technology (Islam, 2011).

Even by using Web site CMS package selection, it is necessary for researchers to review on web design user interface, web design usability/evaluation and web design process model before designing a website. These elements are discussed as participant observation and takes place in web design process for polytechnic co-operative case study. The review can also be a guideline for researchers to build the process model from the case study (Eisenhardt, 1989).

The implication for this research is that using existing CMS in the website design may lead to a new challenge (Souer, Urlings, *et al.*, 2011). An appropriate web design process using CMS package selection may assist inexperienced web designer to reduce the complexity of an application, improve usability and customers' acceptance because e-retailer should have some form of methodology/standard/best practise

guide for web development project (Taylor *et al.*, 2002). Furthermore, stages in CMS should also be tested in a real e-retail environment. According to Goi (2007), a good quality website is not solely based on the perception of the web developer but also based on the customers' acceptance and perception towards it. Hence, Li and Sun (2009) urged to consider the determinants of consumer behavioural acceptance on the e-commerce website so that this research does not just propose the process model but also evaluate customers' acceptance.

3.3 Determinants of buying behaviour on shopping decision-making

Consumer behaviour is defined by The American Marketing Association as "*the dynamic interaction of affect and cognition, behaviour, and the environment by which human being conducts and exchanges aspects of their lives*" (American Marketing Association, n.d.). Consumer behaviour is dynamic, involving thoughts, feelings and action. Environment such as advertisements, price information, packaging, product appearance and testimonies are factors that might influence consumer behaviour (Andersone & Gaile-sarkane, 2008). According to Keisidou, Sarigiannidis and Maditinos (2011), consumer behaviour is affected by cultural, social, personal and psychological factors. Affect refers to feeling responses while cognition consists of mental responses. Feeling and mental responses may involve shoppers' mood, attention and evaluation. Types of affective responses are emotion, specific feeling, moods and evaluation.

According to Kotler and Armstrong (2010), cognition refers to the mental process of understanding, evaluating, planning, deciding and thinking. Understanding is interpretation of the meaning of certain aspects of the environment. Evaluating is judging certain aspect of the environment, whether it is good or bad, positive or

negative and favourable or unfavourable. Planning is the determination on how to solve the problem. Deciding is comparing alternative solutions on how to solve a problem by selecting the best alternatives. Thinking is a cognitive activity that occurs during all those processes. Kotler and Armstrong, (2010) defined consumer buyer behaviour as the buying behaviour of final consumer (individual or household) that buy goods and services for personal consumption. Figure 3.3 shows a traditional model of buyer behaviour.

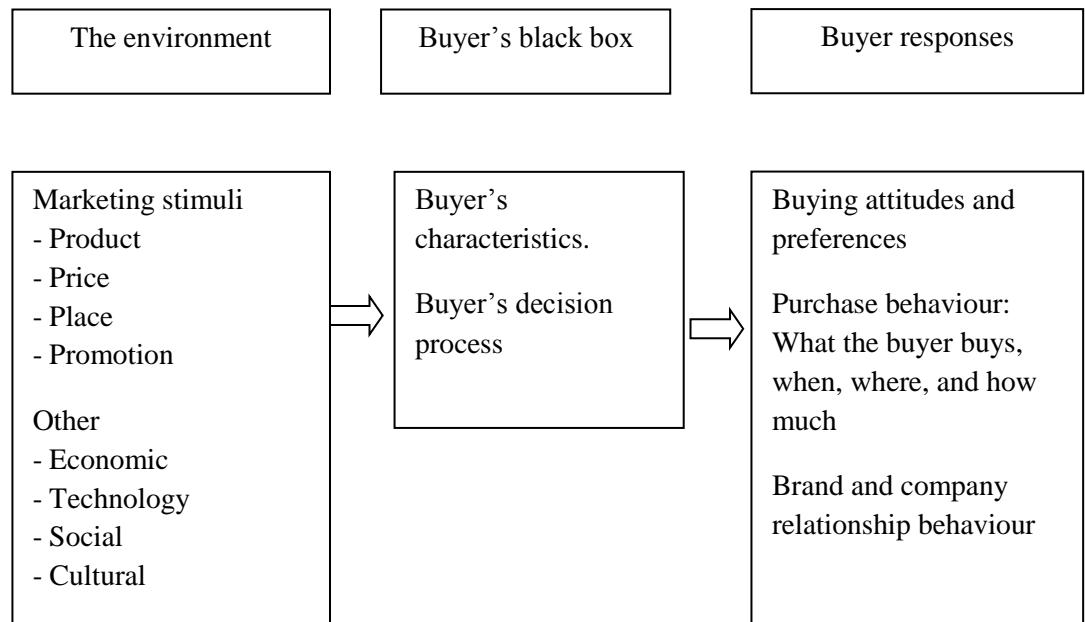


Figure 3.3 Model of Buyer Behaviour (Kotler & Armstrong, 2010)

Factors influencing Consumer Behaviour as identified by Kotler and Armstrong (2010) are Cultural, Social, Personal, and Psychological factors. Figure 3.4 shows a summary of factors influencing consumer buying behaviour.

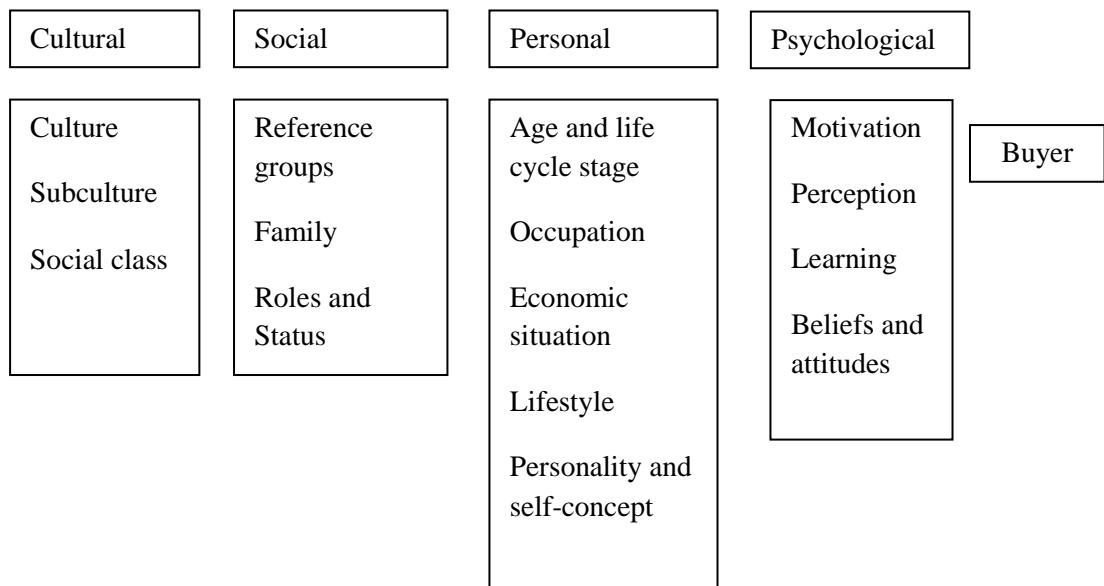


Figure 3.4 Factors Influencing Consumer Behaviour (Kotler & Armstrong, 2010)

Anderson and Gaile-sarkane (2008) carried out research on factors influencing consumer behaviour. They introduced a new model as illustrated in Figure 3.5. Social, Personal, Economic, Situational, Cultural, Psychological, Marketing Mix and Communication factors influenced consumer behaviour. Each factor interacts with each other and creates subgroups of new factors. All factors can be divided into three groups, which are direct, indirect and situational. The direct factors are marketing mix and communication while the indirect factors are economic, cultural and social factors.

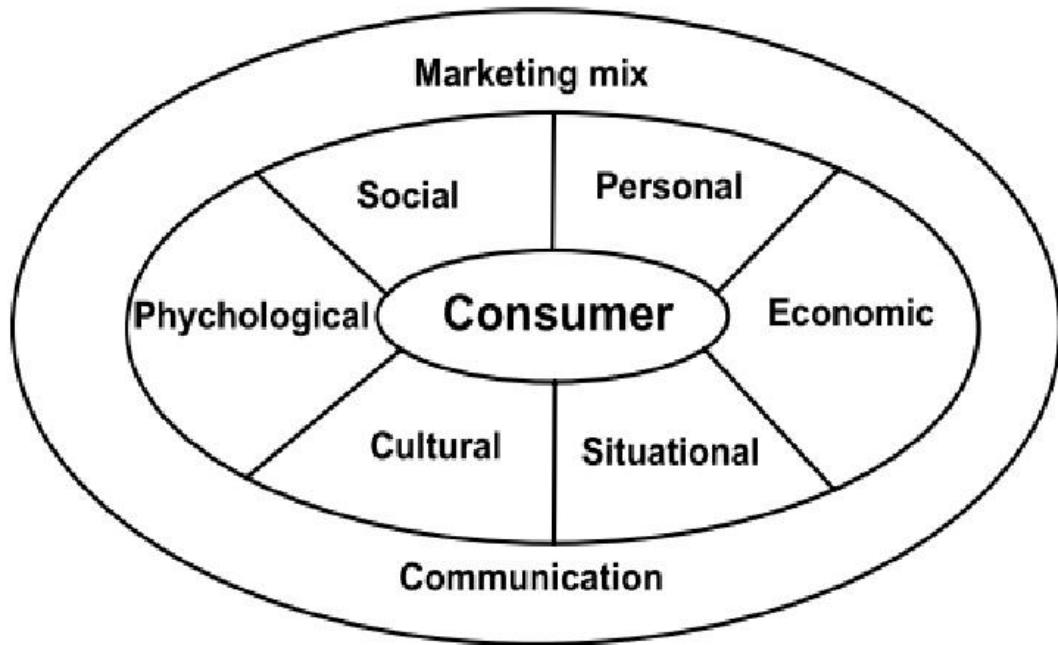


Figure 3.5 Model of Consumer Behaviour (Anderson & Gaile-sarkane, 2008)

The review allows the researcher to understand the different factors and roles in consumers' behaviours. It is because the determinants of technology acceptance on consumer behaviour discussion in this research are based on the technology acceptance model and the information success model. With regards to online shopping, most researchers tend to use technology acceptance model as underpinning theory rather than model of buyer behaviour on traditional shopping. According to Dennis, Merrilees, Jayawardhena and Wright (2009), e-consumer behaviour tends to be different from typical traditional shopper behaviour.

3.4 Determinants of buying behaviour on online shopping decision-making

Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), and Theory of Planned Behaviour (TPB) are commonly used as underpinning theories in online shopping studies. Many researchers adopt online shopping by extending TAM. McLean and DeLone Information Success (IS) model has also been used in online

shopping studies. While some previous studies on online shopping also been conducted without specifically using underpinning theory.

Chiu, Lin and Tang (2005) mentioned gender differences of online shopping intentions. The findings were personal awareness of security is stronger for male, personal innovativeness is similar for male and female, perceived ease of purchase is stronger on female than male and perceived usefulness is similar to male and female.

Jayawardhena, Wright and Dennis (2007) examined purchase intention of online retail consumers segmented by their purchase orientation. They concluded that purchase orientations have no significant effect on their propensity to shop online. Gender and prior purchase do have a significant effect on purchase intention. Broekhuizen and Huizingh (2009) examined the moderating influence of direct online shopping experience in an insurance offered through web. Inquirers who decided not to purchase through website were more concerned with perceived enjoyment, risk and price attractiveness offered by the website. They were less likely to use the website if they were satisfied with their current price. Online purchase intention was strongly moderated by direct experience.

Gong and Maddox (2011) conducted a survey of Chinese consumers doing online shopping at each stage of the decision-making process. They found that age, education and internet usage influenced online decision-making, because gender had little influence. Weisberg, Te'eni and Arman (2011) investigated the relationship between past online purchases and purchasing intentions, representing the social

context by the notions of social presence and trust on working MBA students. This study found that social presence and trust mediate intention to purchase.

Naseri and Elliott (2011) tested online shopping with multiple product types. The study was on the impact of demographic, social connectedness, prior online experience, and product categories in adoption of online shopping. Five demographic variables which are age, gender, income, education and occupation have statistically significant impact on the actual online shopping. Moon, Chadee and Tikoo (2008) investigated culture, product type, and price influence to intentions of buying personalised products online. Individual Culture affected consumer' purchase intention the most rather than uncertainty avoidance, power distance and masculinity. Purchase intention was greater for search product rather than experience product while price premium did not affect purchase intention.

Yang and Li (2010) specifically studied the behaviour of consumers buying diamond jewellery online. The study explained the major factors of the behaviour that influence consumers to buy diamond jewellery. Nine aspects were identified by the study; online shopping attitudes, price & quality, sensory risk, merchant credit, goods display, the shopping process, business website design, after service and professional services. The first four factors were greater in variance contribution rate. Keisidou *et al.* (2011) examined consumers' attitude when making online purchase in the context of different product types such as books, e-tickets, TV sets and subscription. Personal Innovativeness of Information Technology (PIIT), Self-efficacy, Perceived Security, Privacy and Product Involvement were the tested factors and these had an effect on the attitude to online shopping.

These show that studies on online shopping had become popular which consequently motivate the researcher to explore new theories and model. Many antecedents of the online shopping research have been investigated, but most commonly has been studied once and rely on a single methodology. Table 3.11 shows the summary of research on online shopping.

Table 3. 11
Summary of previous research on online shopping

Author	Sample	Dimension/Constructs/ Variable		Method/ Analysis	Findings
Chiu <i>et al.</i> (2005a)	Customer ISP in Taiwan	Personal awareness of security, personal innovativeness, perceived ease of purchasing, and perceived usefulness –	Online purchase intention	Questionnaire SEM	The findings showed that personal awareness of security is stronger for male, personal innovativeness, perceived usefulness are similar for male and female, perceived ease of purchase is stronger on the female than the male.
Jayawardhena <i>et al.</i> (2007)	Internet user owned by research firm	Purchase orientation Gender	Purchase Intentions of online retail consumer	Questionnaire Web/email survey	Purchase orientations have no significant effect on their propensity to shop online. Gender and prior purchase do have a significant effect on purchase intention
Moon, Chadee and Tikoo (2008)	Undergraduate New Zealand University	Culture, Product type, Price	Buy personalized product online	Questionnaire ANOVA	Consumer intention to purchase online personalized products will be stronger for consumers of more individualistic countries than for those of less individualistic countries. Consumer intention to purchase online personalized search products will be stronger than the intention to purchase online personalized experience products.

Table 3.11: (Continued)

Author	Sample	Dimension/Constructs/Variable	Method/Analysis	Findings
Broekhuizen and Huizingh (2009)	Customer of a Dutch comparison website for car insurance.	Merchandise quality. Service Quality. Price attractiveness. Time savings Perceived risk Enjoyment Moderator: Online shopping experience	Online purchase intentions Purchaser and Inquirers SEM	Inquirers who decided not to purchase through website were more concern with perceived enjoyment, risk and price attractiveness offered by the website. They were less likely to use the website if they were satisfied with their current price.
Yang and Li (2010)	Online and of line people in China	Merchant Credit. Price and Quality. Goods Display. Prof service. Shopping process. Sensory Risk. After service.	Buy diamond online Questionnaire Factor Analysis	Online purchase intention was strongly moderated by direct experience. Price and Quality. Sensory Risk. Merchant Credit and Goods Display are key factors influencing buying behaviour.
Weisberg, Te'eni and Arman (2011)	MBA students	Attitude On PPE Mediator: Trust, Social Presence	Intentions to purchase (ITP) Multiple regression analysis	PPE is positively related to ITP Partial mediation of SP between PPE and ITP. Partial mediation of Trust between PPE and ITP
Gong and Maddox (2011)	Chinese consumer	Gender Age Income Education Marital status For every stage of decision-making	Online decision-making Survey questionnaire ANOVA	Age, education and the internet usage has had an impact on online decision-making Gender had little influence.

Table 3.11: (Continued)

Author	Sample	Dimension/Constructs/ Variable	Method/ Analysis	Findings	
Naseri and Elliott (2011)	General Social Survey 2002 carried out by Australian Bureau of Statistics	Demographic Web experience Social Connectedness	Adopters of online shopping by 14 product categories such as; Food, Alcohol, toys, Travel, etc.	Questionnaire Regression analysis	<p>Age exerts a negative influence on online purchase of goods and services.</p> <p>Men are more likely to purchase online goods and services than women.</p> <p>Education and online purchase of goods and services are positively associated.</p> <p>Income and online purchase of goods and services are positively correlated.</p>
				<p>Being in a managerial or professional occupation increases the likelihood of online purchase.</p> <p>Frequency of Internet use is positively associated with online shopping.</p> <p>Use of e-mail / chat room is positively associated with online shopping.</p> <p>Prior experience with e-banking is positively associated with online shopping.</p>	
				<p>Prior experience with e-share trading is positively associated with online shopping.</p> <p>Prior experience with e-government is positively associated with online shopping.</p>	

Table 3.11: (Continued)

Author	Sample	Dimension/Constructs/ Variable	Method/ Analysis	Findings
Lee <i>et al.</i> (2011)	Students in a university in Hong Kong	Social influence	Intention to shop online (cinema ticket) PLS SEM	Positive informational social influence enhances the relationship between respondents' PEoU and attitude toward online shopping.
Malik and Guptha (2013)	Internet user in the national capital of India	Subjective Norms, Attitude, Perceived Behavioural, External factor (Product, Demo graphic, Accesible)	Online shopping	Positive informational social influence significantly enhanced the relationship between respondents' attitude toward online shopping and their intention to shop online. Demographic was insignificant on online shopping.

In Malaysia, previous researchers conducted studies in the context of students. Students in local universities were among the popular research sampling in online shopping studies in Malaysian context (Choon Ling *et al.*, 2011, 2010; Delafrooz *et al.*, 2010, 2011b; Hasina, Md. Aminul, Ku Halim, & Anayet, 2011; Norazah *et al.*, 2008; Ramayah & Ignatius, 2010; Yulihasri *et al.*, 2011). Choon Ling *et al.* (2011, 2010) research area was on the impact of shopping orientations, perceived risk, perceived technology and online trust to the customer online purchase intention. Impulse purchase, quality orientation, brand orientation, and convenience orientation were positively related to customer online purchase intentions. Only shopping enjoyment orientation was not related to customer online purchase intention. There was a positive relationship between online trust and perceived technology towards

online purchase intention. Online trust mediated the relationship between perceived technology and online purchase intention.

Norazah *et al.* (2008) employed TAM to study on the relationship between perceived ease of use, cognitive absorption (CA), perceived usefulness (PU) and fashion involvement (FI) specifically on students' buying intentions. The results showed that PU, CA and FI have a significant impact on online shopping. Ramayah and Ignatius (2010) then focused on the mediating role of perceived ease of use in their research and found that perceived ease of use was a full mediator between online customer service and intention to online shopping.

Hasina, Md. Aminul, Ku Halim and Anayet (2011) carried out research on online shopping customer satisfaction. The research was conducted at University Malaysia Perlis and University Utara Malaysia. Their findings indicated that advertisement and product quality were positively related to customer satisfaction while brands played an important role in customer satisfaction.

Lim, Yap and Lee (2011) studied online shopping among Malaysian baby boomers. By using the TPB as underpinning theory, intention to shop online was moderately correlated with attitudes and subjective norm. Perceived behaviour control was weakly correlated to online shopping.

Delafrooz, Paim and Khatibi (2011b) explored the antecedents relating the attitude and purchasing intention by using TRA, TPB and TAM as the basis for explaining and predicting consumers' intention towards adopting online shopping. The survey was conducted on students who enrolled in the public university located in Selangor, Malaysia. The study showed significant correlations between purchase convenience, price, selection range, utilitarian orientation, customer service, and attitude. The attitude towards online shopping had no significance with hedonic orientation, homepage and entertaining webpage. The study also found significant correlations between utilitarian orientation, hedonic orientation, convenience, price, range of selection, customer service, income, gender, and shopping intention.

Reviewing the related works enhances the understanding of the researcher in identifying which variables are significant or not in a relationship with online shopping especially in the Malaysia context. In relation to this research, web design is not the sole significant determinant in the relationship towards online shopping. The acceptance of technology has also been widely investigated in order to understand the factors that determine the acceptance (Bonera, 2011).

3.5 Theoretical Underpinning

This section investigates the foundation of the theoretical models that explain the phenomena of technology acceptance in online shopping. The focus of underpinning theory was on technology acceptance in the context of online shopping. A review on online shopping context shows that Theories of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviour (TPB) (Ajzen, 1991), Decomposed Theory of Planned Behaviour

(Taylor and Todd, 1955) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003), were among the popular theories used. TAM and TPB were derived from TRA. Online Shopping Acceptance Model (OSAM) introduced by Zhou, Dai and Zhang (2007) extended TAM by taking specific characteristics on online shopping into consideration. Information System (IS) researchers have also investigated and replicated TAM into IS success model in online shopping. Lin (2007) has compared TPB, TAM and decomposed TPB to explain and predict user acceptance of consumer online shopping intention and found that all three models achieve comparable fit to the data.

3.5.1 Theory of Reasoned Action (TRA)

TRA is the most fundamental and influential theory of human behaviour by Fishbein and Ajzen (1975). TRA seeks to explain the relationship between Beliefs, Attitudes, Subjective Norm, Behavioural Intentions and Behaviour. TRA showed that Intention is the direct determinant of Behaviour while Attitude and Subjective Norm are the determinants of Behaviour. Belief is the direct determinant of Attitude and Subjective Norm. TRA was used by Xu and Paulins (2005) to examine students' behavioural intention on apparel online shopping. In their study, samples were taken from two universities in the United States, and they found that students have positive attitudes toward shopping online for apparel product.

3.5.2 Theory of Planned Behaviour (TPB)

TPB extended the TRA in explaining behavioural condition without individual complete control over their behaviour (Ajzen, 1991). Studies have applied TPB over

the years including shopping on the Internet. Research on TPB usually focuses on traditional marketing environment behaviour factor rather than the Internet (Atilgan-Inan & Karaca, 2011). According to TPB, there were three factors determining intention; attitude towards the behaviour (A), subjective norm (SN) and perceived behavioural control (PBC). Belief and evaluation also influenced intention through attitude as mediating variable (Ma'ruf, Mohamad, & Ramayah, 2003). Attitude towards the behaviour was an overall evaluation (favourable/unfavourable) of a person in performing the behaviour in question. Subjective norm was an individual's perception of whether a close companion would expect him/her to perform the behaviour in question. Perceived behaviour control was an individual's confidence (skills, abilities, time and requisite information) to perform his or her behaviour. The addition of PBC showed the difference between TRA and TPB (Bonera, 2011). Behaviour Intention depends on the attitude towards the behaviour, subjective norm and perceived behavioural control (Atilgan-Inan & Karaca, 2011; Ma'ruf *et al.*, 2003). According to Lin (2007), in the online shopping context, Attitude (A) refers to consumers' feelings about shopping online, Subjective Norm (SN) refers to consumers' perception of online shopping influenced by the referent group and Perceive Behavioural Control (PBC) refers to consumers' perception of the knowledge availability, resources and opportunities necessary in order to shop online.

Based on the Theory of Planned Behaviour (TPB), Su and Huang (2011) analysed how price advantage influences most online shopping intention of undergraduates in China. They found that knowledge of computer and the Internet currency are significant factors in determining the perception of online shopping. So, the review showed that TPB had been successfully applied in online shopping.

Gopi and Ramayah (2007) also studied on TPB to explain an intention to use internet stock exchange in Penang, Malaysia. They found that subjective norm and perceived behavioural control have direct positive relationship with behavioural intention. The findings are also in line with Lim *et al.* (2011) which to determine an intention to shop online for baby boomers in Malaysia. Hansen (2008) applied TPB on online grocery shopping among Swedish consumer and showed that attitude, subjective norm and perceived behavioural control positively affect willingness to buy. The criticism on TPB was on the concept of perceived behavioural control (PBC). TPB placed the construct of self-efficacy within PBC in a more general framework (Chiou, 1998).

3.5.3 Technology Acceptance Model (TAM)

TAM was originally developed to explain and predict individual's acceptance of IT. TAM was adapted from TRA (Davis, 1989; Marchewka *et al.*, 2007) and has been extensively applied in various types of technology and users. TAM suggests that people's effort to use the new technology is based on perceived usefulness (PU) and perceived ease of use (PEOU). PU and PEOU influence behavioural intention (BI) mediated by attitude (A) (Ma'ruf *et al.*, 2003). PU is defined as user's expectation when using information technology that could result in improving job performance or productivity. PEOU is defined as the degree to which a user believes that using a particular system would be free of effort (Celik, 2011; Monsuwé, Dellaert, & Ruyter, 2004). TAM has been extended and additional variables have been added such as trust (Bonera, 2011; Celik & Yilmaz, 2011; Celik, 2011), enjoyment (Celik & Yilmaz, 2011), and perceived self-efficacy, experience, facilitating condition, subjective norms and playfulness (Bonera, 2011).

A later version called TAM2 (Venkatesh & Davis, 2000) constructs ‘attitude’ and ‘intention’ to a single variable because ‘attitude’ does not fully mediate PU and PEOU. The findings by Atilgan-Inan and Karaca (2011) did not support ‘attitude’ as mediating variable for BI. TAM2 discovered ‘subjective norm’ has significant influence on ‘intention’, and this is in line with TRA. According to Lin (2007), in online shopping environment, PU refers to access to useful information, facilitating in comparison and reducing shopping time. PEOU refers to the degree on how a website is perceived to be easy to comprehend.

Hausman and Siekpe (2009) focused on website interface features such as computer factor, the human factor, informativeness, and irritation on consumer online purchase intentions. This study also underpins TAM and found that intentions to purchase from the website were positively related to attitude towards the website and computer factors and human factors were positively related to perceived usefulness.

Understanding consumers’ acceptance of online purchasing by Amoroso and Hunsinger (2009) extended the original TAM by including social influence, voluntariness, experience, perceived behaviour control, and facilitating condition. Only facilitating condition on actual usage and experience towards behaviour intention and attitude were not supported.

Hernández, Jiménez and Martín (2011) analysed individual’s socioeconomic characteristics and TAM in online shopping behaviour. The socioeconomic

characteristics of the individual (age, gender and income) were scarcely significant in the explanation of the behaviour of e-shoppers.

Celik and Yilmaz (2011) extended TAM to explain consumer acceptance of e-shopping. Perceived trust, perceived enjoyment, perceived information quality, perceived system quality and perceived service quality factors were added to classical TAM in the study. The study found that PEU considered that the information, the quality of service and system to be effective factors and service quality was found to be the most important factor. Trust had a significant impact on the attitude.

The most important limitation of TAM was related to the relationship between the main constructs of TAM that showed inconsistent results (Malek Mohammad, 2011). Many TAM studies lack many significant factors that influence adoption. As for example, Hausman and Siekpe (2009) and Amoroso and Hunsinger (2009) showed the significance of facilitating condition on adoption. TAM was also a lack of actionable guidance or interventions to practitioners (Ahmad, Tarek Amer, Qutaifan, & Alhilali, 2013).

3.5.4 Decomposed Theory of Planned Behaviour

The decomposed TPB model was based on the diffusion of innovation theory. There were three innovation characteristics that influenced behavioural intention that were relative advantage, complexity and compatibility (Lin, 2007a). Lin (2007) also stated that relative advantage was considered to be a perceived usefulness in TAM and complexity was similar to perceived ease of use in TAM. Compatibility refers to the

degree in which innovation fits with the potential adopter's existing value, previous experience and current needs.

Subjective norms include two dimension interpersonal influence (such as words of mouth influence by friends, colleagues, family and other considerations) and external influence (such as media reports, expert opinion and other consideration). Ajzen (1991) extended TPB using two dimensions of perceived behaviour control (PBC) which were self-efficacy and facilitating condition. In the context of online shopping, it refers to consumer self-assessments of his/her capabilities to shop online. Facilitating condition refers to internet equipment and resource factors (time and money).

3.5.5 Social Cognitive Theory

Social Cognitive Theory (SCT) discusses the concept of self-efficacy that was a judgement of self-capabilities to accomplish a certain level of performance while self-esteem was a judgement of self-worth (Bandura, 1997, 2006). SCT integrates anxiety and efficacy (Bandura, 1997). Researchers have shown that self-efficacy was negatively related to anxiety (Fagan, Neill, & Wooldridge, 2004; Thatcher, Loughry, Lim, & McKnight, 2007; Thatcher & Perrewe, 2002). The judgement for Self-efficacy differs from the response-outcome expectation. As an example, one's belief that he can jump as high as six feet was an expected judgement while social recognition and applause were the outcome expectation (Bandura, 2006).

3.5.6 Online Shopping Acceptance Model (OSAM)

Zhou *et al.* (2007) developed OSAM, extended from TAM that examines how consumer demographics has direct effects on online shopping intention. While TRA, TPB and TAM could not measure the actual behaviour of online shopping, OSAM indicates the actual online shopping. TRA and TPB indicate that behaviour intention was a strong predictor of actual behaviour (Ajzen, 1991). Figure 3.6 shows the model of OSAM.

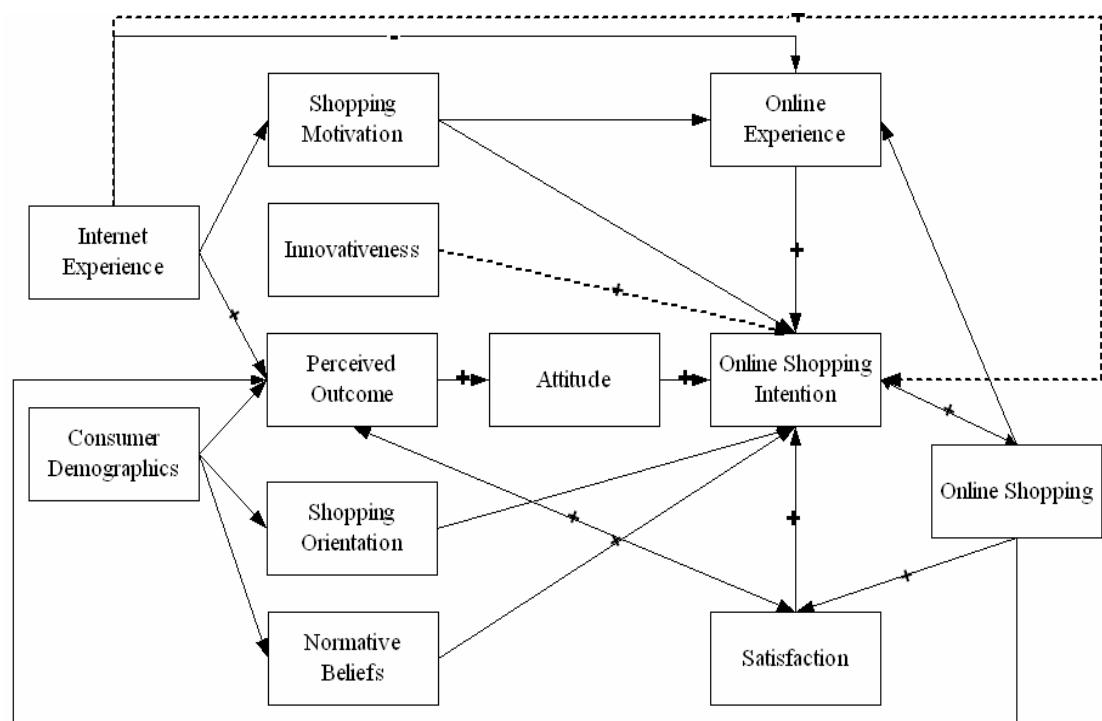


Figure 3.6 Online Shopping Acceptance Model (OSAM)(Zhou *et. al.*, 2007).

Information on the demographics, socioeconomic and behaviour of internet shoppers were synthesized in OSAM but recent online purchasing is strongly correlated with a user preference for site design (Bonera, 2011; Junaini & Sidi, 2007) or products perception (Ha & Lennon, 2010). A small number of researchers consider OSAM as underpinning theory.

3.5.7 DeLone and McLean IS Success Model

Research field also emphasises on the relationship between consumer psychology and their intention to use an information system (IS). IS success model of (DeLone & McLean, 1992) considered six major constructs which were the system quality (belief 1), information quality (belief 2), actual use (use behaviour), user satisfaction (attitude), individual impact and organizational impact. IS success model showed that use behaviour (actual use) and attitude (user satisfaction) were preceded by a person's belief in information quality and system quality. Behaviour was influenced by attitude and produces an individual impact that turns to organizational impact (Chen & Cheng, 2009). Figure 3.7 illustrates the original IS success model.

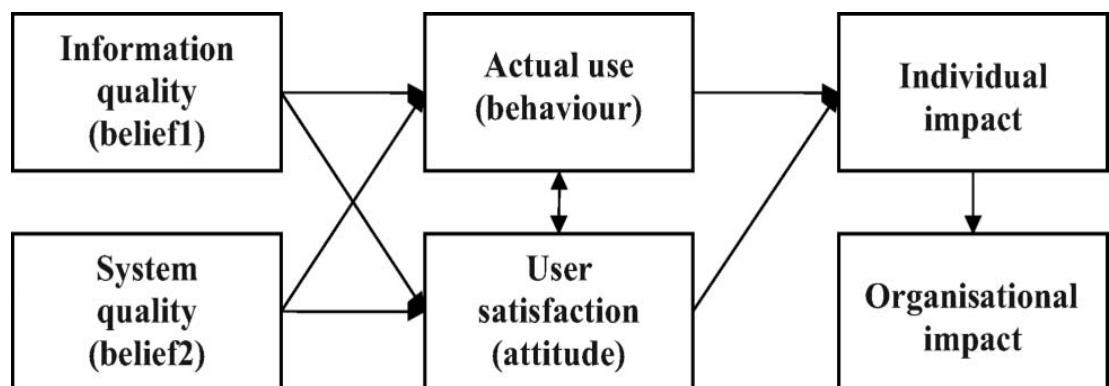


Figure 3.7 The original IS success model (DeLone & McLean,1992)

Due to criticisms and negative responses by IS community, Delone and McLean proposed an updated version of IS success model. Delone and Mclean (2003) extended their model by adding service quality by what the user behaviour in using the system was determined by their beliefs (information quality, system quality and service quality). Besides the added service quality, IS success model also divided

‘use’ into ‘actual use’ and ‘intention to use’, and combined ‘individual impact’ and ‘organizational impact’ into ‘net benefits’.

IS success models were seldom discussed in the e-commerce context (Celik & Yilmaz, 2011; Chen & Cheng, 2009; Cody-Allen & Kishore, 2006). Celik and Yilmaz (2011) extended TAM for adoption of e-shopping by adding information quality, service quality and system quality in their research model. Chen and Cheng (2009) studied IS success model for understanding consumer intention in the e-commerce environment by separating ‘use’ into two distinct constructs: ‘intention to use’ and ‘actual use’. This study found that satisfaction does not motivate consumers actually to use e-retail websites. The results showed that information quality, system quality and service quality affected the user’s beliefs.

IS researchers turn their attention to developing, testing and applying E-Commerce success model based on the IS Success Model. Updated version of IS Success Model adapted the measurement of the e-commerce world (Delone & McLean, 2003). Figure 3.8 shows the modified IS success model.

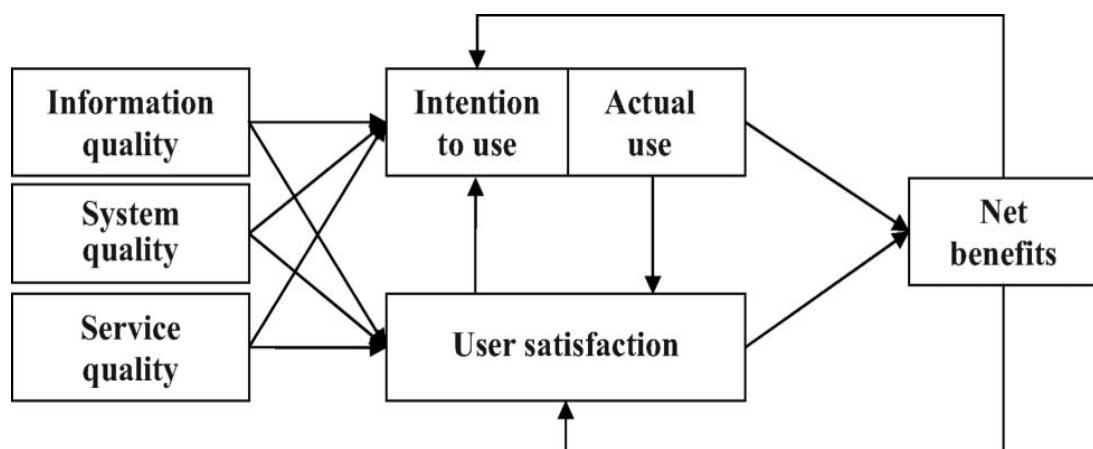


Figure 3.8 The modified IS success model (Delone & McLean, 2003)

Limitation of IS research is mostly dominated by expectation-confirmation framework compared to theoretical perspectives. According to Islam (2011), theoretical perspective approach provides a refined view of how continued usage intention is shaped by its determinants.

