CHAPTER 1

INTRODUCTION

1.1   Introduction on research background

Interaction and communication applications of web 2.0 are growing and spreading so fast around the world. Among them are wikis, instant messaging, and online discussion groups. Nowadays, they are connecting more than a billion of individuals worldwide. Online social networks are new generations of these Web 2.0 applications (Cheung and Lee, 2010). Taking advantage of high broad band speed and increase of information systems importance in the society, these applications are diffusing globally as main collaboration and communication channels.

Online social networks provide a virtual place for individuals to create their own personal networks. In this virtual place, peoples own a profile which they can connect to others with mutual agreement. Afterwards, they can share their stories and present feelings by writing texts, uploading or sharing photos and videos with their connected friends. Their personal network can includes everybody such as people from their work, school, family, relatives and acquaintances. They inform and learn about happenings, events, ceremonies, sports, politics and so on. Online social networks not only provide platforms for online friendships, but they also enhance the relationship among offline friends (Shu and Chuang, 2011).

According to Kwon and Wen (2010) more and more people are feeling that social networks are beneficial for them and as a result social networks service providers are catering to millions of people around the globe. Based on Facebook statistics in 2011, this site is the first place for sharing information online. Members who log in everyday are above 600millions. They share and upload around 70 billion pieces of photos, videos, texts, comments consistently.

IT research scholars are paying more attention to online social networking usage behaviour recently. They are testing direct effects such as social influence (Cheung et al., 2010), technology acceptance factors (usefulness and ease of use), encouragement (Kwon and Wen, 2010), satisfaction (Jin et al., 2009), critical mass, trust, normative pressure and playfulness (Sledgianowski and Kulviwat, 2009), and the indirect effects of social identity, altruism, telepresence (Kwon and Wen, 2010), information quality, source credibility (Jin et al., 2009), status and sociability (Li, 2010).

Social networking usage and participation is one of the dominant situations in information technology. The extraordinary user growth of virtual world especially social networks stimulates the service providers for predicting huge revenues and at the same time verifies their high potential for marketing and business (Yeh et al., 2011). TNS Digital Life report on activating social media presents some interesting statistics around social networks as presented in the following charts:

**Fig. 1.1 Regional social networking usage (%)**
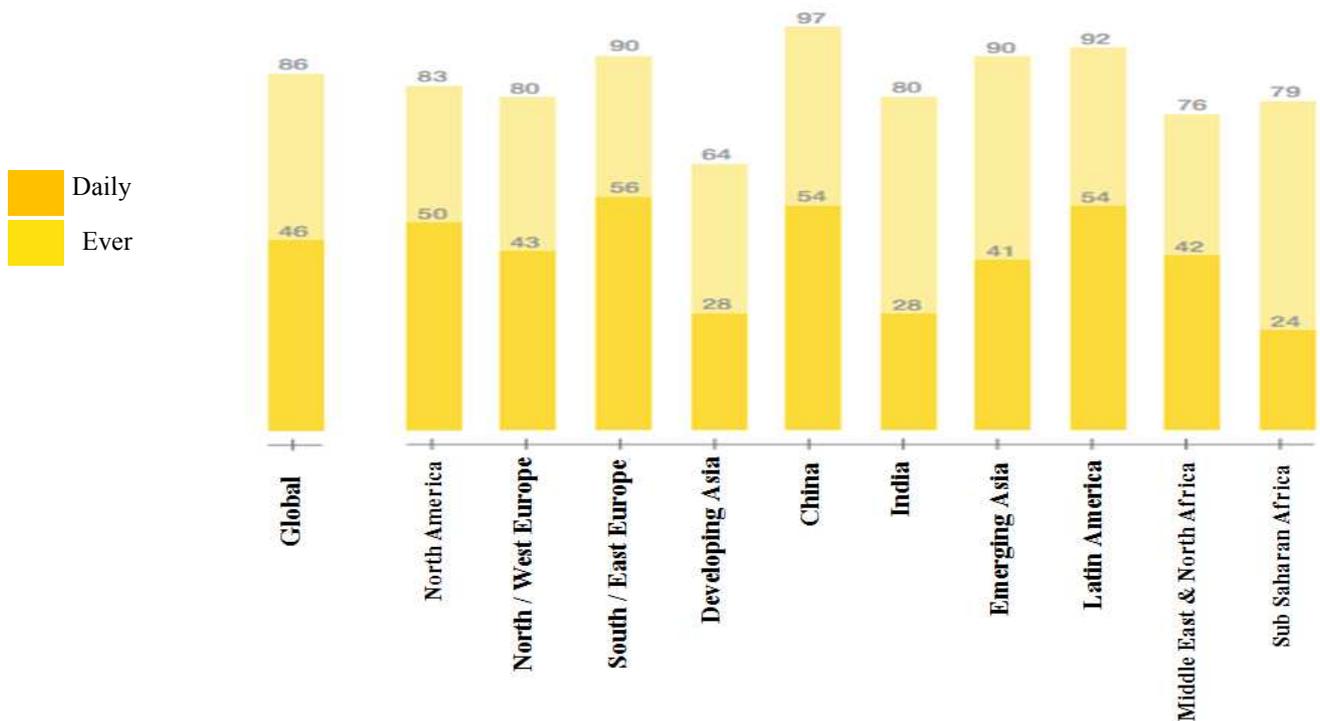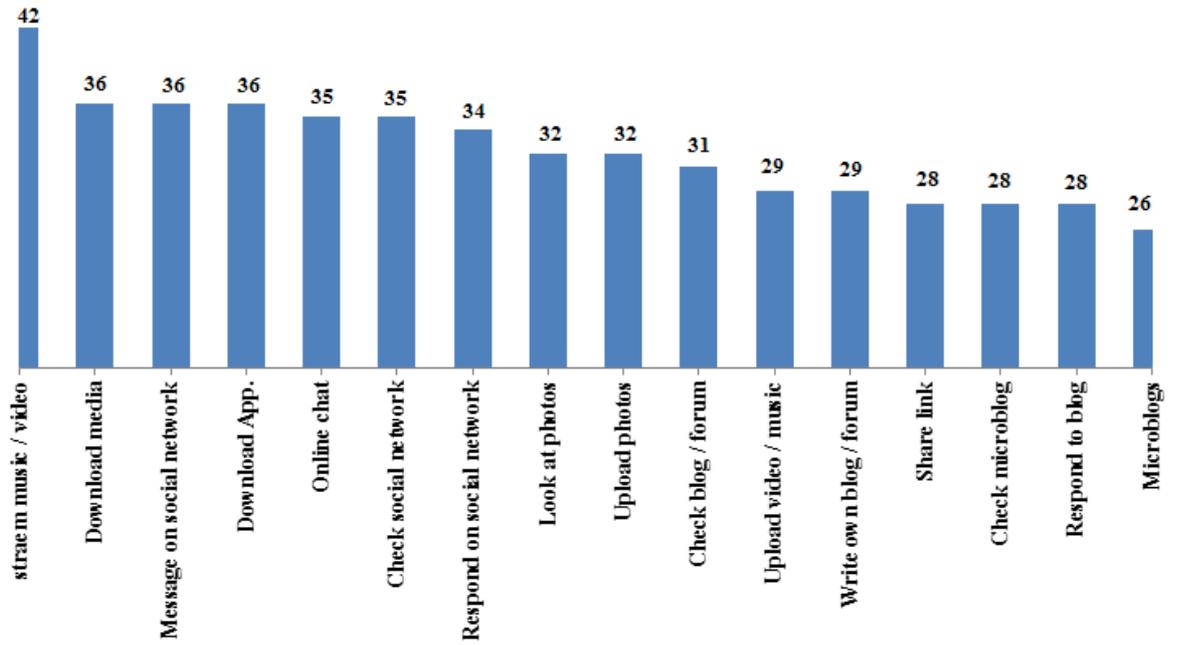
Fig.1.2 Increase in usage of social media activity (%)

Fig.1.3. Using 'user-generated 'online information of social networks to make purchase decisions (%)
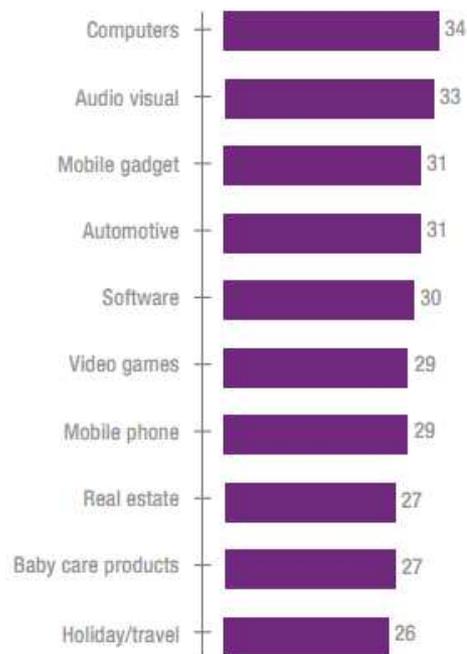
All above charts from TNS Digital Life report

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There are interesting researches that show the gender difference in using social networks. "Understanding gender-specific differences in Web usage is valuable to any digital stakeholder looking to successfully reach and engage both women and men in the online environment," said Linda Boland Abraham, comScore chief marketing officer and executive vice president for global development (Russell, 2010). According to Comsource research on 2010, women spend more time using social networks than men although it has been observed that men's visiting rate of social networking sites is slightly higher than women when they are connected to the internet. Based on Comsource results presented in table 1.1 it is conducted that:

"Globally, women demonstrate higher levels of engagement with social networking sites than men. Although women account for 47.9 percent of total unique visitors to the social networking category, they consume 57 percent of pages and account for nearly 57 percent of total minutes spent on these sites. Women spend significantly more time on social networking sites than men, with women averaging 5.5 hours per month compared to men's 4 hours, demonstrating the strong engagement that women across the globe share with social sites."

Table 1.1. Gender difference in worldwide social networking category usage

Worldwide Social Networking Category Usage and Engagement by Females and Males May 2010 Total Worldwide Audience, Age 15+ - Home & Work Locations* Source: comScore Media Metrix					
	Social Networking				
	% Reach	% Composition Unique Visitors	% Composition Pages	% Composition Minutes	Average Hours per Visitor
Total Audience	72.5%	100.0%	100.0%	100.0%	4.7
All Females	75.8%	47.9%	57.0%	56.6%	5.5
All Males	69.7%	52.1%	43.0%	43.4%	3.9

*Excludes visitation from public computers such as Internet cafes or access from mobile phones or PDAs.

