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### Does confirmation always matter? Extending confirmation-based theories

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## Does confirmation always matter? Extending confirmation-based theories

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Related theories have highlighted how important confirmation is to satisfaction. However, in their examinations of the effect of confirmation, all past studies viewed consumption experience from an overall perspective only. Given that the utilisation of online services may generate more than one type of benefits to customers, there is a need to decompose the overall concept into different dimensions and re-examine the importance of confirmation from different perspectives. In this study, based on goal-directed and experiential concepts, we separated the benefits provided by online social network services into two types: utilitarian and hedonic. Then, through confirmations, we tested their direct and indirect impacts on satisfaction. Data collected from 653 student-based Facebook users showed that perceived hedonic benefit is more strongly correlated with satisfaction than is perceived utilitarian benefit. In addition, the insignificant path coefficient hints that confirmation of hedonic benefits is not as important as indicated by related theories. We believe that our results generate interesting implications towards both academia and practitioners.

**Keywords:** confirmation; continuance intention; hedonic benefits; utilitarian benefits

### 1. Introduction

Expectation disconfirmation theory (EDT), which originated from marketing research, is broadly applied in the information systems (IS) area. EDT highlighted the importance of confirmation in product or service consumption. Confirmation is the discrepancy between initial expectation and perceived performance. Rational consumers tend to be more satisfied when perceived performance meets or exceeds the initial expectation. As an outcome, repurchase intention is, therefore, high. The importance of confirmation has been validated in various research contexts, such as Web 2.0 (e.g. Chen 2007, Chou *et al.* 2010), electronic commerce (EC), (e.g. Bhattacherjee 2001a, Lee and Kwon 2011), Internet-based service (e.g. Khalifa and Liu 2003, Lin *et al.* 2005, Thong *et al.* 2006, Venkatesh and Goyal 2010, Limayem and Cheung 2011), mobile computing (e.g. Wakefield and Whitten 2006, Deng *et al.* 2010), experiential computing (e.g. Yoo 2010), mobile commerce (e.g. Hung *et al.* 2007, Lin and Shih 2008, Zhou 2011), and social commerce (e.g. Stephen and Touibia 2010). Research results support that high satisfaction levels and the intention to continue are achieved when the initial expectation is confirmed.

Although confirmation is critical to understanding the repurchase or reuse intention, it is noticeable that recent studies have started to consider the multidimensional nature of using experience. While examining the impact of confirmation, initial studies are largely based on the rational decision concept and take only the overall perception, or

mainly utilitarian features, into consideration. However, considering only overall perception or utilitarian features may fall short because one product or service contains different features and delivers different types of benefits to customers. A recent study took hedonic disconfirmation into consideration as well (e.g. Jin *et al.* 2010). *Utilitarian benefit* refers to a positive outcome obtained from the accomplishment of a predefined goal and *hedonic benefit* refers to enjoyment perceived through the experiencing the process. Since the receiving of both benefits together contributes to customers' final satisfaction, there is a need to split the overall perception into different dimensions (e.g. utilitarian and hedonic) and explore their relative importance to satisfaction. As an outcome, webmasters can modify their strategy and reallocate their resources so as to increase the level of satisfaction and, in turn, increase the continuance rate.

As indicated above, achieving a utilitarian goal is only part of the utilisation and hedonic features may also play a critical role in determining the level of satisfaction with that experience. However, while examining the importance of disconfirmation, previous study took disconfirmation into consideration only and ignored the effect of direct performance (Jin *et al.* 2010). We argue that, different from goal-oriented behaviour in which goal achievement determines the effectiveness, hedonic features are experience-oriented and enjoyment is perceived while performing the behaviour. This implies that meeting expectations may not always be important since there is no specific goal for

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experience-oriented activities to achieve. We suspect that although people may compare the received hedonic value with their initial expectation, the compared result may not be as critical as the direct perception. Therefore, it is reasonable to suspect that perception towards hedonic benefit generates an impact on satisfaction directly, instead of indirectly through confirmation. In other words, the confirmation of the hedonic performance of a website may not be as critical as the confirmation of utilitarian features provided.

Drawing on this issue, the purpose of this study is to extend confirmation-related theories (e.g. EDT and Expectation Confirmation Theory) and re-examine the role of disconfirmation and direct performance when both utilitarian and hedonic concepts are included in one model. In addition, we also want to understand the relative importance of utilitarian and hedonic benefits in a social network context. A survey on social network website users is then conducted to examine our proposed hypotheses. Social network websites were selected because (1) the increasingly wide usage of social network sites has inspired academia and industry to research this issue, and (2) in addition to keeping in touch with friends, common features provided by social network sites, such as uploading pictures, updating personal status, and posting personal opinions on specific topics, allow users to obtain hedonic value through using social network websites. This aligns with our research purpose to investigate the effect of disconfirmation and direct performance of utilitarian (connecting with others) and hedonic (for fun) benefits.

In the following, we first review related studies of EDT and two major benefits provided by social network websites. The third section includes the details of the methods employed to test our research model. Data analysis results and appropriate discussions are provided in the fourth section. Finally, conclusions and implications are provided.