3.5.8 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh *et al.* (2003) developed Unified Theory of Acceptance and Use of Technology (UTAUT) which integrates eight models. The eight models are: Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behavior (TPB), the Combined TAM and TPB (C-TAM-TPB), the Model of PC Utilization (MPCU), the Innovation Diffusion Theory (IDT), and the Social Cognitive Theory (SCT). According to Venkatesh *et al.* (2003), performance expectancy, effort expectancy, social influence and facilitating conditions are four constructs that have direct significance in determining usage intention and behaviour. Demographic variables (gender, age, experience and voluntariness of use) are the mediators. The model was integrated from TAM, Perceived Usefulness (PU) to Performance Expectancy and Perceived Ease of Use (PEOU) to Effort Expectancy. Venkatesh, Thong, and Xu (2012) developed a new UTAUT2, extending UTAUT with the inclusion of hedonic motivation, price value and habit as the predictors of behaviour intention to use a technology in mobile environment. Conceptual paper and working paper are mostly ongoing in UTAUT2 (Khairina, Yeow, & Siew, 2012; Shao & Siponen, 2011) while review of the literature on UTAUT2 still depends on UTAUT in Escobar-Rodríguez and Carvajal-Trujillo (2014). Table 3.12 shows the sources of UTAUT construct.

Table 3. 12
Sources of UTAUT construct

UTAUT Construct	Sub determinants	Sources of model
Performance Expectancy (PE)	Perceived usefulness Extrinsic motivational Job-fit Relative advantage Outcome expectation	TAM/TAM2/C-TAM- TPB MM MPCU DOI SCT
Effort Expectancy(EE)	Perceived ease of use Complexity Easy of use	TAM/TAM2 MPCU DOI
Social Influence (SI)	Subjective norm Social factors Image	TRA, TAM2, TPB, C- TAM-TPB MPCU DOI
Facilitating Conditions (FC)	Perceived behavioral control Facilitating conditions Compatibility	TPB, C-TAM-TPB MPCU DOI

Source: (Venkatesh *et al.*, 2003)

Seven constructs were identified to have significance in behavioural intention or usage, but only four constructs were theorized to have a significant impact on user acceptance and usage behaviour. The measurement of UTAUT was carried out from post-training period, a month after implementation and three months after implementation. Figure 3.9 shows UTAUT Model.

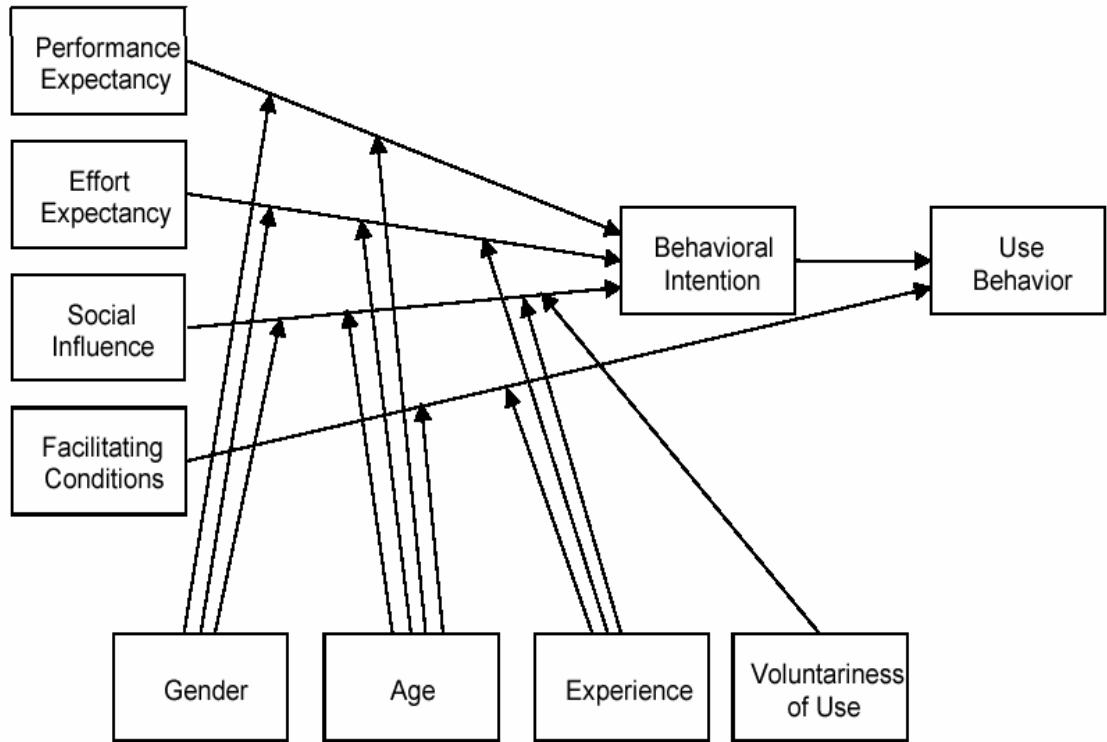


Figure 3.9 UTAUT Model (Venkatesh *et. al.*, 2003)

There are quite numbers of previous studies on UTAUT and it was given quite an attention from researchers. Marchewka, Liu and Kostiwa (2007) studied the understanding of students' perception using course management software. A survey was conducted for business school students at Midwestern University in the United States. The findings showed that there was no relationship between Performance Expectancy (PE) and Behaviour Intention (BI). However, there was a significant relationship between Effort Expectancy (EE) and BI, as well as Social Influence and BI. Age and gender showed no relationship with PE, EE, SI and FC. Compared to a study done in Taiwan by Wang, Hung and Chou (2006), there was a positive effect of PE, EE, SI and FC on BI.

Amoroso and Hunsinger (2009) investigated the applicability of UTAUT on consumer acceptance of online purchasing. The results of this study indicated that the main predictors that were relevant to this study were namely, Voluntariness, Facilitating Conditions and Social Influence which have been proven to have significant influence.

Im, Hong and Kang (2011) carried out a cross cultures research on adoption of Internet banking in two countries (U.S and South Korea). UTAUT model was supported, and EE was stronger in the U.S. than in South Korea while FC was no different in the U.S and South Korea. Table 3.13 shows the summary of past researches that used UTAUT.

Table 3. 13
Summary of past research that used modified UTAUT model.

Author	Sample	Independent Variables	Dependent Variable	Moderator	Findings
Cody-Allen and Kishore (2006)	MBA Level students	Information Quality. System Quality Trust. Performance Expectancy. Effort Expectancy.	Intention to use Use (Conceptual Paper)	-	PE has a positive effect on BI. EE has a positive effect on BI SI has a positive effect on BI FC and behavioral intentions both have a significant impact on Actual use
Wang <i>et al.</i> (2006)	244 respondents in Taiwan	Performance Expectancy (PE). Effort Expectancy (EE) Social Influence (SI). Facilitating Conditions (FC)	e-government (Usage of KIOS System)	-	

Table 3.13: (Continued)

Author	Sample	Independent Variables	Dependent Variable	Moderator	Findings
Marchewka <i>et al.</i> (2007)	Students	Performance Expectancy Effort Expectancy Attitude Toward Using Technology Social Influence Facilitating Conditions Self- Efficacy. Anxiety Behavioral Intention	Usage of Course Management Software- BLACKBOARD	Age Gender	PE strongest predictor PE not sig with BI EE sig with BI SI sig with BI Age and Gender not sig with PE,EE,SI and FC
Amoroso and Hunsinger (2009)	Undergraduates students in the U.S. and Australia	Perceive Behaviour Control. Attitude Towards Using. -Risk -Anxiety Social Influence Facilitating Conditions. Voluntariness Experience.	Actual Usage on online purchasing		Greater PBC, Higher BI. Greater PBC, Higher AU. Greater SI, Greater BI. Greater BI Greater Voluntariness. Greater Experience, not influence BI. Greater FC does not influence BI
Muhayiddin , Musa, and Ismail, (2011)	MSC Corridor area Malaysia	performance expectancy, effort expectancy, social influence, facilitating conditions,	Usage of Gold Dinar Based Electronic Payment System		Perceived Credibility, Performance expectancy and facility condition. Did not study correlation and regression.
Islam (2011)	Educator in Finland	Perceived usefulness Perceived ease of use. Social influence. Access. Perceived behavioural control. Compatibility.	Usage intention of e-learning technology. (Moodle)	Voluntaries	Perceived ease of use, Social influence had no significance. Perceived usefulness is most dominant. Social influence, intention were significant only for mandatory usage condition.
Khairina, Yeow and Siew (2012)		Individual Influence Performance Expectancy (PE). Effort Expectancy (EE) Social Influence (SI). Facilitating Conditions (FC)	Usage of Audit Technology (CAATTs)		Conceptual Paper
Al-Qeisi <i>et al.</i> (2014)		Website (technical,Content,appearance). PE,EE,SI	Usage of Internet Banking		Significant direct effect with website design on PE and Usage

UTAUT, as well as other technology acceptance theories, does have limitations. UTAUT was established from surveys to collect data, and it may have overlooked constructs that could clarify a significant part with the intention of online shopping. According to Islam (2011), content validity is a limitation to the UTAUT theory. UTAUT was conducted by using data collected from employees in four industries (Entertainment, Telecomm Services, Banking and Public Administrator). According to Marchewka *et al.* (2007), the scales in UTAUT are new as there are the combination of a number of prior scales, and therefore the suitability of this scales need to be further tested. Venkatesh *et al.* (2003) suggested to extent further research in other contexts and usage outcomes.

Self-efficacy, Anxiety and Attitude using technology are not to be direct determinants. UTAUT excluded self-efficacy, and anxiety because they were not to be direct determinants of intention (Venkatesh & Davis, 2000). A few studies had attempted to approach self-efficacy (Computer self-efficacy, Internet self-efficacy and Online Shopping self-efficacy) and anxiety (Computer Anxiety, Internet Anxiety, Online Shopping Anxiety) with the intention of online purchase, but their attempts have been isolated and fragmented. UTAUT focuses exclusively on individual perceptions that exclude the consideration of any objective environmental factors that may influence intention and actual behaviour. UTAUT model considers only one individual's behaviour. While, in an organization, several people are responsible for the implementation of IT (Genuardi, 2004).

3.5.9 Implication of UTAUT on this research

The rationale behind the selection of UTAUT model for this research is because this model relies on construct from a number of behavioural theories that predict intention and use behaviour in IT. Furthermore, UTAUT accounted for 70 percent of the variance in usage intention better than TAM studies (Marchewka *et al.*, 2007) and TAM2 studies that is 60 percent (Venkatesh & Davis, 2000). UTAUT has been applied in a number of studies on technology acceptance compared to OSAM and UTAUT2. For instance, Cody-Allen and Kishore (2006) extended UTAUT in the context of e-business system with construct on e-quality, trust and satisfaction. In addition, UTAUT provides a good foundation for future research on technology acceptance regarding online shopping (Amoroso & Hunsinger, 2009) or services targeted to consumers (Venkatesh *et al.*, 2012). UTAUT offers a helpful means for managers to measure the chance of success of new technology (Masrom & Ramlah, 2008). Self-efficacy and anxiety in UTAUT are considered as perceived use of computer dimension, which are not to be direct determinants. Differently from UTAUT, this research was conducted with three dimensions of self-efficacy and anxiety (computer,internet and online shop) because previous studies have shown significant effect on technology usage for the dimensions (Abdulhameed Rakan *et al.*, 2010).

3.6 Self-Efficacy

In information technology acceptance, Davis (1989) indicated that perceived ease of use concept is similar to self-efficacy. Self-efficacy derives from the social cognitive theory by Bandura (1997). Researchers applied this term in the context of the Internet

(Delafrooz *et al.*, 2011a; Hernandez *et al.*, 2011; Sam *et al.*, 2005). Hsu and Chiu (2004) studied were in the context of e-service environment, and they positively confirmed that internet self-efficacy was a meaningful construct in the context of e-service on the web. Some researchers conducted studies to understand self-efficacy as applied in e-commerce environment (Bonera, 2011; Hernandez *et al.*, 2008; Blanca Hernandez, Jimenez, & Martín, 2009; Hill & Beatty, 2011). There are some distinguish and overlap between self-efficacy and perceived behaviour control (PBC). Both constructs are concerned with control because PBC perceived ease or difficulty of performing in behaviour while self-efficacy is the belief that one is capable of performing behaviour, but both controls come from different forms: internal (such as ability and motivation) and external (such as task difficulty, cooperation of others, access to resources and luck). This argument was based on Manstead and Eekelen (1998). In the dimension of internet self-efficacy, it shows a significant effect toward technology acceptance to be consider by researcher.

Delafrooz *et al.* (2011a) carried out research on online shopping intention based on Malaysian context. Respondents were selected from a public university in the state of Selangor, Malaysia. The finding showed self-efficacy is positively associated with purchase intention. Perceived self-efficacy on the online shopping behaviour research was also done in Spain by Hernández *et al.* (2011). Research finding showed that shoppers who are more ready to accept the Internet and use it frequently perceive greater self-efficacy during online shopping.

Keisidou, Sarigiannidis and Maditinos (2011) studied consumers' attitude towards online shopping in the context of different product types in Greece. Products employed in the research were differentiated according to cost and frequency

purchased and tangibility. The result showed that Internet self-efficacy is positively influenced by consumer attitude towards online shopping in all product types.

Bonera (2011) carried out research on Italian online users' intention to buy online. The research found that greater perceived self-efficacy did not lead to a higher level of intention to purchase. Sam *et al.* (2005) investigated computer self-efficacy and computer anxiety toward the Internet. The respondents were from undergraduates at Universiti Malaysia Sarawak (UNIMAS). The findings were that computer anxiety shows significance relationship towards the Internet while computer self-efficacy shows no significant relationship towards the Internet.

Hill and Beatty (2011) conducted a research on factors that influence online shopping self-efficacy. The survey was conducted in the southeastern United States of America. The data were analyzed using SEM. They introduced new scale (items) on online technical self-efficacy and online shopping self-efficacy. Age, online usage and an online shopping involvement are positively associated with online shopping self-efficacy. While Yao and Li (2009) carried out research on the Internet self-efficacy on the formation of trust toward online shopping. Research sample was students at a Chinese western public university. It was found that efficacy and online shopping contribute to online shopping anxiety. The main significant findings of the research were that the Internet self-efficacy positively affects online shopping anxiety. Mariani, Curcuruto and Gaetani (2013) found that IT self-efficacy positively affects ease of use of IT and ease of use positively affects intention to use IT in their study of Italian organizations. Table 3.14 shows the summary.

Table 3. 14
Summary of past research on self-efficacy

Author	Sample	Constructs/Variable		Theory	Findings
Hsu and Chiu (2004)	Part-time MBA students	Web specific self-efficacy. Internet self-efficacy	e-Service usage of online income tax	TPB	WSE sig relationship is behavioral intention. Intention has positive effect on Actual Usage.
Sam <i>et al.</i> ,(2005)	Undergraduate students at UNIMAS	Computer self - efficacy, Computer Anxiety	Attitudes toward Internet	-	Computer anxiety sig relationship toward internet. Computer self-efficacy no sig relationship toward internet
Thatcher <i>et al.</i> (2007)	Students in southeastern United States of America.	Computer anxiety Computer self-efficacy Personality Perception Trust	Internet Anxiety	-	Computer self-efficacy is positively associated with Internet Anxiety
Lian and Lin (2008)	Undergraduates students in Taiwan	PIIT Internet self-efficacy Perceived web security Privacy concerns Product involvement	Attitude toward online shopping (different products) Books, TV Gaming, Online news, computer games	-	Internet self-efficacy is not a critical factor in the context of online book purchasing. product involvement also positively affects attitudes toward online purchases of TV gaming systems
G. Yao and Li(2009)	Students at a Chinese western public university	Internet self-efficacy Online shopping familiarity	Online shopping anxiety	-	Internet self-efficacy was positively effected on online shopping anxiety.
Delafrooz <i>et al.</i> , (2011a)	Undergraduate students in Selangor, Malaysia	Self-efficacy Trust Security Prior experience Cost	Purchase Intention	TRA, TPB	Self-efficacy positive associated with Purchase Intention.
Blanca Hernandez <i>et al.</i> , (2011)	Spain	Perceived efficacy Ease of use Usefulness	Online shopping behaviour	TAM	If more readily accept the internet greater self-efficacy during online shopping.
Keisidou <i>et al.</i> (2011)	Greek Internet users	PIIT Self-efficacy Perceived web security Privacy concerns Product involvement	Attitude toward online shopping (different product) Books, e-Tickets TV sets Subscription	-	Internet self-efficacy positively influence consumer attitude towards online shopping.
Boner, (2011)	Italian online users	Facilitating conditions Perceived self-efficacy Experience Perceived usefulness Perceived ease of use Subjective norm Playfulness	Intention to buy online	TAM UTAUT	Perceived Usefulness causes the increase in online purchase. e-Trust positively effect on online purchase. Greater Perceived SE not lead to a higher level of intention to purchase.

Table 3.14: (Continued)

Author	Sample	Constructs/Variable	Theory	Findings	
Hill and Beatty (2011)	Middle school and high school students	Age, online usage and an online shopping involvement	online self-efficacy	-	Age, online usage and an online shopping involvement positively associated with online self-efficacy
Faqih, (2013)	University community Jordan	Perceived risk, Internet self-efficacy	Online shopping	TAM	Internet self-efficacy does not influence intention to use online shopping

This section shows a few empirical studies that construct internet self-efficacy, computer self-efficacy and shopping self-efficacy in various research with separation in analysis. It shows that previous researcher attempts to be isolated and fragmented. In addition Hsu and Chiu (2004) have different views on internet self-efficacy and web specific self-efficacy. Internet self-efficacy is an individual's judgement of efficacy across multiple internet application domains while web-specific self-efficacy refers to individual's judgement of efficacy across specific domains. Internet self-efficacy is developed across time while web-specific self-efficacy is developed through usage and is measured after usage (Hsu & Chiu, 2004). In addition, they have different views between online shopping self-efficacy and online technical self-efficacy. For this reason, this research would be possible to identify which dimension of self-efficacy leads to intention to buy online through empirical study. It can provide a comprehensive approach to generate better understanding and explanation of customers' intention towards technology.

3.7 Anxiety

Han, Yang and Du (2009) defined computer anxiety as the fear of computer or the fear of learning how to use a computer. Thatcher and Perrewe (2002) defined computer anxiety as the anxiety of implication on computer usages such as loss of

important data or other possible mistakes. Internet shopping anxiety refers to the negative emotion that results from an individual's experiences with online shopping in particular while Internet anxiety is the negative emotion resulting from an individual's experience of using the Internet. Celik (2011) described online shopping anxiety as anxiety associated with consumer interaction with online store. It represents a different anxiety even not entirely distinct from computer anxiety. Most researchers attempt to identify the structure of computer anxiety through Computer Anxiety Rating Scale (CARS) (Durndell & Haag, 2002; Sam *et al.*, 2005). Computer Anxiety Rating Scale (CARS) only focuses on anxiety in operating a computer-mediated system and/or how to operate the system (Yoshida, Tani, Uchida, Masui, & Nakayama, 2013). While Thatcher *et al.* (2007) considered computer anxiety and internet anxiety as different concepts

Yao and Liao (2011) also differentiated between online shopping anxiety and Internet anxiety. First, Internet anxiety arises from the use of web related service but online shopping anxiety arises from either web related or non-web related to the online shopping process. Second, Internet anxiety develops across time from multiple situations while Internet shopping anxiety only develops after having experience on online shopping transaction. Third, online shopping is more risky and uncertain than using the Internet. Negative emotions can be avoidance, hate, resistance, fear and anxiety while using a computer. So, frequent use of the Internet to gather information does not mean willingness of doing online shopping (Thatcher *et al.*, 2007). Yao and Liao (2011) believed that anxiety related to using the computer could be caused by the use of the Internet. They defined it as internet shopping anxiety. Anxiety is commonly discussed on computer anxiety (Han *et al.*, 2009; Thatcher *et al.*, 2007; Thatcher &

Perrewe, 2002), Internet anxiety and internet shopping anxiety (Celik, 2011; Yao & Liao, 2011). Two studies were carried out on Internet anxiety and computer self-efficacy on students in southeastern United States of America. Research findings showed that computer anxiety had a negative relationship with computer self-efficacy and computer anxiety was positively associated with Internet Anxiety (Thatcher *et al.*, 2007; Thatcher & Perrewe, 2002).

Celik (2011) examined the role of subjective norm (SN), online shopping anxiety (ANX) and perceived playfulness (PPL) on online retail shopping in Turkish and suggested for research to be done in developing countries. The main significant findings of the research were ANX appeared to have a negative effect on PEOU. Descriptive analysis of anxiety by Marchewka *et al.* (2007) showed that students do not have a high level of anxiety when using course management software. Table 3.15 shows the summary.

Table 3. 15
Summary of past research on anxiety

Author	Sample	Constructs/Antecedent		Findings
Thatcher and Perrewe (2002)	Students in southeastern United States of America.	Computer anxiety Personal Innovativeness in IT	Computer Self-efficacy	Computer anxiety has a negative relationship with computer self-efficacy
Thatcher <i>et al.</i> , (2007)	Students in southeastern United State of America.	Computer anxiety Computer self-efficacy Personality Perception Trust	Internet Anxiety	Computer anxiety is positively associated with Internet Anxiety
Yao and Liao (2011)	Members of survey website	e-retail service quality Trust	Internet shopping anxiety	e-retail service quality negatively associated with Internet shopping anxiety. Trust negatively associated with internet shopping anxiety
Celik (2011)	Turkish online shoppers	Social norms (SN). Perceived Playfulness Perceived Ease of Use (PEOU). Online shopping anxiety.	Adoption of online retail shopping	OSA has a negative effect on PEOU. PEOU has a positive effect on online retail shopping

This section shows a few empirical studies that construct internet anxiety, computer anxiety and shopping anxiety in various research with separation in analysis. It shows that previous researcher attempts to be isolated and fragmented. Furthermore, only a few researcher tested online shopping anxiety in e-retail business. For this reason, this research would be possible to identify which dimension of anxiety leads to intention to buy online through empirical study

3.8 Behavioural Intention

Intention to use in ICT environment reflects the user's choice for use behaviour. Fishbein and Ajzen (1975) stated that intentions predict the behaviour and several researchers have shown a significant correlation between usage and behaviour intentions (Davis, 1989). Intention is determined by an individual's attitude toward performing the behaviour (Delafrooz, Paim, Khatibi 2011). According to Cody-Allen & Kishore (2006), an intention to use a particular system can explain an actual system usage. Sharma *et al.* (2007) proposed a framework to increase retailers' understanding of consumers' attitudes towards online shopping intention and hence the success of an e-tailing website. The survey was conducted on samples which had recently visited commercial websites. The e-tailing effectiveness model consists of website's effectiveness, product characteristics, product delivery and complaint resolution. It places 29.6% of website effectiveness on product availability, 25.65% on product delivery, and 20.7% on accessibility. Lee *et al.* (2011) conducted an experimental survey on intention to buy e cinema ticket online. The main significant findings of the research was social influence strengthen an existing positive relationship between attitude towards online shopping and intention to shop online.

3.9 Usage Behaviour

Any e-business system goal is to generate usage of the system (Cody-Allen & Kishore, 2006). TAM places usage as a dependent variable in the model. Even though TAM has been widely used in online shopping studies, the study did not entice consumer to shop online but just to study generic information system (Zhou *et al.*, 2007). UTAUT also places Usage Behaviour as end part of the model. Usage behaviour in UTAUT measures actual usage behaviour. UTAUT model shows that behavioural intention towards personal computers has a significant positive influence on actual usage. Although many studies had verified the relationship between intention and actual usage, there were limited studies that focused on actual usage (Lu, Yu, Liu, & Yao, 2003; Mohammad, 2013). Rosli and Noor Azizi (2009) suggested that further researched to stress on the use behaviour rather than perception towards electronic commerce by using the case study. Dennis *et al.* (2009) have explored on conceptual development of an integrated model of e-commerce behaviour and suggested an opportunity to explore on the actual purchase of e-retailer by intention to purchase.

3.10 Summary

This chapter reviews the previous research on web design involving the web guideline, web stages and web usability. This is the roadmap to build the process flow using participant observation technique that will be discussed later. Details about underpinning theories that have been used in online shopping settings, which contain TRA, TPB, TAM, OSAM, DTPB, IS Success Model and UTAUT are also discussed. Since self-efficacy and anxiety are the theoretical contribution, this chapter reviews

the previous research on these two constructs. Self-efficacy and anxiety appear to be isolated and fragmented from previous research. Both self-efficacy and anxiety are not being tested specifically on Business to Consumer context in online shopping. UTAUT is considered to be the underpinning theory because it can explain more of the variance in usage intentions. The following chapter presents in detail theoretical framework and hypotheses development.

CHAPTER FOUR

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

4.0 Introduction

Theoretical framework is a collection of interrelated constructs that lead to the research objectives. It determines the constructs to be measured, and the kind of relationship required. In an attempt to guide the development of the research, this research has developed a theoretical framework based on the literature. The theoretical and hypotheses development discussed in this chapter is for the second phase of the research.

This research is based on UTAUT. The main reason for choosing UTAUT is because it accounted for 70 percent of the variance in usage intention better than TAM studies (Marchewka *et al.*, 2007). It is created from eight theoretical models (Venkatesh *et al.*, 2003) that provides superior understanding of actual usage and provides a good foundation for future research on technology acceptance regarding online shopping (Amoroso & Hunsinger, 2009), and offers a helpful means for managers to measure the chance of success of new technology (Masrom & Ramlah, 2008).

This research intends to add other constructs. This research provides an empirical test of three forms of self-efficacy and anxiety: Computer Anxiety, Internet Anxiety, Online Shopping Anxiety, Computer self-efficacy, Internet self-efficacy, Online

Shopping self-efficacy and Education Programme. Furthermore, self-efficacy and anxiety constructs are isolated and fragmented in previous studies. Figure 4.1 depicts the proposed research theoretical framework and hypotheses relationship.

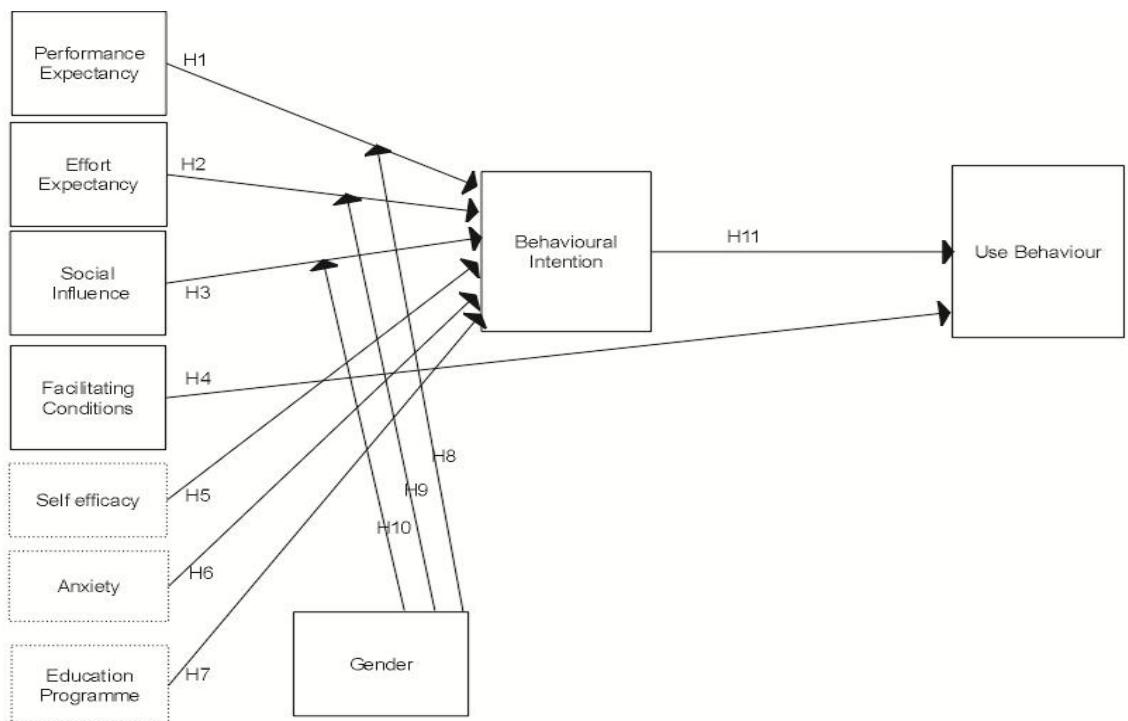


Figure 4. 1 Proposed Theoretical Framework and Hypotheses

4.1 Research Constructs and Hypotheses Formulation

The previous chapter has discussed the literature on well-known concepts and previous studies that are useful for developing the framework. Therefore, a hypothesized framework shows a model of how to make logical sense of the relationships among several constructs that have been identified. The following paragraphs discuss the relationship between the constructs.

4.1.1 Performance Expectancy (PE)

Performance Expectancy (PE) is the degree to which an individual believes that using the system helps him/her to attain gains in job performance (Venkatesh *et al.*, 2003). PE integrates perceived usefulness in TAM with a relative advantage in Decomposed Theory of Planned Behaviour. PE is moderated by gender. PE construct is considered the strongest determination of intention. It is supported by Lee, Park and Han (2011), Perez-Hernandez and Sanches-Mangas (2011), Venkatesh *et al.* (2003), and Weisberg *et al.* (2011). Previous study by Chiu, Lin and Tang (2005) has revealed that Perceived Usefulness positively influences online purchase intention but negatively influences attitudes. The following hypothesis is then formed for PE.

Hypothesis (1): Performance Expectancy has significant influence on Behavioural Intention of the polytechnic co-operative e-retail website.

4.1.2 Effort Expectancy (EE)

Effort Expectancy is the degree of ease associated with the use of the system (Venkatesh *et al.*, 2003). It captures the perceived ease of use in TAM. This construct has been established in voluntary and mandatory usage context. It has been very significant in predicting behaviour intention to online shopping. It is proven from its influence on perceived ease of use (PEOU). Previous studies have revealed that EE is significant (Norazah *et al.*, 2008). Chiu, Lin and Tang (2005b) found that perceived ease of purchasing positively influence attitudes and online purchasing intentions which lead to the following hypothesis:

Hypothesis (2): Effort Expectancy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

4.1.3 Social Influence (SI)

SI defines as the degree to which an individual perceives that important others believe he/she should use the system (Venkatesh *et al.*, 2003). SI is regarded as subjective norm in TRA, TAM2, TPB / DTPB. This construct is adopted from the original UTAUT and reframed for its suitability for this study. Wang (2006) showed the positive effects of SI on behaviour intention to use KIOS System in e-government. A research by Marchewka *et al.* (2007) on Course Management Software has shown a significant relationship between SI and BI which consequently formed the following hypothesis:

Hypothesis (3): Social Influence has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

4.1.4 Facilitating Conditions (FC)

FC means the degree to which an individual believes that infrastructure is provided to assist people in using the system (Venkatesh *et al.*, 2003). Its definition refers to perceived behaviour control of TPB / DTPB. PBC refers to the perception/believes on the availability of skills, resource and opportunities that may either inhibit or facilitate the behaviour. It is either internal (e.g. person's skills, abilities and self-efficacy) or external (facilities and technical infrastructure). Delafrooz, Paim and Khatibi (2011)

found that self-efficacy, trust and security in perceived behavioural control construct were positively associated with the intention to online purchase. Previous studies have revealed that FC is significant (Im *et al.*, 2011; Marchewka *et al.*, 2007; Wang *et al.*, 2006). Meta-analysis by Hameed and Counsell (2014) found that 89% of studies which considered facilitating conditions was found to be significant.

Hypothesis (4): Facilitating Conditions has significant influence on Students Use Behaviour of the polytechnic co-operative e-retail website.

4.1.5 Self-efficacy

Self-efficacy is a judgments of one's ability to use technology to accomplish (Venkatesh *et al.*, 2003), while computer self-efficacy is an individuals' judgment of their capabilities to use computers in diverse situations (Thatcher & Perrewe, 2002). Internet self-efficacy is an individual's judgment of efficacy across multiple Internet application domains (Hsu & Chiu, 2004) and online shopping self-efficacy is an individual's perception of efficacy in using a specific WWW application (service) within the domain of general Internet computing' (Hsu & Chiu, 2004). A study by Keisidou, Sarigiannidis and Maditinos (2011) showed that the Internet self-efficacy has a positive association towards online shopping while Bonera (2011) showed that greater perceived self-efficacy lead to higher intention to online purchase. This is in line with Hsu and Chiu (2004) which showed that web specific self-efficacy has a positive effect on intention to use. Abdulhameed Rakan *et al.* (2010) found that computer self-efficacy influenced students' intention to use e-learning in Saudi Arabia. In contrast, Faqih (2013) considered that internet self-efficacy did not influence consumers' intentions toward online shopping behaviour in Jordan.

According to Monsuwé, Dellaert and Ruyter (2004), the level of ‘ease of use’ must be high to cater consumers with low self- efficacy in order to achieve a positive attitude towards online shopping. Delafrooz *et al.* (2011) reported that perceived behaviour control (construct of self-efficacy, trust and security) negatively influenced purchase intention. Naseri and Elliott (2011) argued that enhancing computer self-efficacy through education would increase the likelihood of online shopping. Thus, the following hypotheses are formulated:

Hypothesis (5): Self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

Hypothesis (5a): Internet self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

Hypothesis (5b): Computer self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

Hypothesis (5c): Online shopping self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

4.1.6 Anxiety

Anxiety is an envoking anxious or emotional reaction when it comes to performing a behaviour (Venkatesh *et al.*, 2003). According to Cloniger (2008), as a result of learning, peoples approach pleasant stimuli and avoid unpleasant stimuli. The fear and anxiety condition are products of learning and can become a motivator to reinforce

new learning. Fear and anxiety can function as stimuli to direct current behaviour that determines people's willingness to adapt or reject online purchasing. Through understanding the emotions of online shoppers, especially negative emotion, researchers can advise online retailers on how to improve their services (Yao & Liao, 2011). Negative emotion can be avoidance, hate, resistance, fear and anxiety while using a computer. Anxiety that is commonly discussed incorporates computer anxiety (Han *et al.*, 2009; Thatcher & Perrewe, 2002), trait anxiety (Thatcher & Perrewe, 2002) and internet shopping anxiety (Celik, 2011; Yao & Liao, 2011). Muhayiddin *et al.*, (2011) measured anxiety in gold scam, gold price, computer and internet skills in a same construct whereby descriptive statistic (mean) shows higher in gold price and gold scam rather than computer and internet skills. A comprehensive approach is needed to have a thorough understanding of the effect of the anxiety.

Internet anxiety, according to Yao and Liao (2011) is the negative emotion resulted from an individual's experience of using the Internet. Computer anxiety is defined as the anxiety of implication on computer use such as loss of important data or other possible mistakes (Thatcher & Perrewe, 2002). Yao and Liao (2011) also differentiated internet shopping anxiety from internet anxiety. They proposed that internet anxiety arises from the use of web related service, but Internet shopping anxiety arises from either web related or non-web related online shopping process. They also added that Internet anxiety develops across time from multiple situations while internet shopping anxiety only develops after having experience on online shopping transaction.