This study examines social networking intention to use from the perspectives of network externalities, social presence, perceived benefit, and tests the existence and strength of these factors on both genders. Facebook was chosen in the present research because it has been highly accepted and used by different groups of people in the society.

1.2   Problem statement

Web 2.0 applications have made the interaction easy and interesting for the users which consequently have attracted millions of people to visit and use these applications and sites. As a result, providers of these applications and sites are gaining huge profits. Online social network websites as a famous and dominant source of entertaining and social collaboration have great potential for gaining business and marketing profits. In spite of predictable fruitful future for this phenomenon, not many efforts have been successful and only few virtual world projects succeeded (Yeh et al., 2011). Based on 2008 report by Gartner, 90 per cent of corporate virtual world projects fail within 18 months because they are unable to attract large numbers of people to join and use their sites. Best example is Lively, one of Google's online websites established in July 2008. According to Industry Standard (2008), Google providers decided to terminate its operation on November 2008 just because it was not successful to attract acceptable number of users. During its five months of operation, the site had only around ten thousand members using it weekly.

This kind of failures emphasizes on identifying the drivers of online applications and websites participation and usage. Also, according to Jin et al. (2009), one of the major challenges of computer-supported social networks is that their sustainability depends entirely on whether the networks can successfully attract and retain their members. Also as mentioned in the background, there is huge potential for growth in using social network activities in various fields such as online shopping decisions. As this communication tools

is newly introduced, there are not many research on the factors that can contribute in usage intention.

Finally, the need for understanding and motivating users of online websites such as social networks for continuous visit and use is crucial for providers, beneficiaries and participants of these online sites.

1.3 Research Questions

Based on previous discussion the success of social networking sites is highly dependent to continuously attract and retain their members. This study aims to identify some of the factors that influence people to continue using social network in a consistent fashion. The research questions can be proposed as:

1- What are the factors that contribute to continuance intention to use social networking sites?

2- What is the relationships between overall perceived benefit, overall network externalities, social presence and continuance intention to use social networking sites?

3- How does overall perceived benefit mediate the relationship between overall network externalities, social presence and continuance intention to use social networking?

4- What is the difference between the relationship of contributing factors and continuance intention to use social networking sites for different genders?

1.4 Research Objectives

To obtain the answers of the above research questions, this study has the following research objectives:

1- To identifyfactors contributing in user's continuance intention to use Social networking sites

2- To investigate the relationships between overall perceived benefit, overall network externalities, social presence and social networking continuance intention to use

3- To examine the mediation effect of overall perceived benefit on between overall network externalities, social presence and continuance intention to use social networking

4- To explore the difference between the relationship of contributing factors and continuance intention to use social networking sites for different genders

1.5 Significance of study

As the number of social networks members are increasing very fast, these sites are becoming an attractive source of benefit for advertisers and marketers of different companies who are interested in increasing their online relationship and collaboration with their customers. This kind of collaboration may also enhance the customers brand loyalty (Sledgianowski and Kulviwat, 2009). Most social network providers gain revenue via online advertising. Advertisers predict that social networks members who have experience with their product will visit their website and leave positive comments about the product and also recommend it to their friends. This process will also aid them in knowing the current trends of customer traits. Sledgianowski and Kulviwat (2009) mentioned that site

operators can achieve economies of scale by increase in network externalities and then they can expand the targeted business model.

As online social networks are almost new technological phenomenon, there are few research studies examining the drivers behind their usage intentions. Social network operators need to understand if there is relationship between network externalities and motivations to capture the users' interests for attracting them to their services. Also they should pay special attention to the social presence as the unique factor contributing in communication technologies and its way affecting intention to use social network sites as one of the strongest virtual communication tools. By combining the perspectives of network externalities and social presence and examining their affection through perceived benefit, this study aims to present a good research model, which identifies some drivers behind people continuance intention to join and use social networks. Identifying these drivers will ensure the website profitability. To the researcher's best knowledge there is no study combining these factors in the context of social networks.

Findings of this research will be helpful for online commerce operators to adopt suitable strategies for their marketing segment and also to strengthen their competitive edge.

1.6   The organization of the study

In present study, chapter one introduces research background, the problem statement, research questions and objectives of this study, and finally the importance of this study. Chapter two presents the literature review of variables and relationships between them. Chapter three explains the research methodology, theoretical framework of the study and the postulated hypotheses as well as research design and analysis methods. Chapter four presents the research findings and finally, chapter five contains discussion about the research findings, implications and future research, limitations and conclusion.

CHAPTER 2

LITERATURE REVIEW

This chapter mentions the literature around the social network subject and factors affecting intention to use. Furthermore, the chapter explains the theories used in the research from different sources such as articles, magazines, books, and internet. Reviewing the previous literatures is very important for supporting the whole study especially for introducing hypothesis and discussing them in next chapter.

2.   Introduction

Cheung and Lee (2010) believe that as a social action, usage and participating in online social networks is highly dependent to collaboration with friends in personal profiles. People who use information technologies are highly affected by the number of their friends, classmates, office colleagues, and other known people that are using the mentioned technology. In fact, these people form their "social circle" with whom they can interact, collaborate and share the technology usage (Liebowitz and Margolis, 1995).

According to Powell (2009), spreading the advantages of using a technology to friends results in network externalities. Consequently, positive word of mouth attracts more and more people and increases the network users. A good example can be Skype technology. It is a software for internet telephony. People can connect and talk to others around the world who have installed this software on their PC or laptop without paying high telephone charges. In many cases they just pay for internet connection and calling is free. Obviously, as number of relatives and friends (i.e., the critical mass) that the user can connect with increases, Skype becomes more attractive for them (Lin et al., 2011).

According to Zhou and Lu (2011), mobile instant messaging users are highly affected by network externalities. It is an incentive for them in using this IT product. Some

scholars mentioned that network externalities are related to acceptance and usage of other IT products such as social network services (Lin et al., 2011; Linand Lu, 2011).

There are only few studies about how network externalities affect users' usage intention in social network contexts. Having a large number of users and high volume of collaboration interactions in these networks confirms their propagation and popularity (Cheung et al., 2010). Therefore, it seems that the motivation factors play role in online continuance intention to use social networks. Recently, the role of motivation theory in information technology usage behaviour has been investigated by some scholars (Hassanein and Head, 2007; Cyr et al., 2007; Hsu and Lin, 2008; Parra-López etal., 2011).

Davis et al. (1992) asserted that intrinsic and extrinsic motivators are significant determinants in new technology adopting. Extrinsic motivation means that somebody performs an action for achieving a defined goal but intrinsic motivation can be responded by doing an activity just for performing that activity and no other apparent reason. Many scholars have proposed usefulness as extrinsic and enjoyment as intrinsic motivation factors (Kim et al., 2007; Kang et al., 2009;Hassanein and Head, 2007).

Furthermore, collaborating with others and social interaction is the objective in online social networking sites (Cheunget al., 2010). Social presence which is unique to communication technologies (Karahanna and Straub, 1999), has positive effects on intention to use online information technologies (Gefen and Straub, 2004; Cyr et al., 2007; Hassanein and Head, 2007; Yeh et al., 2010; Weisberg et al., 2011). As social networking sites are widely used for communication so it is appropriate to include this factor in present study. According to Yeh et al. (2011), social presence directly affects intention to use virtual worlds and Cheung et al. (2010) especially investigated the direct effect of social presence on online social networks intention to use. Furthermore, some researchers (Hassanein and Head, 2007; Cyr et al., 2007) have posited that social presence has indirect

effect on IT adoption and intention to use via motivation factors (i.e. usefulness and enjoyment).

2.1 Motivation Theory

Many researchers for describing the acceptance of different information technologies have used motivation theory. According to Deci (1975), there are two groups of motivations that influence people behaviour; intrinsic and extrinsic. Doing an action because it seems to be helpful in gaining some success or improvement is the result of extrinsic motivation. On the other hand, intrinsic motivation plays a role when an action is done just because of the nature of performing that action and no other external rewards (Davis et al., 1992). As leading researchers in information technology, Davis et al. (1992) named usefulness as indicator of extrinsic and enjoyment as indicator of intrinsic motivation, that significantly influence information technology and system adoption and usage. Extrinsic and intrinsic motivation affects users' behaviour in different ways. Addressing the effect of enjoyment as intrinsic motivation in adopting and using information technology is almost newly launched (Lee et al., 2005).

2.1.1 Perceived Benefit

In another study about motivational model of microcomputer usage investigated the effect of perceived usefulness and fun in adoption of this targeted IT (Igbaria et al., 1996). In separate studies on usage of internet (Teo et al., 1999) and world -wide -web (Moon and Kim, 2001), the positive effect of perceived usefulness and perceived enjoyment as extrinsic and intrinsic motivations have been presented. In their study, Venkatesh et al. (2002) re-examined the Technology Acceptance Model, TAM, (Davis, 1989) from the perspective of motivation theory and mentioned that extrinsic and intrinsic motivations positively affect usage intention.

Hassanein and Head (2007) and Cyr et al. (2007) examined the effect of usefulness and enjoyment as extrinsic and intrinsic motivations on online shopping attitude and e-loyalty or intention to revisit a website. Kim et al. (2007), examined usefulness and enjoyment as indicators of perceived benefits that affect value perception and consequently intention to adopt mobile internet. Hsu and Lin (2008) confirmed that usefulness and enjoyment have significant effects on attitude toward using blog that consequently affects intention to blog. Kang et al. (2009) referred perceived usefulness and perceived enjoyment as post adoption beliefs and tested their effect on continuance intention of an online service. Parra-López etal. (2011) mentioned about the effect of perceived benefits on intention to use social media for purpose of arranging holiday trips. They described about functional benefits (motivation for tourists to collect information for the vacation trips and online exchange of information) and also psychological and hedonic benefits (having fun and pleasure in use of social media). According to Li (2010), and Yeh et al. (2011), part of using online social network sites purpose is having fun and enjoyment and hedonic motive can have significant effect on usage behaviour and intention to use. Yeh et al. (2011) also confirmed usefulness and enjoyment as salient factors that influence usage intention of virtual world websites (such as social network sites).

Following the above researchers, present study also sets usefulness as extrinsic and enjoyment as intrinsic benefit to examine the effect of perceived benefit on continuance intention to use online social networks. Table 2.1 also shows some most recent studies on the effect of motivation factors in different IT contexts.