Computer anxiety discusses anxiety that appears due to the use of computer (Yao & Liao, 2011). Information technology study on anxiety found no significant difference in computer anxiety based on the years of experience using computers and neither does IT majoring students (Han *et al.*, 2009). Thatcher and Perrewe (2002) found that computer anxiety has a negative relationship with of computer self-efficacy. Fagan *et al.* (2004) also found the same finding. In addition, computer anxiety is not negatively associated with usage. In contrast, Abdulhameed Rakan *et al.* (2010) found that computer anxiety influenced students' intention to use e-learning in Saudi Arabia. Thus, the following hypotheses are formulated:

Hypothesis (6): Anxiety has significant influence on Students Behavioural Intention on User Acceptance of the polytechnic co-operative e-retail website.

Hypothesis (6a): Internet anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

Hypothesis (6b): Online shopping anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

Hypothesis (6c): Computer anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

4.1.7 Education Programme Background

For this research, education programme is an academic programme in a certain field at the level of Diploma runs by polytechnics. In this context, academic programmes are most favourable due to identify education background on the target market.

Su and Huang (2011) found that knowledge of computer and Internet currency clearing were comparatively significant on online shopping. Since Internet usage requires knowledge and skills, undergraduates with computer knowledge met the basic requirements of online shopping.

According to Naseri and Elliott (2011), individuals with higher education background were more in favour of online shopping. The way that education could contribute to the adoption of e-shopping is by enhancing computer self-efficacy. So, better-educated individuals were more likely confident to face this task. It was also supported by AlGhamdi, Drew and AlGhaith (2011) which suggested that education and building awareness of e-commerce should receive high attention. Education programmes either formal or informal programmes can help people to understand and adapt the culture of e-commerce.

According to Cloniger (2008), as a result of learning, peoples approach for pleasant stimuli and avoid unpleasant stimuli. The fear and anxiety condition are product of learning and can become motivators in order to reinforce new learning. Fear and anxiety can be stimuli to direct current behaviour. Peoples adapt or reject online shopping depending on specific learning.

Burke (2002) found that consumers with higher education background are more comfortable to use the Internet to search for information on products and make purchases. Parallel to the finding, Burke (2002) discovered that consumers with lower education background also showed a positive attitude towards online shopping. Lack of research investigates the direct relationship between education programme wheras education level gets a lot of attention. Since the sample of this research focuses on

diploma level students, the education programmes are more appropriate which lead to the following hypothesis:

Hypothesis (7): Education Programme Background has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.

4.1.8 Gender

Hernandez, Jimenez and Martin (2008) studied the moderating effect of gender in the case of experienced online shoppers and found that previous use of the Internet and perception upon the intention to make subsequent purchases are not moderated by gender.

Chiu *et al.* (2005a) also discussed the moderator's role of gender in online purchase environment which is e-tail service. Research findings show that perceived usefulness (in case of UTAUT is Performance Expectancy) on attitudes and intentions are similar to male and female. Naseri and Elliott (2011) examined the effect of gender on willingness to shop online and found that men are more likely to adopt online shopping as compared to women.

Burke (2002) found that men and women in the environment of online shopping displayed different behaviours. Men expressed greater interest in adapting to online shopping. Men regard product information as very important. Han *et al.* (2009) studied on men and women and found a significant difference in relation to computer anxiety and showed that there is no significant difference between male and female.

The following hypotheses are then formed for the effect of gender towards online shopping behaviour:

Hypothesis (8): Gender moderates the relationship between Performance Expectancy and Students Behavioural Intention.

Hypothesis (9): Gender moderates the relationship between Effort Expectancy and Students Behavioural Intention.

Hypothesis (10): Gender moderates the relationship between Social Influence and Students Behavioural Intention.

4.1.9 Voluntaries, Experience and Age

This research decides to disregard age difference due to similar student age group (18 - 20 years old) of polytechnic students (unit of analysis). According to Venkatesh and Davis (2000), voluntariness is not necessary to be examined in voluntary setting. This research is not to be used under compulsion. Brown, Massey, Montoya-Weiss and Burkman (2007) as cited in Gbenga (2010), stated that experience can also be disregarded since the system is a pre-use acceptance research. Experience in this research is in regards to the system which is polytechnic e-retail website. The web is totally new to polytechnic students (sample) and higher learning students are recognized as a good sample of internet shoppers (Zhang *et al.*, 2014). The website was introduced to them throughout the research period only.

4.1.10 Online shopping Intention and Use Behaviour.

Monsuwé *et al.* (2004) defined online shopping as the use of online stores by consumers up until the transactional stage of purchasing and logistics. The actual use is defined by Amoroso and Hunsinger (2009) as the number of time spent by users in using technology and previous research shows that behavioural intention has a positive effect on actual use (Hsu & Chiu, 2004). UTAUT places the term actual use as use behaviour. Pavlou and Fygenson (2006) stated that use behaviour does not always correlate with the result of consumers purchasing a product from online stores. It is because some consumers who go online to get information to reduce the uncertainty of product purchasing in the website are also indicated as use behaviour. When shopping online, consumers insist on knowing the price of the products, product specifications, instruction procedures, warranty information, and a list of products currently on sale. Consumers also prefer to have the option of paying using credit card on secured web page, receive confirmation e-mail messages to indicate that their orders have been received and shipped. Customers would also prefer to use the web, get help from customer services and return unsatisfactory or defective products (Burke, 2002). Thus, the following hypothesis is formulated:

Hypothesis (14): Students Behavioural Intention has significant influence on Students Use Behaviour of the Polytechnic co-operative e-retail website.

4.2 Hypotheses Summary

The hypotheses of this research are formulated based on research framework. Table 4.1 summarizes the hypotheses formulation as follows:

Table 4.1
Summary of the hypotheses

H No	Hypotheses
H1	Performance Expectancy has significant influence on Students Behavioural Intention of the polytechnic consumer co-operative website.
H2	Effort Expectancy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.
H3	Social Influence has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.
H4	Facilitating Conditions has significant influence on Students Use Behaviour of the polytechnic co-operative e-retail website.
H5(a-c)	Hypothesis (5a): Internet self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (5b): Computer self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (5c): Online Shopping self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.
H6(a-c)	Hypothesis (6a): Internet anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (6b): Online shopping anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (6c): Computer anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.
H7	Education Programme Background has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.
H8	Gender moderates the relationship between Performance Expectancy and Students Behavioural Intention.
H9	Gender moderates the relationship between Effort Expectancy and Students Behavioural Intention.
H10	Gender moderates the relationship between Social Influence and Students Behavioural Intention.
H11	Students Behavioural Intention has significant influence on Students Use Behaviour of the polytechnic co-operative e-retail website.

4.3 Summary

This chapter covers theoretical framework based on UTAUT on the second phase of the research. Eleven (11) research hypotheses were developed from the model. These hypotheses were developed from previous studies to examine the significant influence between Performance Expectancy, Effort Expectancy, Social Influence, Anxiety, Self-Efficacy, Education Programme to Behaviour Intention and Facilitating Condition to Use Behaviour.

CHAPTER FIVE

METHODOLOGY

5.0 Introduction

The research seeks explanation through participant observation on the process of web design on the polytechnic co-operative e-retail website. Participant observation methodology in this research is an approach that focuses on collaborating co-operative management and target user (research population) throughout the design and development process model. It is a bottom-up approach where from the case study research, the researcher proposed the process model (Eisenhardt, 1989). The outcome (artefact) was the polytechnic co-operative e-retail website which was then empirically evaluated.

An empirical quantitative research evaluated the Polytechnic Co-operative e-retail website through conceptual framework Unified Theory of Acceptance and Use of Technology (UTAUT). It has contributed to online shopping acceptance among polytechnic students on the polytechnic co-operative e-retail website. So, the methodology of this research are divided into two phases. The first phase is to develop the process model of the polytechnic e-retail website using case study method with participant observation technique. The second phase is an empirical study to validate the modified UTAUT on the polytechnic e-retail website by using a

quantitative method. Figure 5.1 describes the methodology section.

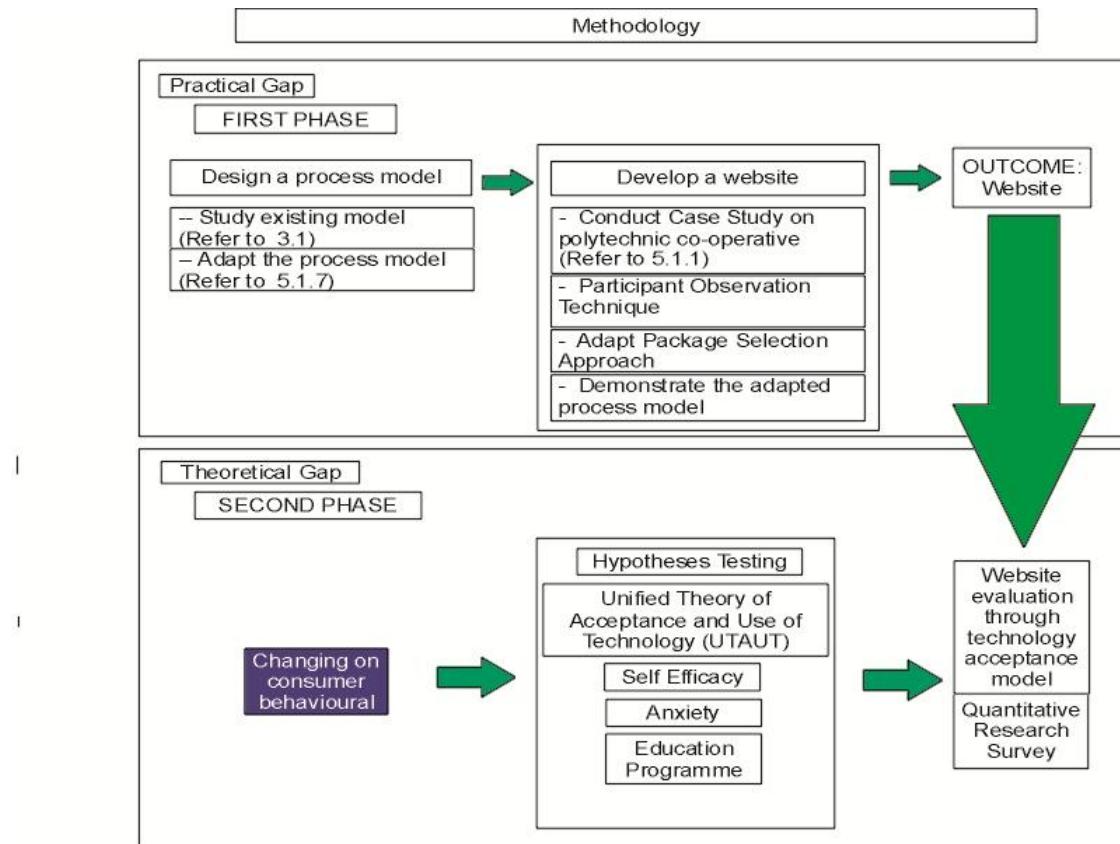


Figure 5. 1 Research methodology.

5.1 The First Phase of the study: Web design process model

In the first phase of this research, participant observation was selected to develop a process model of e-retail website for polytechnic consumer co-operative. For the purpose of website design, this study used software tools called Content Management System (CMS) package selection application to design the website. Single case study was used as Tuanku Syed Sirajuddin Polytechnic Co-operative Limited was selected as the case. The length of the case study was 2 years (2012-2014).

5.1.1 Case Study

This research presented a case study that involves active participation from users in the design process. The case study method is most likely to be appropriate for “how” and “why” questions. The nature of the research questions in this research was how co-operative can successfully design their online shopping website. The researcher developed the process model by relying on past literature, experience and participant observation (Eisenhardt, 1989). The case study adopted qualitative method, in which the researcher explores a single entry or phenomena (“The Case”). It is bounded by time and activity (a programme, event, process, institution, or social group) and collects detailed information by using a variety of data collection procedures during a sustained period of time (Creswell, 1994; Yin, 2009). Case study involved either single case or multiple cases. For the purpose of this research, only one case was selected. Although the number of case was small, the findings can be transferred to a different context that has similar characteristics to the case studied (Puenesvary, Radziah, Sivabala, Noor Fadhilah, & Noor Hashima, 2008). Indeed, using the keyword generalizability, validity and reliability are also issues in qualitative studies (Onwuegbuzie & Leech, 2007). Types of research such as research on the innovative system or IT can strengthen the value of qualitative studies (Marshall & Rossman, 2009).

According to Taylor, McWilliam, Forsyth and Wade (2002), case study is appropriate for investigating current IT practice because it could help researchers to overcome the problem of terminology and verification compared to other research methods. However, it is a time-consuming nature of the study, and it is was difficult to gain access to the organizations. Iacono, Brown and Holtham (2009) stated that case study

is suitable to the information systems in the organization because management can focus on organization rather than on technical issues. Furthermore, IS researchers and practitioners are unable to provide guidance on how to manage the introduction of new systems at the same time understand about customers due to continuous revolutionary change (Hasina *et al.*, 2011; Iacono *et al.*, 2009). Hence, participant observation that associated with qualitative methods offered the chance to obtain unique insights into the organization or social group and fully accepted for IS research (Iacono *et al.*, 2009).

5.1.2 Case study and Participant observation

According to Yin (2009), participant-observation is a special mode of observation whereby the researcher participates in the events being studied. It is data collection technique that is used within the case study. Participant observation leads to behaviour, motivation, attitudes and perception of people (Jaimangal-Jones, 2014).

In case study, the issue is to what extent can the findings be extrapolated to the theory that the researcher designed to test (Brannen, 1992). In business case study, this gives shoppers a more realistic sense of how the applications/processes operate, the benefits that they provide and allowing accurate assessment of the value (Burke, 2002). Accordingly, case study and participant observation may overlap in collecting empirical evidence, interview and observation (Palsson, 2007). Participant observation demands first-hand involvement in the study because the researcher hears, sees, and begins to experience reality as the participants do (Marshall & Rossman, 2009). The major criticism on participant observation is the potential lack of objectivity because the researcher is not an independent observer but a participant

whereas the phenomenon being observed is the subject of research (Iacono *et al.*, 2009). It is limited to a small part of an organization (Palsson, 2007). The advantage of participant observation is that it could provide deeper understanding of the participants' culture. Researchers could explore and describe new behaviour right as the things happened (Mackellar, 2013).

The methodology of participant observation provides direct experiential and observational access to the insiders' world which means the world of everyday life.

The methodology of participant observation is practised as a form of the case study (Jorgensen, 1989). In addition, participant observation is a combination of a wide variety of methods, including observation, informal interviews and/or conversations, analysis of other materials, documents, field notes (Di Domenico & Phillips, 2010).

In addition, based on Di Domenico and Phillips (2010), researchers choosed to participate in the observation of settings were already partially members. It closely related to data collected compared to someone who was more of an outsider. It is so-called overt participant observation form of participant observation. While in participatory design, these are also "direct participation" where all parties are affected by the development process (Bergvall-kåreborn & Stahlbrost, 2008).

One example of participant observation in technology done by Palsson (2007) in RFID technology. The study focused on the interaction of a project group consisting of packaging supplier, food manufacturer and technology provider. It emphasised the implications of an RFID implementation project in German. A case study by Mackellar (2013) also demonstrated the participant observation by event managers to gain understanding of audience behaviour. A field test could also provide detailed information on the costs of installing and maintaining technology, highlight issues of

employee acceptance and training, and provide feedback on competitive response. This research followed Iacono *et al.* (2009) and Iacono, Brown, and Holtham (2011) in managing case study and participant observation. They have included subjective experience and their own experience. In order for the researcher to understand, develop and manage the actual process in web design, participant observation is appropriate for this research. Participant observation within this research was presented to the board of cooperative followed by designing the website, maintaining the website, doing internet marketing through FacebookTM, managing product catalogue, managing order system, updating order status, and responding to e-mails or comments.

5.1.3 Data Collection Technique

The researcher acts as a participant-observer. It means that the researcher is involved in the event (case) through active engagement (Jaimangal-Jones, 2014). Participant observation was the main element in a single case study on web design process of the polytechnic co-operative web site. The main part of the project consists of academia (including the researcher), co-operative representative (manager), webhosting provider and target customer (polytechnic students). The role of the researcher was mainly to lead the project, observed, investigated and documented the progress of the web design process model.

Document analysis was also part of the techniques used in this research. Documents such as field notes, focus group, web statistics, minutes of meetings, annual report, letters, emails and company files were reviewed in data collection technique as source of evidence and also personal communication with colleagues, board of co-operative

and executive of hosting provider. The method used in data collection was a modification of Palsson (2007).

5.1.4 Role of researcher

As participant observer, researcher is an instrument and the researcher's presence in the lives of the participants invited to be part of the study was fundamental to the methodology (Marshall & Rossman, 2009). It began with the decision about the role to be adopted by the researcher whereby the researcher is an active member of the group and the group is aware that it is being researched (Sinha & Uniyal, 2005). In this research, participant observation required researcher to be involved as a participant and make descriptive observation about him/herself of other, and of the setting (Mackellar, 2013). It was conducted by a single researcher (Mackellar, 2013). To be an effective qualitative researcher, the researcher sought to build a picture using idea and theories from different resources. So, the researcher kept asking probing questions, then listens, thinks and asks more if needed in order to get deeper information from the conversation and observation. The roles of the researcher in this research were;

1. Professional – the researcher has access to sources and contact because knowledge of an organization could be acquired.
2. Ethnographer – the researcher immersed and functioning within the organization and becoming a part of the phenomena under study as webmaster. Participant observation was a key tool in ethnographic investigation (Di Domenico & Phillips, 2010)

3. Historian – the researcher examined the data generated by the organization and web statistics.

Research questions function as the focus of the case study research because the value of data can easily overwhelming (Eisenhardt, 1989). Table 5.1 shows the summary.

Table 5. 1
Summary of the case study

Description of the case	Research Question	Data Sources	Investigation
One polytechnic co-operative	How can polytechnic co-operative design its e-retail website successfully using the Content Management Software (CMS) approach?	Academia (including researcher), co-operative representative (manager), web hosting provider, target customer (polytechnic students)	Single investigation

5.1.5 Validity

In qualitative research, validity, reliability and triangulation are considered very crucial concepts (Creswell & Miller, 2000; Creswell, 1994). In addition, the analysis of the observation data is a critical step in search of patterns and themes while in this matter, it is in search of the process model (Mackellar, 2013). Furthermore, a further weakness is that the researcher is also the data collection instrument, the experiences and biases of that researcher influence the results. This assumptions need to be addressed by the researcher in the reporting. In this research, the researcher used

fieldwork, expert review and participant (focus group) review in order to strengthen the validity, reliability and triangulation of this study. Fieldwork activities were recorded using Evernote software. Interviews were recorded using Voices Memos application and expert opinion was requested during development of interview protocol and the process model. Participants (Board of Co-operative and Focus group members) reviewed the interview outcome.

5.1.6 Reliability

To ensure reliability in qualitative research, examination of trustworthiness is important. Reliability in qualitative research is not relevant to measurements use in quantitative research (Golafshani, 2003). The research procedure in this research was transparent. All data, records and evidence were available for inspection (Yin, 2011). Data (such as interview session, e-mails, insight data) was kept in a mobile device, e mail inbox, web hosting and personal computer. Printed materials (letters, proposal, guidelines, triangulation, interview protocol, printed e-mails) were kept in a document folder.

5.1.7 Web design process methodology.

This research methodology is a set of design research because it produces an outcome such as model and artefact such as process, user interface and prototype (Hevner, March, Park, & Ram, 2004). Design research methodology in this research consist of process steps and outputs introduced by Vaishnavi and Kuechler (2004).

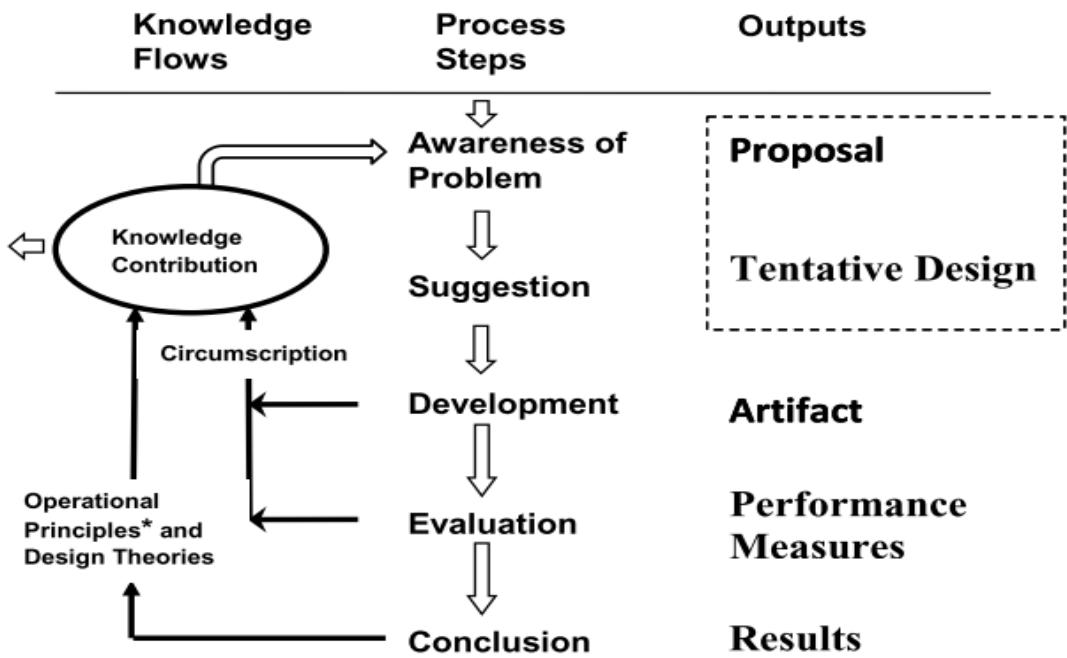


Figure 5. 2 Design Research Model (Vaishnavi & Kuechler, 2004)

Awareness of the problem in this research was generated by analysing the literature related to the latest development of e-retail business. Direct communication with the board of co-operative and the practitioners were the way of identifying current issues and problems. From that, a proposal on doing e-retail business was presented.

Once the proposal was accepted, the researcher proposed a new functionality of the artefact to be developed or so called the architecture (Norshuhada & Shahizan, 2010). The tentative design was integral part of the proposal. In this research, the prototype and a few examples of e-commerce website were presented to the Board of co-operative.

Traditionally, web developers use a formal system development approach called System Development Life Cycle (SDLC). There is a possible development methodology to be adopted. In the first phase of this research, SDLC was used as a

basic model in web design research. Moreover, the researcher adapted six phases of SDLC from Haag *et al.*(2004) and also stages derived from Kiatruangkrai *et al.* (2010) and Goi (2007a). It was appropriate in the field of e-commerce environment. It was also encompassed with web design process model. Previous researcher viewed SDLC as an IT perspective but not from management perspective (Suratida & Settapong, 2005). In e-commerce perspectives, SDLC is a methodology for understanding the business objectives of any system and designing an appropriate solution that involves five major steps for e-commerce site; System Analysis, System Design, Building the System, Testing and Implementation (Laudon & Traver, 2007). According to Cervone (2008), SDLC involved three general activities such as project review, project approved and prioritized. Resources for this research were allocated, and project team was put in place. The most important factor to address was how to get a project approved and prioritized. So, creating an effective business case was one of the best ways of doing project. An article, “Systems Development Life Cycle : Objectives and Requirements” (2003) explained SDLC with three primary business objectives:

1. Ensure the delivery of high-quality system. In a business context, the quality refers to the return on investment (ROI) achieved by the system. The money spend on advertising, product development, staff salary and others.
2. Provide strong management controls. Being able to predict the duration to which a project will be completed, the quantity of resource that will be required and the cost. SDLC must ensure that the management has time and complete an accurate information on the project status so that if there are an exception and corrective actions, it can be taken in a timely manner.

3. Maximize productivity. SDLC does not only define the expected ROI, but it must also ensure the projects are completed with the maximum possible ROI.

In this case study research, it was not attempt to measure Return on Investment (ROI) as the research objective through product sales. This research objective was to propose the process model. Project approval for this research was through letter of acceptance after presentation to the board of co-operative. SDLC scope requirements are be able to support various project types, project sizes and system types. SDLC project type involves:-

1. New development where there is no existing system and totally new system development.
2. Rewrite the existing systems when the current system becomes so poorly structured, therefore, a new system is created.
3. Maintenance that deals with any incremental improvement to an existing system.
4. Package Selection that involves evaluating, acquiring, tailoring and installing third party software (Table 5.2).
5. System Conversions that involve translating a system to run under new environment. It includes conversions to new operating system, a new database, new computers and extra.

This research project type was a new development system since none of the polytechnic co-operatives was involved in e-retail business. At the same time, it was a package selection type because the researcher acquired third party software.

Project size means the time taken or staff involved. Some projects could take just a day with one person involved because some could take years with hundreds of staff involved. System types in SDLC must support each of this or a combination of them:

1. Batch systems, on-line systems, real-time systems
2. Mainframe, client-server, web, PC, imbedded systems
3. Centralized systems and distributed systems
4. Stand-alone systems and integrated systems
5. Automated systems and manual systems

SDLC is an approach or model used to improve the quality of information system. The system is so-called artificial systems that are deliberately constructed by people to serve some purpose. Haag *et al.*(2004) include six phases in SDLC.

1. Systems Investigation is to evaluate the current system and to determine if the system needs enhancement or replacement (Sellappan, 2000).
2. Systems Analysis is to analyse the current system in order to gain in-depth understanding of the current system for future requirement (Sellappan, 2000). It is to find out what the system could do (Weaver, 2004).
3. Systems Design is to propose a new system that solves the problems that were inherent in the previous system (Sellappan, 2000).
4. Systems Construction is to build and test the system (Weaver, 2004).
5. Systems Implementation include coding, testing and documenting the system, as well as training user and system administrator (Sellappan, 2000; Weaver, 2004).

6. Systems Maintenance is to use and maintain the system such as software updates and hardware upgrades (Weaver, 2004).

Table 5.2 shows the development approach.

Table 5. 2
Development Approach

Project Type	Life Cycles Models	Approaches
Package Selection	Stable requirement, well known in advance.	Waterfall Model
	Standard business applications	Incremental Model
	Non-unique business processes	
	Projects with limited development resource.	Prototyping

Source: Weaver (2004)

All these approaches are not mutually exclusive since it is possible that the traditional approach might also include prototyping. The implication of SDLC in this research project was that, SDLC is a basic system development model used in developing a process model while this research project proposed a web design process model for the polytechnic e-commerce website. SDLC tends to focus on the architecture of system development in IT perspective. This research focused on the web design process in the context of package selection approach from SDLC project types. It was specified in the field of e-commerce environment. This research added transactionally in internet marketing stages. In order to design the process model, the process model from web design stages/model (Awad, 2006; Cunliffe, 2000; Goi, 2007a), SDLC (Haag *et al.*, 2004) and web engineering (Kappel *et al.*, 2003) which previously discussed were adapted. An approach by Kiatruangkrai *et al.* (2010) and Goi (2007a) served as a practical guideline for researchers to build the web design process model using the case study. It was based on the assumption that the information requirements can be predetermined and the simulation of e-retail business through e-

retail website. However, in real development, the scenario was not always the same and as smooth as that. Figure 5.3 shows the proposed stages of web design process model derived from Haag *et al.* (2004), Goi (2007a) and Kiatruangkrai *et al.* (2010).

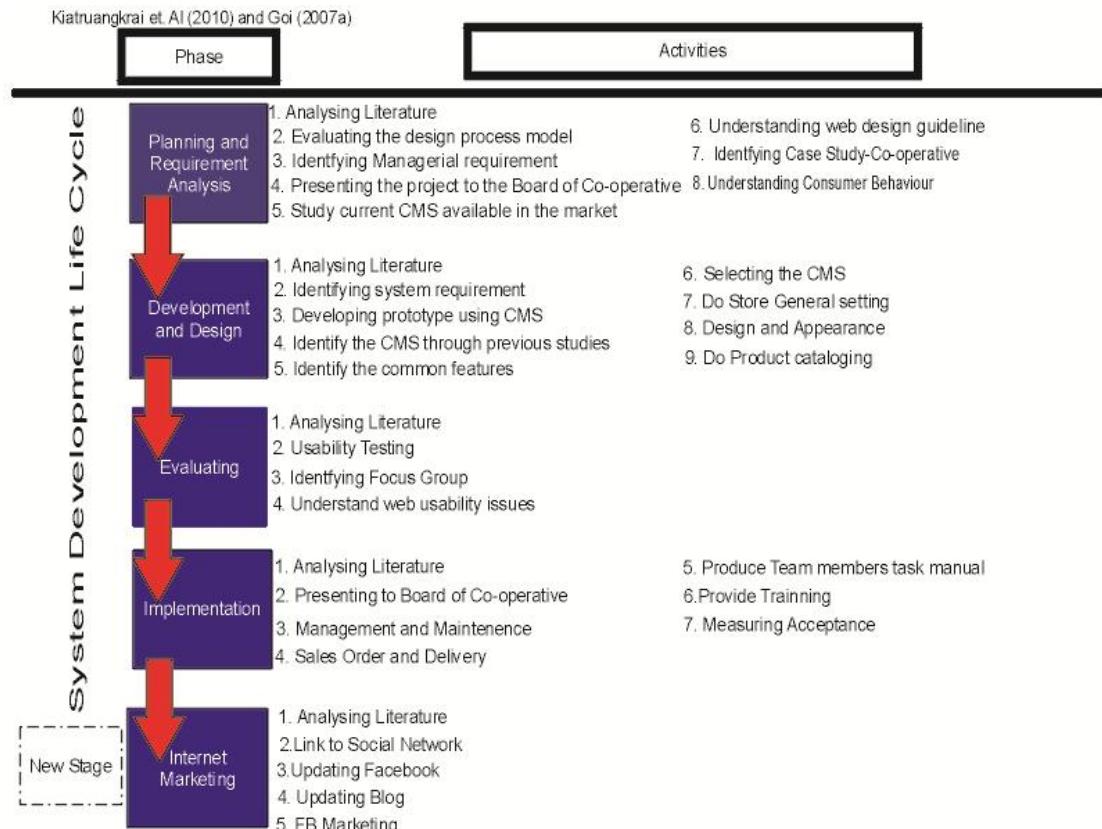


Figure 5.3 The proposed stages of web design process model development.

Planning and Requirement were on the review of literature especially on process model and identifying management requirement. The goal of this stage was to open lines of communication between board of co-operative and web master. The project was presented to Board of Co-operative in order to get managerial approval from the board of co-operative. The team members were Manager and Webmaster. This team serves to focus on facilitating the development of process model. The researcher reviewed the literature on the relevancies of stages in web design, web development, participant observation, and case study in order to understand theoretical concept. In

addition, this research reviewed on the justification for co-operative to venture in online shopping business such as government policies, government incentives, target market opportunity and expanding business.

In the development and design stage, the researcher conducted case study through participant observation technique. At first, the prototype website was developed using CMS package type. There are many webhosting service providers that provide CMS online shopping platforms in Malaysia such as www.netbuilder.com.my, webserver.com.my, lelong.my, exabytes.com.my, webshaper.com.my and others. There are many e-commerce CMS web applications pre-loaded at webhosting services such as Zen Cart, Magento, Freeway, osCommerce and phpShop. A comparison was conducted among the selected web hosting providers based on the requirements. A review on website guideline was conducted through literature in helping designing the particular website. Expert opinion was requested on the design interface.

In the evaluation stage, usability testing was conducted and purposive sampling was used which only includes students at Tuanku Syed Sirajuddin Polytechnic due to time limitation. The focus group and interview were recorded using video camcorder, Voice Memo (Iphone iOS App) and recorder (Ipad iOS App). It is useful to reach understanding on web design factors related to web security and web content (Küster & Vila, 2011). The focus group was conducted with the minimum sample size of 3-5 participants (Creswell & Miller, 2000). The website was targeted to polytechnic students as the sample frame. Seman, Idyawati and Sura (2009) in their study suggested that web design evaluation should be conducted among people who use the

website or are involved in designing the website. Related to focus group and based on Küster and Vila, (2011), the usability testing was conducted. Observation of the students working through the task and in addition asking for comments from students while interacting with the e-retail website was also undertaken. The focus groups questions in this research were organized into homepage, image, navigation/button element and shopping cart element. Items used in developing open ended questions derived from Fang and Salvendy (2003) and Noorfadzilah *et al.*, (2010). Questions were transformed into an interview session after being reviewed by expert.

The implementation stage was the launching of the website. The team members also went for training on related tasks. The notification of the existing website was sent to polytechnic directors through mail and banner display at various location in polytechnics.

Internet marketing is the new stage proposed by the researcher. Goi (2007b) inserted Internet Marketing in the stages but it is not well documented. This research showed the integration of Facebook to the product list. This is important for transactional site since most website development ended with implementation and maintenance in SDLC. Furthermore, electronic word of mouth (eWOM) can be found in virtual communities such as social networks, blogs, forums and consumer reviews which creates a high level of intention to purchase (Fan & Miao, 2012). Even e-retail is low barriers to entry, many players are investing heavily in advertising and offering additional services to distinguish themselves and to drive profit margin (“Siemer eCommerce Report,” 2013). Kobach (2014) suggests a few tips on posting in Facebook™ such as always include images and the originality of your content. Many

of the fans read through mobile so he suggested that posts should be mobile friendly. In this research, researcher responded to comments and posted news, products and activities. Posts were 5-10 times a week and posts were needed to be engaged (Kobach, 2014). The findings on Facebook™ posted show different statistics on people reach and engagement. So, in order to achieve higher number of people reach and engagement, the researcher used boost post in Facebook™ Advertising and promote page. The big challenge in Facebook™ advertising is that high number of people reach and engagement does not mean that sales can occur (Kobach, 2014). If designed effectively and interactively, Facebook™ can persuade people to engage in business related activities. Furthermore, it would be worthwhile to include business owner and practitioners (Shahizan, Norshuhada, & Ab Salam, 2015).

The output of the development stage was the artefact which is fully functional. The completed version of the artefact was evaluated quantitatively, which eventually tests the hypotheses in the second phase of this research.

5.2 The Second Phase of the study: Validating Modified UTAUT on polytechnic co-operative e-retail website.

In the second stage of the research, the polytechnic co-operative e-retail website known as www.ptsscoop.com.my was tested on the acceptance behaviour. Even though KPTSSB is a single case, it can be generalised in evaluating the acceptance due to similar business operation, similar Cooperative By-Law and similar business size to the case being studied.

5.2.1 Population and Sample Size.

The population of this research consists of polytechnic students who are members of the polytechnic co-operative. The student subjects are often criticized but they make the greatest proportion of the Internet users, apart from being better educated than conventional consumers and decrease the effect of variance in web-based literacy (Lin, 2007b). This research recognized that student samples have often been criticized for their lack of generalizability but may be valid in this case where online shoppers tend to be younger and more educated than the general population (Hausman & Siekpe, 2009). Moreover, students' power in the market segment has become a huge opportunity for retailers. Understanding this population behaviour towards online shopping is important especially in this case on co-operative target market segment (Delafrooz *et al.*, 2011b). Since students are the most active class of internet user, the use of students samples is appropriate (Lee *et al.*, 2011; Zhang, Cheung, & Lee, 2014).

There were 91,830 enrolments as of September 2012 who were selected as subjects for this research. These enrolments were selected because in September, polytechnics students were at full capacity. Table 5.3 shows the distribution of students according to polytechnics across Malaysia.

Table 5. 3
Students Enrollment as of September 2012

Region	Polytechnic	Enrolment (Population)
North	Politeknik Sultan Abdul Halim	6,371
	Politeknik Seberang Perai	4,011
	Politeknik Tuanku Sultanah Bahiyah	4,889
	Politeknik Tuanku Syed Sirajuddin	4,534
	Politeknik Balik Pulau	227
Centre	Politeknik Ungku Omar	7,884
	Politeknik Sultan Abdul Aziz	5,453
	Politeknik Nilai	660
	Politeknik Sultan Azlan Shah	5,451
	Politeknik Sultan Idris Shah	4,603
South	Politeknik Port Dickson	5,909
	Politeknik Iskandar Sultan	4,522
	Politeknik Melaka	1,645
	Politeknik Merlimau Melaka	6,575
	Politeknik Banting	0
East	Politeknik Mersing	304
	Politeknik Sultan Ahmad Shah	5,938
	Politeknik Kota Bahru	5,916
	Politeknik Kuala Terengganu	454
	Politeknik Sultan Mizan Zainal Abidin	3,773
Malaysia	Politeknik Muadzam Shah	2,210
	Politeknik Jeli	132
	Politeknik Hulu Terengganu	363
	Politeknik Kuching Sarawak	3,661
	Politeknik Mukah	1,641
TOTAL		91,830

Source: (Jabatan Pengajian Politeknik, 2012)

A survey approach was implemented in order to gather information directly from students enrolled at polytechnics. The sampling procedure employed for this research was a multi-stage cluster probability sampling (Sekaran & Bougie, 2010). Cluster samples offer more heterogeneity within groups and more homogeneity among groups

which is suitable for polytechnics. This research considers all region in order to generalise the findings in the context of Malaysia. In the first stage, the sample was grouped by region (North, Centre, South, East and East Malaysia) then one polytechnic was selected randomly by picking out the names of the polytechnic written on a piece of paper from each region. It reduced the total costs and gives more accurate results when most of the variation in the population is within the groups, not between them.

For the second stage, the polytechnics that were selected then were sub grouped into Academic Department and Diploma Programme to ensure that certain groups of the population sample were well represented. Stratified Random Sampling method was used to select diploma programme so that each important segment of the population was better represented. The students' name lists were obtained from each Academic Advisors and students were randomly chosen to participate.

To provide an adequate level of confidence in this study, a sample size based on Krejcie and Morgan (1970) table was determined. As mentioned earlier, there were about 91,830 polytechnic students across Malaysia. Therefore, for the population which was between 75,000 and 100,000, 382-384 respondents were suitable.

Subsequently, 384 questionnaires were distributed across five polytechnics in five regions. The probability sampling of students for polytechnic was calculated using the following formula:

$$\text{Probability sampling of students} = \text{NP} \times \frac{\text{NS}}{\text{T}}$$

(NP= Number of students in each region)

(NS= Number of sample to be distributed)

(T= Total number of students in all polytechnics)

Table 5.4 shows the final probability of students.

Table 5.4
The Probability of students for each region

Region	Polytechnic	Enrolment Population	Percent Sampling	Probability Sampling
North	Politeknik Sultan Abdul Halim	6,371		
	Politeknik Seberang Perai	4,011		
	Politeknik Tuanku Sultanah Bahiyah	4,889	23%	84
	Politeknik Tuanku Syed Sirajuddin	4,534		
	Politeknik Balik Pulau	227		
Center	Politeknik Ungku Omar	7,884		
	Politeknik Sultan Abdul Aziz	5,453	25%	101
	Politeknik Nilai	660		
	Politeknik Sultan Azlan Shah	5,451		
	Politeknik Sultan Idris Shah	4,603		
South	Politeknik Port Dickson	5,909		
	Politeknik Iskandar Sultan	4,522	20%	79
	Politeknik Melaka	1,645		
	Politeknik Merlimau Melaka	6,575		
	Politeknik Banting	0		
East	Politeknik Mersing	304		
	Politeknik Sultan Ahmad Shah	5,938		
	Politeknik Kota Bahru	5,916		
	Politeknik Kuala Terengganu	454	21%	79
	Politeknik Sultan Mizan Zainal Abidin	3,773		
.East Malaysia	Politeknik Muadzam Shah	2,210		
	Politeknik Jeli	132		
	Politeknik Hulu Terengganu	363		
	Politeknik Kuching Sarawak	3,661		
	Politeknik Mukah	1,641		
	Politeknik Kota Kinabalu	4,581	11%	42
	Politeknik Sandakan	123		
TOTAL		91,830		384

To encourage participation and increase involvement, respondents were granted RM1.00 or a pen for the time that they spend. Dholakia & Zhao (2008) offered similar approach to gain participation.

5.2.2 Data collection and measurement

Data collection was carried out in February and March 2014. The researcher was at PUO on 17-18 February 2014, PPD on 19-20 February 2014, PTSS on 17-18 March 2014, PKK on 24-25 March 2014 and aid of representative at POLISAS. The representatives had been contacted earlier for briefing on the study.

Respondents were asked to review the website (User Task) to ensure that respondents clearly understood the objectives of the research survey, concepts, functions, and characteristics of online shopping before completing of the survey. The respondents were instructed to navigate www.ptsscoop.com.my by following the user task to simulate the online purchase. Some respondents have experience in navigating the website because of the web site advertisement in certain Facebook groups, banners advertisement, mass e-mails and from an official letter to selected polytechnics. The procedures were guided by previous research done by Dholakia and Zhao (2008). Respondents completed the user task (Appendix A) and the questionnaire (Appendix B) was then administered to the respondents. A booth was also set up at a strategic location to assist respondents regarding any problem related to the research.



Figure 5.4 Survey session

In order to encourage participation, every respondent was also entitled to participate in a contest. All respondents were guaranteed confidentiality of individual responses.

5.2.3 Instrument Design

After fulfilling the task successfully, the paper-based questionnaire (in the form of booklet) was given to the respondents (Appendix B). Each booklet was accompanied with a cover letter stating with the purpose of the research and instructions. It was in dual language which is English and the translation in Malay language. The questionnaire was sent to two bilingual expert (English and Malay) in order to ensure that the translation are harmonized as close as possible with the English version. The respondents completed the questionnaire which included items on Education Programme Background (EPB), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Self-efficacy (SE), Anxiety (ANX), Intention to Purchase, and Actual Purchase in the first section and demographic information in the second section. All measurement items were measured with seven-point scale ranging from “strongly disagree” to “strongly agree” to standardize the survey questionnaire format. The measurement used in this research was adapted from various established sources. The development of the questionnaires

was guided by underpinning theory. PE, EE, SI and FC were included in the original UTAUT. EPB, SE and ANX were the newly included constructs.

5.2.3.1 PE Dimension

Items under PE were constructed both from the theory, UTAUT, and from the relevant literature (Marchewka *et al.*, 2007). The measurement by Marchewka *et al.* (2007) used seven-point self-rating scale with reported reliability at 0.836. Four items were developed for this construct. The items under this construct are included in Table 5.5.

Table 5.5
Performance Expectancy

ITEMS	CODE
Saya dapat menggunakan www.ptsscoop.com.my adalah berguna. (<i>I find using www.ptsscoop.com.my is useful</i>)	PE1.
Menggunakan www.ptsscoop.com.my membolehkan saya membeli belah dengan lebih pantas. (<i>Using www.ptsscoop.com.my can help me in shopping more quickly.</i>)	PE2.
Menggunakan www.ptsscoop.com.my boleh meningkatkan kecekapan saya dalam membeli belah. (<i>Using www.ptsscoop.com.my can increase the effectiveness in shopping.</i>)	PE3.
Jika saya menggunakan www.ptsscoop.com.my, saya dapat meningkatkan peluang saya untuk mendapatkan urusniaga yang lebih baik. (<i>If I use www.ptsscoop.com.m, I will increase my chances to get a better deal.</i>)	PE4.

5.2.3.2 EE Dimension

For the EE construct, a total of five items were constructed. All items were adapted from Venkatesh *et al.* (2003) and were supported by Marchewka *et al.* (2007). The measurement by Marchewka *et al.* (2007) used seven-point self-rating scale with reported reliability at 0.892. The items under this construct are included in Table 5.6.

Table 5.6
Effort expectancy

ITEMS	CODE
Interaksi saya dengan www.ptsscoop.com.my adalah jelas dan difahami. (<i>My interaction with www.ptsscoop.com.my is clear and understandable.</i>)	EE1.
Adalah mudah bagi saya menjadi mahir apabila menggunakan www.ptsscoop.com.my. (<i>It would be easy for me to become skillful at using www.ptsscoop.com.my.</i>)	EE2.
Saya dapati www.ptsscoop.com.my adalah senang digunakan. (<i>I find www.ptsscoop.com.my is easy to use.</i>)	EE3.
Belajar menggunakan www.ptsscoop.com.my adalah mudah bagi saya. (<i>Learning to operate www.ptsscoop.com.my is easy to me.</i>)	EE4.

5.2.3.4 Social Influence Dimension

SI construct was made up of four items adapted from original UTAUT, supported by other research. The measurement by Marchewka *et al.* (2007) used seven-point self-rating scale with reported reliability at 0.770. The items under this construct are included in Table 5.7.

Table 5.7
Social Influence

ITEM	CODE
Mereka yang mempengaruhi sikap saya, merasakan saya harus menggunakan www.ptsscoop.com.my. (<i>People who influence my behaviour think that I should use www.ptsscoop.com.my.</i>)	SI1
Mereka yang penting kepada saya, merasakan saya harus menggunakan www.ptsscoop.com.my. (<i>People who are important to me think that I should use www.ptsscoop.com.my.</i>)	SI2
Pengurusan laman web membantu dalam menggunakan www.ptsscoop.com.my (<i>Web site management has been helpful in the use of www.ptsscoop.com.my</i>)	SI3
Secara umumnya, politeknik menyokong penggunaan www.ptsscoop.com.my. (<i>In general, polytechnic supports the use of www.ptsscoop.com.my.</i>)	SI4

5.2.3.5 Facilitating Condition Dimension

The six items under FC dimension were adapted from the original UTAUT and were supported by other researchers. The items under this construct are included in Table 5.8.

Table 5.8
Facilitating Condition

ITEM	CODE
Saya mempunyai sumber untuk menggunakan www.ptsscoop.com.my. (<i>I have the resources to use www.ptsscoop.com.my.</i>)	FC1.
Saya mempunyai pengetahuan untuk menggunakan www.ptsscoop.com.my. (<i>I have the knowledge to use www.ptsscoop.com.my.</i>)	FC2.
Web www.ptsscoop.com.my adalah TIDAK serasi dengan laman web lain yang pernah saya gunakan. (<i>www.ptsscoop.com.my website is not compatible with others that I use.</i>)	FC3.
Bantuan orang tertentu disediakan jika ada masalah dalam menggunakan www.ptsscoop.com.my. (<i>Specified support person is available in case of difficulty when using www.ptsscoop.com.my</i>)	FC4.

5.2.3.6 Internet anxiety dimension

Four items under Internet anxiety dimension were adapted from Thatcher *et al.* (2007) and were supported by Yao and Liao (2011). The measurement by Thatcher *et al.* (2007) used seven-point self-rating scale with reported composite reliability at 0.74. The items under this construct are included in Table 5.9.

Table 5.9
Internet anxiety

ITEM	CODE
Saya rasa khuatir apabila menggunakan Internet. (<i>I feel apprehensive when I use the Internet.</i>)	ANXi1
Ia menakutkan saya jika saya menyebabkan sebahagian besar maklumat hilang apabila menggunakan Internet jika saya menekan butang yang salah. (<i>It scares me to think that I could lose a large amount of information using internet by hitting the wrong key.</i>)	ANXi2
Internet agak menakutkan saya. (<i>The internet is somewhat intimidating to me.</i>)	ANXi3
Saya teragak-agak untuk menggunakan internet kerana takut membuat kesilapan yang tidak dapat diperbetulkan. (<i>I hesitate to use Internet in fear of making mistakes that cannot be undone.</i>)	ANXi4

5.2.3.7 Computer anxiety dimension

Four items under computer anxiety dimension were adapted from Thatcher *et al.* (2007) and supported by Yao and Liao (2011). The measurement by Thatcher *et al.* (2007) used seven-point self-rating scale with reported composite reliability at 0.82.

The items under this construct are contained in Table 5.10.

Table 5.10
Computer anxiety

ITEM	CODE
Saya rasa khuatir apabila menggunakan komputer. (<i>I feel apprehensive when I use the computer.</i>)	ANXc1.
Ia menakutkan saya jika saya menyebabkan sebahagian besar maklumat hilang apabila menggunakan komputer jika saya menekan butang yang salah. (<i>It scares me to think that I could lose a large amount of information using computer by hitting the wrong key.</i>)	ANXc2
Komputer agak menakutkan saya. (<i>The computers are somewhat intimidating to me.</i>)	ANXc3
Saya teragak-agak untuk menggunakan komputer kerana takut membuat kesilapan yang tidak dapat diperbetulkan. (<i>I hesitate to use computer in fear of making mistakes that cannot be undone.</i>)	ANXc4

5.2.3.8 Online shopping anxiety dimension

Four items under online shopping anxiety dimension were adapted from internet anxiety scale by Thatcher *et al.* (2007) and were changed to internet shopping anxiety by Yao and Liao (2011). The measurement by Yao and Liao (2011) reported reliability was at 0.797. The items under this construct are included in Table 5.11.

Table 5.11
Online shopping anxiety

ITEM	CODE
Saya berasa khuatir apabila menggunakan www.ptsscoop.com.my. (<i>I feel apprehensive when using www.ptsscoop.com.my</i>)	ANXs1
Ia menakutkan saya jika saya menyebabkan sebahagian besar maklumat hilang apabila menggunakan www.ptsscoop.com.my jika saya menekan butang yang salah. (<i>It scares me to think that I could lose a large amount of information using www.ptsscoop.com.my by hitting the wrong key.</i>)	ANXs2
Web www.ptsscoop.com.my agak menakutkan saya. (<i>The www.ptsscoop.com.my web is somewhat intimidating to me.</i>)	ANXs3
Saya teragak-agak untuk menggunakan www.ptsscoop.com.my kerana takut membuat kesilapan yang tidak dapat diperbetulkan (<i>I hesitated to use www.ptsscoop.com.my in fear of making mistakes that cannot be undone.</i>)	ANXs4

5.2.3.9 Internet self-efficacy dimension

Eight items under Internet self-efficacy dimension were adapted from Hsu and Chiu (2004). The measurement by Hsu and Chiu (2004) reported reliability was at 0.70. The items under this construct are included in Table 5.12.

Table 5.12
Internet self-efficacy

ITEM	CODE
Saya berasa yakin melayari laman web dengan memasukkan alamat laman web. (<i>I feel confident visiting a web site by entering its address (URL) in the browser.</i>)	SEi1
Saya berasa yakin mengemudi ke laman web tanpa hilang arah di ruang siber. (<i>I feel confident navigating to web page without being lost in cyberspace.</i>)	SEi2
Saya berasa yakin mencari maklumat melalui enjin pencarian. (<i>I feel confident finding information using the search engine.</i>)	SEi3
Saya berasa yakin mencari maklumat dengan menggunakan direktori web atau portal. (<i>I feel confident finding information by using web directory or portal.</i>)	SEi4
Saya berasa yakin akan menerima e-mel yang dihantar kepada saya. (<i>I feel confident that I will receive e-mail messages that are sent to me.</i>)	SEi5
Saya berasa yakin e-mel yang saya hantar akan diterima. (<i>I feel confident that the e-mail I send will be delivered.</i>)	SEi6
Saya berasa yakin melampirkan fail dalam mesej e-mel. (<i>I feel confident attaching file in e-mail message.</i>)	SEi7
Saya berasa yakin dalam memuat turun fail dan perisian. (<i>I feel confident in downloading files and softwares.</i>)	SEi8
Saya berasa yakin dengan sambungan internet melalui jalurlebar, rangkaian dan sebagainya. (<i>I feel confident connecting to the Internet through broadband, network etc.</i>)	SEi9
Saya berasa yakin dalam mencari maklumat dengan menggunakan internet bagi mencari barang yang saya hendak beli. (<i>I feel confident finding information about things I want to buy using the Internet.</i>)	SEi10

5.2.3.10 Computer self-efficacy dimension

Five items under computer self-efficacy dimension were adapted from other research (Durndell & Haag, 2002; Fagan *et al.*, 2004). Considering the similarity on the items between those researchers, the items under this construct were included in Table 5.13.

Table 5.13
Computer self-efficacy

ITEM	CODE
Saya berasa yakin dalam membuka program/perisian untuk dilihat dalam paparan monitor. (<i>I feel confident in opening programs/softwares to display them on the monitor screen.</i>)	SEc1
Saya berasa yakin memasukkan dan menyimpan data kedalam fail. (<i>I feel confident entering and saving data into a file.</i>)	SEc2
Saya berasa yakin bila berkerja dengan menggunakan komputer. (<i>I feel confident working with computer</i>)	SEc3
Saya berasa yakin menggunakan pencetak untuk membuat salinan keras. (<i>I feel confident using a printer to make a hardcopy.</i>)	SEc4
Saya berasa yakin untuk keluar dari sistem program/perisian. (<i>I feel confident exiting from programs/softwares system.</i>)	SEc5

5.2.3.11 Online shopping self-efficacy dimension

Items under online shopping self-efficacy dimensions were adapted from other research. Hsu and Chiu (2004) have developed eleven items measure of web specific self-efficacy. A major limitation of their scale is that it did not incorporate items measuring in online shopping context. Items from Hill and Beatty (2011) were new but the factor loading for the items were more than 0.74. Their items were also included. Considering the limitations, online shopping self-efficacy dimension was adapted also from Hsu and Chiu (2004). The items under this construct are included in Table 5.14.

Table 5.14
Online shopping self-efficacy

ITEM	CODE
Saya berasa yakin melakukan pembelian atas talian melalui www.ptsscoop.com.my . (<i>I feel confident completing the task of online shopping through www.ptsscoop.com.my</i>)	SEs1
Saya berasa yakin dengan sambungan internet ke www.ptsscoop.com.my melalui jalurlebar, rangkaian dan sebagainya. (<i>I feel confident connecting to www.ptsscoop.com.my through broadband, network etc.</i>)	SEs2
Saya berasa yakin melawati www.ptsscoop.com.my dengan menaip alamat (URL) dalam pelayar. (<i>I feel confident visiting www.ptsscoop.com.my by entering its address (URL) in the browser.</i>)	SEs3
Saya berasa yakin mengemudi www.ptsscoop.com.my dengan mengikut hiperpautan. (<i>I feel confident navigating www.ptsscoop.com.my by following hyperlinks.</i>)	SEs4
Saya berasa yakin mencari maklumat mengenai www.ptsscoop.com.my dengan menggunakan enjin pencarian. (<i>I feel confident finding information about www.ptsscoop.com.my by using a search engine.</i>)	SEs5
Saya berasa yakin dalam mencari maklumat tentang produk/perkhidmatan di www.ptsscoop.com.my . (<i>I feel confident finding information about the product/services in www.ptsscoop.com.my.</i>)	SEs6
Saya berasa yakin dalam melengkapkan borang “REGISTER” di http://www.ptsscoop.com.my/register.html . (<i>I feel confident completing the “REGISTER” form through http://www.ptsscoop.com.my/register.html</i>)	SEs7
Saya berasa yakin akan menerima pengesahan e mail mengenai pendaftaran “REGISTER” saya dari www.ptsscoop.com.my . (<i>I feel confident receiving an e-mail regarding account “REGISTER” from www.ptsscoop.com.my.</i>)	SEs8
Saya berasa yakin apabila saya log masuk ke http://www.ptsscoop.com.my/signin.html . (<i>I feel confident when I “SIGN IN” into http://www.ptsscoop.com.my/signin.html.</i>)	SEs9

5.2.3.12 Behavioural Intention

Items under BI were constructed from the theory, UTAUT. Five items were developed from this construct. The measurement by Marchewka *et al.* (2007) used seven-point self-rating scale with reported reliability at 0.990. The items under this construct are included in Table 5.15.

Table 5.15
Behavioural Intention

ITEM	CODE
Saya bercadang untuk menggunakan www.ptsscoop.com.my pada masa akan datang untuk membeli barang. (<i>I intend to use www.ptsscoop.com.my in the future to buy product.</i>)	Bi1.
Saya meramalkan bahawa saya akan menggunakan www.ptsscoop.com.my pada masa akan datang untuk membeli barang. (<i>I predict that I would use www.ptsscoop.com.my in the future to buy product.</i>)	Bi2.
Saya meramalkan bahawa saya akan menggunakan www.ptsscoop.com.my pada masa akan datang untuk mencari barang. (<i>I predict that I would use www.ptsscoop.com.my in the future to search product.</i>)	Bi3.
Saya meramalkan bahawa saya akan menggunakan www.ptsscoop.com.my pada masa akan datang untuk membandingkan barang. (<i>I predict that I would use www.ptsscoop.com.my in the future to compare product.</i>)	Bi4.

5.2.3.13 Use Behaviour

Items under Use Behaviour were constructed from Amoroso and Hunsinger (2009) and the theory, UTAUT. Six items are developed for this construct. The items under this construct are included in Table 5.16.

Table 5.16
Use Behaviour

ITEM	CODE
Saya berharap untuk menggunakan www.ptsscoop.com.my bagi tujuan membeli belah dalam talian dapat diteruskan pada masa depan. (<i>I expect the use of www.ptsscoop.com.my for online shopping to continue in the future.</i>)	BA1
Saya akan mempertimbangkan untuk membeli dari www.ptsscoop.com.my dalam jangka pendek. (<i>I would consider purchasing from www.ptsscoop.com.my in the short term.</i>)	BA2
Saya akan mempertimbangkan untuk membeli dari www.ptsscoop.com.my dalam jangka panjang (<i>I would consider purchasing from www.ptsscoop.com.my in the long term.</i>)	BA3
Saya akan kembali ke www.ptsscoop.com.my yang barangannya saya telah beli. (<i>I would return to www.ptsscoop.com.my that I have purchased from.</i>)	BA4
Saya bercadang untuk membeli produk atau perkhidmatan dari www.ptsscoop.com.my (<i>I plan to purchase from www.ptsscoop.com.my for products or services.</i>)	BA5
Secara umumnya, saya akan membeli dalam talian dan bukannya ke kedai fizikal. (<i>In general, I would buy online rather than going to a physical store.</i>)	BA6

5.2.3.14 Demographic Profile

Nine items were used to explain the demographic profile of respondents. Table 5.17 shows variable dimensions and source of items.

Table 5.17

Variables and sources

No.	Variable Dimensions	Sources
1	Performance Expectancy	Venkatesh et al. (2003).
2	Effort Expectancy	Venkatesh et al. (2003).
3	Social Influence	Venkatesh et al. (2003)
4	Facilitating Conditions	Venkatesh et al. (2003)
5	Behavioural Intention	Venkatesh et al. (2003)
6	Use Behaviour	Venkatesh et al. (2003); Amoroso and Hunsinger (2009)
7	Education Programme	Self-Develop (demographic)
8	Internet anxiety	Thatcher et al. (2007); Yao and Liao (2011)
9	Computer anxiety	Thatcher et al. (2007); Yao and Liao (2011)
10	Online shopping anxiety	Thatcher et al. (2007); Yao and Liao (2011)
11	Internet self- Efficacy	Hsu and Chiu (2004).
12	Computer self-efficacy	Durndell and Haag (2002); Fagan et al. (2004)
13	Online shopping self-efficacy	Hill and Beatty (2011)

All the items were modified to make them relevant to the e-retail context. The items were further adjusted to make their wording as precise as possible. The data set was coded and saved into the statistical package.

5.2.4 Validity of instrument

The items for all constructs were obtained from extensive literature review so that the questions appear to be measuring the construct and rely on knowledge of the way people respond to the items. The translation from English to Malay Language was made twice by an English senior lecturer in a polytechnic and an English teacher from a school.

5.2.5 Reliability Assessment

Several statistical reliability tests and analysis were further conducted such as reliability. A survey instrument should have a certain degree of reliability. Cronbach's coefficient alpha has been considered for testing reliability of research variables so the pilot test was conducted.

5.2.6 Pilot test

Pilot study was conducted to detect any possible problems associated with the format, wording, question ambiguity and measurement scale so that respondents understood the instructions, questions and scales. It was conducted to refine the test instrument.

As for pilot survey, 150 questionnaires were distributed in Politeknik Tuanku Syed Sirajuddin and 135 of them were returned. 129 of them were usable, while six were returned blank or incomplete. Five respondents in this sample were asked to provide comments on the relevance and wording of the questionnaire items, length of the survey and time taken to answer it. Based on the feedback, the questionnaire was modified and reworded.

Reliability test using Cronbach's Alpha was conducted to measure the inter reliability. In this survey, the Cronbach's Alpha ranged from 0.7 to 0.9. According to reliability, coefficient 0.6 or higher is acceptable (Sekaran & Bougie, 2010). The variables that were tested included Performance Expectancy (0.898), Effort Expectancy (0.875), Social Influence (0.881), Facilitating Conditions (0.895), Internet Anxiety (0.837), Computer Anxiety (0.904), Online Shopping Anxiety (0.889), Online Shopping Self Efficacy (0.915), Internet Self Efficacy (0.905), Computer Self Efficacy (0.899), Buying Intention (0.768) and Use Behaviour (0.826). Finally, the questionnaire was

14 pages long, consisting of 52 questions in section A, 10 questions in section B and 9 questions on demographic.

5.2.7 Technique of Data analysis

In order to identify data entry errors, data screening has been done which includes missing data, outlier, normality, linearity and multicollinearity. Data screening was done to identify data entry errors and examine how appropriately data meet the statistical assumptions which involve Missing data and treatment of Outlier, Response bias, Normality, Multicollinearity, Factor Analysis and Reliability. The data were then analysed by using SPSS.

Frequency distribution of the respondents has been carried out according to related questions. To test the hypotheses of this study, Pearson correlation analysis and regression was used. The analysis was able to examine the relationship between independent variables and online shopping. Hierarchical regression model was also applied to test the effect of moderator. Baron and Kenny (1986) approach was utilised in order to examine the gender moderating effect. The data analysis techniques used are depicted in Table 5.18.

Table 5.18

The data analysis techniques used in the research

Research Objectives	Analysis Technique
To measure the acceptance of the polytechnic co-operative e-retail website through the use of modified UTAUT. The sub objectives are: a. To determine the significant influence between Education Programme, self-efficacy and anxiety in measuring student's Behavioural Intention to acceptance on online shopping of the polytechnic co-operative e-retail website. b. To examine the moderating effects of gender on the relationship between determinants of student's Behavioural Intention on online shopping of the polytechnic co-operative website.	Pearson correlation analysis Multiple Regression Hierarchical regression

5.3 Summary

The present chapter outlines the methodology used in this research which is based on both qualitative and quantitative approaches. The qualitative approach is to develop the process model of the polytechnic e-retail website. It deals with case study and participation observation technique, data collection technique, role of researcher, validity, reliability and SDLC methodology in web design. On the other hand, the quantitative approach is an empirical study to validate the extended UTAUT on the polytechnic e-retail website. Data collection included a discussion on the population, sample size, instrument design, validity, reliability and the statistical technique used for analysing data. Lastly, a pilot study was completed as part of scale development to detect any possible problems associated to the format, wording and measurement.

CHAPTER SIX

RESEARCH FINDINGS

6.0 Introduction

This chapter describes the web design process model presented in the case study of the polytechnic co-operative e-retail website by using Content Management Software (CMS) package solution. As a participant observer, the researcher demonstrated all processes in the managerial, financial, training, basic concept of online shopping, web design, web usability and web deployment. The models clearly specify all the entities involved such as co-operative, web hosting, buyers, webmaster and explaining on how the processes work. Going through all the activities, and tasks based on Figure 5.2 lead to the proposition of the design process model and the co-operative polytechnic website.

This chapter also discusses on findings for the second phase of this research. From the theoretical framework and hypotheses development, the analysis starts with the characteristics of the respondents. All the data collected were then screened. Next, the validity of measures was analysed using factor analysis and the internal consistency procedure of reliability analysis, correlation estimation, convergent validity analysis, and discriminant validity. It was followed by confirmatory factor analysis (CFA) and SPSS. The results of the hypotheses were presented in the conclusion section.

6.1 The process model

As discussed earlier (in Chapter 5), this process model was a pioneer work project from design research methodology that seeks to show how the process model development of the polytechnic co-operative online shopping website. It was derived from Haag *et al.*(2004), Kiatruangkrai *et al.* (2010) and Goi (2007a). The research was based on the case study through participant observation technique. According to Palsson (2007), experienced from the participant observation can be reported regarding the field research. The case study was conducted through the activities and tasks that were mentioned in Figure 5.3. Several issues and processes were taken into consideration. When entering the field in participant observation, the researcher was operated as a webmaster in most cases.

6.1.1 Planning and Requirement

Planning and management in the process development in this research involved several issues such as managerial, financial and human resources decisions. The objectives of planning and requirement are to get an approval from the board of co-operative, to allocate financial allocation and identify human resource.

6.1.1.1 Managerial Decisions

In gaining access to the co-operative, seeking the permission and support of the co-operative is a must. The board of co-operative was approached and briefed about the project. Appendix C shows supported document which is the letter of request to carry out the case study. According to co-operative by law, any new business project must be presented to the board of co-operative meeting for approval. The presentation on

the project was on the 3rd of March 2012. According to Cooperative By-Law Book section 27 Board of Co-operative Agenda,

“(e) To study, discuss and verdict a project proposal for Co-operative”

and Cooperative By-Law Book section 39 Board of Co-operative Meeting (5),

“(5) The Board may invite any person to attend a meeting-

(a) to give an advice relating to any agenda discussed;
(b) the so-called invited person shall not be eligible to put any vote; and
(c) the so-called invited person may be paid an allowance or any expenditure subjected to the Board's decision.”

According to Palsson (2007), it is important to gain trust and clearly explain the intentions of the studies of the group being researched. The researcher has to go through a presentation to the board of co-operative in order to clarify several issues and problems on this project and it is essential to gain trust. During the 42 minutes presentation (video recorded), the researcher emphasised on the reason why co-operative should venture in online business, process work, comparison with a few web hosting, cost and the basic design. Figure 6.1 shows the researcher's presentation during the meeting.



Figure 6. 1 Proposal Presentation to Board of Co-operative

This pioneer project got an approval from the board of co-operative meeting on the 3rd March 2012 as shown in the letter of approval in Appendix D.

6.1.1.2 Financial Decisions

Financial issue entails budget. Among the discussion with the board of co-operative was the budget. The board of co-operative had decided to allocate budget for this case study based on the fund of the special project. The fund was created from the previous account ended on 31st June 2011. (*Laporan Mesyuarat Agung Tahunan kali ke 7, 2011*). Table 6. 1 explains the estimated expenses:

Table 6. 1
Estimated expenses allocation

Items	Estimated cost
Easy.my Online Shop Silver Plan	RM799 a year
Payment Gateway	RM189.00 one off
Domain registration	RM106.00 2 years

Since co-operative is using the current employee, expenses on wages/salary for these project is excluded. No allowance or salary was paid for participant observer. Computers' expenses and TM Streamyx setup had been absorbed because computer and internet service were provided for the co-operative under the TUKAR programme.

6.1.1.3 Human resource allocation and training decisions

Human resource and training were discussed in the board of co-operative meeting. A current employee (Manager) was trained on managing the new job task. A one-days training was conducted for Manager to enhance an understanding on the workflow of online shopping among co-operative team. The researcher also underwent a two-days training at Exabytes Network Sdn. Bhd. in Penang. The task of doing packaging and posting were delegated to the co-operative manager.

6.1.2 Development

The development involves several issues such as identifying web hosting, registering domain and applying CMS design. CMS provides a cost-effective platform for web engineering during the development process (Souer, Urlings, *et al.*, 2011). The objectives of development are to identify the selection of packages available and comparing the packages in order for possible artefact outcome.

6.1.2.1 The search for a content management system (CMS)

Each CMS in the webhosting has its own advantage and disadvantage depending on an organisational requirement such as technical, infrastructure and function (Souer, Urlings, *et al.*, 2011). As a webmaster, the researcher has to identify a web hosting provider. There are webhosting service providers that provide online shopping platforms based in Malaysia such as www.netbuilder.com.my, webserver.com.my, lelong.my, exabytes.com.my and others. Due to time limitation, the researcher made comparison with three webhosting companies. Again, it was presented to Board of cooperative. Table 6.2 shows the summary of the three platforms.

Table 6. 2
The summary of webhosting (CMS) requirements

Requirements		Webhosting		
		Lelong.my (Platform A)	Exabytes.com.my CMS- osCommerce (Platform B)	Easy.my CMS (Platform C)
Domain name	www.lelong.com.my/merchant/cooppoly.htm	www.pkksabah.net/edagang		www.ptsscoop.com.my
Package	Lelong.my Web Store	Small Business web hosting LINUX		e-Commerce hosting
Domain e-mail	Not available	Available-Unlimited		Available 3 email account 3GB e mail storage 500 Products 250 Catagories
Product List	-	Unlimited		RM799 with payment gateway setup. 3% per transaction
Pricing	RM298 with payment gateway setup. 2% per transaction Internet Banking. 3.5% credit card	RM239 without payment gateway setup		RM298 with payment gateway setup. 3% per transaction
Advantage	Integration shopping chart payment gateway fully supported Free template design	Not limited on e-commerce purpose only Many options on CMS e commerce		Facebook like built-in Facebook page integration Facebook login Skype button Message box
				Integration shopping chart payment gateway fully supported. Mobile support
Disadvantages	Limited on e-commerce purpose only. Unattractive display No FB integration Domain name under lelong No mobile support	Have to integrate shopping chart. Have to integrate payment gateway.		Free template design Limited on e-commerce purpose only.
Training	Free Training (Puchong)	No Training		Free training (Penang)

Through literature, other CMS for e-commerce such as PrestaShop and LiveZilla show lack of real time communication features and inconvenience to those who lack of web programming knowledge (Kiatruangkrai *et al.*, 2010).

The researcher has tested developing online shopping web by using the three platforms mentioned above. There are numbers of pre-loaded online shopping CMS package at webhosting services such as Zen Cart, Magento, Freeway, osCommerce, phpShop and more (Figure 6.2). Figure 6.3 shows an example of e-retail web interface that was installed by using osCommerce (Platform B). For comparison purposes, the researcher managed to install osCommerce in web domain www.pkksabah.net/edagang as shown in Figure 6.2, Figure 6.3 and Figure 6.4. Although platform B was a lot cheaper than platform A and C, it needed quite an understanding in technical issues such as the knowledge on how to use the control panel and how to install the pre-loaded e-commerce package. Furthermore, platform B did not provide training. Therefore, platform B was rejected.

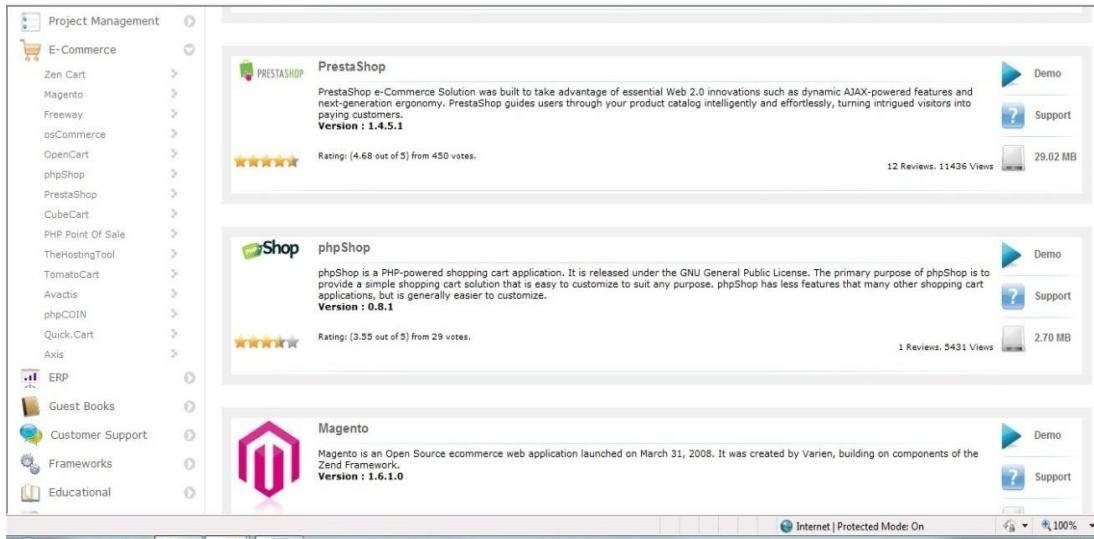


Figure 6. 2 Screenshot of preloaded online shopping CMS.