Table 2.1. Motivational factors contribution in IT studies

Author	Areas of research	Relationship tested (motivational factors)
Lu et al. (2009)	instant messaging	Perceived usefulness on intention to use Perceived enjoyment on intention to use
Lu and Su, (2009)	Mobile shopping website	usefulness on mobile shopping intention enjoyment on mobile shopping intention
Hossain and de Silva (2009)	social networks	Perceived Usefulness on behavioural intention
Lee (2009)	internet banking	Perceived Usefulness on intention to use
Jin et al. (2009)	computer-supported social network	Perceived usefulness on continuance intention
Kang and Lee (2010)	IT artifact (i.e., online service website)	Perceived usefulness on continuance intention Perceived enjoyment on continuance intention
Kim et al. (2010)	mobile payment	Perceived Usefulness on intention to use
Kwon and Wen (2010)	Social network service	Perceived Usefulness on actual use
Li (2010)	Online social network	Perceived enjoyment on intention to use
Bonera (2011)	e - commerce	Perceived usefulness on intention to buy online Playfulness on intention to buy online
Pillai and Mukherjee (2011)	Social networks	Perceived usefulness on intention to join Perceived playfulness on intention to join
Shin and Shin (2011)	social network games	Perceived usefulness on intention to use Perceived enjoyment on intention to use
Tung (2011)	online travel websites	Perceived Usefulness on behavioural intention
Kim et al. (2011)	social networking communities	Playfulness on intention to purchase online
Lin and Lu (2011)	Social networks	Usefulness on continuance intention to use Enjoyment on continuance intention to use

2.1.2 Extrinsic Benefit: Usefulness

According to Davis (1989), perceived usefulness is ''the degree to which a person believes that using a particular system would enhance his or her performance''.The total value that a user is impressed by while using new technologies represents that technology usefulness (Rogers, 1995). If the usefulness that is perceived from a system is high, the user will insight that his/her performance is positively affected by using the system. It means that, taking advantage of that system yields positive benefits while performing the task (Teo et al., 1999).

In a research, Venkatesh (1999) investigated TAM through a motivational basis and corroborated that usefulness is appropriate representative of extrinsic motivation that responds the outcome expectations well. Committing an action for responding to external wants such as being recognized, gaining rewards or satisfying others expectations is evoked by extrinsic motivation. According to Lu and Su (2009), sometimes using an IT product is derived by computing the evolving benefits. Addressing usefulness as a factor that affects technology acceptance is common and it is widely being used in information technology researches (Lee et al., 2005; Lu et al., 2009; Lu and Su, 2009; Lee, 2009; and Jin et al., 2009).

The positive effect of usefulness on attitude, intention to use and actual usage of online shopping has been investigated by Shang et al., (2005). They believe that when online shopping is perceived to be useful, probably people are more willing to use it.

In the context of social network service (SNS), users heavily consume the SNS features that enable them to make relationships even with strangers, transform them to friends, and keep the relationship with them. By forming personal profiles, individuals are able to have access to their friends and the opportunity to find new ones (Li andBernoff, 2008). Some scholars (Hossain and de Silva, 2009; Sledgianowski and Kulviwat, 2009;

Jin et al.2009; Kwon and Wen, 2010; Li, 2010; Pillai and Mukherjee, 2011; Lin and Lu, 2011) have confirmed the positive relationship between perceived usefulness and social networks usage intention.

2.1.3 Intrinsic Benefit: Enjoyment

Believing that enjoyment, having fun and joy is the intrinsic motivation that derives specific behaviours, Lee et al. (2005) defined perceived enjoyment as ''the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated''. Based on this view they posited that enjoyment positively affects students in using Internet-based learning medium (ILM).

In using the microcomputers, having fun and enjoyment (intrinsic motivation) plays dominant role (Igbaria et al., 1996). In the study of World Wide Web adoption by Moon and Kim (2001), the positive effect of playfulness on attitudes towards internet technology usage has been confirmed. Specifically, in the context of hedonic technology and systems, the important impact of intrinsic motivator (enjoyment and fun) in adoption and acceptance of technology has been confirmed (Koufaris, 2002; Van der Heijden, 2004). Many scholars have mentioned the need of considering intrinsic motivation as a predictor of acceptance or intention to use different information technologies such as: instant messaging, (Lu et al., 2009), online service website, (Kang and Lee, 2010), Mobile shopping website, (Lu and Su, 2009) and e-commerce (Bonera, 2011).

Users become motivated intrinsically to adopt a technology when they experience fun and enjoyment while using that technology (Lu et al., 2009). Pillai and Mukherjee (2011), in their research considered online social networks from the perspective of utilitarian and hedonic purposes corroborated that perceived playfulness strongly influenced intention to join in hedonic online social networks. Shinand Shin (2011)

posited that having fun and enjoyment attracts individuals to search for and use hedonic social networks.

Experiencing enjoyment is a motivator for individuals to use social networking sites. These sites can entertain users via several features such as interacting by leaving text comments for friends (blogging), uploading and sharing pictures and videos and so on. These features make the usage experience enjoyable for users. Hence, Li (2010) expected perceived enjoyment has positive relationship with intention to use social network sites. Many scholars (Sledgianowski and Kulviwat, 2009; Lin and Lu, 2011; Pillai and Mukherjee, 2011) have confirmed that social networking sites are kind of pleasure-oriented information systems and users continuance intention to use is positively affected by perceived enjoyment.

2.2   Network Externalities

According to Katz and Shapiro (1985) network externalities is defined as ''the value or effect that users obtain from a product or service will bring about more values to consumers with the increase of users, complementary product, or service''. As the number of consumers of a definite product or service increases the value of consuming that product also increases particularly in cases where network externality is available for that particular product or service (Gandal, 1994). When several similar and compatible products are available in the market, the existence probability of network externalities increases. The reason is that, there are more choices for users from different producers' networks and this will impel the producers to create and offer complementary product to attract the customers.

Web 2.0 applications also take advantage of network effect: more people become interested in more affluent and richer databases, more intelligent applications attract more

users, marketing strategies that use people experiences and interactive applications that form an extended computation base (O'Reilly, 2006).

Producers of information products often offer complementary values to their customer base members, meaning that users of these goods usually take advantage of network externalities effect. Systems that work in real-time basis like online news broadcasts, or stock market are good examples (Tomak and Keskin, 2008). Existing literatures mostly have focused focus on industrial technologies or physical products when investigate about network externalities (Hwang and Oh, 2009). As identified by Katz and Shapiro (1985), there are two types of network externalities; direct and indirect. Direct network externality is related to the increase in number of consumers or users of a product or service such as fax machine or telephone service.

On the other hand, indirect network externality exists when consumers are benefitting from supportive products and services that become available based on customer existing size. PC brands can be good example, if a specific brand has larger customer base, then it is more probable that software vendors design more supportive software for that brand compare to other brands. In this way users are exposed to more benefit which is called perceived complementarity (Hwang and Oh, 2009). Cottrell and Koput (1998) also explained about the benefit of larger customer base that buy and use compatible goods. Direct network externality arises from larger number of consumers and is beneficial for users by providing a larger network of standardized products. Another beneficial result of larger customer base is called 'market mediated effect.' Cheaper and more supportive complementary products become available for the larger number of users that consume compatible products.

Indirect network externality is auxiliary benefit for users of a large install base that acts in some ways such as creating complementary products and services, development of

standards, reducing the prices and increasing affordability of the product but is not the direct consequence of other participants in the network (Lin et al., 2011). According to Cheung and Lee (2010) using social networks technology is a social issue that is meaningful only when a pool of people are interested in usage and continuing to use it in mass. Actually, using this technology is highly dependent to the mutual interactions among the users.

The concept of critical mass was presented by Sledgianowski and Kulviwat (2009) in the area of social networking sites. They explain that when the user of social network perceives a high number of individuals have joined the site, the critical mass point has been achieved and large number of users can interact with each other through friendship about mutual interests. Although service providers may think that many users have joined their service, critical mass point is not achieved until current users or those who intend to join have positive perception about the large number of active users that he / she can interact with (Sledgianowski and Kulviwat, 2009). Hossain and de Silva (2009) describe structurally equivalent individuals as those who have high level of mutual interactions and strong social tie. Direct interaction and mutual impact may persuade these structurally equivalent persons to imitate each other's behaviour. Also, it is more probable that they accept same or similar technologies because they are exposed to almost the same pressure norms and standards.

Lin and Bhattacherjee (2008) named the number of individuals that a person interacts with in his/her social circle in adopting a behaviour (or technology), as 'referent network size'. Following that, network externalities were measured with two items: referent network size and perceived complementarity in the context of Mobile Instant Messaging (MIM) by Zhou and Lu (2011). They believe that the reason a person would use the technology of MIM for interaction is to be connected to his/her family, relatives

and friends; hence, their adoption has positive impact on his/her adoption and usage. Lin and Lu (2011) included number of peers and perceived complementarity as sources of network externalities in the context of social network.

Following above references, in this study we consider number of peers and perceived complementarity, respectively as direct and indirect sources of network externalities to explore their effects on individual's continuance intention to use SNS.

2.2.1. Relationship between network externalities and perceived benefit

The relationship between critical mass (number of users) and usefulness in groupware application technologies was tested by Lou et al. (2000). In their study, they used electronic calendar as a groupware application to explain this relationship. By checking the electronic calendar, a person can realise how many members are available at a specific time to plan for a group gathering. When only few members use this calendar to set up their plans on a regular basis, using it for gathering is not applicable. As more members join to use this calendar it becomes more useful. Increase in the number of peers using the calendar, affects the perception of members who are not using it, they will look at it as a more useful application than before. As more members join to use the calendar, existing users will be encouraged to improve it by sharing their experiences with new members.   According to Lou et al. (2000), as the number of users of a technology increases the existing adopters also feel the technology to become more useful.

Consumption externalities in the context of communication technologies was described by Strader et al. (2007), stated that the increase in the user base of this service will positively improve usefulness of the service for existing users. They argue that user's network externality perception has positive effect on the utility that consumers derive from technologies such as E-mail and instant messaging (IM). Indeed, when a person

realizes that more number of his/her acquaintances join to use this communication technology, he or she will catch more utility from it. In explaining network effect, Wikipedia mentions that social network sites are suitable technology for this effect. When more users join the social networks, the website provides more utility for its members. Sledgianowski and Kulviwat (2009) described that when more people joinsocial networks such as Facebook or Myspace, then there are more choices for members to connect to more individuals and extend their network; as a result more people become affected.