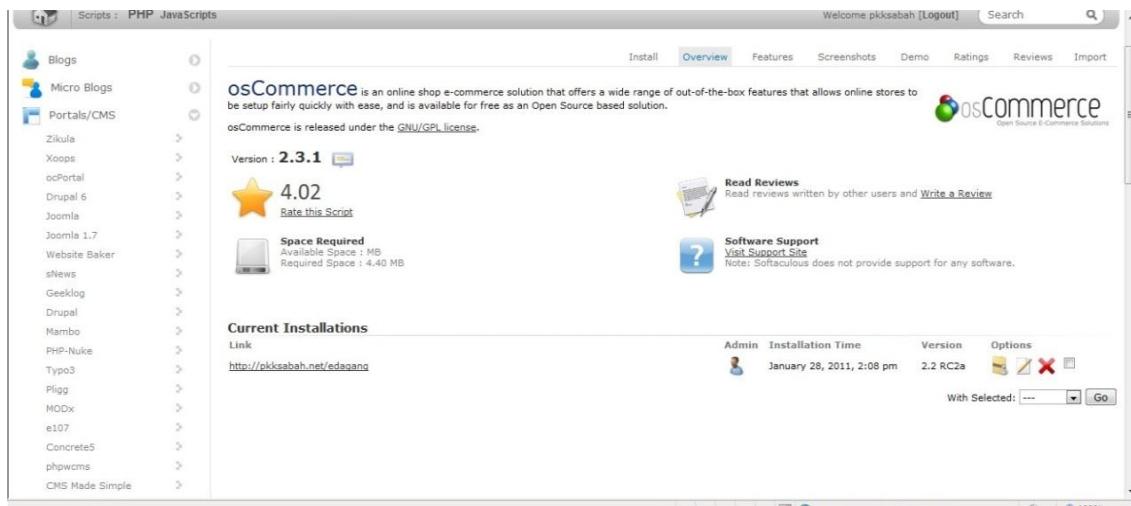


Figure 6. 3 Screenshot of osCommerce CMS website platform.

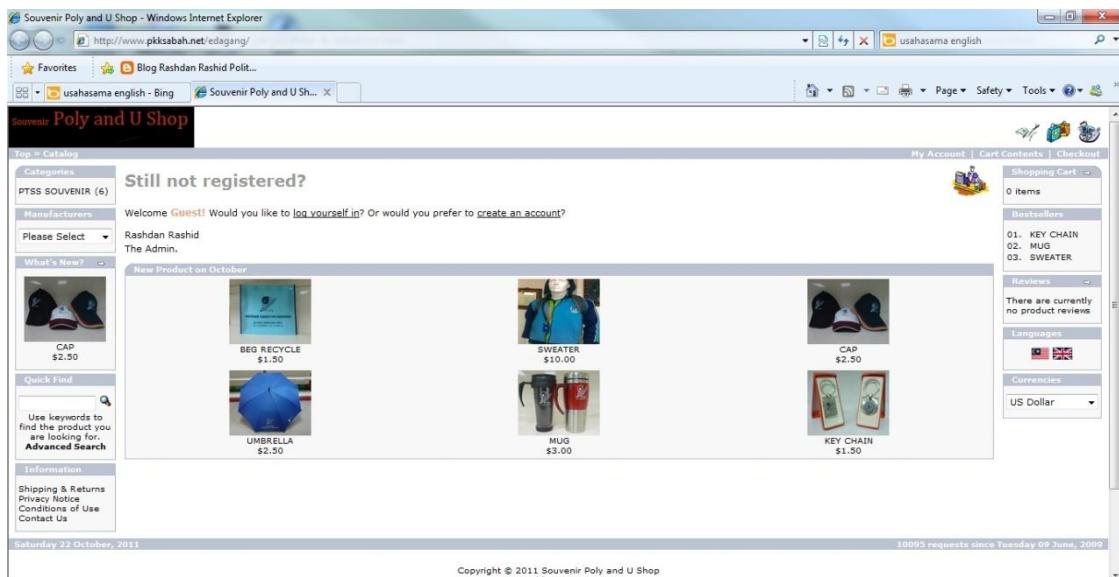


Figure 6. 4 Screenshot of e-commerce web using osCommerce Platform.

The choice was either to select platform A or C. For the purpose of the case study, the board of co-operative and the researcher agreed to select www.easy.my (Platform C). The selection of CMS web application by Exabytes Network Sdn. Bhd. (Figure 6. 5) is because it is easier for the co-operative team to maintain it rather than the osCommerce. Furthermore, it provides hands on training. Exabytes Network Sdn. Bhd was founded in 2001 and easy.my was designed to be a foundation upon which

interoperable web-based e-commerce can be built and can be deployed using web-based technologies.



Figure 6. 5 Screen shot of an online shopping CMS by Exabytes Network Sdn. Bhd.

6.1.2.2 Process of registration for the domain name

After identifying the web hosting provider, co-operative has to subscribe with the services. For e-retail store, it is important to consider the domain for which the system operates (Freeman & Freeman, 2011). Specific domain has positive impact on online shopping behaviour (Moshrefjavadi, Rezaie Dolatabadi, Nourbakhsh, Poursaeedi, & Asadollahi, 2012). The process of subscribing was done online. In this case study project, KPTSSB subscribed and registered the domain name as www.ptsscoop.com.my under the Silver Plan hosting package. The selection of domain name should not be complicated, related to business name or related to services and products (Fogg *et al.*, 2001). The cost of subscribing was RM1094.00. The package plan can be simplified as shown in Table 6. 3.

Table 6. 3
Features of the Silver Plan

No.	Features	Package Silver Plan
1.	Price	RM799
2.	Storage	5GB
3.	Data Transfer	Unlimited
4.	Product Items	500
5.	Product Categories	50
6.	Instant Activation	Yes
7.	Use Own Domain Name	Yes
8.	PayPal Integration	Yes
	Payment Gateway or MOLPay	
9.	Web Page + Sub Page	50
10.	Page Object Per Page	50
11.	Image Uploads	250
eCommerce Management		
1	Shopping Chart	Yes
2	Order Management	Yes
3	Bank Transfer Feature	Yes
Product Management		
1.	Product List	Yes
2.	Single Product Item	Yes
3.	Create Product Custom Field	Yes
Membership Management		
1.	Admin Accounts	5
2.	Members Login	Unlimited
3.	Monthly Transaction	5,000
4.	Membership Management	Yes
Website Template		
1.	Preset Templates	100
2.	Template Gallery	Yes
Website Gadget		
1.	Facebook APP	Yes
2.	Shipping Rates	Yes
3.	MSN Liveschat	Yes
4.	Google Map	Yes
5.	Contact Form	Yes
6.	Related Links	Yes
7.	Stay Connected	Yes

6.1.3 Design

The design involves several issues such as shopping navigation, web interface and product cataloguing. The objectives of design are to produce the prototype website for co-operative e-retail. Online shopping process is designed as easy, simple and convenient as possible (Haque *et al.*, 2006).

6.1.3.1 Basic concept on online shopping navigation

Prior to the design process, understanding on the basic concept of online shopping navigation is important. Increased understanding of the online shopping navigation process would increase customer satisfaction through informing system development (Freeman & Freeman, 2011). In online shopping flow, customer commonly starts ordering product by adding it into a shopping cart. For a new customer, he/she has to fill in personal data such as name, address, e-mail, log in id and password. For returning customer he/she has to sign in through the user id and password which has been registered during the previous visit. After the product has been selected, it is necessary to fill in the type of payment gateway and the delivery address because some purchases are intended to be delivered to the addresses that are different from the registration address. The money is transferred from the customer's account to e-retail business account using electronic payment gateway. The webmaster is notified about the order from customers through e-mail. It is important for the webmaster to regularly check an e-mail to ensure that the e-mail is correct and active. Through the online web application, the webmaster can print out purchase order. The purchase order is delivered to Manager to check for the product availability. Once the product is available, the product is packaged and then couriered. If the product is unavailable, customers will be refunded. However, the system also automatically can check with

the minimum stock available through inventory tracking. The webmaster notifies customers on the delivery date together with the tracking number. Figure 6. 6 shows the basic concept of online shopping process.

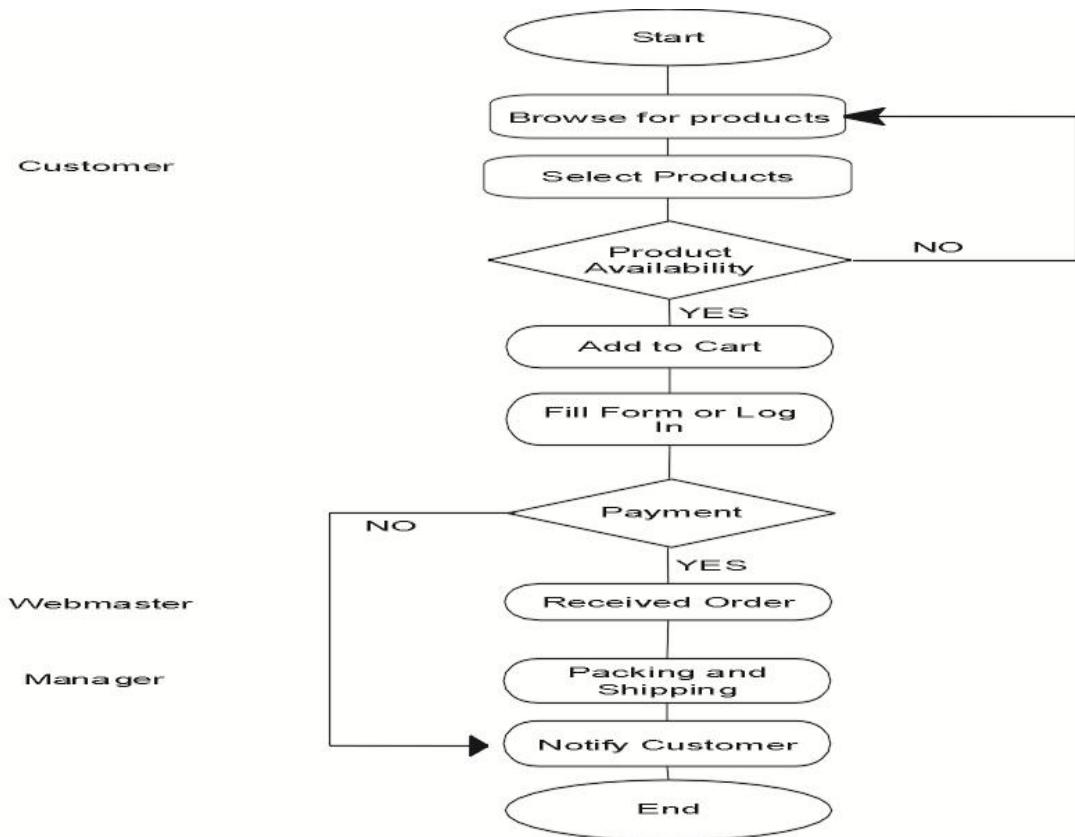


Figure 6. 6 Online shopping navigation

6.1.3.2 Process of designing web interface

In order to understand about CMS Package selection (easy.my), training on this matter was given. It was a two-days free training provided by Exabytes Network Sdn. Bhd. in Penang. This facilitate the process of designing with the guideline proposed by Noorfadzilah, Wan Fatimah and Goh (2010) because having a guideline for

designing a good online shopping website would be beneficial. There are four menus to be filled. Before designing the website, log in an account address at <http://cp.easystore.my/> is needed. Table 6.4 shows the descriptions of menus available.

Table 6. 4
The descriptions of Menus

Menus		Descriptions
Settings	Store details	This is the section on store name, homepage meta keywords and description.
	Store Address	Store allocation that will appear in invoices.
	Accept payments	Enable payment gateway to accept such as credit cards, PayPal, Bank transfer during checkout.
	Shipping rates	Configure the shipping rate and countries shipping rate.
	Tax Rate	Tax rates for the countries
	Checkout	An option of store responds to checkout.
	Customer accounts	Verify customers and compulsory Information
	Notifications	Notifications when order in place.
	E mail Accounts	Manage e-mail.
Design	Theme	Pre design web page theme.
	Layout	Layout design.
	Header	Logo header.
Products	Add Product	Managing product features like price, category, product code, product picture, product weight
	Shipping Rate	Set up shipping rate based on order or based on weight
	Payment gateway	Once time set up for payment gateway
	Currency Setting	Once time set up for currency. Regullary adjusment with currency fluctuation.

Table 6.4 Continued

Menus		Descriptions
Tools	Facebook	Integrate with Google Adwords
	Skype	Integrate with skype.
	Google Analytical	Statistical information on people who have visited the website
	Facebook™ App	Link to Facebook Fan page that can also be created. Facebook store.
Content	Page	Creating new page such as terms and condition, delivery, return and exchange.

The Home Page is the main page in most website. This is the first page been loaded when customer type the particular address link. Using CMS helped webmaster to design web page easily. The setting menu, relevant informations were inserted about the company, company description, contact number and address. An e-mail was also created for managerial and marketing purposes. Three e-mails were created for webmaster (webmaster@ptsscoop.com.my), researcher (rashdan@ptsscoop.com.my) and manager (sales@ptsscoop.com.my). According to Yaping *et al.*, (2009), the information provided on the website through the e-mails sent was the least important factor on online intention but the e-mail account can play an important role in gauging customers' trust and confidence in online business. It is also supported by Irfan (2015).

The next menu is design. This is the process to make the website looks appealing, easy to navigate, well-organized and concise as suggested by Yao and Liao (2011). Most studies to date stressed on appealing features such as seen to be clear, easy to manage, beautiful, well organized and with facilitating features for the transaction (Küster & Vila, 2011). In addition, according to Junaini and Sidi (2007), storefront appearance should be as simple as possible, product image should match with the site theme and style and accurate product catalogue should be available. By using CMS,

the design was selected by webmaster from the provided template design. Even by using template design, some modification was needed to make it more appealing and relevant to co-operative business culture. Multiple design template was provided by the service provider to be chosen.

Tools menu provides integration with Google, Skype, Zopim, WhatsApp, LINE it and Message box. The good website offers online customer service that can offer help, resolve problem immediately and share post which is in line with Yao and Liao (2011). Message box, WhatsApp and Skype Chat were provided that can offer instant help.

A new page was created to explain return policy, delivery, terms and company background clearly as suggested by Irfan (2015). A return policy must be stated clearly to avoid confusion, misunderstanding and unrealistic expectation (Gong & Maddox, 2011). Privacy policy statement, order tracking, guarantee statement and transaction security statement was stated in the page to increase consumer trust (Haque *et al.*, 2006; Yaping *et al.*, 2009). The return policy was stated at the bottom of the homepage. Relevant page links were also provided such as contact, help, how to order, how to pay and shopping guidelines at the top.

The products menu is for managing all the products. This is the menu to add/remove products, set the price, discount, shipping rate, currency setting and payment gateway. Setup menu is for managing the business profile and web profile. Figure 6. 7 shows the flow.

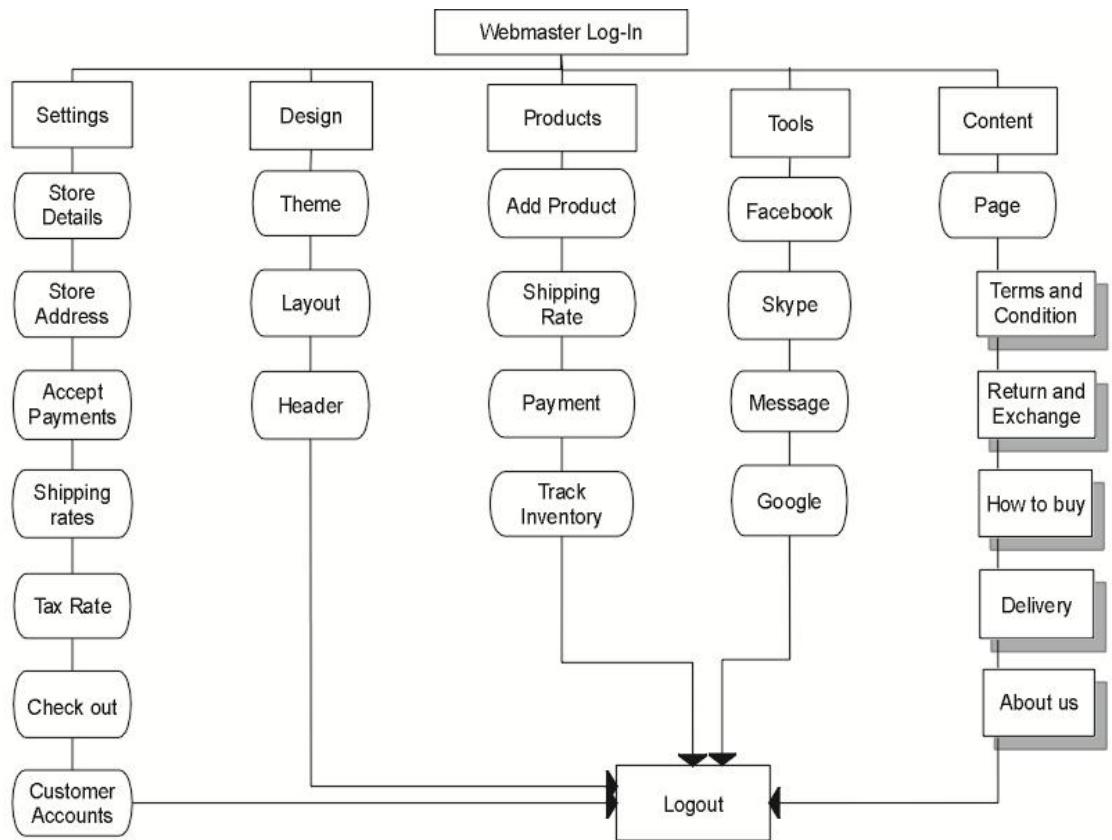


Figure 6. 7 Flow of web design

Webmaster deployed the page design from the design menu. Figure 6.8 shows an example of page design.

The image consists of three vertically stacked screenshots of the easyStore software interface, showing different sections of the platform:

- Top Screenshot:** Shows the 'Tools' section. The sidebar includes 'Dashboard', 'Products', 'Orders', 'Customers', 'Content', 'Design', 'Tools' (selected), 'Settings', 'Reports', and 'Logout'. The main area displays various tools: Sliding Banner, Facebook Page Like Box, Skype Chat, Zopim Live Chat, Sync your website with Facebook Page, Mobile Store, Easy.my Mail, MailChimp, Google Analytics, Timer Discount, Rebate Voucher, Facebook Comment, Google Map, Google Webmaster Tools, QR Code Generator, Sitemaps Generator, and LINE it!.
- Middle Screenshot:** Shows the 'Design' section. The sidebar includes 'Dashboard', 'Products', 'Orders', 'Customers', 'Content', 'Design' (selected), 'Tools', 'Settings', 'Reports', and 'Logout'. The main area shows a preview of a custom homepage layout for 'Kedai Koperasi Politeknik Online'. The layout features a 'COOP' banner at the top, followed by sections for 'UNTUK MENANG !!!', 'Categories', 'Special Deal', 'MOLPay', 'Best Seller', and social media links for Facebook, Google Map, and Skype.
- Bottom Screenshot:** Shows the 'Setting' section. The sidebar includes 'Dashboard', 'Products', 'Orders', 'Customers', 'Content', 'Design', 'Tools', 'Settings' (selected), 'Reports', and 'Logout'. The main area is divided into several sections:
 - Store details:** Fields for 'Store name' (Kedai Koperasi Politeknik Online), 'Homepage meta description' (This is a case study online shop run by Tuanku Syed Sirajuddin Co-operative Polytechnic. It is established to study consumer acceptance of technology based on UTAUT Theory. Kedai Koperasi Online Politeknik ini adalah kajian kes yang diluraskan oleh Koperasi Politeknik Tuanku Syed Sirajuddin. Ia dibina bagi mengilangkau penerimaan pelanggan terhadap teknologi berdasarkan teori UTAUT.), and 'Homepage meta keywords' (Polytechnic, Co-operative, Perlis, Online shopping, first in Malaysia Kedai Koperasi Online, Politeknik).
 - Store address:** Address: 8/1 Tuanku Syed Sirajuddin Polytechnic, Pusat Bandar, 20000 ARAU, Perlis. Buttons: 'Save changes'.
 - Accept payments:** Options: Cash Deposit / Bank Transfer, PayPal Website Standard, MOLPay, and Malaysian Ringgit (MYR).
 - Shipping rates:** Options: Rest of World (Worldwide), Malaysia (Countrywide), and Rest of Malaysia (Malaysia).

Figure 6. 8 Screenshots of Page Design

6.1.3.3 Product cataloguing management.

For an easy accessibility and management of product online, product catalogue was organized based on categories. Figure 6.9 shows few examples in cataloguing such as souvenirs, hamper sample, computer gadgets, books, groceries, wellness and beauty, sports and leisure, homestay and home appliances. The categorisation of product is based on the idea that user are likely to have experience with buying products in a traditional store whereby user commonly transferring conventional experience to the online domain (Freeman & Freeman, 2011).

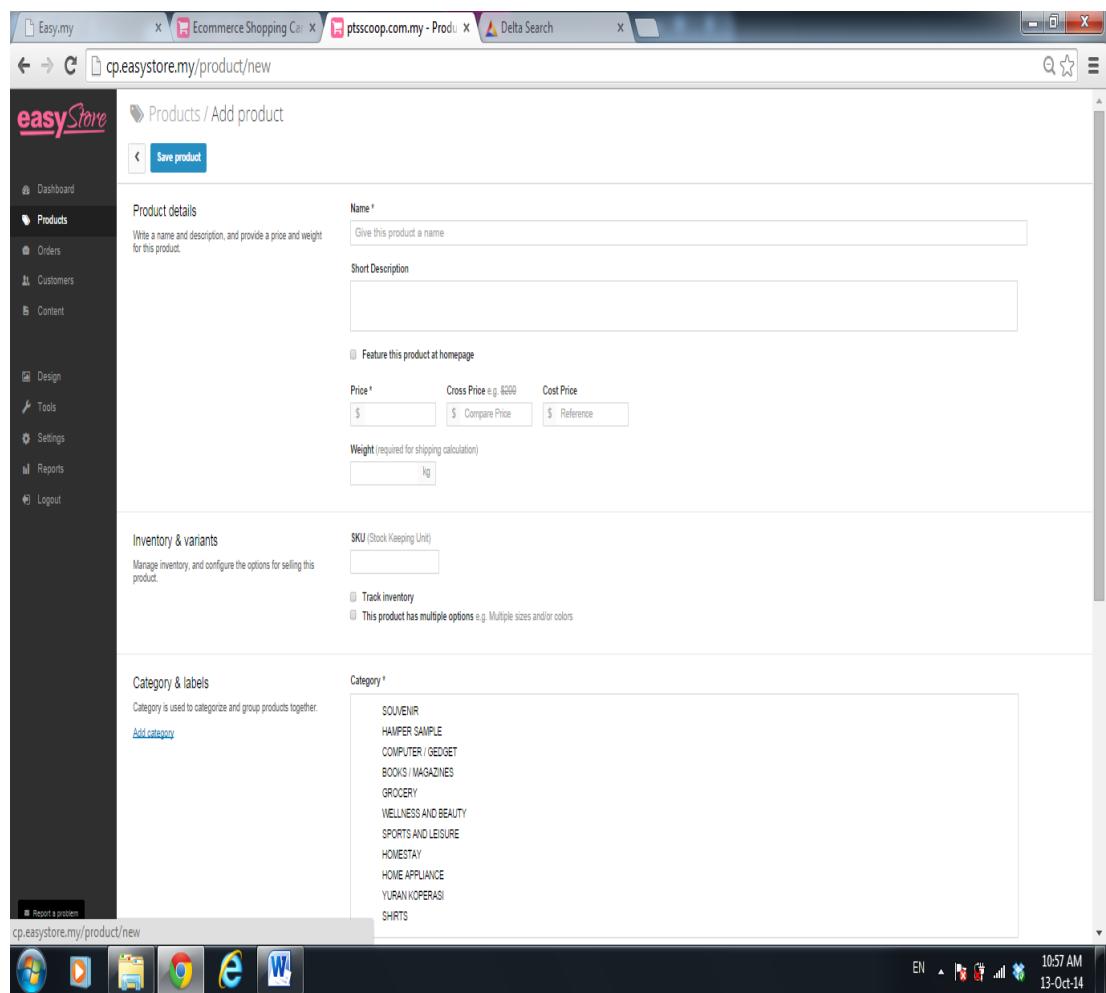


Figure 6.9 Screenshots of product categories

After setting up the categories, the process of filling in the products particular took place. Figure 6.10 illustrates the navigation flow of www.ptsscoop.com.my in the process of product cataloguing.

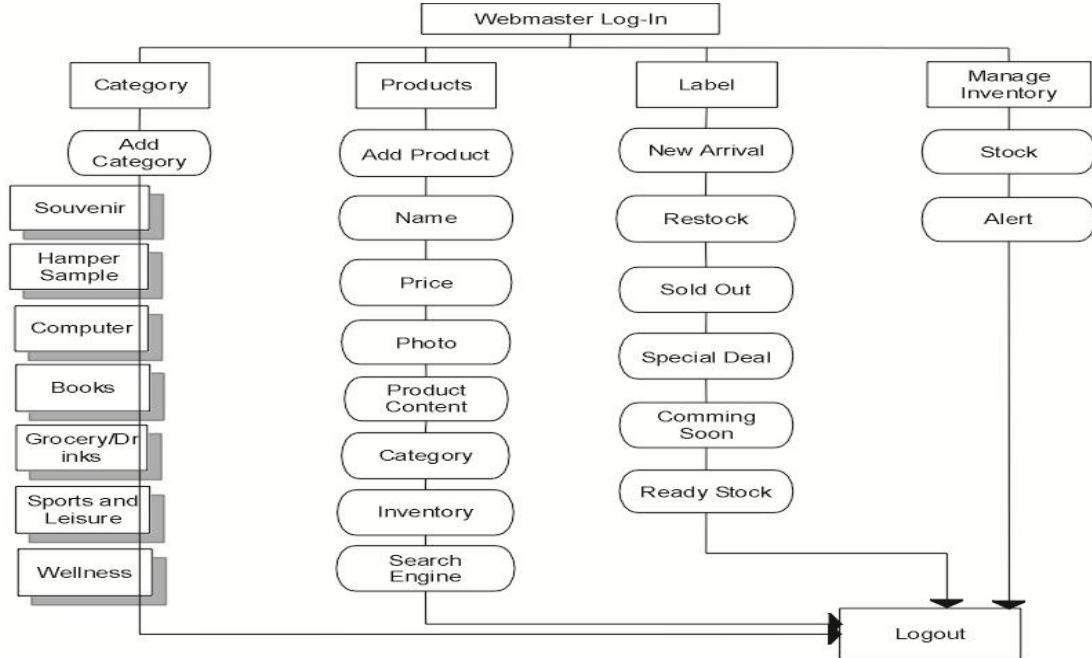


Figure 6. 10 Process flow of product cataloguing in CMS package selection

The process of filling product particulars was also done by manager who has been appointed as the admin user with particular roles. Providing more information on the products may impact purchase intention (Küster & Vila, 2011; Yaping *et al.*, 2009). The product image was captured using iPhone 4 with the original dimension of 1936 x 2592 megapixle which was then edited to 800 x 598 megapixle. White background was mostly used for the image. According to Yaping *et al.*, (2009), price promotion has less impact on consumers shopping online so price was fixed. Webmaster filled in the product particulars, the CMS automatically formed it into a particular web design page. This page also provides search function (using the in-built search facility) for locating product on the screen. The purpose of search function is to create a list of products that helps the user to locate the specific products. It is located prominently on the home page, display in product list, able to be selected and display

in a logical order. This is in line with suggestion by Freeman and Freeman (2011).

Figure 6. 11 shows the end design of product page section.

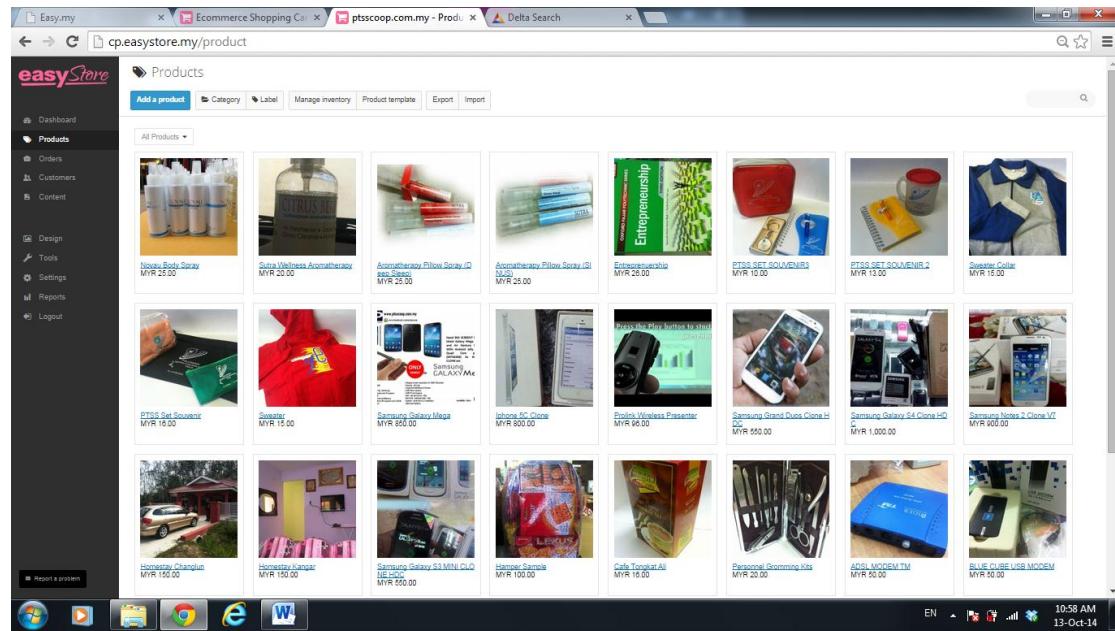


Figure 6. 11 Screenshot of product page

6.1.3.4 CMS package selection on online shopping navigation

The homepage index file shows the product catalogue and categories. Users have an option to browse the product by categories in a selection box. Every single product are labelled as new arrival, restock, special deal, coming soon and ready stock. Shopping carts are available for users who select product that they are interested to buy. Users have to log in or sign-up before making any transaction. The feature in shopping cart are quite related to the suggestion by Close, Kukar-kinney and Benusa (2012) especially on checkout phase and common basic shopping navigation concept from previous discussion (Figure 6.6). Lastly, the Homepage of CMS Package selection for www.ptsscoop.com.my is shown in Figure 6. 12.

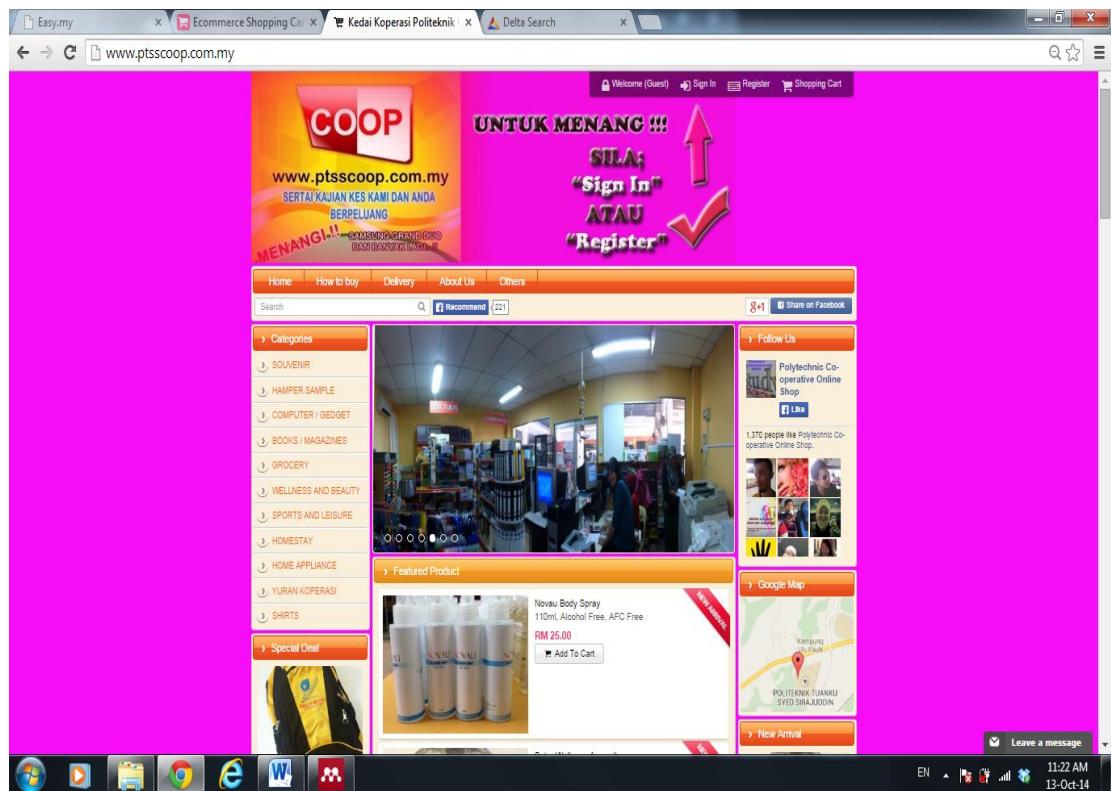


Figure 6. 12 Screenshot of the polytechnic co-operative e-retail website.

6.1.3.5 Buying process

Buying process mostly occurs after products be inserted into the shopping cart. This allows user to place products in their trolley and return later to continue shopping (Freeman & Freeman, 2011). During the process of purchasing, e-retailer can help customers and simplify the purchasing procedure (Moshrefjavadi *et al.*, 2012). The buying process on the polytechnic co-operative website consists of three types of online payment: either through Paypal, MOLPay or Money transfer. This CMS provides the setting up process for the payment system. All orders are notified through the webmasters' e-mail and SMS. Then be forwarded to manager using WhatsApp™ group and an e-mail. This method acts as real-time communication feature in co-operative e-retail business. The manager does the packaging while webmaster prints the invoice and packaging slip to be delivered with the product. The tracking delivery feature such as Poslaju™ application is very useful in e-retail

business (Figure 6. 13). This is to ensure that cooperative e-retailer provides an efficient delivery service to customers (Haque *et al.*, 2006).

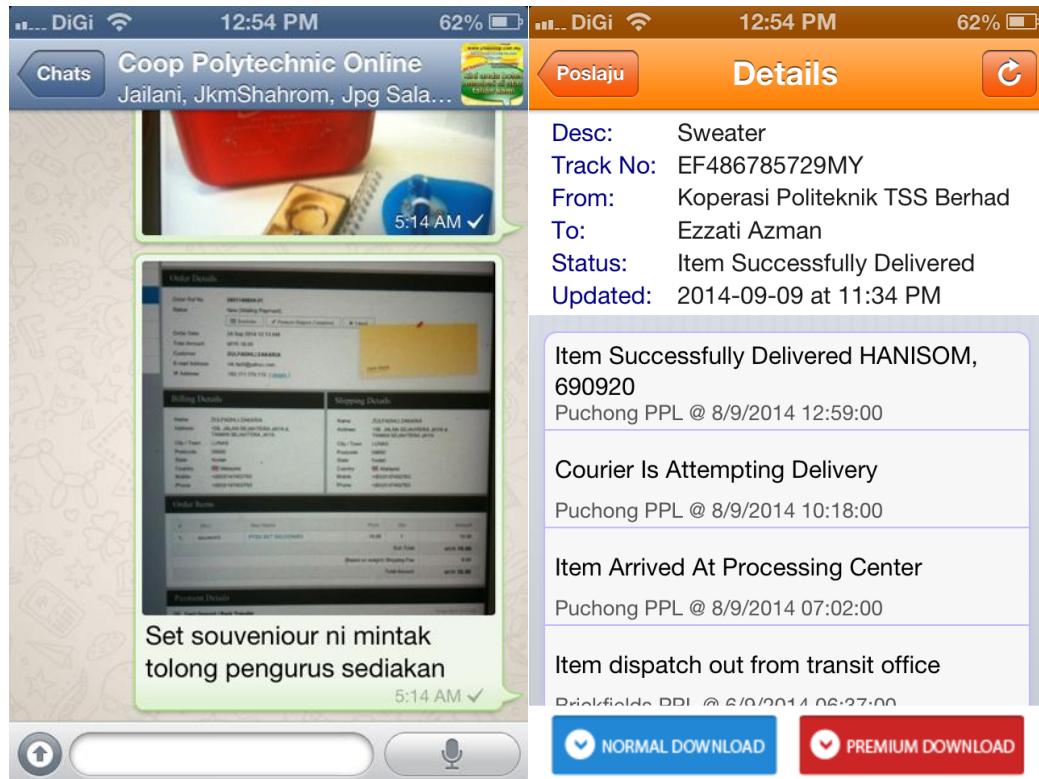


Figure 6. 13 Screenshot of WhatsApp message and Poslaju.

6.1.4 Evaluating through Usability Testing

Usability testing is conducted to measure the impact of web design elements before full deployment of co-operative website. In this research, focus group was conducted. Focus group offers participants more stimulation than interview as it involves more than one participant and can lead to new idea and comments (Küster & Vila, 2011). It represents a certain type of interview whereby several respondents discuss on questions asked by the researcher (Palsson, 2007). In addition, focus group has been increasingly used in the field of marketing especially within the intended market segment of young consumers or generation Y group. Focus group was conducted with a group of Tuanku Syed Sirajuddin Polytechnic (PTSS) students. They were chosen purposely at PTSS Library. The focus group consists of two groups involving six

students. Each group was given computers with internet access and were asked to navigate the website. A user task was provided for them to follow (Appendix A). The interview questions were based on attributes of e-commerce website from Fang and Salvendy (2003) and Noorfadzilah *et al.*, (2010). The interview questions also being reviewed by two IT lecturers in PTSS. Audio recordings of the focus groups were transcribed to identify web design features that should be combined, eliminated or restated. Then, possible themes (feedback) arise out of the text. During the focus group session (personal communication, October 12, 2012), the themes (feedback) on background colours were attractive, suitable and impressive. The design was appropriate, the quality of images were good and no broken link.



Figure 6. 14 Screenshot of focus group session

However, the participants described that the check out button as confusing. One example from the session was participant did not expect the check out button link to allow for online transaction.

The term used I cannot understand, if it mention ‘pay’ for payment but then it mention. I cannot understand.. (C1a)

During the first time shopping navigation, through observation participant confused with check out button and with log on procedures. The participant also described about the shopping navigation and search.

The steps are okay, but when we try to buy we want to follow the steps and forget about the steps (C).

Table 6. 5 shows the summary of the feedback.

Table 6. 5
Participants feedback

Testing	Feedback	Action
<u>Navigation and Links</u>		
Navigation on Search button	Cannot find products needed Not fully understand about the function of search button. Confused about the terminology	Do product catalogue
Navigation on buying flow	Respondents were confused on buying stage button “check out” on shopping cart.	Contact web developer
Navigation on guidelines on shopping	Preferred pop-up windows	Contact web developer
Navigation on method of payment	The selection of “Payment Method” cannot be recognized by respondents.	Contact web developer
<u>Content, Organization and readability</u>		
Products	Products not on respondent’s needs	Do product catalogue
Organization	Company profile clearly mentioned	-
<u>User interface design</u>		
Colour	Background colours are attractive, suitable and impressive	-

Then, the participants attempted shopping navigation (online shopping cart) for the second time without any changes made to the website design. Observation saw that participants were able to do it much faster and smoother. These might reflect from consumers’ affective evaluation about relying on e- retailers. According to Zhang, Cheung and Lee (2014), when a consumer uses a totally strange e-retailer’s website, he/she may feel uncomfortable. However after the consumer find the information and get the e-retailer reputation he/she may feel comfortable. Suggestion from the respondents that were related to web developer were then send to Mr Chun Howe, Business Development Executive of Exabytes Network Sdn Bhd on 27th June 2012.

A feedback received from Mr Chun Howe through an e-mail on 28th June 2012 stated that, the “check out” button is being very commonly used in online shopping and he is unable to change the “payment method” button and “pop-up window” while the payment method was changed in the new version. The check out button is an essential stage in online shopping for potential shoppers to be potential buyers by requiring payment information afterwards (Close *et al.*, 2012). For triangulation purpose, the participants feedback forms were shown to the participants for confirmation with their initial signature. No major changes have been made on navigation and links, design and content based on respondent feedback and recommendation.

6.1.5 Website deployment

Several related issues occurred during the deployment. The domain registration approval was obtained on 19th March 2012. At that time, it has not undergone any design and usability testing yet and it took around nine months later for usability testing to be conducted due to academic literature and setting the interview protocol. The prototype version was not eventually the prototype because it was actually deployed during the design and measuring usability stage which was on April 2012 during the free training session. Mostly, the prototype version runs under local host server.

Initially, the web provider company did not provide email account under own domain name. The researcher requested for e-mail domain name through an e-mail dated 11th June 2012. The researcher needed to sign up for other package to get the 2GB hard disk e-mail space. But then, web provider company provided 4 e-mail accounts for free. Since the polytechnic website is a hosting website by the service provider, anything related to the server maintenance is notified to the researcher

through e-mail. The researcher concerns on downloading time, server errors that some of them are beyond the researcher's control. According to Küster and Vila (2011), system related factors such as error in server, website's home page load and downloading time may affect purchase intention. On the other hand, it is to get the user to believe in the interface being used and feel favourably predisposed to make transactions.

Interviews with the board of directors were also conducted to get their feedback and validation on the process model. It was conducted with the co-operative secretary (Degree in IT) and co-operative chairman (Degree in Electronic Computer). Both person have an IT background knowledge with 10 year experience in teaching IT.



Figure 6. 15 Screenshot of the interview session with BOC

Interviews with the board of cooperative were also held and showed the commitment of the board.

“For your information, I sign in, see and manage the website several times, I found that what have been done were good and interesting for surfing” (BOC1).

“From my opinion, the interface is interesting, clear and I think it’s not a problem to surf because it is easy. But maybe the products need to be added, more variety “ (BOC2)

“As far as I am concern, everything run smoothly and as a person in IT, the development and design in the process model works as planned’ (BOC2)

6.1.6 Promotion

Nowadays social network plays a major role in promoting online business. E-retail managers should start taking measure to eliminate risk and move to different platforms like social networking sites (Moshrefjavadi *et al.*, 2012). Therefore, it is important for the web to be integrated with social network website. This website also integrated shopping cart with Facebook™ (Figure 6. 16). The design process of this research, webmaster tried to cover the importance of promotion through Facebook.



Figure 6. 16 Screenshot of the Polytechnic Co-operative Facebook™ Page

The integration was automatically designed by the web provider company. The webmaster copied the tracking key from the Facebook™ pages as shown in Figure 6. 17 into the Facebook™ link at the CMS web application.

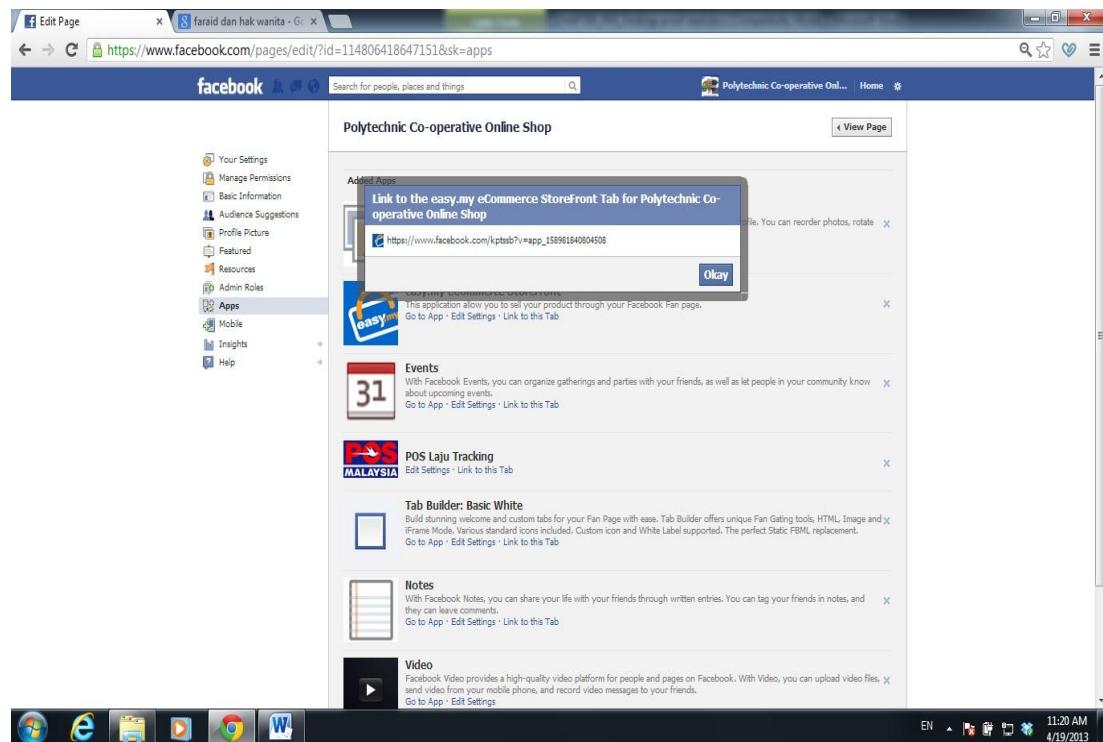


Figure 6. 17 Screenshot of Facebook™ configuration

Figure 6.18 shows the successful integration between the website and Facebook™ page.

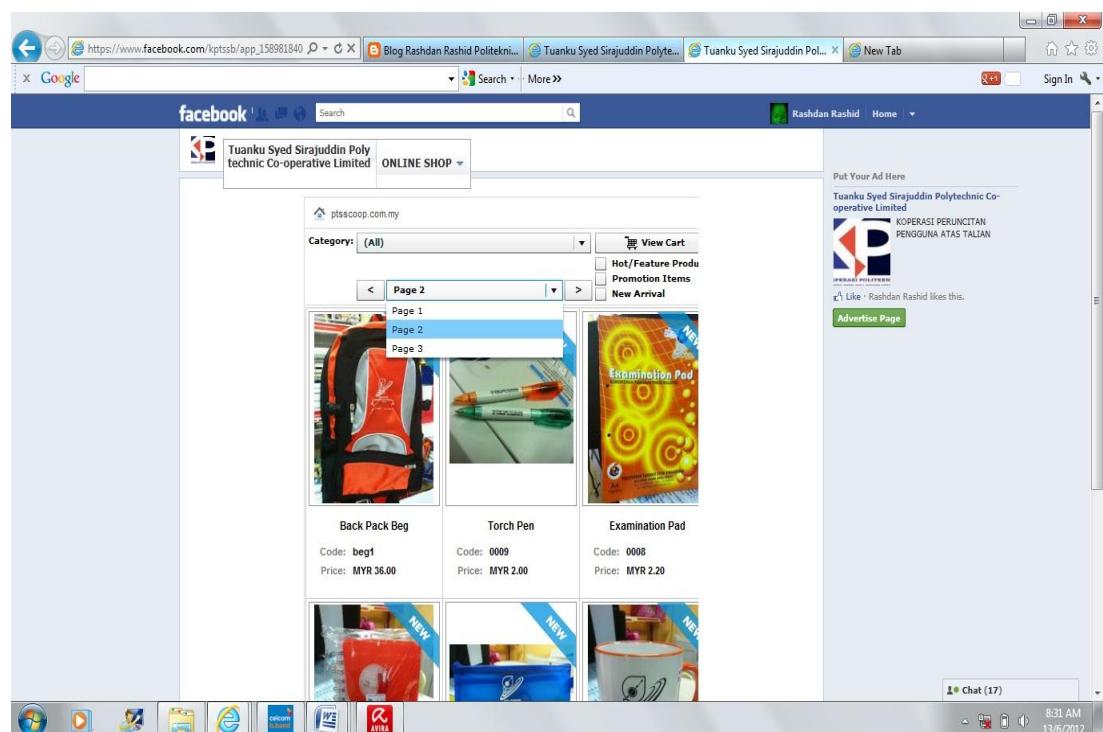


Figure 6. 18 Screenshot the shopping cart in Facebook Page™

The webmaster joined multiple groups in Facebook™ using the researcher's account in order to create awareness of the website or new products among Facebook™ users. Among the groups that participated were Borong 1 Malaysia, Bizz on9, Harga Lelong, Pengiklan Terbesar, Shopping On9, Terbiske-Store and etc. At the same time, Facebook™ pages that were related to polytechnic students were also joined by the researcher. The effect of news post can be seen through Facebook™ insight. The integration with Facebook™ helps the webmaster to identify the visitors. Facebook™ provides report through Page Insight. Throughout the participant observation, the webmaster summarized a few data from pages insight. Table 6. 6 shows people reach of more than 500 engaged with co-operative Facebook™ post.

Table 6. 6
Summary of Co-operative Facebook™ page insight news post

Published	Post	Type	Reach	Engaged, Click, Like, Comment or Shares
02/09/2014 3:06 pm	http://pertandingan.sukipt.com.my/sukiptmedal/fg_fg_medal_talylist.asp Kedudukan Pingat Kontigen Politeknik - politeknik.edu	<u>Photo</u>	640	29 11
04/03/2014 5:20 pm	Indahnya panorama politeknik.. Seperti musim bunga sonata dan kadangkala umpama salji nak turun (update)	<u>Status</u>	1,335	359 54
01/19/2014 3:09 pm	Iklan kemasukkan ke IPTA dan Politeknik dah keluar	<u>Photo</u>	618	132 29
01/25/2014 8:04 am	Sejukkkkk	<u>Photo</u>	1,186	149 44

Table 6.6 Continued

Published	Post	Type	Reach	Engaged, Click, Like, Comment or Shares
12/10/2013 9:20 am	Kempen pilihanraya politeknik bermula.. manifesto calon-calon antaranya A. Menaik taraf wifi di politeknik B. Mesin basuh disetiap aras C. Tempat letak kenderaan berbumbung Selamat bertanding dengan harmoni..	<u>Photo</u>	525	160 12
07/13/2013 10:59 pm	Solat Tarawikh di Pusat Islam Luqman Alhakim PTSS. Anda solat dimana? Kongsikan	<u>Video</u>	2,293	401 144
07/02/2013 4:07 pm	Pelajar baru sem 1 pengambilan ke-2 PTSS sesi Jun 2013 , sila kemukakan saiz baju anda (blazer/jaket) kepada pihak kami untuk kami membuat tempahan... 1. Datang sendiri ke Koperasi PTSS Berhad. Jam 9pagi - 11pagi dan 3.00ptg - 6ptg Sehingga 5/7/2013 atau 2. SMS Nama, Jabatan dan Saiz Baju Cth: Muzafar/JPG/XXXL Nombor: 0174753617 SEGERA...	<u>Status</u>	508	23 9
06/12/2013 8:25 am	Surat panggilan pelajar lama	<u>Photo</u>	776	595 38
03/22/2013 9:15 pm	Majlis Serah Tugas Ketua Pengarah Jabatan Pengajian Politeknik	<u>Photo</u>	908	123 44
03/20/2013 1:58 pm	Universiti Politeknik	<u>Photo</u>	9,923	904 834
03/14/2013 11:56 am	Iklan Kemasukkan ke Politeknik	<u>Photo</u>	1,038	276 56
03/06/2013 4:24 pm	7th Convocation event	<u>Photo</u>	5,343	702 408

While in Table 6. 7, shows co-operative Facebook™ post that related to products.

Table 6. 7

Summary of co-operative Facebook™ page insight product post

Published	Post	Type	Reach	Engaged Click, Like, Comment or Shares
02/03/2014 9:48 pm	Cenderahati Konvokesyen PTSS	<u>Photo</u>	64	9
04/13/2014 8:21 pm	Lenovo 4.5" screen Android 4.2 Dual Sim at RM500	<u>Photo</u>	48	1 1
12/19/2013 11:00 am	To grab at www.ptsscoop.com.my	<u>Video</u>	66	5 1
12/09/2013 12:35 pm	http://www.ptsscoop.com.my/product-759891.html		66	18 1
11/18/2013 1:11 pm	http://www.ptsscoop.com.my/product-767365.html	<u>Photo</u>	233	41 4
11/03/2013 3:54 pm	Visit www.ptsscoop.com.my IPHONE 5 CLONE at RM800	<u>Photo</u>	61	5 1
10/28/2013 1:04 pm	Our Iphone 5 clone set still at RM800. Grab It now!!!!	<u>Photo</u>	109	29 7
10/18/2013 7:46 pm	Iphone 5c clone. Berminat?Comment "Yes", then we give you details on how to order.	<u>Photo</u>	64	3 1
09/20/2013 10:27 am	S4 Ready to be sold at www.ptsscoop.com.my (Gambar Ihsan)	<u>Photo</u>	89	1 0

Table 6.7 Continued

Published	Post	Type	Reach	Engaged Click, Like, Comment or Shares
09/08/2013 9:41 pm	Kod : WP01 Prolink Wireless Presenter Untuk persembahan anda lebih MANTAP. Laser pointer dengan kawalan power point presentation anda. Berminat !!! dengan hanya RM96 penghantaran percuma kawasan Arau dan Changlun.	<u>Status</u>	315	70 5
08/27/2013 10:55 pm	Samsung Clone Korea www.ptsscoop.com.my (gambar ihsan)	<u>Photo</u>	132	17 8
08/25/2013 11:20 am	Boleh mula tempah homestay dari sekarang ni.. D www.ptsscoop.com.my	<u>Photo</u>	183	15 8
08/22/2013 8:57 am	Samsung Galaxy S4 Clone HDC - COMPUTER / GEDGET - Polytechnic Co-operative Online Shop	<u>Link</u>	52	2 0
08/20/2013 2:36 pm	Samsung Grand Duos Clone HDC - COMPUTER / GEDGET - Polytechnic Co-operative Online Shop	<u>Link</u>	109	5 4
08/20/2013 11:52 am	Merdeka Sales Offer	<u>Link</u>	91	7 0
07/20/2013 12:37 pm	Berbuka dgn Kordial RM19.90	<u>Photo</u>	98	4 3
07/20/2013 12:36 pm	Olive OIL RM39.90	<u>Photo</u>	85	3 0
04/23/2013 11:36 am	Grab new Samsung with our partner.	<u>Photo</u>	71	11 2
04/06/2013 1:08 pm	Code M8744 RM163 size UK 7.5only. PM for more info or order	<u>Photo</u>	47	19 0

Table 6.7 Continued

Published	Post	Type	Reach	Engaged Click, Like, Comment or Shares
04/06/2013 1:07 pm	Code N1315 RM163 size UK 5.5 and 6 only. PM for more info or order	<u>Photo</u>	46	15 0
01/31/2013 8:57 pm	OUR FIRST BUYER FOR CONVOCATION PLAQ	<u>Photo</u>	90	94 5
12/06/2012 2:32 pm	Kod:AMAS12 Item name: Rendang Tok Agro Mas Price:RM9.60 Shipping: RM6/item. Free shipping in PTSS campus Free delivery in PTSS Campus.	<u>Photo</u>	93	19 13
11/26/2012 10:17 am	for sale	<u>Link</u>	89	25 2
10/31/2012 11:01 pm	Stok clearance Pillow RM8 each	<u>Photo</u>	123	28 5
10/23/2012 6:33 pm	Beliau telah membeli 6 biji bantal untuk homestay beliau yg akan dibuka pada awal 2013	<u>Photo</u>	156	86 15
10/11/2012 4:24 pm	Single Fitted Sheet 36' x 75' RM15.90 with 1 bed sheet and 1 pillow case color Blue and Maroon available	<u>Photo</u>	77	35 0
06/14/2012 8:51 am	First Delivery to Lucky Buyers and Winner.	<u>Photo</u>	0	0 0
06/12/2012 11:28 am	Shipping Wave if PICK UP at our Store	<u>Link</u>	0	0

By comparing both tables (Table 6.6 and Table 6.7), it showed that higher reach occurs on Facebook™ news post (the highest reach was on 20th March 2013) compared to Facebook™ product post (the highest reach was on 8th September 2013). In order for advertising or promotion, the webmaster used Facebook™ promotion. There were three types of promotion strategy when using Facebook™ account. First, the webmaster did Facebook™ page promotion. Then the webmaster shared Facebook™ posts and third type was through the boost post feature. On 9th July 2014, the webmaster did Facebook™ page promotion for one week at the cost of RM16 per day (Figure 6. 19). At that time, polytechnic co-operative Facebook™ Page has 828 likes. Within a week, the page likes increased tremendously to 1,358 likes. It shows that Facebook™ page promotion can increase people like, reach and engaged.

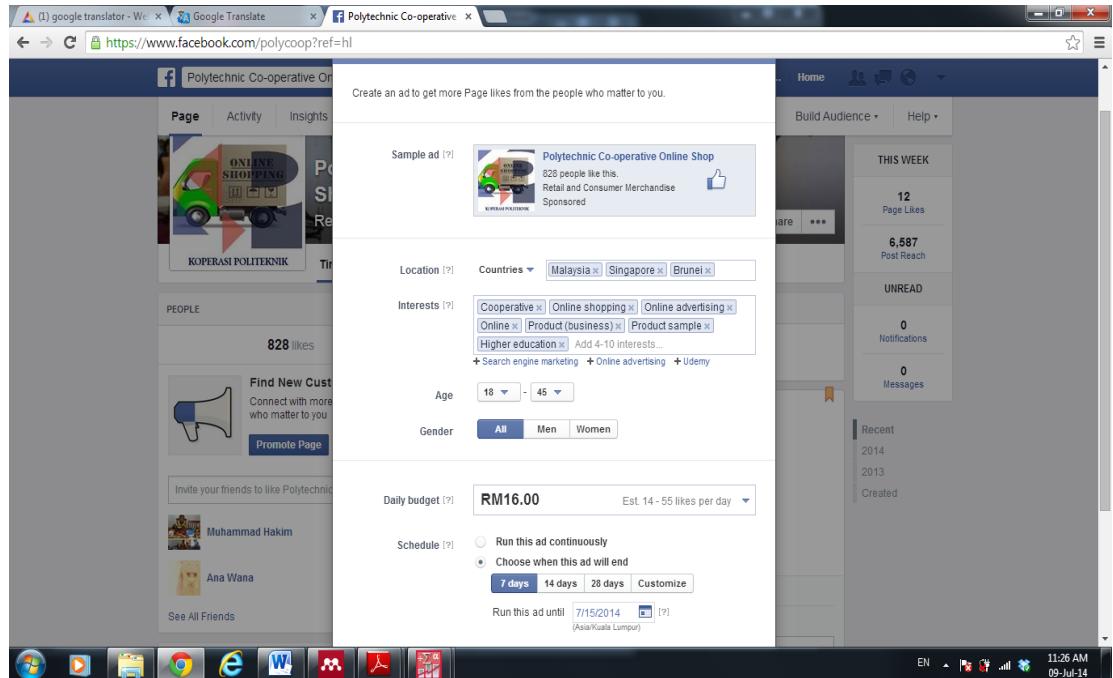


Figure 6. 19 Screenshot of setting up Facebook™ Page Promotion

Facebook™ boost marketing strategy was also used by the webmaster. As shown in Table 6.8, Facebook™ product posts used Facebook™ boost marketing strategy. It shows some increment on people reach. Facebook™ boost marketing is different from Facebook™ Page Promotion because it promote specifically on facebook post

Table 6. 8
Facebook™ page insight product post with boost marketing.

Published	Post	Type	Reach	Engaged Click, Like, Comment or Shares
08/03/2014 2:52 pm	<p>http://www.ptsscoop.com.my/product-876447.html Kuih raya berbekas-bekas, Pesan sebekas dari Mak Piah, Siapkan tugasan hendaklah lekas, Mula dah kembali sesi kuliah.</p>	<p><i>Photo</i></p>	<p>Organic 92 Paid 2,548</p>	<p>24 89</p>

According to Kobach (2014), fans want to feel that they are part of the community. They should be rewarded and it helps business grow through electronic word of mouth and this will be popular as a post topic. So, the webmaster rewarded the first 100 likes of the fan page, created contest and published picture post. Internet marketing through Facebook™ promotion strategy is suitable because respondents account ownership (95.5%) with Facebook™ recorded in the second phase of this research.

In addition, previous researchers also stressed on the web content elements of relaxation and enjoyment/hedonic (Lian & Lin, 2008; Venkatesh *et al.*, 2012) because it can awaken user emotions or positive feelings and bring more quality to the website (Close *et al.*, 2012; Küster & Vila, 2011). Due to that, the webmaster has created elements of blogs, Skype Chat, Message Box and Contest as the form of entertainment (Figure 6. 20 and Figure 6. 21).

Online Shop Polytechnic Co-operative/Politeknik Malaysia Kedai Koperasi Online

This is a case study online shopping platform organised by Polytechnic Tuanku Syed Sirajuddin Co-operative for Malaysia Polytechnic Co-operative. Tuanku Syed Sirajuddin Polytechnic Co-Operative Ltd registered under Suruhanjaya Koperasi Malaysia R-2-0081. Established on 24 Nov 2004. Members among staf,student and Lecturer of Tuanku Syed Sirajuddin Polytechnic. Info call 0195102722;04-9886370

MONDAY, MARCH 3, 2014

Kajian kes di Politeknik Premier Ungku Omar dan Politeknik Port Dickson

Perjalanan bagi menjayakan kajian kes di dua buah politeknik terbabit mendapat kerjasama yang cukup baik dari pihak pengurusan, pensyarah dan juga dari pelajar.

Ketibaan saya disambut oleh pihak pengurusan politeknik yang terus dibantu oleh Pegawai Penyelidikan Politeknik. Pihak pelajar diberi saguhati berupa sebatang pen bagi menjawab soalan-soalan yang diberikan. 190 responden telah terlibat dalam menjayakan kajian ini dari kesemua jabatan akademik.



PAGES

Home
KEDAI ONLINE

FACEBOOK BADGE

Polytechnic Co-operative Online Shop

facebook



Name: Polytechnic Co-operative Online Shop
Status: Pengkaji kajian penerimaan terhadap pembelian...
Fans: 759

Figure 6. 20 Screenshot of co-operative blog

Figure 6.21 shows a screenshot of message box and Skype™ in polytechnic co-operative e-retail website home interface.

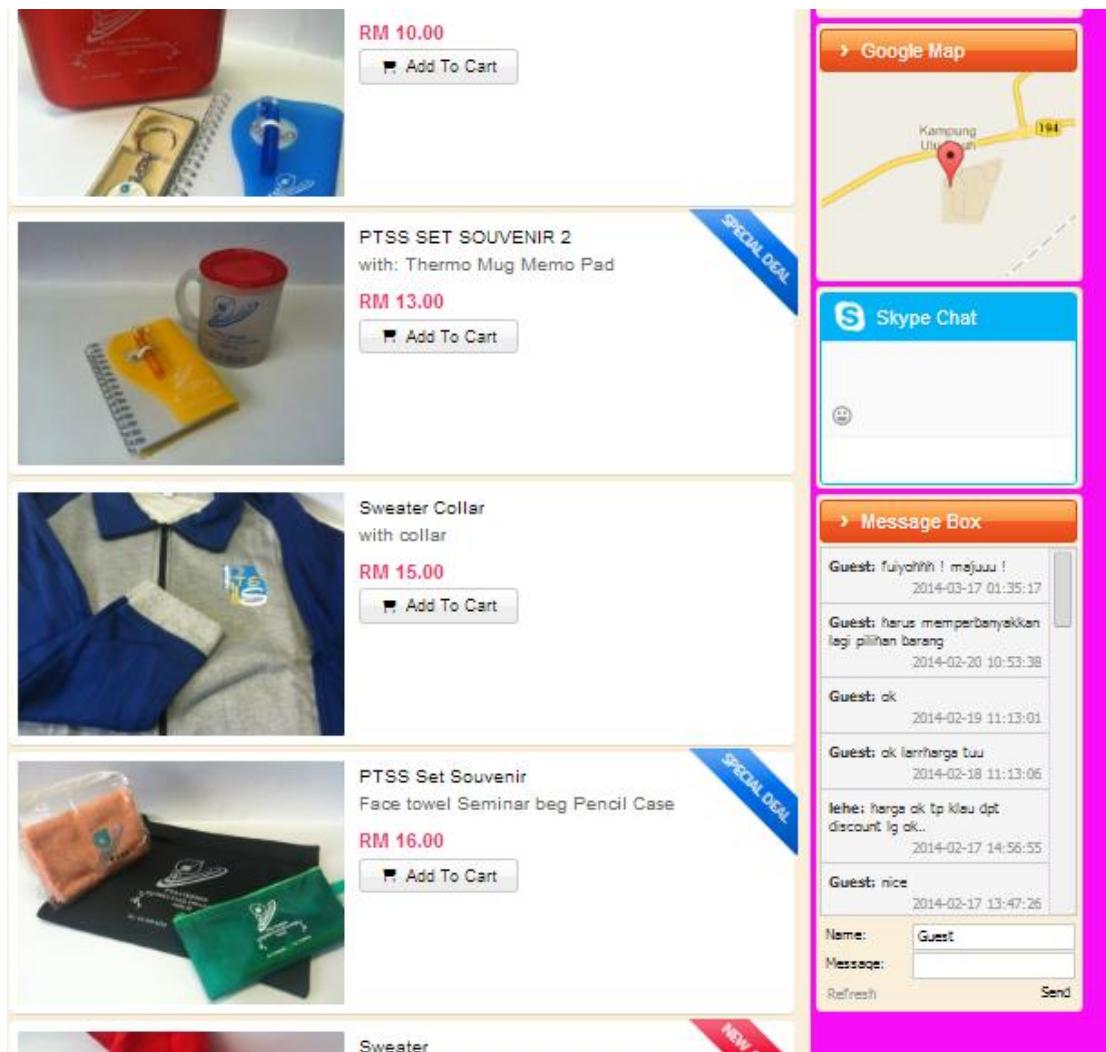


Figure 6. 21 Screenshot of message box and SkypeTM

As a conclusion in this section, the final web design process model is as Figure 6.22.

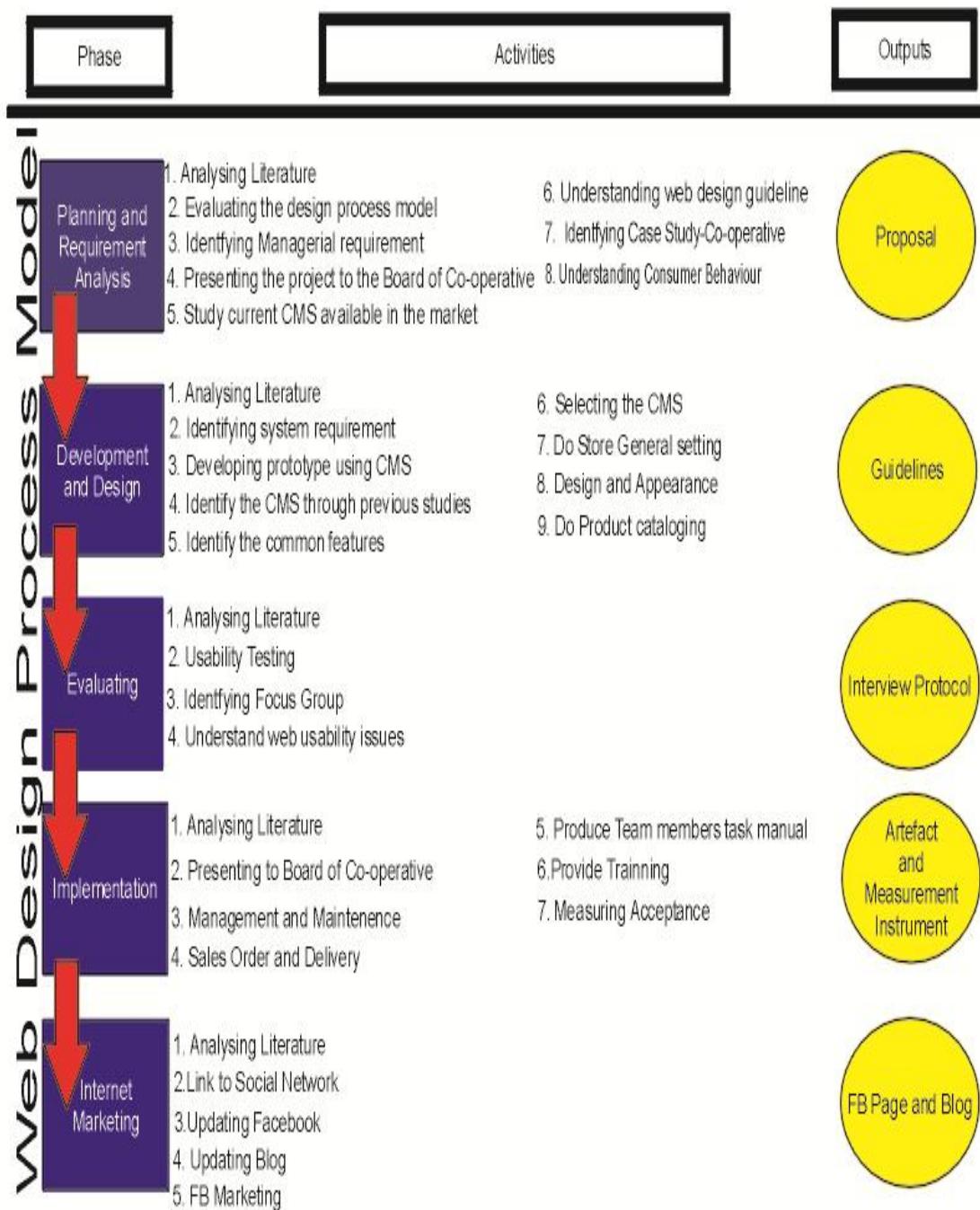


Figure 6. 22 The final of web design process model

6.2 Measuring Acceptance on UTAUT

This section presents the findings for the second phase of this research. It consists of a number of sections. First, the respond rate and the profiles of the respondents were outlined. Secondly, the collected data were inspected for outliers. Next, a discussion on the investigation of goodness of measure through validity analyses is offered, multiple regression assumption and followed by correlation analysis. Lastly, the results of hypotheses testing using regression analysis are highlighted.

6.2.1 Response Rate

There were 500 questionnaires distributed for the polytechnic students at five polytechnics in Malaysia. The chosen polytechnics were located in different geographical locations which are PTSS in the North region, PUO in the Middle Region, PPD in the South region, POLISAS in the East region, and PKK in the East Malaysia. The number of questionnaire distributed was based on the number of respondent that was targeting and expected percentage of response rate.

$$\frac{\text{number of respondents needed}}{\text{expected \% response rate}} \times 100$$

Expected response rate was at 75% which based on average response rate from previous researchers in this context area. 500 questionnaires were sent out and 389 or 78.57% percent were returned. Table 6.9 demonstrates the response rate.

Table 6. 9
The sample study response rate

Region	Questionnaire Distributed	Questionnaire Returned	Response Rate	Missing Data
North	100	83		
Middle	120	93		
South	100	98	77.8%	13
East	100	49		
East	80	66		
Malaysia				
TOTAL	500	389		

6.2.2 Missing Data

The first step in the data screening process is to identify missing data. It is considered as an important process before data analysis since data entry is often riddled with mistakes and errors. Missing data refers to valid values of variables which are entered by mistake or not available (Hair, Black, Babin, & Anderson, 2010; Pallant, 2007). Only questionnaires with complete data were included and if missing data occurs, cases were excluded. Questionnaires with more than 25% missing data out of total items were discarded (Sekaran & Bougie, 2010). Seventeen questionnaires had excessive missing data and were discarded because respondents had left many questions unanswered. After the removal of missing data, 376 returned questionnaires were used for this research.

6.2.3 Profile of Respondents (n=376)

The questionnaires obtain demographical and personal information about the respondents regarding their gender, programme, polytechnic, and their experience of

using computer and the Internet. Since the website is new, respondents were also asked on how they know about the website.

6.2.3.1 Gender

The result shown in Table 6.10 indicates that 43.1% of the respondents are male while the female respondents represented 56.9% of the total population. Both gender are well represented.

Table 6. 10

The frequency and percentage of students' gender

Gender	Frequency	Percentage
Male	162	43.1%
Female	214	56.9%
Total	376	100%

6.2.3.2 Programme

The respondents were requested to indicate their programme on their polytechnics. As shown in Table 6.11, 30.1% of the respondents are in Commerce while 25.8% are from the electrical programme while others are from Mechanical (15.7%), Information Technology (7.4%), Civil Engineering (12.5%) and Hospitality (8.5%). Students from the commerce department are the higher respondent, followed by electrical department and mechanical department.

Table 6. 11

The frequency of respondents programme

Programme	Frequency	Percentage
Commerce	113	30.1
Electrical	97	25.8
Mechanical	59	15.7
Information Technology	28	7.4
Civil	47	12.5
Hospitality	32	8.5
Total	376	100.0

6.2.3.3 The respondents' computer knowledge

Table 6.12 shows the respondents' computer knowledge. This indicates that most of the respondents are either good or very good in computer skill (67.8%).