When there are more people in person's referent network it means that he can interact with more peers, hence it promotes his perception about system usefulness and leads to more satisfaction. Opposite situation happens when there are few people in referent network, it leads to lower perceived usefulness and terminating the use of the service (Zhuo and Lu, 2011). Lin et al. (2011) introduce the concept of synchronization value in their study as the "value perceived by individuals through the interaction with others" (i.e., friends and acquaintances) using the same product. They argue that IT service seems to present more synchronization value when user perceives high number of people are using it and makes him more eager and motivated to use the service.

Network externalities also influence perceived enjoyment. According to Lin and Bhattacherjee (2008), in more populated referent network there are more peers to interact with. The chance for creating interest groups rises with more members and it will positively affect members' enjoyment. While Zhou and Lu (2011) couldn't find a relationship between referent network size and perceived enjoyment in context of users' loyalty to IM, Lin and Lu (2011) found a positive relationship between number of peers and enjoyment in continued intention to use social networking sites.

The theory of indirect network externality, as Lin and Bhattacherjee (2008) and Lin et al. (2011) explained, is about the positive effect of ancillary and complementary

goods on the total perceived value of the goods. Lin and Lu (2011) also confirmed that users catch more benefit when there are more supportive and complementarities available for a product or service. When supportive and complementary services are available for a particular information technology, it is easier for users to boost the features and upgrade the service. Presence of complementarity increases user perceived benefit while using some interactive IT services such as internet-based video games or e-mail (Lin et al., 2011).

As described by Strader et al. (2007), complementarity is available in shape of supportive and auxiliary features and functions when the numbers of users for a product or service increases. Games, avatar clips, and entertaining music are examples of complementary products (services) offered by mobile instant messaging providers as the number of their user base increases (Zhou and Lu, 2011). Sharing photos, uploading movies, and sending group messages are examples of complementary services in social networking sites that aid users to show off, exchange their information, and communicate with their friends in several ways (Lin and Lu, 2011).

When more complementary features are available for users, they have more options for playing games, listening to music and watching videos through a single platform (Zhou and Lu, 2011). Koufaris, (2002) tested the effect of these complementary services as value-added search mechanism on online shopping enjoyment of customers that had positive results. Tapscott (2008) and Powell (2009) believe that availability of complementary services in social networking sites assist individuals to present themselves better and have higher levels of interaction with their social friends, consequently they perceive more enjoyment. Lin and Lu, (2011) also verified the positive impact of perceived complementarity on enjoyment in social networking experience.

2.2.2 Relationship between network externalities and intention to use

According to Katz and Shapiro (1985), an application usage intention can be affected by the number current users of that application. Wang and Lin (2011) emphasised that the number of users can affect usage intention by positively changing the level of utility or value that users perceive from the application. To et al. (2008) tested the effect of critical mass on attitude which consequently would affect the behaviour intention to use IM in the organization context.

In case of online services, several factors can affect customers' decision to adopt a definite service. Online service's network size is a salient factor due to the inherent network externality effect in online service markets (Hwang and Oh, 2009). As mentioned by Yang and Mai (2010), in the field of a hedonic product such as online video game, direct network externalities is crucially influential. Indeed, the number of users that play a game is a sign of game quality and attracts the potential users while searching for a game. Lou et al. (2000) also verified the impact of network externalities that exists in a technology on accepting and adopting that technology. They believe that increase in the number of technology users will attract more potential users to adopt that technology.

When a large number of individuals use an information technology, it brings a sense of collective participation in an action and arouses technology adoption (Lou et al., 2000). Many scholars have combined other models with network externalities to describe information technology usage intention such as: groupware technologies (Lou et al., 2000); e-mail and IM (Strader et al., 2007); interactive information technologies (Lin and Bhattacherjee, 2008). Pontiggia and Virili, (2010) tested the impact of user network size on technology acceptance in a laboratory experiment which confirmed positive effects. Zhuo and Lu (2011) verified the positive effect of presence of other users such as family, friends and acquaintances MIM technology adoption on person's adoption decision.

Referring to social network sites, Baker and White (2010) explained that adolescents have higher desire to adopt and use this technology when they perceive that it is a norm among their friends. As discussed by Sledgianowski and Kulviwat (2009), increasing the social network users to a perceived critical number affects Social network site users' intention to use it. Number of peers, representing the number of acquainted friends that keep in touch together, was used by Lin and Lu (2011), to investigate the effect of direct network externalities on social network usage intention.

Positive relationship between presence of supportive/complementary products (such as software or tutorials) and customers' intention to use that product was confirmed by Gandal (1994). In most cases, it is free to become a member or use an online service. Instead these services rely on indirect sources for earning revenue like receiving profit for advertising in their service. Furthermore, typically the cost of pre-testing, downloading, installing, or registering is very low for users adopting the service. The low adoption cost along with existence of complementary goods that is usually available in online services, provide a ''mixed usage'' behaviour, which means that users adopt and use several services in one category at the same time and has positive impact on adoption decision (Hwang and Oh, 2009; Zhou and Lu, 2011).

According to Tapscott (2008) and Powell (2009), there are many complementarities in online social networking sites. A good example is social network games. Sending messages, uploading pictures and clips are examples of supportive tools; creating fan pages are kind of social activity; finding friends via e-mail address is example of searching applications. These examples of complementarity, enhances user perception about the presence of such services and positively affects usage intention. Lin and Lu (2011) tested the effect of perceived complementarity on social network intention to use, although this effect was not supported in their study.

2.3   Social Presence Theory

Social presence was described by Short, Williams, and Christie (1976) as ''the degree of salience of the other person in the interaction and the consequent salience of interpersonal relationships''. According to Walther (1992), the level that a person perceives presence of others while communicating with each other is defined as social presence. Social presence is the degree of realising other person or intelligence presence in an interacting process (Biocca and Nowak, 2001). As explained by Lingyun and Dong (2008), the concept of social presence was first used to compare the capacity of different telecommunication technologies in remote organization meetings (telepresence). Indeed, it was presented to test the level a person perceives other people presence in interactions through media.

Thanks to high speed of internet technology development, it is now very common to interact through "computer-mediated" communication services. Nowadays, communication process does not occur necessarily face to face. Hence, it is important to improve how people perceive social presence while interacting through media (Yeh et al., 2011). Steinbruck et al. (2002) confirmed that promoting the sense of social presence in the communication process through media, makes it more similar to face to face interaction and helps to have a better communication. According to Gefen and Straub (2003), in the context of online sites, social presence can cause users to feel warmth and sociability in the website. Mainly, online websites try to make it possible for their users to communicate and interact with each other in a simulated virtual social place, as a result social presence is an important indicator when measuring their effectiveness (Yeh et al., 2011). Virtual environments emphasise on social presence to improve people's communication process that consequently affects their technology adoption and usage decision (Gefen and Straub, 1997).

O'Reilly (2006) reported that social network sites are most attractive services in virtual environment that attract users by 2D or even 3D graphical interfaces. Lingyun and Dong (2008) indicated that better perception about social presence enhances level of interaction among people. This will lead to richer user experience with the website that encourages him to visit the website again to shop online. Social presence is a significant factor that positively affects intention to use online sites.

Interacting through online social networks is in some aspects similar to face-to-face interactions (Cheung et al., 2010). According to Short et al. (1976), social presence in media can be described by their ability in conducting aspects of face-to-face communication such as expressions of the face, gesture, clothing and body language. Gefen and Straub (1997) confirmed that perception about social presence in media influences adopting new technologies. Interface functions of an application in online sites can improve social presence perception and also enhance e-loyalty (Cyr et al., 2007).

Setting up tools for real communication with others or at least its imagination can inject sociability and human warmth sense to the interaction. In online environment, website features like post sales supportive e-mail (Gefen and Straub, 2003), message boards, writing review and upload photo (Cyr et al., 2007) can help to simulate real communication with people. These interface features can contribute in real time (both sides of interaction are present) or offline (one side is absent) communications but it is required that other side (human being) reply to complete the interaction. It is not similar to imaginary interactions in which computer system generates the response automatically.

In imaginary communication there are different virtual site features that contribute for social presence such as valuable social photos (Gefenand Straub, 2003; Cyr et al., 2007), meaningful texting (Gefen and Straub 2003), and customized greetings (Gefen and Straub, 2003). Indeed, the positive relationship of these features with users' social

presence perception has not been confirmed yet. Gefen and Straub (2003) believe that texts and pictures in virtual environment have the same role of letters and photographs of real world in conveying social presence sense. Hassanein and Head (2007) investigated the effect of social presence through some web features such as trust on attitude towards online shopping. In the communication literature, the feeling of "being together with others" is defined as social presence. Lingyun and Dong (2008) described the traditional meaning of social presence as the specification of media that explains its ability in providing quick feedback and interaction cues. They claimed that social presence perception is affected by total process of communication. Users are affected by media, content of communication and exchanges through communication process. It can be concluded that social presence is measured by total communication course and not just by some functions of interaction media. According to Gefen and Straub (2004), perception of social presence in online context is highlighted because it enhances direct or indirect sense of human contact.

As tested in another study by Gefen and Straub (2004), there is a positive relationship between social presence perception and electronic trust (e-trust) which consequently affects online purchase intention from a business site. It can be concluded that high levels of perceived social presence in a commercial website will enhance the perceived trust in that website. Short et al. (1976) described this perceived social presence as existence of personalness, sociability, sensitivity and human contact in the medium. In face to face interaction the level of perceived social presence is much higher in compare to electronic interactions, because the communicator can easily sense the co-presence of his partner in the communication (Weisberg et al., 2011).

2.3.1 Relationship between social presence and perceived benefit

According to Walther (1992), Social presence has a significant role in encouraging people to involve interactions in social events. Social presence can be perceived via sociability and warmth in online websites (Yeh et al., 2011). Social interaction is a natural characteristic of online environment; hence social presence is a crucial factor that can enhance activity of users. Karahanna and Straub (1999) posited that when users perceive higher social presence in a medium, they believe that it is more useful and has higher capacity for definite interaction activities. Therefore, users have higher intention to use it for doing their activities in comparison to other media.

In context of commercial website, that is a virtual place for interaction between consumer and online vendor, social presence perception positively affects perceived usefulness of the website (Hassanein and Head, 2007). Gefen and Straub (1997) examined the impact of social presence perception on usefulness perception. While the study of Gefen and Straub (2003) didn't confirm any relationship between social presence and usefulness in an e-service, Hassanein and Head (2007) examined this relationship in an online shopping website which showed positive results.