Table 6. 12

The frequency of respondents computer knowledge

Computer Knowledge	Frequency	Percentage
VERY POOR	7	1.9
POOR	13	3.5
MODERATE	101	26.9
GOOD	171	45.5
VERY GOOD	84	22.3
TOTAL	376	100.0

6.2.3.4 The respondents' internet knowledge

Majority of the respondents described their internet knowledge as good (44.4%) and very good (22.3%). This indicates that majority of respondents have internet knowledge and exposed to internet. Table 6.13 describes the internet knowledge of respondents.

Table 6. 13

The frequency of respondents' internet knowledge

Internet Knowledge	Frequency	Percentage
VERY POOR	7	1.9
POOR	17	4.5
MODERATE	101	26.9
GOOD	167	44.4
VERY GOOD	84	22.3
Total	376	100.0

6.2.3.5 The respondents' FacebookTM account ownership

Almost all respondents (95.5%) have Facebook accounts. This shows that most respondents get connected through social media. Table 6.14 shows the FacebookTM ownership.

Table 6. 14

Respondents FacebookTM account ownership

Facebook TM Ownership	Frequency	Percentage
YES	359	95.5
NO	17	4.5
TOTAL	376	100.0

6.2.3.6 The respondents' aware of the existence www.ptsscoop.com.my

The respondents' aware of the existence of website mostly came through during the survey (58.5%) while 22.9% realized by the management of polytechnic through a letter posted by the webmaster or management publicity. Only a few (7.2%) awareness come from Facebook. Table 6.15 shows the summary.

Table 6. 15

Respondents awareness on the existence of co-operative e-retail website

Website knowledge	Frequency	Percentage
THROUGH RESEARCH	220	58.5
THROUGH FRIENDS	43	11.4
THROUGH MANAGEMENT	86	22.9
THROUGH FACEBOOK TM	27	7.2
Total	376	100.0

6.2.4 Treatment of Outliers (Mahalanobis Distance)

In the data screening process, the treatment of outliers is important. The determination of multivariate outliers is Mahalanobis distance at $p < 0.001$. Mahalanobis distance is compared with χ^2 with the degree of freedom of 62 items. This is the number of

variables (constructs) used in this research. Any cases with Mahalanobis distance greater than (Chi-square value of 62 items) were considered as multivariate and therefore were deleted from the data set.

Outliers are cases where data values are different from the data values for the majority of cases in the data set. Identification of outliers is important because they can change the results of data analysis. Whether to include or exclude outliers from a data analysis depends on the reason why the case is an outlier and the purpose of the analysis. This study employed Mahalanobis D^2 to detect outliers. Mahalanobis D^2 is a multidimensional version of a z-score. It measures the distance of a case from the centroid (multidimensional mean) of a distribution, given the covariance (multidimensional variance) of the distribution. A case is a multivariate outlier if the probability associated with its D^2 is 0.001 or less. D^2 follows a chi-square distribution with degrees of freedom equal to the number of variables included in the calculation. Data in this study show five cases with D^2 score probability (p) of less than 0.001. In this case, Mahalanobis distance identified 5 cases as multivariate outliers. These were excluded from further analysis. Thus, the total number of response remains as 371 (376 - 5) =371 respondents.

6.2.5 Descriptive Statistics for All Items and Constructs

Once the data set were found to be free from missing data and outliers, the descriptive statistics for all the twelve key constructs was performed using SPSS computer software and the results are presented in Table 6.16. The table shows the mean, median, standard deviations, variance, and range of the descriptive statistics of the constructs. The mean values of 62 items show no obvious from normality. The lowest

mean is 2.93 (AN23Xc3) while the highest standard deviation value is 1.936 (AN20Xi4) and the lowest is 1.245 (E6E2) with the difference of 0.691

Table 6. 16
Descriptive Statistics for all items (n=371)

Variables	Mean	SD
Performance Expectancy (PE)	5.01	1.16
Effort Expectancy (EE)	5.14	1.14
Social Influence (SI)	4.97	1.10
Facilitating Conditions (FC)	4.67	1.13
Internet Anxiety	3.65	1.63
Computer Anxiety	3.30	1.67
Shopping Anxiety	3.43	1.60
Internet Self-efficacy	5.04	1.07
Computer Self-efficacy	5.12	1.13
Shopping Self-efficacy	4.97	1.14
Behaviour Intention	4.87	1.20
Use Behaviour	4.77	1.15

6.2.6 Assessment of Normality

In order for analysis to work properly, data should follow a normal distribution. It is an initial step and a fundamental assumption for multivariate technique such as multiple regressions. Normality test's aim is to make sure that data are normally distributed and the common technique used is to look at the data set (skewness and kurtosis). The more the values are close to zero, the more the data are normally distributed (Hair *et al.*, 2010). It is seldom that perfect normality assumption will be achieved. However, Hair *et al.* (2010) recommended the rejection of the normality assumptions at absolute values of +-3.29 at p<0.001 significant level, +- 2.58 at p<0.01 significant level and +- 1.96 at p<0.05 significant level.

To assess the normality of the variables, the above suggestions were applied and noticeably none of the variables fell outside the $+3.29$ at $p<0.001$ probability range level. This is expected as the sample size is 371. Table 6. 17 is a summary of the kurtosis and skewness for all the variables. All of the variables' skewness and Kurtosis statistics were between the normal distribution ± 2 standard deviations. The data show the variables were normally distributed and the data were valid for regression analysis (refer to Appendix E).

Table 6. 17
Skewness and Kurtosis for the variables

Construct	Mean	Std Deviation	Skewness	Kurtosis
Performance Expectation	5.0148	1.16789	-.266	.188
Effort Expectancy	5.1435	1.14466	-.425	.035
Social Influence	4.9764	1.10081	-.300	-.048
Facilitating Condition	4.6725	1.13374	-.229	-.140
Anxiety	3.4625	1.49442	.282	-.767
Self-efficacy	5.0353	1.02604	-.032	-.731
Behavioral Intention	4.8753	1.20379	-.313	.215
Use Behaviour	4.7380	1.15489	-.272	.268

6.2.7 Assessment of Linearity

Linear relationship of variables is a technique that tests to what extent the change in independent variable links with the dependent variable. P-P plots can be used to test the relationship whereby when the plots are close to the diagonal line, it shows that a strong relationship exists (Hair *et al.*, 2010). Linearity is important for the regression analysis because correlation can capture only the linear association between variables and if there is a substantial non-linear relationship, it will be ignored in the analysis because it will underestimate the actual strength of the relationship (Tabachnick & Fidell, 2007).

Linearity can be observed by examining the scatterplots (Hair *et al.*, 2010). The results of linearity through scatter plot diagrams for various variables indicate no clear relationship between the residuals and the predicted values. Assessment of all scatterplots of the standardized residual versus the standardized predicted values revealed that in all the plots, the residuals were scattered with no systematic or curvilinear pattern (U shape distribution) or clustering or residuals as indicated by (Tabachnick & Fidell, 2007). The randomized pattern of the scatter plots indicated that the assumption of linearity was met (refer Figure 6. 23). Therefore, the linearity could be assumed and was met for further analysis.

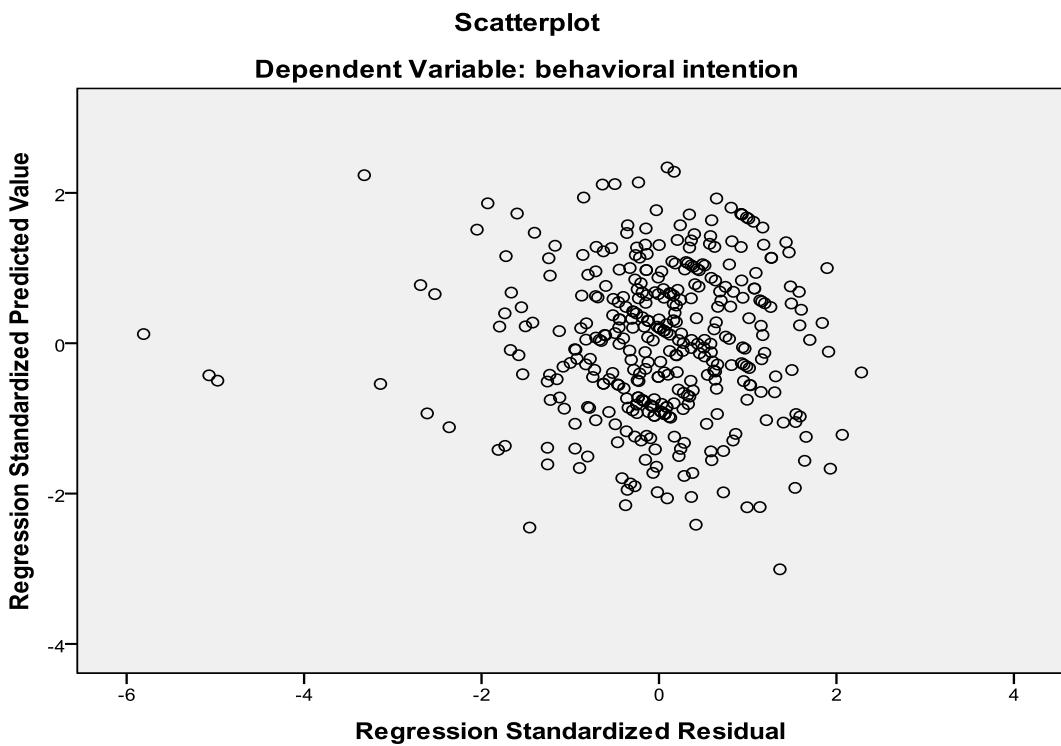


Figure 6. 23 Scatterplots of Standardized Residuals against the Predicted Values

6.2.7 Homoscedasticity

Homoscedasticity refers to constant variance of the error term and the variance of the dependent variables is approximately the same different levels of the explanatory

variable (Hair *et al.*, 2010). Homoscedasticity is indicated when the width of the band of the residuals is approximately the same at the different level of the dependent variables and scatter plot show a pattern of residual normally distributed around the mean. To check the Homoscedasticity, the scatterplots of studentized residual against the predicted values were used (Hair *et al.*, 2010). There is a need to inspect the plots of residual against the predicted values to reveal that the residuals were scattered randomly with no obvious systematic pattern. If there is no systematic pattern of decreasing or increasing residuals, it can be assumed that the assumption of Homoscedasticity is not violated (refer Figure 6. 24).

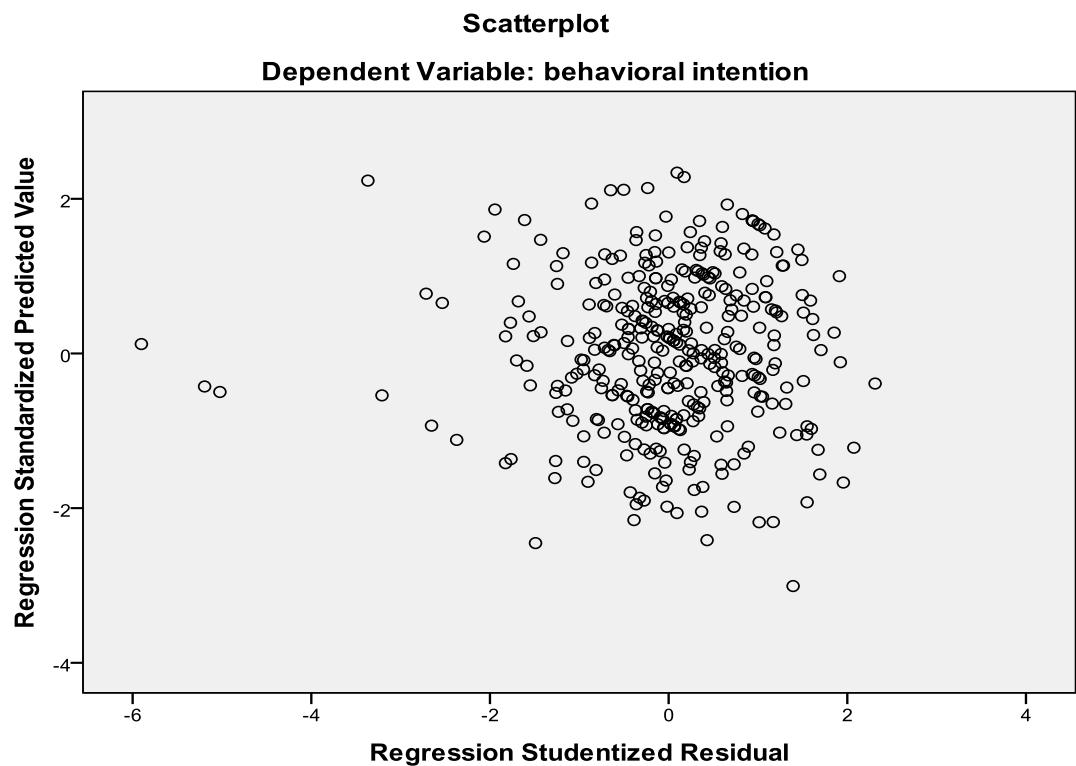


Figure 6. 24 Scatterplots of studentized

6.2.8 Assessment of Multicollinearity

Multicollinearity is a technique in which indicates the dependent variables that are extremely correlated. According to Hair et al. (2006), the tolerance values ranged between 0-1. A value of 1 indicates that the variable is not correlated with other variables and a value of 0 indicates a perfect correlation between the two examined variables. Moreover, the VIF has a standard cut off value of 10 and all predictors must have VIF values less than 10. When such case happens, the regression coefficients would not be significant due to high standard error. According to Field (2009), tolerance values approaching zero (0) specify the presence of high multicollinearity. The cut-off value for Variance Inflation Factor (VIF) is less than 10 and tolerance value of more than 0.1. Hence, multicollinearity test shows that there is no violation of the assumption for this research. All the independent variables' tolerance value is more than 0.1 and VIF value is less than 10. Therefore the obtained data can be analysed using regression analysis (refer Table 6.18).

Table 6. 18
Test of Multicollinearity

	Tolerance	VIF
Performance Expectation	.256	3.907
Effort Expectancy	.212	4.718
Social Influence	.242	4.140
Facilitating Condition	.419	2.386
Anxiety	.877	1.141
Self-efficacy	.420	2.383

6.2.9 Assessment of Factor Analysis

Factor analysis is an instrument used to investigate the underlying patterns and relationship among a number of variables. By doing so, the variables can be reduced into a smaller set of factors and items that do not belong to specified field can be

recognized. Confirmatory factor analysis (CFA) and Exploratory factor analysis (EFA) are the most common technique used. EFA can be used when a researcher wants to identify the underlying dimensions of a set of constructs that are assessed by an instrument. CFA can be used when a researcher wants to confirm a theory about a particular domain. Assumptions to be carried out according to Hair *et al.* (2010) are:

- 1- The test of Kaiser-Meyer Olkin (KMO) values more than 0.6 is acceptable.
- 2- Correlation coefficients between the items must be not more than 0.90.
Value of greater than 0.90 is considered as multicollinearity and should be removed from the analysis
- 3- Sample is adequately high.
- 4- The Bartlett's test of sphericity should be significant and at least at .05.
- 5- The acceptable level of the anti-image correlation of items is above 0.5.
- 6- A measure of sampling adequacy must be greater than 0.5.
- 7- The lowest requirements for factor loading range are between 0.30 and 0.40, and loadings of 0.50 or greater are considered significant.

In this research, the measurement scales for independent variables consisted of 52 items. (refer to Appendix F). Correlation matrix indicated item coefficients were 0.30 and above. There were a total of two statistical measures to assess the factorability of the data conducted through Kaiser-Meyer-Olkin (KMO) to determine the "measure of sampling adequacy" value. The value reported was 0.954, exceeding the recommended value of 0.6 (Hair *et al.*, 2010). Bartlett's test of sphericity is significant at $p < 0.001$. Since the KMO value is reported as 0.954, therefore, the sample size here is adequate for factor analysis. The total variance explained is reported as 70.692 percent. Only factors with a loading value of 0.40 and above were considered (Pallant, 2007). Therefore, no items were deleted. Factor loading accepted all six factors (performance expectancy, effort expectancy, social influence, anxiety, self-efficacy and facilitating condition) based on the original items. Table 6. 19 below shows the factor loading value for this scale. It ranges from 0.404 to 0.872.

Table 6. 19
Factor loading for Independent Variables

Factor/Variable	Factor Loading					
	1	2	3	4	5	6
Factor 1: Performance Expectancy						
P1E1	.807					
P2E2	.805					
P3E3	.810					
P4E4	.801					
Factor 2: Effort Expectancy						
E5E1		.814				
E6E2		.759				
E7E3		.767				
E8E4		.777				
Factor 3: Social Influence						
S9I1			.741			
S10I2			.746			
S11I3			.773			
S12I4			.726			
Factor 4: Anxiety						
AN17Xi1				.671		
AN18Xi2				.675		
AN19Xi3				.825		
AN20Xi4				.797		
AN21Xc1				.830		
AN22Xc2				.840		
AN23Xc3				.872		
AN24Xc4				.848		
AN25Xs1				.794		
AN26Xs2				.853		
AN27Xs3				.818		
AN28Xs4				.812		
Factor 5: Self Efficacy						
SE29i1					.672	
SE30i2					.786	
SE31i3					.803	
SE32i4					.762	
SE33i5					.821	
SE34i6					.771	
SE35i7					.790	
SE36i8					.745	
SE37i9					.608	
SE38i10					.639	
SE39c1					.524	
SE40c2					.520	
SE41c3					.404	
SE42c4					.438	
SE43c5					.458	

Table 6.19 (Continued)

	Factor Loading					
	1	2	3	4	5	6
SE44s1					.453	
SE45s2					.498	
SE46s3					.476	
SE47s4					.476	
SE48s5					.473	
SE49s6					.495	
SE50s7					.478	
SE51s8					.454	
SE52s9					.473	
Factor 6: Facilitating Condition						
F13C1						.691
F14C2						.633
F15C3						.686
F16C4						.531
Eigenvalues	21.864	8.121	3.196	1.359	1.318	1.113
Percentage	41.643	15.617	6.146	2.613	2.534	2.139
KMO	0.954					
Barlett's test of sphericity	18,937.916					
Sig.	0.000					

Meanwhile, the measurement scales for dependent variable consisted of 10-items. Correlation matrix indicated item coefficients were 0.3 and above. There were a total of two statistical measures to assess the factorability of the data conducted through Kaiser-Meyer-Olkin (KMO) to determine the “measure of sampling adequacy” value. The value reported was 0.944, exceeding the recommended value of 0.6 (Hair *et al.*, 2010). Barlett's test of sphericity is significant at $p<0.001$. Since the KMO value is reported as 0.944, so the sample size here is adequate for factor analysis. The total variance explained is reported as 68.71%. Two factors with a loading value of 0.45 and above were considered. Therefore, no items were deleted. Factor loading accepted all two factors (behavioural intention and use behaviour) based on the original items. Table 6.20 below shows the factor loading value for this scale. It ranges from 0.6.72 to 0.842.

Table 6. 20
Factor Loading for Dependent Variable

Variable	Factor Loading	
	1	2
Factor 1: Behavioural Intention		
B53I1	.752	
B54I2	.817	
B55I3	.842	
B56I4	.820	
Factor 2: Use Behaviour		
B57A1		.823
B58A2		.791
B59A3		.672
B60A4		.802
B61A5		.789
B62A6		.834
Eigenvalue	5.871	1.805
Percentage	68.714	8.050
KMO	0.944	
Barlett's test of sphericity	3,222.503	
Sig.	0.000	

6.2.10 Reliability Analysis

The relationships among individual items in the scale and the internal consistency can be tested by using reliability analysis procedure (Sekaran & Bougie, 2010) It was tested using Cronbach's Alpha. Alpha values that are 0.6 or less generally indicates unsatisfactory internal consistency reliability while those exceeding 0.7 indicate acceptable reliability and those over 0.80 are considered good.

In this research, internal consistency assessments were performed on performance expectancy, effort expectancy, social influence, anxiety, self-efficacy, facilitating condition and behavioural intention. The coefficient alphas of the study variables are shown in Table 6.21. Coefficient alphas for all study variables are above the acceptable level of 0.60. The Cronbach's alpha coefficient would provide an indication of the average of all the items' correlation that structures the scale (Pallant,

2007). The Cronbach's alpha coefficient above 0.60 is considered as acceptable (Sekaran & Bougie, 2010). The Cronbach's alpha coefficient ranged from a minimum of 0.779 to 0.971. Accordingly, no item was deleted from the present scales. All the variables in this study have values more than 0.60. On the whole, the analysis indicated each instrument is a meaningful measured, represented by the reliable item.

Table 6. 21
Reliability Coefficient of the Variables

	N of Item	Cronbach Alpha
Performance Expectation	4	0.928
Effort Expectancy	4	0.926
Social Influence	4	0.895
Facilitating Condition	4	0.779
Internet Anxiety	4	0.895
Computer Anxiety	4	0.913
Shopping Anxiety	4	0.911
Internet self-efficacy	10	0.942
Computer self-efficacy	5	0.927
Shopping Self-Efficacy	9	0.953
Behavioural Intention	4	0.931
Use Behaviour	6	0.904

6.2.11 Correlation Analysis

In order to determine the strength of the linear relationship between the variables, correlation analysis was used. There are two types of correlation which are positive and negative correlation (Pallant, 2007). Pearson's correlation coefficient (r) with significance levels was used to determine the correlations between the variables. According to Cohen (1998) and Pallant (2007), the strength of positive relationship at 0.10 to 0.29 is considered as low, 0.30 to 0.49 as moderate while 0.50 to 1.0 as high.

6.2.11.1 Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition

Table 6.22 illustrated the result of Pearson correlation to examine the relationship between behavioural intention, performance expectancy, effort expectancy, social influence and facilitating condition (refer to Appendix G). It was found that all of the variables have significant relationship with behavioural intention. The result indicated that social influence had the strongest relationship with behavioural intention ($r=0.666$, $p<0.01$), followed by performance expectancy ($r=0.663$, $p<0.01$), effort expectancy ($r=0.640$, $p<0.01$). The result indicated that facilitating condition had moderate relationship with actual usage behaviour ($r=0.606$, $p<0.01$).

Table 6. 22

Relationship among Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition and Behavioural Intention

	BI	PE	EE	SI	FC	BA
Behavioural Intention (BI)	1					
Performance Expectancy (PE)	.663**	1				
Effort Expectancy (EE)	.640**	.834**	1			
Social Influence (SI)	.666**	.799**	.826**	1		
Facilitating Condition (FC)					1	.606**

Note: ** $p<0.01$

Table 6.23 shows the result of Pearson correlation to examine the relationship between behavioural intention and actual behaviour. The result indicated that facilitating condition had strong relationship with actual usage behaviour ($r=0.852$, $p<0.01$).

Table 6. 23

Relationship among Behavioural Intention and Actual

	BA
Behavioural Intention (BI)	0.852**

Note: ** $p<0.01$

6.2.11.2 Self Efficacy

Next, Table 6.24 summarises the result of Pearson correlation to examine the relationship between Self Efficacy and Behavioural Intention (refer to Appendix H). In overall, self-efficacy was found to have strong significant relationship with behavioural intention ($r=0.717$, $p<0.01$). Online shopping self-efficacy ($r=0.766$, $p<0.01$) showed the greatest relationship to behavioural intention, followed by Internet self-efficacy ($r=0.612$, $p<0.01$) and Computer self-efficacy ($r=0.567$, $p<0.01$).

Table 6. 24
Relationship between Self Efficacy and Behavioural Intention

	BI	SE	Ise	Cse	OSse
Behavioural Intention (BI)	1				
Self-Efficacy (SE)	.717**	1			
Internet (Ise)	.612**	.940**	1		
Computer (Cse)	.567**	.870**	.757**	1	
Online Shopping (OSse)	.766**	.932**	.789**	.740**	1

Note: ** $p<0.01$

6.2.11.3 Anxiety

Table 6.25 illustrates the relationship between anxiety and behavioural intention. It was found in Table 6.9, that anxiety ($r=0.152$, $p<0.01$) as a whole showed weaker relationship with behavioural intention as compared to self-efficacy. It was also found that internet anxiety ($r=0.164$, $p<0.01$) and computer anxiety ($r=0.160$, $p<0.01$) also showed weaker significant relationship with behavioural intention (refer to Appendix I). Online shopping anxiety showed insignificant relationship with behavioural intention ($p<0.05$).

Table 6. 25
Relationship between Anxiety and Behavioural Intention

	BI	AN	Ian	Can	OSan
Behavioural Intention (BI)	1				
Anxiety (AN)		.152**	1		
<i>Internet (Ian)</i>		.164**	.895**	1	
<i>Computer (Can)</i>		.160**	.943**	.775**	1
<i>Online Shopping (OSan)</i>	.092	.905**	.680**	.810**	1

Note: * $p<0.05$; ** $p<0.01$

According to the result of the correlation conducted, all the variables are correlated significantly and in the expected positive direction towards behavioural intention except online shopping anxiety.

6.2.11.4 Gender and Education Programme

Table 6.26 illustrates the relationship between gender and education programme with behavioural intention (refer to Appendix J). Gender and Education Programme are nominal data that need to recode as dummy variable (1 and 0) before any correlation analysis can be done (Jacob Cohen, Cohen, West, & Aiken, 2013). The data being recode to scale. Both had no significant relationship with Behavioural Intention ($p>0.05$).

Table 6. 26
Relationship among Gender, Programme and Behavioural Intention

	BI	Gender	Program
Behavioural Intention (BI)	1		
Gender	-.021	1	
Programme	-.001	-.067	1

6.2.12 Multiple Linear Regression

Multiple linear regression analysis is an extension of simple linear regression. The basic idea of regression analysis is to use data on a quantitative independent variable to predict or explain variation in a quantitative dependent variable. A hypothesis can be defined as a tentative, yet testable statement which predicts what the researchers expect to find in their empirical data. Hypotheses are derived from the theory on which the conceptual model is based and are often relational in nature (Sekaran & Bougie, 2010). This weight, given in terms of a probability, is called the level of significance (or alpha p-value) of the statistical test. More formally, the level of significance is defined as the probability of obtaining a value of the test statistic that is as likely or more likely to reject H_0 as the actual observed value of the test statistic. For the purpose of this study, multiple linear regression was carried out to examine the effect of independent variables (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Self-efficacy, Anxiety and Education Programme) on dependent variables (Behavioural Intention and Use Behaviour). Multiple regression analysis was used to determine whether dependent variables were related or not to other independent variables. It can measure the relationship between several independent variables and the dependent variables. Multiple regression was used to test the impact on purchase intention from online stores (Huang & Oppewal, 2006) and on consumers' attitudes towards online shopping (Delafrooz *et al.*, 2010). This research used multiple regression analysis to test the direct links between independent variables and depended variable as demonstrated by Khechine, Lakhel, Pascot and Bytha (2014). The result of hypothesis testing is summarized in Table 6.27.

Table 6. 27

Summary of multiple regression results on Behavioural Intention without moderating variables

	B	T	Sig.
Performance Expectation	.161	2.434	.015
Effort Expectancy	-.003	-.036	.971
Social Influence	.149	2.136	.033
Internet Anxiety	.012	.318	.751
Computer Anxiety	.041	.876	.381
Online shopping Anxiety	.015	.355	.723
Internet Self-Efficacy	.006	.089	.930
Computer Self-Efficacy	-.027	-.479	.632
Online shopping Self-Efficacy	.604	8.772	.000
JKM	.211	1.733	.084
JTM	-.050	-.320	.749
JKE	-.103	-.972	.331
JKA	.083	.626	.532
JHP	.063	.415	.678
Behavioural Intention to use polytechnic e-retail website		$R^2 = 0.637$	
F		44.684	
Sig.		0.000	

The impact of predictors indicate that all independents variables explained 63.7 percent of the variation in Behavioural intention ($R^2=0.637$, $F=44.684$, $p<0.01$); hence, this is reasonably a good model.

6.2.12.1 Effect of Performance Expectancy, Effort Expectancy and Social Influence on Behavioural Intention

Table 6. 27 explains the multiple regression to the test of H1,H2 and H3 regarding the effect of Performance expectancy, Effort expectancy and Social influence on Behavioural intention. The result shows that Social influence is a significant predictor to behavioural intention ($\beta=0.149$, $t=2.136$, $p<0.01$), followed by Performance expectation ($\beta=0.161$, $t=2.434$, $p<0.01$). Effort expectancy was found to have no

significant effect on Behavioural intention ($p>0.05$). These findings had successfully supported H1 and H3, but failed to support H2. Hence, H1 and H3 were accepted. The result of hypothesis testing is summarized in Table 6. 28.

Table 6. 28

Summary of the hypothesis testing from multiple regression analysis (PE, EE, SI)

H No	Hypotheses	Results
H1	Performance Expectancy has significant influence on Students Behavioural Intention of the polytechnic consumer co-operative website.	Supported
H2	Effort Expectancy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
H3	Social Influence has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Supported

6.2.12.2 Effect of students Self Efficacy on Behavioural Intention

H5 was developed to test the effect of students' self-efficacy on behavioural intention.

The result of regression for this purpose is established in Table 6.27. Only Online shopping self-efficacy is a significant predictor to behavioural intention ($\beta=0.604$, $t=8.772$, $p<0.01$). Hence, this study accepts H5c, but rejects H5a and H5b.

Table 6. 29 explain the summary of hypothesis testing result.

Table 6. 29

Summary of the hypothesis testing from multiple regression analysis (SE)

H No	Hypotheses	Results
H5(a-c)	Hypothesis (5a): Internet self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
	Hypothesis (5b): Computer self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
	Hypothesis (5c): Online Shopping self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Supported

6.2.12.3 Effect of students anxiety on Behavioural Intention

H6 was developed to test the effect of anxiety on behavioural intention. The result of regression for this purpose is established in Table 6.27. It was also found that internet anxiety, computer anxiety and online shopping anxiety did not have any significant effect on behavioural intention. These findings failed to support H6a, H6b and H6c. Hence, this study rejects H6a, H6b and H6c. The result of hypothesis testing of students anxiety construct is summarized in Table 6. 30

Table 6. 30

Summary of the hypothesis testing from multiple regression analysis (Anx)

H No	Hypotheses	Results
H6(a-c)	Hypothesis (6a): Internet anxiety has significant influence on Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
	Hypothesis (6b): Online shopping anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
	Hypothesis (6c): Computer anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported

6.2.12.4 Effect of Education Programme on Behavioural Intention

Next, Table 6.27 illustrates the summary of regression analysis to examine the effect of educational programme on behavioural intention. This finding also tested H7. It was found that the background of education had no significant effect on behavioural intention ($p>0.05$). This finding failed to support H7. Hence, H7 was rejected.

6.2.12.5 Effect of Facilitating Conditions on Use Behaviour

Next, Table 6. 31 summarises the result to examine the effect of facilitating condition on Use Behaviour. The analysis was derived from Alkhunaizan and Love (2012) but was different from Khechine *et al.*(2014) who analysed towards intention. This

analysis was attempted to test H4. The result of linear regression indicated that the model explained 35.4 percent of Use Behaviour. Facilitating condition was also found to have a significant effect on Use Behaviour ($\beta=0.606$, $t=14.233$, $p<0.01$). Hence, H4 was also accepted.

Table 6. 31
Effect of Facilitating Condition on Use Behaviour

	R²	F	B	T	Sig.
Facilitating Condition	0.354	202.590	0.606	14.233	0.000

Table 6. 32 explain the summary of hypothesis testing result

Table 6. 32
Summary of the hypothesis testing from multiple regression analysis (FC)

H No	Hypothesis	Results
H4	Facilitating Conditions has significant influence on Use Behaviour of the polytechnic co-operative e-retail website.	Supported

6.2.12.6 Effect of Behavioural Intention on Use Behaviour

Table 6.33 illustrates the result of linear regression analysis to examine the effect of behavioural intention on use behaviour. It was demonstrated by Alkhunaizan and Love (2012). It was found that behavioural intention failed to explained use behaviour ($R^2=0.002$, $F=0.920$, $p>0.05$). The finding failed to support H11. Thus, H11 was rejected.

Table 6. 33
Effect of Behavioural Intention on Use Behaviour

	R²	F	B	t	Sig.
Behavioural Intention (BI)	0.002	0.920	-0.180	-0.959	0.338

James and Brett (1984) indicated three requirements of a mediating variable. In order to test the mediating effect, an independent variable must have a significant

relationship with the mediating variable. Then, the mediating variable must have a significant relationship with the dependent variable. When there is a mediating variable, the independent variable has less or no influence on the dependent variable. If the impact decreases significantly or disappears, it means the mediating variable completely decides how independent variables affect the dependent variable. If that effect does not decrease significantly, it means the mediating variable partly decide the effects of independent variables on the dependent variable. In this research BI does not mediate Use Behaviour.

6.2.13 Hierarchical Regressions on moderating effect

Hierarchical multiple regression analysis was applied to test on TAM and TPB (Fusilier & Durlabhji, 2005). Hierarchical regression was carried out to test the moderation effect of gender on the relationship between independent variables and behavioural intention. 3-steps hierarchical regressions are needed for this purpose.

Model 1:

In Model 1, the analysis indicated the effect of independent variables on behavioural intention. In overall, all the independent variables as a whole were found to contribute to behavioural intention significantly for 63.7 percent ($R^2 = 0.637$, $F = 44.684$, $p = 0.000$) and only three independent variables were found to have significant prediction to behavioural intention. They were performance expectancy ($\beta=0.161$, $t=2.434$, $p<0.01$), social influence ($\beta =0.149$, $t=2.136$, $p<0.01$), and online shop self-efficacy ($\beta =0.604$, $t=8.772$, $p<0.01$).

Model 2:

In model 2, moderating variable that is gender was inserted to predict behavioural intention. The results revealed that the insertion of gender in the model failed to bring the significant changes in predicting behavioural intention (R^2 change=0.002, F change=2.800, $p>0.05$). However, it was also found that the insertion of gender in the model had increased the effect of performance expectancy ($\beta =0.165$, $t=2.485$, $p<0.01$).

Model 3:

Model 3 was developed to test the effect of independent variables, moderating variable and the interaction between independent variables and moderating variable (IV x MV) on behavioural intention as the dependent variable. The result also indicated that the insertion of these interaction also failed to give significant changes to all model (R^2 change=0.006, F change=0.628, $p>0.05$). None of the variables and interaction significantly affected behavioural intention. Therefore, it can be concluded that gender failed to moderate the relationship between independent variables and behavioural intention. Hence, H8, H9 and H10 were rejected. Table 6.34 shows the summary of hierarchical regressions.

Table 6. 34
Moderating Effect of Gender

	B	t	Sig.
Model 1 IV to DV			
compPerfo	.161	2.434	.015
compEffort	-.003	-.036	.971
compSocial	.149	2.136	.033
JKM	.211	1.733	.084
JTM	-.050	-.320	.749
JKE	-.103	-.972	.331
JKA	.083	.626	.532
JHP	.063	.415	.678
internet anxiety	.012	.318	.751
computer anxiety	.041	.876	.381
online shooping anxiety	.015	.355	.723
internet self efficacy	.006	.089	.930
computer self efficacy	-.027	-.479	.632
online shooping self efficacy	.604	8.772	.000
R ²	0.637		
F	44.684		
Sig	0.000		
Model 2: IV + MV to DV			
compPerfo	.075	.295	.768
compEffort	.165	2.489	.013
compSocial	.001	.015	.988
JKM	.147	2.115	.035
JTM	.274	2.072	.039
JKE	-.036	-.226	.822
JKA	-.058	-.517	.606
JHP	.117	.861	.390
Gender	.066	.431	.667
internet anxiety	.107	1.225	.221
computer anxiety	.016	.407	.685
online shooping anxiety	.038	.821	.412
internet self efficacy	.014	.339	.735
computer self efficacy	.006	.098	.922
online shooping self efficacy	-.024	-.411	.681
R	.599	8.689	.000
R ² change	0.639		
F	0.002		
F change	41.864		
	2.800		
	0.000		

Table 6.34 Continued

DV	B	T	Sig.
performance expectation	.138	1.272	.204
effort expectancy	.057	.472	.637
social influence	.129	1.200	.231
gender	-.272	-.546	.586
JKM	.125	.626	.532
JTM	-.472	-1.542	.124
JKE	-.293	-1.515	.131
JKA	-.074	-.328	.743
JHP	-.481	-1.362	.174
internet anxiety	.021	.525	.600
computer anxiety	.033	.649	.517
online shopping anxiety	.007	.155	.877
internet self efficacy	-.025	-.311	.756
computer self efficacy	-.019	-.317	.751
online shopping self efficacy	.601	8.436	.000
genderXpe	.049	.352	.725
genderXee	-.100	-.639	.523
genderXsi	.034	.241	.810
genderXse	.040	.320	.749
genderXan	.009	.172	.863
GENDERxJKM	.060	.201	.841
GENDERxJTM	.591	1.638	.102
GENDERxJKE	.349	1.434	.153
GENDERxJKA	.226	.777	.438
GENDERxJHP	.666	1.695	.091
<i>R</i> ²	0.645		
<i>R</i> ² change	0.006		
<i>F</i>	25.106		
<i>Sig.</i>	0.000		
<i>F</i> change	0.628		
<i>Sig. F Change</i>	0.790		

The result of hypothesis testing of students anxiety construct is summarized in Table 6.35

Table 6. 35
Summary of hypothesis testing gender

H No	Hypotheses	Results
H8	Gender moderates the relationship between Performance Expectancy and Students Behavioural Intention.	Not Supported
H9	Gender moderates the relationship between Effort Expectancy and Students Behavioural Intention.	Not Supported
H10	Gender moderates the relationship between Social Influence and Students Behavioural Intention.	Not Supported

6.3 Summary

In this chapter, the first section discussed the process model of developing the polytechnic e-retail website. It investigates the planning and requirement stage, development and design stage, evaluating stage, and implementation stage. This is to show how the process model development of the e-retail website. In addition a new stage (internet marketing) was introduced in order to extend the ordinary SDLC.

In the second section, analysis of the data and results through statistical testing were presented as proposed in the previous chapter. Table 6.36 summarizes the tested hypotheses.

Table 6. 36
Summary of tested hypotheses results

H No	Hypotheses	Results
H1	Performance Expectancy has significant influence on Students Behavioural Intention of the polytechnic consumer co-operative website.	Supported
H2	Effort Expectancy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
H3	Social Influence has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Supported
H4	Facilitating Conditions has significant influence on Use Behaviour of a polytechnic co-operative e-retail website.	Supported
H5(a-c)	Hypothesis (5a): Internet self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (5b): Computer self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (5c): Online Shopping self-efficacy has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported Not Supported Supported
H6(a-c)	Hypothesis (6a): Internet anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (6b): Online shopping anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website. Hypothesis (6c): Computer anxiety has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported Not Supported Not Supported
H7	Education Programme Background has significant influence on Students Behavioural Intention of the polytechnic co-operative e-retail website.	Not Supported
H8	Gender moderates the relationship between Performance Expectancy and Students Behavioural Intention.	Not Supported
H9	Gender moderates the relationship between Effort Expectancy and Students Behavioural Intention.	Not Supported
H10	Gender moderates the relationship between Social Influence and Students Behavioural Intention.	Not Supported
H11	Students Behavioural Intention has significant influence on Use Behaviour of the polytechnic co-operative e-retail website.	Not Supported

Figure 6. 25 summarizes the research findings.

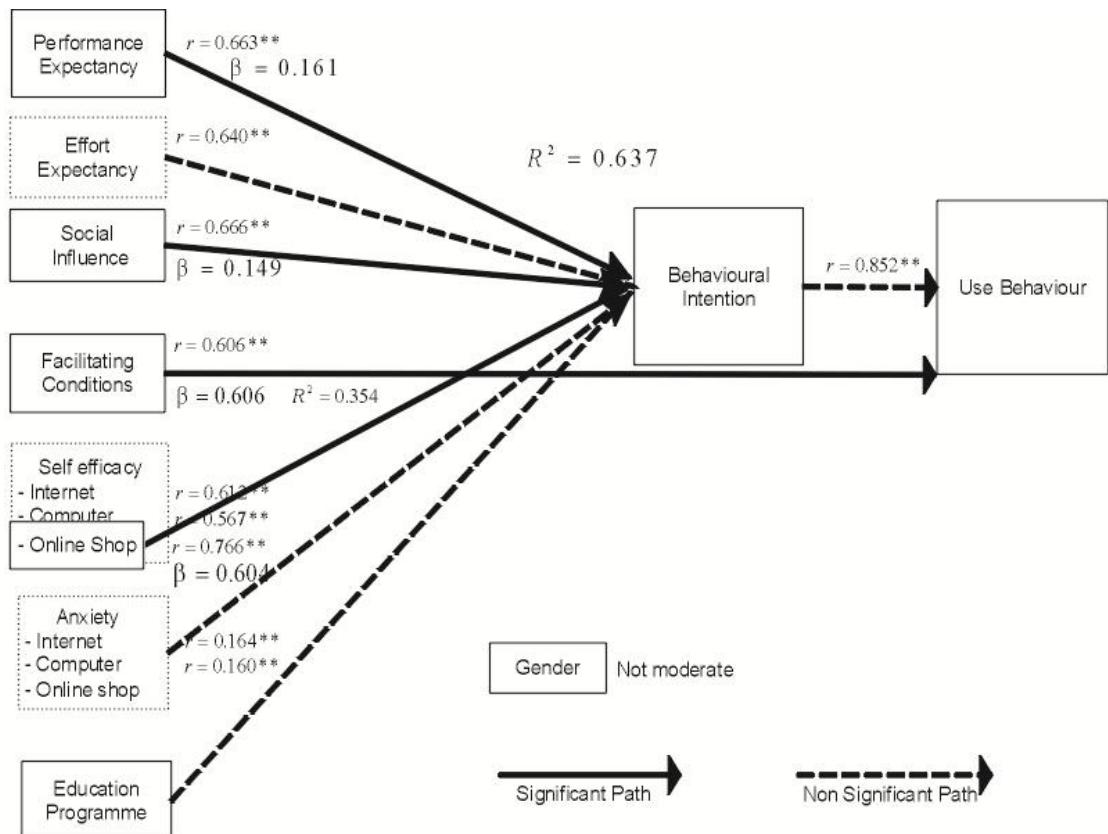


Figure 6. 25 Research findings diagram

Chapter 7 will discuss and conclude the findings of this research.

CHAPTER SEVEN

DISCUSSION AND CONCLUSION

7.0 Introduction

There are two phases of this research. The first phase is to propose a web design process model and to develop the polytechnic co-operative e-retail website. The process model was appropriately documented in order to develop the polytechnic co-operative e-retail website. SDLC was used for the requirement of process model and referred by other previous researchers through the literature. Participant observation technique was conducted throughout the study. The second phase is to measure the acceptance of the polytechnic co-operative e-retail website. UTAUT was the underpinning theory extended with education programme, three dimensions of self-efficacy and anxiety which were computer, the Internet and online shop. This chapter is organised in part the study objective, methodology, summary of the findings, discussion of the findings, the research implication, recommendation and conclusion.

7.1 Discussion on the proposed process model (Phase 1)

The first phase includes two research questions which are to overcome the problem statement stated in the earlier chapter. Participant observation technique was conducted to demonstrate and to document the process model for developing the co-operative e-retail website. Furthermore, the e-retail website for polytechnic co-operative was developed based on the process model. Table 7. 1 summarizes the research questions, research objectives, approaches and findings.

Table 7.1
Summary of phase 1

Research Questions	Research Objectives	Approaches	Finding
1. How can polytechnic co-operative design its e-retail website successfully by using the Content Management Software (CMS)?	<p>1. To propose a web design process model for polytechnic co-operative e-retail website using the Content Management Software (CMS) package selection.</p> <p>2. To develop the polytechnic co-operative e-retail website using the proposed web design process model.</p>	<p>Case study. Participant observation technique</p>	<p>Process model</p> <p>Co-operative e-retail website</p>

The findings lead to the research objective which is to propose a web design process model for polytechnic co-operative e-retail website using the Content Management Software (CMS) package selection. The case study on polytechnic co-operative e-retail website demonstrates the web design process model through participant observation technique. While previous researches focused on the development/architecture of CMS, this research concentrates on the used of CMS in order to propose the web design process model of e-retail websites.

The present research introduces participant observation in the web design process for polytechnic e-retail website. As the case study demonstrates, participant observation is a research method whereby webmaster (participant observer) remains as an insider who collects information about the development of a process model throughout the research. Participant observation in this research shows an effective way of gaining new and fresh insights into customers behaviour, discovering managerial and customer action during the process and documenting the process as a practical guideline for future online retailers. Participant observation in this research allows

webmaster to capitalise on the practical knowledge to produce an academic research which is relevant to industry practitioners and scholars alike. The possibility from participant observation is to examine various aspects of management, technology and marketing from within the process model. Figure 5.3 is the early proposed design process model through literature. Basically, previous researchers (such as Bamasoud, 2010; Cao *et al.*, 2005; Noorfadzilah *et al.*, 2010) mostly provide guidelines for web interface design since empirical studies show a significant effect of web design on online consumer's intention behaviour. Through the process model, webmaster practically deploys the guidelines from previous research as mention at Figure 6.22. The suggested process model provides guidance for e-retail business towards successful e-retail website deployment. The process model is entirely appropriate, better equip the e-retail business to develop a web design process model and to make a better decision on "what" process to implement, and "how" to implement.

7.1.1 Planning and Requirement Analysis phase

Planning and requirement analysis phase in this research provides details of elaboration on managerial decision, financial decision, human resource allocation and training. Most researcher model focuses more on technical issues regarding requirement analysis. Whereas, e-retail business should also undergo managerial process before it could be set up. Information may best be gathered through verbal brainstorming during meeting presentation. Previous research such as Han (2004) only discussed the search for CMS in planning and the requirement of online library. Kiatruangkrai *et al.* (2010) focused on overcoming users' difficulty in CMS. Both did not test in end user actual e-retail business as what this research did.

7.1.2 Development and Design phase

The tools and features in the selected CMS platform (easy.my) could easily be managed and updated by the webmaster (participant observer). The participant observer has to understand basic design principles and the application in order to translate these into an effective web site. The CMS tools and features in easy.my are in line with Liu *et al.* (2010) suggestion that CMS needs a tool that easily, efficiently update and easily manage the website. The process of development, designing and monitoring are based on control panel (CPanel) provided by the hosting package. Previous model focuses on architecture of CMS by using HTML,CSS, PHP or other languages whereby the web developer or webmaster should have a good knowledge on programming language. This research shows the use of CMS and the knowledge on the use of CMS could be learned in a short course which save cost and time.

7.1.3 Evaluation phase

This stage has developed an approach to evaluate the usability of e-retail website. The approach involves focus group to provide an indication of usability problem areas on e-retail website. It reduce time and cost. Subsequently, other methods can be use to provide in depth about problems on the e-retail website. Usability testing is vital for this website to be completed. An evaluation is not incorporated into the implementation stage so that webmaster can continually has ability to suggest new link, changing appearance and react to co-operative request. Site process flow must be clear in the storefront appearance especially in the shopping cart navigation. According to Junaini and Sidi (2007), site process flow should be vital when the user wants to make transaction online. Webmaster must pay special attention to usability

testing because it covers system related factors and content related factors. Focus group methodology of usability testing is very useful in providing a better understanding of successful website design. The focus group for this research involved real users while previous process model by Han (2004) did not conduct usability testing. Noorfadzilah *et al.* (2010) performed a usability testing and suggested an evaluation to be conducted in future research. So, this model not only performed usability testing but also measured the effectiveness through acceptance model (UTAUT). Ideally, when webmaster identifies problems after usability testing, Web provider's company should overcome the problem. However, participants have identified small number of problems. Since that no major changes has been made, web features by using CMS in this research show user satisfaction. Empirically, in this research Effort Expectation has insignificant relationship towards Behavioural Intention. Not much effort are needed to surf the website.

7.1.4 Implementation phase

In the implementation phase, it does not indicate the end process yet. Kiatruangkrai *et al.* (2010) did not elaborate on payment service features compared to this research's process model. Moreover this model discuss on multiple payment method which are improving feature plan which is in line with Aulia and Dhewanto (2014). They suggested to add features on implementing real-time communication features. That is why this model inserts a real-time communication features (SkypeTM and instant message) so that the information, comments, feedback can be current and easy on reaction. The implementation has provided insight view which is different from Kiatruangkrai *et al.* (2010).

7.1.5 Internet Marketing phase

SDLC does not integrate Internet marketing in the life cycle. Most previous research model ends with the implementation (such as Abels *et al.*, 1999; Long *et al.*, 2005; Hocko, 2011), maintenance (such as Cunliffe, 2000) or testing (such as Kiatruangkrai *et al.*, 2010). They do not describe Internet marketing. Goi (2007a) discussed Internet marketing but the discussion does not present conclusive evidence. For the e-retail website, internet marketing plays an important role in the successfullness of e-retail business. One of the marketing tools in this research is the use of social media. FacebookTM content must be properly designed, relevant, informative, and should include the use of multiple media presentation platforms such as videos, audios, texts and animations suggested by Shahizan *et al.* (2015). This model features joining form by user login using social media without additional form as suggested by Aulia and Dhewanto (2014). Marketing through social media does not cost the firm so much (Kirtis & Karahan, 2011) and it is also what the researcher face in marketing the website. However, the challenge is on how to translate marketing to sales. To comply with Küster and Vila (2011), the researcher used FacebookTM. It acts as a medium of communication in order to overcome comments, claims and suggestions in this research process model. Furthermore, 85% of subjects tended to seek online review or comments from others when considering shopping online (Zhang *et al.*, 2014). The more people suggest e-shopping to each other, the more e-shopping will be popular (Moshrefjavadi *et al.*, 2012).

7.2 Discussion on User Acceptance evaluation (Phase 2)

Particularly, in the second phase, this research examines the significant influence between antecedents of technology acceptance (UTAUT) with intention to use and the relationship between intention to use and actual usage on the co-operative e-retail website. It is acceptable that online retailers have to understand the antecedents of consumer acceptance of online shopping and does technology acceptance model valid and precise enough to be useful tools of evaluation. It also investigates the significant influence between self- efficacy (computer self-efficacy, internet self-efficacy and online shopping efficacy), anxiety (computer anxiety, internet anxiety and online shopping anxiety) and education programme towards the intention to use the polytechnic co-operative e-retail website.

Revisiting the research questions of this research is commenced to seek answers to the research questions which are;

- (i) To what extent does the polytechnic co-operative e-retail website is accepted by its customers?
- (ii) Can UTAUT be adapted to measure the acceptance of polytechnic co-operative e-retail website?

and the research objectives are;

To measure the acceptance of the polytechnic co-operative e-retail website through the use of modified UTAUT. The sub objectives are:

- a. To determine the significant effect of education programme, self-efficacy and anxiety in measuring students' Behavioural Intention to acceptance on online shopping of the polytechnic co-operative e-retail website.
- b. To examine the moderating effects of gender on the relationship between determinants of student Behavioural Intention on online shopping of the polytechnic co-operative website.

Data were gathered from polytechnic students from five polytechnics in Malaysia. Five hundred questionnaires were distributed and three hundred and seventy six were usable and analysed. Factor analyses were utilized to examine factorial validity and internal consistency was tested by computing Cronbach's alpha. Finally, data were analysed using SPSS to test the hypotheses of the study.

This research utilized Unified Theory of Acceptance and Use of Technology (UTAUT) as a basis in developing the research framework on evaluating user acceptance on co-operative e-retail website. Correlations were used to examine the relationship between the construct. It provides an initial test. This research also used regression analysis to test the hypotheses and allow further validation of the instrument. The R^2 indicates the amount of variance explained by the model. This research analysis explained a moderate to large amount of variance in the construct. The linear regression model for Behavioural Intention was at $R^2=0.49$. The analysis for Behavioral Intention to self efficacy was strong amount of variance explained ($R^2=0.582$). This research found mixed support for research hypotheses as shown in Table 6.38.

7.2.1 Use Behaviour level of co-operative e-retail website

The findings reveal that the use behaviour of co-operative e-retail website is relatively high (mean=4.77), which is consistent with the finding by Amoroso and Hunsinger (2009) but it is contradicted with Pavlou and Fygenson (2006). The use behaviour does not always correlate with the end result of consumers purchasing product from the online store. Website design not significantly associate with online shopping (Syed *et al.*, 2008). In some cases, consumers who go online to get information to

reduce the uncertainty of product purchasing in the website are also indicated as use behaviour. Some cases, the actual usage focuses on online purchasing activities. In this research intention to purchase does not have significant relationship with actual usage. When the researcher did a comparison with online database actual sales in co-operative e retail website, it did not show buying activities among the students sample. This is the risk of distorted research (Lee, Kozar, & Larsen, 2003; Straub, Limayem, & Karahanna, 1995). It is regarding of self-reported usage and actual system usage. They found that self-reported usage shows distinctly different result from actual system usage.

The integration of the website with FacebookTM also promotes the website because most students have FacebookTM ownership. Internet infrastructure in polytechnic, students' resources (smart phone and computer) and students' knowledge are important to the success of the co-operative e-retail website. Thus, besides polytechnic leader providing the facilities, co-operative leader also should invest in a strategic planning for better improvement of the co-operative e-retail website especially on marketing (4 P'-Price, Place, Promotion, Product). Furthermore, computer and internet knowledge of students are relatively high. In this research, half of the samples are aware on the establishment of co-operative e-retail website prior to the data collection.

7.2.2 The relationship between Performance Expectancy and Behavioural Intention

In this research, correlation analysis showed positive relationship between Performance Expectancy and Behavioural Intention which was contradicted from

Marchewka *et al.* (2007). In some cases, Performance Expectancy was derived from Perceived Usefulness in TAM (Al-Qeisi *et al.*, 2014; Keong, Ramayah, Kurnia, & Chiun, 2012; Venkatesh *et al.*, 2003).

Multiple regression analysis showed Performance Expectancy was proven as important determinants of Behavioural Intention. It is also consistent with previous studies such as Venkatesh *et al.* (2003), Wang *et al.* (2006) and, Nysveen and Pedersen (2014). Performance expectancy also influence the level of RFID adoption to buy books (Van Der Sijde, Van Reekum, Jeurissen, & Rosendaal, 2014) and ICT usage in Nigeria Tertiary Institution (Oye, Noorminshah, & Nor Zairah, 2011). The researcher believes that students with high Performance Expectancy are more likely to use the co-operative e-retail website. That is why, during the participant observer activities, the researcher focused on the web contents which were valuable for the potential customer. Moreover, students highly valued the benefits of Performance Expectancy (Al-Qeisi *et al.*, 2014).

7.2.3 The relationship between Effort Expectancy and Behavioural Intention

According to Venkatesh *et al.* (2003), this factor was derived from the perceived ease of use factor as proposed in TAM. Even though Effort Expectancy has a correlation with Behavioural Intention, it does not significantly influence students' intention to use the co-operative e-retail website. It was contradicted from Oye *et al.* (2011) in ICT Usage. CMS not just solve issues in the website development. It also shows not much effort is necessary to navigate cooperative e-retail website. These might make no difficulty for students to use the co-operative e-retail website. Along with a study by Wang *et al.*, 2006 shows partial significant effect of Effort Expectancy on

Behavioural Intention in a study on e-government website and also does not significant effect on RFID adoption to buy books (Van Der Sijde *et al.*, 2014). In perceived ease of use, Cha (2011) also shows an insignificant effect of PEOU with purchase intention of virtual product items. In some cases retailers consider in product cataloguing, intentional behaviour among students is different in the context of real product item and virtual product item.

7.2.4 The relationship between Social Influence and Behavioural Intention

Social Influence has a relationship with Behavioural Intention in correlation analysis. This factor is similar to the factor “subjective norm” as defined in TAM2, an extension of TAM (Venkatesh and Davis, 2000). In TAM2, subjective norm exerts a significant direct effect on usage intentions. This is in line with Amoroso and Hunsinger (2009). This research also shows that social influence has a significant effect on student intention. This is in line with previous studies by Venkatesh *et al.* (2003), Wang *et al.* (2006) in e-government context, Oye *et al.* (2011) in ICT Usage and Escobar-Rodríguez and Carvajal-Trujillo (2014) in e-ticketing. As a generation Y (young consumers), friends, other people or reference group might play an important roles in influencing behaviour. The opinion of other people, purchase decisions and looking for approval from other people are important to them (Atilgan-Inan & Karaca, 2011). Along with Cha (2011), targeting college students market may need retailer to add interaction features that allow interaction with friends while shopping to boost social influence and word of mouth. However, Al-Qeisi *et al.* (2014) believe that users may depend on their own beliefs rather than on others’ opinion to form an intention in online banking. Reputation building is important in order to gain a

favorable opinion from the reference group, so that this group can actively recommend online purchasing (Escobar-Rodríguez & Carvajal-Trujillo, 2014).

7.2.5 The relationship between Facilitating Condition and Use Behaviour

Correlation analysis on Facilitating Condition shows a relationship with Behavioural Intention. This research has proven that facilitating condition does have an effect on the use behaviour and it is consistent with Wang *et al.* (2006) and Venkatesh *et al.* (2003). The same findings in Nysveen and Pedersen (2014) and, Escobar-Rodríguez and Carvajal-Trujillo (2014). Technical resources are important for user acceptance of IT. (Escobar-Rodríguez & Carvajal-Trujillo, 2014). Internet condition in polytechnic plays a major role in this research. Without a good connectivity, students will not be able and are difficult to navigate the particular website especially during this research. Besides using simple graphics, the speed and memories of the hardware also should be considered (Cao *et al.*, 2005). Support and resources for online shopping influence use behaviour. Consequently, co-operative e-retail business, organization and government should facilitate the possibility of online purchasing by making support and resources so that it can resolve many problems that may encounter during the transaction process.

7.2.6 The relationship between self-efficacy and Behavioural Intention

Student self-efficacy on the internet, computer and online shopping were seen to be highly correlated to student behavioural intention. As far as online shopping self-efficacy is concerned, this research has discovered that it has significant influence on student's behavioural intention compared to internet self-efficacy and computer self-

efficacy. Contradict from Abdulhameed Rakan *et al.* (2010), they found that in the dimension of computer self-efficacy, it was significantly related to e-learning. Also the result from Shen *et al.* (2009), demonstrated that self-efficacy was positively associated with online purchasing intention. In the context of computer self-efficacy on gender, gender not a factor influencing undergraduates' attitude toward computer self-efficacy (Sam *et al.*, 2005).

Greater internet accessibility increased consumer self-efficacy to engage in ideas related to online shopping self-efficacy that associated with online usage. Computer self-efficacy behaviour increases through institution support such as workshop, training and academic curriculum.

7.2.7 The relationship between anxiety and Behavioural Intention

The research has found that all dimension of anxiety do not significantly affect student behavioural intention. Due to students' exposure to technology, they do not have a high level of anxiety. This argumentation was supported by Sam *et al.* (2005).

It however contradicts with Abdulhameed Rakan *et al.* (2010) who believe that students' intention to use might be increased through computer anxiety in the context of e-learning. In term of correlation, computer anxiety demonstrated a direct positive effect on internet anxiety and online shopping anxiety which is partially supported by Thatcher *et al.* (2007) on the effect of internet anxiety towards computer self-efficacy. Students who spend longer hours using the Internet for education purposes generally had lower computer anxiety. Polytechnic students use the Internet extensively for educational purposes such as doing research, downloading materials, e-learning and e-

mail communication compared to doing online shopping. That is why online shopping is not correlated. With the technology development, students have more information than ever. Furthermore, computer anxiety behaviour decreases through institution support such as workshop, training and academic curriculum.

7.2.8 The relationship between education programme and Behavioural Intention

The statistical analyses show that education programme has no significant effect on online purchase intention. That means generally polytechnic programme has not affected on reason why students use e-retail website. Gong and Maddox, (2011) study on education also show insignificant results on Chinese online customers. This is also in line with Haque *et al.* (2006) in the context of graduate, certificate, post graduate, STPM Holder and SPM Holder towards online shopping in Malaysia. Exposure of students to the computer education since the school period may eliminate the relationship. In contrast, Naseri and Elliott (2011) showed significant relationship on the adoption of e-shopping.

7.2.9 Moderating effect of Gender

Correlation analysis also showed that gender has no significant relationship with Behavioural Intention. This is in line with a study by Gong and Maddox, (2011) on Chinese consumers in China. They believe that it may due to the rapid growth of the Internet and online shopping in China. However this appears to contradict with Cha (2011) who found that gender has a significant relationship with online shopping but

the research was on product selection but not on a website. Also Haque *et al.* (2006) found that gender has significant relationship with attitude towards online shopping.

Regression analysis showed that gender has no significant influence on Behavioural Intention. However, gender among students did not account for differences in the computer self-efficacy, internet-self efficacy, online shopping self-efficacy, computer anxiety, and internet anxiety towards behavioural intention. Male as well as female students seem to be equal to the use of computer and the Internet. This appears to support Sam *et al.* (2005). A study by Han *et al.* (2009) showed no significant differences in computer anxiety level between male and female students. Stafford, Turan and Raisinghani (2004) have shown that gender is not significant in predicting online shopping behaviour from an international and cross-cultural perspective. Increasing number of female uses the internet and the gender gap in this medium is decreasing (Hernandez *et al.*, 2011). The finding also consistent with Mohammed Atiquil Islam (2011), who found no significant differences across gender with respect to satisfaction to use wireless internet. But Wan, Nakayama and Sutcliffe (2010) showed another way around in the context of searching for experience goods, in the context of credence goods (Nysveen & Pedersen, 2014), in the context of experienced e-shopper (Hernandez *et al.*, 2011) and in the context of emotional trust and purchase intention (Zhang *et al.*, 2014). Gender does not moderate the relationship with any of the independent variables. The result is in line with Marchewka *et al.* (2007) on using Blackboard®. In this research, both male and female polytechnic students have the same level of quality education and access to technology, so, it may not be surprising that gender did not demonstrate a moderating effect on e-retail website.

7.2.10 The relationship between intention and use behaviour

Chen and Cheng (2009) found that behaviour intention has a significant impact in use behaviour in Taiwan. The differences are that they used top shopping store (PChome) and individual consumers with experience in online shopping. This research has found that behavioural intention do not significantly affect actual usage of co-operative e retail website. The finding of the research is consistent with the result of previous research by Hernandez *et al.* (2009). Student as a sample in this particular research might prove that the shopping intentions of young consumers over the Internet are expected to be dissimilar from adults (Atilgan-Inan & Karaca, 2011). This may due to the purchasing power among students relatively lower than adults. It is also in line with the actual sales record of polytechnic co-operative website from the case study associated with the Phase One of this research

7.3 Practical Contribution

This research provides significant benefits for retail business industries that implement an online shopping service. For business practitioners designing and/or managing online shopping website, this research indicates the process model on actual e-retail business. This research has provided the insight and shed light on developing a process model for venturing on online business. To this day, limited number of research proposed a process model for e-retail website development using CMS. The proposed model can be utilized as a guideline for a new process models in the particular area. While SDLC development models integrate the process until the maintenance stage, this model presented and demonstrated up until the marketing stage in an actual e-retail business. The usefulness was illustrated with the

development of web design process model. This process model would assist inexperienced web designer to reduce the complexity of an application, improve usability, marketing through FacebookTM and measuring customers' acceptance because it has some form of methodology/standard/best practise guide for web development project.

In regards of venturing to online business, managers should prepare a comprehensive plan not just for the website development but also on technology acceptance among consumers. Managers need to be aware of consumers behaviour on purchase decision, know the target customer and adapt with suitable advertising strategies. E-retailers also should use a unique product to entice students to this medium of shopping. Students online shopping can reduce family time spent searching, managing expenditure and reduce time shopping from traditional stores. Added to the research contribution is also on the measurement of acceptance using extended UTAUT. It also yields theoretical insights into the significant of anxiety and self-efficacy on behavioural intention. This research shows that three dimensions can be used to measure the self-efficacy and anxiety among individuals of e-retail website (internet, computer and online shopping). This research provides a measurement of self-efficacy and anxiety that might be applied in other contexts of online shopping.

7.4 Theoretical Contribution

This knowledge can help webmaster to promote the effectiveness of facebook advertising which will make the students more willing to use polytechnic co-operative

e-retail website. The findings of the research were partially supported for the UTAUT model in explaining student behavioural intention on e-retail co-operative website. An extended model of UTAUT was tested using SPSS to generate the e-retail co-operative website acceptance. The model offers an understanding about the relationship between dependent variables and independent variables. Significant relationship can be found between Performance Expectancy, Effort Expectancy, Social Influence and Behavioural Intention, as well as between Facilitating Conditions and Use Behaviour. This research includes three factors to conceptualize self-efficacy and anxiety which are the Internet, computer and online shopping. Computer anxiety, internet anxiety, computer self-efficacy, internet self-efficacy, online shopping self-efficacy and education programme show relationship towards Behavioural Intention. However, no relationship can be found on online shopping anxiety towards intention.

Additionally, the model identifies key facilitators affecting influence of behavioural intention. Performance Expectancy and Social Influence have a significant effect on behaviour intention. Facilitating Condition also has a significant effect on Use Behaviour. This research focuses on self-efficacy, anxiety and use behaviour in Malaysia context and shows that online shopping self-efficacy has a significant effect on behavioural intention. It enhances our understanding on student's behaviour among polytechnic students. While online shopping anxiety is not significant, shopping online self-efficacy is significant. This may mean that students need to be encouraged to make on-line purchasing because it is not a norm compared to the use of the Internet and computer.

In particular, to the researcher's knowledge, this research is one of the first local studies that address the issues of polytechnic students' intention of online shopping in Malaysia especially with the large sample.

7.5 Limitation

1. On process model

During participant observation in the design process, several challenges arose. In the planning and requirement analysis, the critical issue in participant observation is to attract interest in the project among the board of co-operative. Presentation to the board of co-operative is an important element in explaining the objectives and the planning of the project. People should be able to convince the board of co-operative in order to get the approval. The degree of researcher participant is not varied in all part of process model. The researcher plays active participative role in the web design process model to ensure that the project was on track. However, high degree of user participation did not guarantee the successful implementation and use of information system in the organization studied (Butler & Eireann, 1997). The selection of CMS is also difficult because there are so many hosting that provided the package selection. The researcher is able to compare a few hosting providers. In terms of cost, polytechnic co-operative are so helpful in financing some of the expenses such as registration domain, attending conference, training, gifts and contest.

Some issues in this are the development of CMS is not fully controlled by the researcher (as participant observer), the changes on the CMS by the developer do occur within the time line project. For example, in November 2013 there was a system

update whereby there were changes in the shopping cart, checkout process and version to html. In May 2014, the CPanel version on Linux shared hosting server was changed but it was not involved in the interface. Then, in 18 September 2014, CPanel issued an e mail regarding changes on CPanel interface. Nevertheless, training and helpdesk were enough to cope with the development and design issues as mention. Even access to the focus group was difficult to obtain, but once gained it provides a lot of information on web design. The same experience was also faced by Palsson (2007) in RFID implementation. Researcher findings on the focus group that have been reported to the hosting provided does not necessary ensure that action to be taken by the hosting provider.

The failure of online shopping was related to the product offered online because products and features of consumer behaviours are crucial to e-tailing success (So *et al.*, 2005). The researcher has difficulties in determining the product line suitable for the target market. This may lead to some product category related to product acceptance that must be taken for consideration when generalizing research result. During the annual general meetings, the chairman of co-operative board changed. Due to that, the interview session on the design process could not covered the whole process for validation because none of the top management were directly involved from the beginning to the end of the project. So, in order to get any attention and validation from the board, a progress report was issued. The progress report was presented in a board of co-operative meeting.

The package selection provided by service provider has several limitations. Web design and customization were on what has been provided on the web tools. Coding or programming languages were not used by the webmaster. The limitation on participant observation technique are that they might form own opinion (Iacono *et al.*, 2009) such as bias, so, examination of trustworthiness is important. Some researchers concern on ethical challenges, issues of researcher effects (their presence), standpoint and perception (Di Domenico & Phillips, 2010). Due to time and financial constraints, only one website represents polytechnic e-retail website.

2. On measuring acceptance

The researcher faces difficulty when using laboratory facilities because some of the lab facilities have problem with network and computers. Due to that, in some cases, the researcher has to change the approach by giving respondents two to three days to answer the questionnaire.

When trying to implement the CMS for polytechnic co-operative, the researcher has one single specific domain of CMS web hosting provider as a reference case. There is a possibility that the generalization is limited. Although the research subscribes only a single domain, the numbers of company that subscribes to the same CMS web hosting domain provider (easy.my) is quite a lot. Until today, 380 companies are using the same web hosting package. Testing the process model on other types of business or other e-commerce web hosting provider would further strengthen the findings on the process model and measuring acceptance.

Researcher faced difficulty on how to report data or information from the participant observation investigation and to present it because there is little discussion about the evidence for conclusions, analyzing data or operations compared to statistical data that can be summarized in tables (Palsson, 2007). Therefore, it may be essential to discuss and argue the results obtained with this methodology (participant observer). A limitation of this research may be the use of students as subject, however, this user group is among the primary target users of these kind of website.

The findings highlighted that there are more unexplored factors behind behavioural intention towards co-operative e-retail business which can provide researchers with more theoretical or empirical research on behavioural intention.

7.6 Future research

This research on measuring acceptance has been conducted on one shot research approach. Longitudinal study might enhance better understanding on student behaviour. Doing participant observation involves with overwhelming data on Insight statistics from Google Analytics (GA), FacebookTM , blog and website itself. These data have great potential for future analysis especially to uncover new insight on marketing research and for usability evaluation of website (Hasan *et al.*, 2013). Since this research objective is to propose a web design process model, future research can be extended until Return of Investment (ROI) through the process model. During the early stages of online business, it is quite difficult to achieve ROI. Due to that, in this case study, retail business should not just depend on online business as a sole business but should also be supported by other business synergy such as retail shop and

laundry shop until online business grows. One additional suggestion in extended UTAUT is to examine the use factors impacting online shopping, such as product. When the project was deployed, the issues of product arose. In the early implementation, the online product was based on identifying the product in a physical store. According to the founder and CEO of Christy Ng, product uniqueness is important in order to boost sales (Reblex, 2013), difficult to find from common outlet (Irfan, 2015) and with variety of products (Kurt, Savaş, Günay, & Çeştepe, 2014). A new deal with an IT/Communication company was obtained in this research in order for co-operative to sell new products. Previous researchers (such as Fenech & O'Cass, 2001; Haque *et al.*, 2006; Keisidou *et al.*, 2011) suggested product with minimum physical contact (feel, touch, smell or try) and assistance in shopping is one of the factors of suitability. For standardized and familiar products, consumer intention to shop online is astronomical. Product that need personal knowledge or experience and personal-care products, personal interaction with a sales person, consumer intention to shop online is low (Monsuwé *et al.*, 2004). In practice, future studies on how to get engaged with the product supply and examine the relationship on product need another research to discover. The process model can be transferable for future research to other types of website and other regional countries so that it will be described in sufficient for use by other webmaster.

7.7 Summary

This chapter concludes the findings of this research, as well as the theoretical implications, methodological implications, and practical implication of the acceptance of polytechnic co-operative e-retail website by polytechnic students. Furthermore, the answers to research questions and objectives have also been presented. In answering

the first research question, this research proposes a research model on how polytechnic co-operative design its e-retail website successfully by using the Content Management Software (CMS). For the second research question, this study has successfully extended UTAUT. This study attempts to determine the impact of UTAUT in online shopping behaviour among students. At the same time, it also attempt to determine the significance of self-efficacy and anxiety in the student behavioral intention on e-retail cooperative website. It provides an empirical test of three forms of self-efficacy (Computer Self-efficacy, Internet Self-efficacy, and Online Shopping Self-efficacy) and anxiety (Computer Anxiety, Internet Anxiety, and Online Shopping Anxiety) towards behavioral intention to shop online. The research subjects were 91,830 polytechnic students from 33 polytechnic in Malaysia. The polytechnic co-operative e-retail website has a strong capability to explain the variance of performance expectancy, social influence and facilitating condition. Performance Expectancy, Effort Expectancy and Facilitating Conditions play important roles in determining student online shopping intention at e-retail website. At the same time, online shopping self-efficacy shows significant effect on student online shopping behavioural intention. When the moderators are taken into consideration, the effect on student behavioural intention is not moderated by gender.

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