Having in mind that different studies had shown different consequences, Cyr et al. (2007) re-examined the relationship between these two and again he found that social presence positively affects usefulness in an e-service environment. Yeh et al. (2011) also confirmed the positive link between social presence and usefulness of an online site. Lombard and Ditton (1997) stated that enjoyment is the most probable psychological outcome of social presence. Heeter (1995) expressed that in virtual entertaining systems, people perceive more enjoyment when they perceive higher social presence in their experience of "entering another world". Hassanein and Head (2006) confirmed the positive influence of social presence on enjoyment on a commercial website in clothing

market. Hassanein and Head (2007) also tested social presence effect on enjoyment in the context of online shopping websites, which had positive results. Cyr et al. (2007) tested the relationship between social presence and enjoyment in an e-services setting and concluded that users with high social presence have more joyful experience than others in online context. Yeh et al. (2011) found a positive link between enjoyment and social presence in avirtual world website.

2.3.2 Relationship between social presence and intention to use

According to social presence theory the level of social presence in a communication medium determines its capacity for sociability (Short et al., 1976). Social networking sites intend to make the interaction easier in virtual environment; therefore they highlight the effect of other human being presence for interaction purpose. For example, the real time bar in Facebook shows the other friends' presence in the website and even non-adopters can feel the presence of their friends when they receive an invitation message for joining the site. Regarding to this, Cheung et al.(2010) tested the effect of social presence on the collective intention to join and use an online social network site (Facebook).

Higher social presence perception in an online social networking site has stronger effect on joining and continuance intention to use the site (Flanagin and Metzger, 2001). Users are more interested in joining the sites in which they perceive higher social presence. In the studies of Gefen and Straub (2004), and Hassanein and Head (2006) the effect of social presence was tested through mediating role of trust on intention to shop online and the attitude towards a site. Following that, Cyr et al. (2007) examined the link between social presence and e-loyalty as they described e-loyalty partly as attitude and intention to buy online. Lingyun and Dong (2008) mentioned that social presence makes the experience richer for the user and reinforces his intention to revisit a website for

shopping. Lately, Yeh et al. (2011); and Weisberg et al. (2011) in two independent studies have shown that there is positive relationship between social presence and usage intention in an online website and purchasing from a website, respectively.

2.4   Continuance intention to use

The intention of use is described as predictor of the actual rate of adoption of technology as well as of the intention of the consumer to use the site to make an online purchase (Bonera, 2011). Similarly, Parra-López et al. (2011) in their study which was about taking advantage of social media for purpose of arranging holiday trips, defined intention to use with two factors:

- Increase the usage of the technology by the tourist himself /herself
- Intention of technology usage encouragement and recommendation to others such as friends and acquaintances

Continuance intention to use, as considered in this study is the dependent variable. It is measured by the intention of using the social network site in the future and also the intention of recommending the friends for future usage.

2.5   Gender difference and social networking intention to use

As a personality feature, many researchers examine gender difference when investigating the acceptance of a new IT product (Venkateshand Morris, 2000). Usually men and women perceive value or benefit of a product in different ways (Gefenand Straub, 1997, Venkatesh and Morris, 2000). Beliefs and use of computer-supported media might be different for men and women (Gefen and Straub, 1997). In a study about the effect of gender on perception and usage of email, Gefen and Straub (1997) found that women feel higher social presence and usefulness in their perception regarding to email. Lowe and Krahn (1989), revealed 'striking' differences in men and women in fields of computer skills and using the computer technologies in Canada. Usefulness, enjoyment and social presence affecting strength is different for male and female users of a website to do online shopping and being loyal in continuing of the website usage (Cyr et al., 2007).

In the context of social networking, Lin and Lu (2011) tested the gender difference effect on network externalities and perceived benefit and their relationship with continuance intention to use that had different results according to the gender. The results will be discussed in chapter five.

CHAPTER 3

METHODOLOGY

In this chapter, first the framework is presented along with related hypotheses. After that, the research design is explained that contains: sample size and selection, data collection, sampling technique and population, questionnaire development, and pilot study. In final part of this chapter the data analysis methods used in the study are introducedfor transferring gathered data to useful information.

3.1   Theoretical Framework

Figure 3.1 presents the current study research model. The model is based on review of literature from previous chapter that includes network externalities, social presence and perceived benefit that influence continuance intention to use the social network sites. Indeed this study examines the effect of network externalities and social presence on continuance intention via the mediation of perceived benefits. As mentioned in previous sections, perceived benefit includes usefulness and enjoyment as extrinsic and intrinsic benefits respectively. Furthermore, number of peers and perceived complementarity are sources of direct and indirect network externalities.

Now, we present the theoretical framework followed by hypothesis of the study.
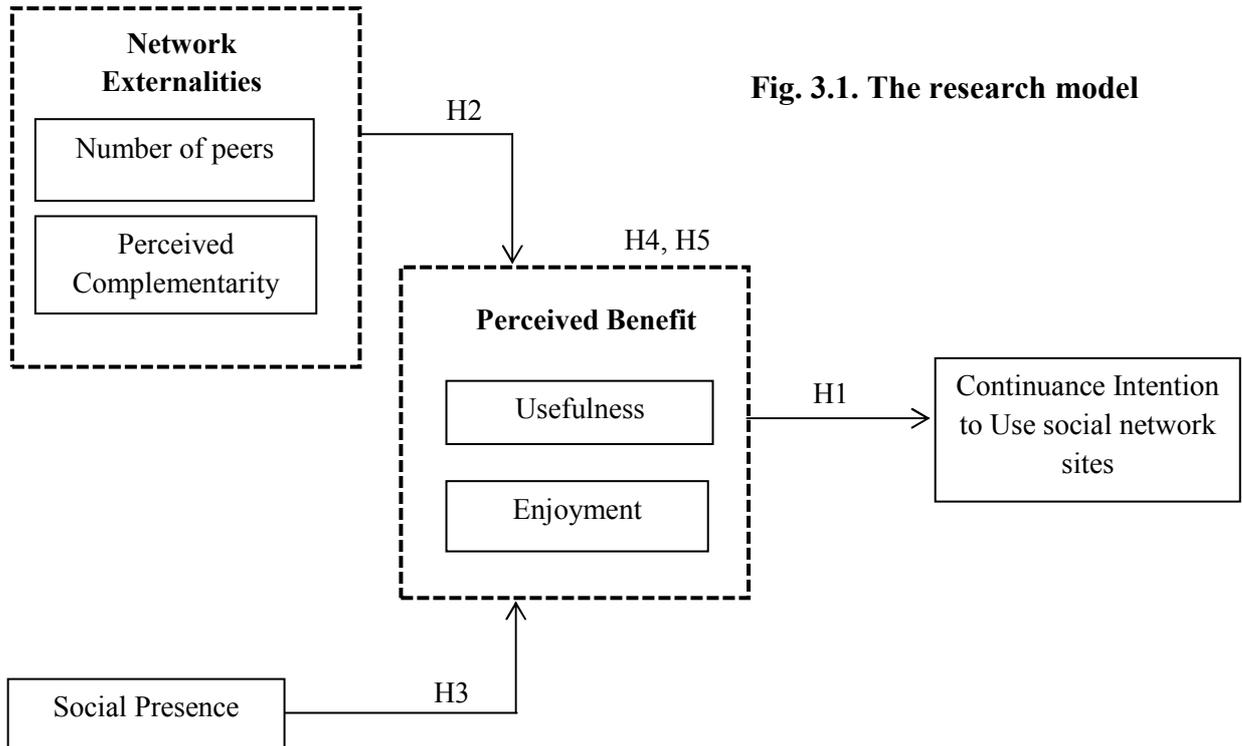
Fig. 3.1. The research model

3.2 Hypotheses

Based on the research questions, objectives and theoretical framework of this study the following were hypothesized:

H1. There is a positive relationship between overall perceived benefit and continued intention to use social network sites.

H2. There is a positive relationship between overall network externalities and overall perceived benefit.

H3. There is a positive relationship between social presence and overall perceived benefit.

H4. Overall perceived benefit mediates the relationship between overall network externalities and continued intention to use social network sites.

H5. Overall perceived benefit mediates the relationship between social presence and continued intention to use social network sites.

3.3 Research Design

Appropriate research design relates the gathered data to the research questions of the study (Yin, 1994).In this research we use quantitative method by collecting data through questionnaire distribution. This is a quantitative research and because of time limitation, uses cross sectional method and data were gathered in period of 2 weeks and only once. Statistic software, SPSS, will be used to analze the collected data and test the mentioned hypotheses. According to Bogdon and Biklen (1998), tables and graphs are used to analyze the results of quantitative research statistics. In this study the relationship between network externalities, social presence and perceived benefit on continuance intention to use social networking sites was examined. Also the mediation effect of perceived benefit between independent and dependent variables was tested via the statistics from the data collected.

3.4 Sample Size and Selection

Based on Israel (1992), large sample sizes of 200 to 500 are needed for descriptive studies which are applying multiple regression and analysis of covariance. 150 online questionnaires were sent to both male and female friends from different ages, occupation and education background who have an active Facebook account. Target respondents were mostly Malaysian and Iranian. Furthermore, 200 face to face hard copies of questionnaire were distributed. Data was collected from University of Malaya students (both undergraduate and post graduate) and staff, University of Kuala Lumpur students and staff, some oil and gas company employees and also some self-employed people again with an active Facebook account.

3.5 Data Collection

In this study both online and hard copy questionnaires were distributed. Transforming the questionnaire for online distribution was supported by Google Docs which enables the researcher to view and record the collected data in real time when respondents are filling the questionnaire. The link of online questionnaire was sent to the respondents via Facebook messaging tool. From 150 messages sent to friends, only 64 questionnaires were collected online. The return rate was about 43 percent. Of 200 hard copy questionnaires, 151 usable responses were collected. The return rate was 76 percent. Totally, 205 usable questionnaires were collected (online and off-line) with total rate of return 59 percent.

3.6 Sampling Technique and Population

As we have sent the questionnaire to defined online respondents and gathered them from certain locations, the sampling method is non-probability, convenience technique, in which not all the elements in the population has the same probability of being chosen. The total sample population includes whole active Facebook users. According to Facebook (2011) every day more than 600 million of people log into this site. So, this can be our probable sample population.

3.7 Questionnaire Development

The present study uses both primary and secondary data sources. The primary data comes from the collected questionnaires and secondary data is from past literatures and articles around the study subjects. The source of the secondary data to develop the questionnaire is presented in table 3.1. This table summarizes the constructs used in the current research. Table 3.1 also includes the number of items for each construct, the

authors that have validated these items in their research, and type of variables. According to the literature, we used the constructs and items in previous studies(Cheung et al., 2010; Lin and Lu, 2011).

Table 3.1. List of dimensions and their sources

	Variable measurement	Source	Number of items	Type of variable
Network Externalities	Number of Peers	Lou et al. (2000);Lin and Lu (2011)	3	Independent
	Perceived Complementarity	Lin and Bhattacherjee (2008), Lin and Lu (2011)	4	Independent
Social Presence		Gefen and Straub (2004), Cheung et al. (2010)	5	Independent
Perceived Benefit	Usefulness	Davis (1989); Kwon and Wen (2010);Lin and Lu (2011)	3	Mediating
	Enjoyment	Agarwal and Karahanna (2000); Kim et al. (2007); Lin and Lu (2011)	3	Mediating
Continuance intention to use		Kim et al. (2008); Lin and Lu (2011)	2	Dependent

The questionnaire was divided into three sections as illustrated in appendix A. Section A contains the factors affecting the use of social networking sites, section B measures the continuance intention to use social networking sites. Finally, section C is about respondent profile, to gather some general information about respondents' demographic. Sections A and B have a total number of 20 items measured by five point Likert scale. The Likert Scale which was named after Rensis Likert is the level of agreement or disagreement is measured and usually five, seven or nine response levels are used (Dawes, 2008). It is the most common method for collecting data. According to

Cooper (2000), this type of scale is considered to be a ratio scale. Therefore, measurement of central tendency and its dispersion can be made. This study uses five-level Likert scale that ranges from strongly disagree to strongly agree.

3.8   Pilot Study

The pilot test helps in insuring that all appropriate variables are included. In addition, a pilot test improves the entire questionnaire in terms of removing ambiguities and eliminating unnecessary items. Thus, the pilot study was done by distributing the questionnaire to a total number of 30 qualified respondents. The result of the pilot test was very critical for this survey since it provided a better understanding of the questionnaires' weaknesses as well as provided a higher confidence in the revised questionnaire. The results were satisfying as indicated in Table 3.2 showing the reliability (Cronbach's Alpha) of factors in the pilot study.

Table 3.2. Pilot study Reliability Testing

Factor	Cronbach's Alpha
Number of Peers	.768
Perceived Complementarity	.710
Social Presence	.816
Usefulness	.745
Enjoyment	.808
Continuance intention to use	.791

According to Cronbach and Shavelson (2004), the Cronbach's Alpha above 0.7 is considered to be reliable. Based on the results, in pilot test stage all factors were reliable with social presence and enjoyment having the highest reliabilities. It is notable to

mention here that one item of enjoyment was negatively worded which was transformed by recoding, before running the reliability test.

3.9   Data Analysis Method

The data collected from the questionnaires was analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0. To fulfill the objectives of this study, a number of analyses were as described in the following sections.

3.9.1   Descriptive Statistics

Descriptive statistics are used to explore the data collected, it may be particularly useful if one just wants to make some observation about the data collected. Descriptive statistics are applied to describe some basic features of the data and it provides simple summaries about the sample and the measures (Trochim, 2000). In this study we used the descriptive statistics to screen the demographic data and also the variables. We used frequency, percentage, mean and standard deviation. Mean and standard deviation gives more information about the distribution of each variable.

3.9.2   Normality of Data

Normality tests are conducted to ensure the gathered data are normally distributed. It assesses the quality and goodness of fit of data to an assumed normal distribution. If the data is normally distributed, the researcher can use parametric statistics. However, in case that it violates the normal distributions, the researcher should use non-parametric statistics. Sometimes if the violation from normal distribution is not very serious, the data can be treated as normal using mathematical transformation, still allowing the use of parametric statistics. Normality assumption is the prerequisite for running many statistical tests such as Pearson correlation and multiple regressions (Julie Pallant, 2007).

A number of statistics and graphical tests are available to explore the normality of the data, we used the statistics of skewness and kurtosis and the graphical solution of histograms. Value of skewness verifies the distribution symmetry and normality and kurtosis confirms if the distribution is "peakedness"(Julie Pallant, 2007). According to Lehman (1991) values of skewness between -0.5 and + 0.5 indicate generally acceptable level of normality. The acceptable range for kurtosis is from -2 to +2.

3.9.3   Reliability of the Data

According to Nunnaly (1978), reliability test confirms the internal consistency of all items that have been measured in the questionnaire. Among the several coefficients that are being used for reliability testing Cronbach's alpha is one of the most common ones. For standardised items Cronbach's alpha is the average correlation of them while for unstandardized items it is calculated by average covariance among the items. Cronbach's alpha coefficient can be treated as a correlation coefficient. So, it can accept values between zero to one. Based on Nunnaly (1978) recommendation, although the minimum value of 0.6 is acceptable for alpha but the values higher than 0.7 can verify reliability with more confidence.

3.9.4   Correlation

The linear relationship between two variables is examined by correlation test. The Pearson correlation coefficient explains the relationship between two continuous variables. The most common test for measuring the linear relationship between two continuous variables is simple bivariate or zero-ordered correlation. Bivariate correlation coefficient changes from -1 to +1. The higher value indicates stronger relationship. The sign (- or +) of the coefficient shows negative or positive direction of the relationship.

Based on Tabachnick and Fidell (1996) rule of thumb, values between zero to 0.3 indicate low relationship, between 0.3 to 0.7 shows moderate relationship, and above 0.7 to 1 shows high relationship. The precision of this rule of thumb should be examined by the details of each study. The correlation was run in order to investigate the relationship between dimensions of independent variables (IVs) and dependents variable (DV).

3.9.5 Multiple Regression Analysis

If the relationships between more than two variables are required, multiple regression method can be used. It is an extended model of simple bivariate correlation. The equation which is resulted from regression predicts the variance of dependent variable to each independent variable (Julie Pallant, 2007). When several independent variables are related to each other and also to dependent variable, multiple regression method is used.

3.9.6 Test of Mediation Effect (Baron and Kenny Steps)

Four steps are considered for testing the mediation effect in Baron and Kenny (1986) study:

Step 1: Present the correlation between independent variable (IV)and dependent variable (DV).

Step 2: Present the correlation between independent variable and mediator (M).

Step 3: Present the correlation between mediator and dependent variable. Testing just the correlation between mediator and dependent variable is not sufficient because they are both under the effect of independent variable and this may cause their correlation. So, it is required to test the correlation between mediator and dependent variable in the absence of independent variable (controlling the IV).

Step 4: To examine if the mediator truly mediates the relationship between independent and dependent variable, the effect of IV on DV should be significant in the absence of mediator and become insignificant after the mediator was added and still the effect of mediator on DV should be significant.

This test can be run through stepwise regression as we used it in this study to examine the mediating effect of overall perceived benefit and also its' dimensions on between independent variables and their dimensions and dependent variable.

CHAPTER 4

FINDINGS

In the previous section, we presented the research design and methodology. Furthermore, the data analysis methods which are going to be used in the study were explained completely. This chapter shows the results of data analysis methods that we discussed previously. Firstly is the result of preliminary analysis that includes descriptive statistics, normality, and reliability. Then going through correlation, multiple regression, and hypothesis testing and also examining the mediation effect of perceived benefit. Finally, the difference between men and women in affecting factors will be investigated.

4.1 Demographic Profile of the Respondents

Table 4.1 summarizes the demographic characteristics of the social network site's (Facebook) users who have an active account at the time of responding to the questionnaires. The demographic data consists of information about respondents' gender, age group, nationality, education, occupation, and Facebook service that they are using mostly. Demographic information was collected from individuals because the information may be helpful in obtaining a clearer understanding of the variety of individuals' characteristics from different genders and age, education and occupation groups and also their main purpose of using social networks.

Table 4.1.Demographic Profile of the Respondents

Demographic Profile	Frequency (n)	Percentage (%)
Gender		
Male	95	46.3
Female	110	53.7
Age Group		
Under 18	3	1.5
18-24	64	31.2
25-34	114	55.6
35-44	14	6.8
45-54	7	3.4
above 54	3	1.5
Nationality		
Malaysian	99	48.3
Chinese	18	8.8
Indian	4	2.0
Iranian	70	34.1
Others (Middle Eastern, African, Australian)	14	6.8
Education		
High school or under	12	5.9
Undergraduate	92	44.9
Graduate degree	101	49.3
Occupation		
Student	101	49.3
Office worker	73	35.6
Self-employment	3	1.5
Home makers	4	2.0
Others	24	11.7
Facebook Service(most frequently tried)		
Communications	155	75.6
Contents	45	22.0
Commerce	5	2.4

The respondents are almost equal from both genders with slightly higher percent of females (53.7%) compared to males (46.3%). More than half of respondents (114) are in the age between 25-34 years (55.6%), followed by 18-24 years of age (31.2 %). Almost half of the respondents (99) are Malaysian (48.3%), followed by Iranian (34.1%) and Chinese (8.8%). From the total of 205, 101 individuals hold a graduate degree (49.3%), 92 are undergraduates (44.9%) and the remaining have high school education or less (5.9%). The dominant percent of respondents are graduate or under graduate students (49.3%). Followed by office workers (35.6%), others (11.7%), home makers (2%) and lastly self-employed (1.5%). Majority of respondents (155), use Facebook mostly for communication purpose (75.6%). Around 22% use it for its contents and feed news and only 2.4% are interested to use Facebook for commerce.

4.2   Descriptive statistics / Normality and Reliability

As we mentioned in previous chapter, the normality assumption is the prerequisite of correlation and regression. The normality tests result is illustrated in Table 4.2.

Table 4.2. Normality and Reliability

Variable	Mean	Std. Deviation	Skewness		Kurtosis		Cronbach's alpha
			Statistic	Std. Error	Statistic	Std. Error	
Number of peers	4.1236	0.707	-.769	.170	.058	.338	.713
Perceived complementarity	4.006	0.619	-.257	.170	-.052	.338	.767
Social presence	3.599	0.770	-.613	.170	.884	.338	.867
Usefulness	3.957	0.698	-.396	.170	.078	.338	.758
Enjoyment	3.457	0.850	-.396	.170	-.148	.338	.722
Continuance intention to use	3.639	0.880	-.469	.170	.115	.338	.776

As illustrated in Table 4.2, all constructs are reliable and their Cronbach's alpha is higher than critical threshold of 0.7 (Nunally, 1978). The highest reliability is social presence (0.867), followed by continuance intention to use (0.776), perceived complementarity (0.767), usefulness (0.758), enjoyment (0.722) and number of peers (0.713). Therefore, all items intended for the scales are reliable with high alpha coefficient values.

The skewness value is an indicator of the symmetry of the distribution. According to previous explanation the range between -0.5 and +0.5 are considered normally distributed. According to the results in table 4.2, all constructs are in the range except number of peers and social presence with values of -0.769 and -0.613 respectively. As these values do not

exceed 1, it indicates no serious violation to normality thus we can assume that all constructs are approximately normally distributed. Furthermore, all kurtosis values are within the range of -1 to +1 hence showing normality and parametric techniques could be used to analyze the data.

4.3 Relationship between the dimensions of Network Externalities (NE), Social Presence (SP), Perceived Benefit (PB),and Continuance Intention to Use (CIU)

The correlation was run in order to investigate relationship between variables.

Table 4.3 Correlation between dimensions

		Network externalities		Social presence	Perceived benefit		Continuance intention to use
		Number of peers	Perceived complementarity		Usefulness	Enjoyment	
Network externalities	Number of peers	1.0					
	Perceived complementarity	.133*	1.0				
Social presence		.126*	.344**	1.0			
Perceived benefit	Usefulness	.113	.320**	.563**	1.0		
	Enjoyment	.232**	.227**	.247**	.376**	1.0	
Continuance intention to use		.135*	.266**	.393**	.437**	.217**	1.0

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

Based on the above results, except for the relationship between number of peers (NP) and usefulness (USE), all other relationships are significant at either 0.05 or 0.01 level of significance. According to Cohen (1988) the correlation values below 0.3 indicates weak relationship, between 0.30 and 0.49 indicates the moderate relationship and the correlation values between 0.50 and 1.0 indicates the strong correlation between

variables. Thus, from the output given above, the strongest relationship is between usefulness (USE) and social presence with the value, 0.563. There is moderate positive relationship between SP and PC, USE and PC, ENJ and USE, SP and CIU, and USE and CIU with values of 0.344, 0.320, 0.376, 0.393, 0.437 respectively, that are significant at 0.01 level. All other relationships are weakly positive. The results confirm that usefulness has the strongest relationship with continuance intention to use (0.437).

Based on literature review in chapter two and the results of Table 4.3, we can conclude that network externalities (number of peers and perceived complementarity), social presence, and perceived benefit (usefulness and enjoyment) has positive effect on continuance intention to use social networking sites.

Table 4.4 Mean, Std. dev. and Correlation between overall factors

	Mean	Std. Dev.	Correlation			
			Network externalities	Social presence	Perceived benefit	Continuance intention to use
Network externalities	4.056	0.495	1.0			
Social presence	3.599	0.770	0.322**	1.0		
Perceived benefit	3.707	0.643	0.362**	0.469**	1.0	
Continuance intention to use	3.639	0.880	0.272**	0.393**	0.381**	1.0

**. Correlation is significant at the 0.01 level (1-tailed).

The results of Table 4.4 show that the mean for independent variables network externalities, social presence and perceived benefit are 4.056, 3.599 and 3.707 respectively with the standard deviation of 0.495, 0.770 and 0.643 that indicates data are distributed normally around the center and are precise enough to do the analysis. The relationship between these factors and continuance intention to use as shown indicates that they are all

positively correlated to each other and to the continuance intention to use. The strongest relationship is between social presence and perceived benefit (0.469) followed by social presence and perceived benefit with CIU with values of 0.393 and 0.381 respectively. The weakest relationship is between network externalities and CIU (0.272).

4.4   Test of mediation effect of overall perceived benefit

This section examines the mediation effect of overall perceived benefit on between overall network externalities, social presence and continuance intention to use social networks. The multiple regression is performed and the results of the test enable us to verify how independent variables can predict the continuance intention to use social networking sites.

According to Julie Pallant (2007), in standard multiple-regression method all variables will be entered in equation at the same time to examine the variance of dependent variable to each independent variable. For testing the mediation effect stepwise regression is used to enter the IVs and mediator in each step and test the mediation.

Table 4.5. Model Summary [b] and F test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.463[a]	.214	.202	.78670	18.254	.000[a]

a. Predictors: (Constant), overall network externalities, social presence, and perceived benefit

b. Dependent Variable: continuance intention to use social networking sites

Table 4.5 shows the whole model fit and summary. Based on the summary, $R^2=0.214$, which means around 21% variance in continuance intention to use social networking sites can be explained by overall Perceived benefit, overall network

externalities, and social presence. Although, this model is unable to explain the remaining 69% but it is significantly acceptable model with F= 18.254 (p=0.000).

After presenting the whole model significance, now we can test the mediation effect.

Table 4.6. Regression between continuance intention to use, network externalities, and social presence

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.066	.479		2.227	.027		
N_externality	.289	.120	.162	2.410	**.017**	.896	1.116
SP	.390	.077	.341	5.059	**.000**	.896	1.116

a. Dependent Variable: continuance intention to use social networking sites

Table 4.6 indicates that the variance inflation factors (VIF) is not greater than 10 and tolerances of variables is not less than 0.1, this means that the predictors were not affected by multicollinearity. The unstandardized Beta Coefficient indicates how each variable are contributing to the prediction of continuance intention to use social networking sites. The larger B value shows the stronger contribution of the variable in explaining the continuance intention to use social networking sites. According to the results, social presence with B= 0.390 (t= 5.059 and p=0.000) is more powerful in explaining the dependent variable in compare to network externalities with B= 0.289 (t = 2.410 and p=0.017). They are both significant at p = 0.05.

**Table 4.7 Coefficients between perceived benefit and
continuance intention to use**

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.708	.334		5.110	.000
	P_benefit	.521	.089	.381	5.863	**.000**

a. Dependent Variable: continuance intention to use social networking sites

Table 4.7 shows the beta = 0.521 (t= 5.863 and p=0.000) for perceived benefit that indicates there is a significant and strong positive relationship between perceived benefit and continuance intention to use.

After entering all the variables, we can see from the results of Table 4.8 that in presence of perceived benefit, the beta value for social presence reduced from 0.390 to 0.290 and significance raised from 0.000 to 0.001 that is still significant. We can conclude that perceived benefit moderately mediates the relationship between social presence and continuance intention to use. For network externality the beta value reduced from 0.289 to 0.196 and the relationship is not significant anymore (p = 0.108) hence, perceived benefit has a complete mediation effect on the relationship between network externalities and continuance intention to use social networks.

**Table 4.8. Coefficients between network externalities, social
presence, perceived benefit and continuance intention to use**

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.676	.487		1.390	.166
	P_benefit	.303	.082	.254	3. 523	**.000**
	SP	.290	.100	.222	3.030	**.001**
	N_externality	.196	.121	.110	1.613	.108

a. Dependent Variable: continuance intention to use social networking sites

4.5   Gender differences and relationships of affecting factors

In this section we want to answer the last research question whether there is any difference between the relationship of contributing factors and continuance intention to use social networking sites for different genders. By using the select cases option of SPSS we separated the male and female results to compare their differences in factors contributing in social networking continuance intention to use. There were 110 female and 95 male respondents in this study.

As we can observe from Table 4.9, number of peers is not a significant factor for males in their continuance intention to use social networking sites, but it is weakly important for females (0.192). On the other hand perceived complementarity is more important for males (0.365) compare to females (0.186) and it is significant for both genders. Social presence is seemed to be most important factor for males (0.484) while it is moderately important for females (0.339). Usefulness is the strongest factor affecting women continuance intention to use (0.421) and for men it is second importance after social presence (0.462). Another main difference is in case of enjoyment. Enjoyment is an important and significant factor affecting continuance intention to use for males (0.339) while it is not significant for females at all.

Table 4.9. Gender comparison in factors contributing to continuance intention to use

Dimensions	Correlation to continuance intention to use	
	Male	**Female**
Number of peers	.055	.192[*]
Perceived complementarity	.365[**]	.186[*]
Social presence	.484[**]	.339[**]
Usefulness	.462[**]	.421[**]
Enjoyment	.339[**]	.134
Continence intention to use	1.0	1.0

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

4.5 Validation of hypotheses

Hypotheses with a p-value less than 0.05 are significantly supported in this study and the significance above p=0.05 means that the hypothesis is not supported.

Table 4.10. Hypothesis validation

H1. There is a positive relationship between overall perceived benefit and continued intention to use social network sites.	Supported
H1a. There is a positive relationship between usefulness dimension of perceived benefit and continued intention to use social network sites.	Supported
H1b. There is a positive relationship between enjoyment dimension of perceived benefit and continued intention to use social network sites.	Supported
H2. There is a positive relationship between overall network externalities and overall perceived benefit.	Supported
H2a. There is a positive relationship between number of peers dimension of network externalities and usefulness dimension of perceived benefit.	**Not supported**

Table 4.10. Hypothesis validation (Cont.)

H2b. There is a positive relationship between number of peers dimension of network externalities and enjoyment dimension of perceived benefit.	Supported
H2c. There is a positive relationship between perceived complementarity dimension of network externalities and usefulness dimension of perceived benefit.	Supported
H2d. There is a positive relationship between perceived complementarity dimension of network externalities and enjoyment dimension of perceived benefit.	Supported
H3. There is a positive relationship between social presence and overall perceived benefit.	Supported
H3a. There is a positive relationship between social presence and usefulness dimension of perceived benefit.	Supported
H3b. There is a positive relationship between social presence and enjoyment dimension of perceived benefit.	Supported
H4. Overall perceived benefit mediates the relationship between overall network externalities and continued intention to use social network sites.	Supported
H5. Overall perceived benefit mediates the relationship between social presence and continued intention to use social network sites.	**Not supported**

H1. According to correlation results, this relationship is significant at p = 0.01 with Pearson coefficient value equals 0.381. Thus, H1 is supported and there is moderate positive relationship between overall perceived benefit and continued intention to use social network sites.

H1a. Based on correlation results, this relationship is significant at 0.01 with Pearson coefficient value is 0.437 which confirms a positive and moderate relationship. Thus, H1a is supported.

H1b. Viewing the correlation results, this relationship is significant at 0.01 with Pearson coefficient value is 0.217. So there is a weak relationship between enjoyment and continuance intention to use. Hence, H1b is supported.

H2. In this relationship test, significant level is 0.01 and Pearson coefficient = 0.362. Therefore, hypothesis is supported and there is moderate relationship between the two variables.

H2a. According to correlation results, this relationship is not significant, thus, hypothesis is **not** supported.

H2b. This hypothesis is supported at 0.01 significance with Pearson coefficient =0.232.

H2c. According to correlation results, this relationship is significant at 0.01 with Pearson coefficient value is 0.320 that shows a moderate relationship between these two.

H2d. This hypothesis is supported at 0.01 significance with Pearson coefficient =0.227. The relationship is weak.

H3. There is positive moderate relationship between the two variables as sig. = 0.01 with Pearson coefficient = 0.469. Therefore, H3 is supported.

H3a. This hypothesis is supported and there is strong positive relationship between social presence and usefulness. Sig.= 0.01 with Pearson coefficient = 0.563.

H3b. This hypothesis is supported at sig. = 0.01 with Pearson coefficient = 0.247.

H4. Based on mediation test results, perceived benefit completely mediates the relationship between network externalities and continuance intention to use. Hence, H4 is supported.

H5. Based on above discussion about mediation effect of perceived benefit, it moderately mediates the relationship between social presence and continuance intention to use but because it still is significant at 0.05 the H5 is not supported.

CHAPTER 5

DISCUSSIONS AND CONCLUSION

In last chapter of this study, first we discuss the findings and compare them to previous findings in the literatures. Then we present some implications based on the findings. After that limitations of the study are stated and areas for future research will be suggested. Finally, the conclusion of the study is presented.

5.1   Discussion of the results of the study

Based on literature review in chapter two and the results of chapter three, we can conclude that network externalities (number of peers and perceived complementarity), social presence, and perceived benefit (usefulness and enjoyment) has positive effect on continuance intention to use social networking sites. Usefulness has the strongest effect followed by social presence. The effect of number of peers, perceived complementarity and enjoyment on continuance intention to use is weak. The results show that number of peers has the lowest effect on continuance intention to use.

The present study brings together the network externalities and social presence theory with perceived benefit as the mediator to discover factors affecting people's intention to continue using social networks. The research result found that perceived benefit (usefulness and enjoyment) mediates the relationship between network externalities and continuance intention to use but moderately affects the relationship between social presence and continuance intention to use. Results show that only relationship between number of peers and usefulness is not significant although this relationship is significant in previous researches (Lin and Lu, 2011; Zhou and Lu, 2011).

The path between number of peers and enjoyment is significant which is in line with study of Lin and Lu (2011) but this path is not supported in the study of Zhou and Lu (2011).

The perceived complementarity is influential on usefulness and enjoyment although its influence is stronger on usefulness. Zhou and Lu (2011) recorded that this effect is stronger on enjoyment but the result of this study was also confirmed by Lin and Lu (2011). Social presence has strong effect on perceived benefit. The relationship between social presence and usefulness is highly supported and this support is higher than all other relationships. Also there is significant relationship between perceived complementarity and enjoyment but it is weaker than the relationship with usefulness. The same results have been incurred by Hassanein and Head (2007), but the study of Cyr et al. (2007) supports the stronger relationship with enjoyment compare to usefulness.

Furthermore, all factors had significant relationship with continuance intention to use. According to results, the most dominant factor affecting continuance intention to use is usefulness, followed by social presence and perceived complementarity. Contribution of enjoyment and number of peers are the lowest. In comparing the utilitarian and hedonic social network websites, Pillai and Mukherjee (2011) verified that the effect of enjoyment is salient in hedonic contexts and usefulness is dominant in utilitarian websites. Although Facebook is listed among hedonic social networks, this statement is not supported by the results and effect of usefulness is stronger than enjoyment. The positive relationship between usefulness, enjoyment and intention to use has been confirmed in many previous studies (Lu et al., 2009; Lu and Su, 2009; Kang and Lee, 2010; Bonera, 2011; and Lin and Lu, 2011).

Contribution of social presence in continuance intention to use social networks is positively supported in this study as it is unique for communication technologies. This result is in line with findings of Hassanein and Head (2007), and Cheung et al. (2010).

Gender differences in several information systems contexts have been investigated. Based on results, the relationship between number of peers and CIU is not significant for men, but significant for women which verify that men are less influenced by their social circle in continuance intention to use social network sites in comparison to women. The same result has been confirmed by Lin and Lu (2011). Perceived complementarity is more influential for males compare to females that is not the same with Lin and Lu (2011) as they found that it is not significant for both genders.

According to Cyr et al. (2007), social presence effect on intention to use is not significant for men but influencing for women. While, based on the results of this study it is significant for both and even stronger for men. The effect of social presence on usefulness and enjoyment is significant for both genders and it is stronger on usefulness. Cyr et al. (2007) confirms the significance for both genders while it shows stronger effect on enjoyment compare to usefulness.

In general, the regression model in the study explains the dependent variable moderately and confirms mediation of perceived benefit between network externalities and continuance intention to use. Social presence has direct effect on continuance intention to use.

5.2 Implications of the study

Based on the results of this study, usefulness is the most important factor influencing people to continue their social network sites such as Facebook. Also perceived complementarity has significant effect. This results confirms that recently people are interested in social networks not because of enjoyment (as its effect is not very high in the results) but because they feel it is useful for them to be active in these kind of websites may be because most recent news are propagate via social networks immediately. It verifies that people try to keep themselves up to date by being active in Facebook. Also availability of complementary products seems to be effective on intention to use which again may increase the usefulness of the website (Lin and Lu, 2011).

According to these findings, social network service providers should try to constantly making the website more useful and richer in complementary features to attract and retain users joining and using the website. As the number of fan pages in various fields is increasing in the website, the providers of these web pages should pay attention to make these pages usable and attractive as much as possible to ensure users' revisiting of these kinds of pages.

As the low impact of enjoyment in this hedonic context, service providers must try to set up inventive and exciting information and ancillary applications and functions regularly to provide an enjoyable experience with the site for the users. Although online games are considered to be complementary products they can boost the enjoyment experience for the users. Adding and creating exiting games, with creative goals and features, may encourage some people to continue using the site and consequently be interested in other features.

The findings also support that social presence has the strongest effect on continuance intention to use after usefulness. Online social networking site is a place for presenting the emotions and feelings in text, photos or video clips with friends in social circle. They help individuals to connect, interact, share, and discuss with friends, sometimes new people, colleagues, classmates, and relatives all around the world. Cheung et al. (2010), in their study mentioned social presence as the most significant factor in determining the students using Facebook.

According to Cheung et al. (2010), perception of social presence is a good encouragement for students to interact, discuss and do their school projects together. For example, the live bar in the right side of Facebook page that shows the interactions in real-time indicates the presence of friends in the site. Reviewing this bar reveals the latest activities of friends in Facebook. Furthermore, the Facebook chat bar offers something similar to yahoo messenger, individuals can find and chat with online friends while viewing their Facebook page at the same time.

Based on great impact of social presence in this study, there are some suggestions for providers of commercial pages on social networks. In their study about the effect of social presence on online shopping attitudes, Hassanein and Head (2007), ran the experiment to test design features such as rich and meaningful texts and inspiring photos, shown that it positively influence social presence perception which consequently affects some other constructs that results in positive attitude about online shopping. So, adding a sense of social presence and evoking potential customers emotions via descriptions and pictures that depict products on commercial fan pages of social networks can transform these pages as great source of profit for e-vendors by encouraging more users to join these pages.

In addition, service providers and active participants can launch some online activities and events to encourage and inspire the users to participate, revisit and allocate more time for targeted online websites (Yeh et al., 2011).

Finally, this study show that number of peers has the weakest relationship to use social networks. Traditionally, adoption and usage of information systems is not related to the usage of other users (Davis et al., 1989). Our results also confirm this because the impact of other participants is important at initial stage of adoption but does not affect the continuance intention to use (Sledgianowski and Kulviwat, 2009). So service providers and practitioners should have it in mind to use this effect in proper way to increase their population base.

5.3   Limitations and Further Research

This study, similar to others has limitations, which should be considered when we want to make the results generalized. First, the majority of the respondents belong to age 18 to 44 years old. Although this group may be the main target of social networks, recently number of adults who are using these sites is increasing, so it is proper to the research on this group also for more generalizability. Secondly this study explains 21% of the target issue; many other factors can be included to make the results more representative. Previous researchers have considered other issues, for example personal differences in adoption of technologies.

Further research should study the effect of trust and privacy issues (Cyr et al., 2007, Hassanein and Head, 2007). Some respondents also had mentioned this factor.

Thirdly, main respondents were from Malaysia and Middle East. Social networks are international applications, so the effect of cultural differences should be investigated. Future researches can be done in different countries to examine the effect of cultural issues

an intention to use. Fourthly, around 97% of respondents use social networks for communication and content. Future research can focus on commercial users of social networks to compare the results with this study for obtaining more general results.

The study represents users of Facebook as online social networks. Generalizing the findings to other types of online social network sites with different target users (such as LinkedIn for professionals), must be done carefully. This study was donein cross-sectional time horizon to save time for doing the research. A longitudinal method can make the results more general as it considers the effect of time on factors affecting intention to use. Finally, this study examines individuals who have an active Facebook account; future research can be done on non-adopters to improve our knowledge about factors affecting adoption and non-adoption.

5.4   Conclusion

This study tried to combine the perspectives of network externalities and social presence and at the same time testing the mediation effect of perceived benefit on continuance intention to use social networking sites. The mediation role of perceived benefit was supported on between network externalities and continuance intention to use completely but for social presence it had moderate effect, instead the direct effect of it was much more significant. Usefulness had the strongest contribution to continuance intention to use, followed by social presence which verifies that most people use social networks because they think it is a useful source of information and also can help them to be connected and informed about recent updates of their friends and social groups.

After usefulness and social presence, complementary products seem to be important as these products enhance the users experience with social networks and make it more exiting (online games). The effect of enjoyment is not very high, which is surprising because as hedonic social network, enjoyment has been the strongest factors in previous researches (Sledgianowski and Kulviwat, 2009). The more surprise is that enjoyment is not an important factor for women at all.

The number of peers is the least influencing factor after initial stage of usage. Other factors such as usefulness are more important in influencing continuance intention to use social networking sites.