## 2. Literature review

### 2.1. EDT and expectation confirmation theory

**Oliver (1977)** theorised a conceptual model named EDT to describe the repurchase intention of consumers. This theory focuses on consumer's expectations before they buy or receive the product or service (pre-perception) and the perceived performance after the experience (post-perception). This theory also proposed that satisfaction (post-exposure affect) is largely affected by perceived performance and the compared result. **Oliver and Linda (1981)** examined the impact of satisfaction and its antecedents on behavioural intention. They showed that intention is almost exclusively a function of satisfaction. Many scholars followed this concept and obtained similar results. In summary, EDT has been widely adopted in marketing and consumer psychology areas (**Oliver 1977, 1980, 1993, Oliver and Linda 1981, Churchill and Surprenan 1982, Tse and Wilton 1988,**

**Yi 1990, Bolton and Drew 1991, Spreng and Olshavsky 1993, Spreng et al. 1996**).

In the IS area, **Bhattacherjee (2001b)** argued that the IS user's continuance decision is similar to a consumer's re-purchase decision and applied EDT, with slight modifications, to explain continuance usage behaviour. Without taking expectation and perceived performance into consideration, the revised model focused only on confirmation and its consequential outcomes. This study boosted another research stream in the IS area which aims at exploring users' continuance intention towards different systems (e.g. **Lin et al. 2005, Hong et al. 2006, Thong et al. 2006, Limayem and Cheung 2008, He and Wei 2009, Recker 2010, Lee and Kwon 2011**). The following studies also ignored the role of expectation and perception, and emphasised exploring other consequential outcomes of confirmation. For example, confirmation has impacts on knowledge-seeking and contribution belief (**He and Wei 2009**), perceived ease (**Hong et al. 2006, Thong et al. 2006**), perceived enjoyment or playfulness (**Lin et al. 2005, Thong et al. 2006**), and familiarity and intimacy (**Lee and Kwon 2011**).

In addition to treating confirmation as an overall concept, **Chiu et al. (2005)** proposed a model named decomposed expectancy disconfirmation theory and took usability, quality, and value into consideration simultaneously. They proposed that satisfaction is a function of both perceived performance and confirmation. Based on cross-sectional data collected from online learners, they found that not all confirmations are critical. This implies that confirmation is not always as important as it appears to be when addressed by the EDT. Unfortunately, prior studies provided either limited or no explanations for this result. A lack of follow-up studies leaves this question unanswered.

Drawing on this issue, we argue that an overall confirmation concept is insufficient to understand users' perceptions completely since customers consider different features while determining the value of products or services. It is very likely that some provided features meet customers' expectation while other features do not. Therefore, understanding which parts are confirmed can help service providers to know what to do to enhance their service. Furthermore, we also suspect that not all confirmations are important. To simplify the research model and make our purpose salient, this study includes only utilitarian and hedonic: two major types of benefits mentioned by marketing and IS literature. Users or customers often take utilitarian and hedonic features into consideration, while evaluating products or services. For example, **Novak et al. (2000)** claim that 'online experiences consist of both experiential and goal-directed aspects, and therefore suggest the need to evaluate websites according to both utilitarian and hedonic dimensions.' In this study, we suspect that satisfaction is associated with the confirmation of utilitarian benefits but not the confirmation of hedonic benefits. In the following, we introduce these two types of benefits that

consumers may perceive and we build research hypotheses accordingly.

## 2.2. Perceived utilitarian and hedonic benefits

Based on the ‘to get something’ and ‘you love it’ concept proposed by Triandis (1977) and extrinsic and intrinsic reward concept proposed by Deci *et al.* (1981), Babin *et al.* (1994) separated benefit or value obtained from consumption activities into two dimensions: utilitarian and hedonic. Taking the whole consumption experience into consideration, Babin and his colleagues (Babin *et al.* 1994) argued that considering solely the functional utility provided by the product or service was too narrow to account for all value provided by the consumption experience. Instead, both task-related and hedonic value evoked during the experience should be taken into consideration. In a similar manner, Batra and Ahtola (1991) stated that ‘consumers purchase goods and services and perform consumption behaviors for two basic reasons: (1) consummatory affective (hedonic) gratification (from sensory attributes), and (2) instrumental, utilitarian reasons concerned with expectations of consequences.’ Holbrook and Hirschman (1982) also proposed that, in contrast to rational decision-makers who view purchasing as the means to maximise their utility, consumption can be viewed as an experiencing process. This implies that, in addition to rational and logic thinking, consumers may also pursue playful leisure activities, sensory pleasures, daydreams, aesthetic enjoyment, and emotional responses. Consumption may involve a steady flow of fantasies, feelings, and fun included in the experiencing process.

Similar to consumption activities, customers or users also receive utilitarian and hedonic benefits through using social network sites. However, early research in the IS area only emphasised the importance of utilitarian benefits. Take the broadly studied technology acceptance model (TAM) as an example. The originally proposed TAM includes solely utilitarian features (usefulness). Because the goal of early organisational IS was to increase task performance and improve efficiency, users mainly focus on the system’s utilitarian benefit from its utility function. For example, the goal of an inventory management system is to help the manager monitor the amount of goods and materials accurately and efficiently. Utilitarian benefit is one of the most influential factors in determining personal computer use (Venkatesh and Brown 2001).

However, in the understanding of belief formation, Agarwal and Karahanna (2000) also proposed that, in addition to instrumentality, people consider psychological factors as well. In addition, based on flow theory proposed by Csikszentmihalyi (1975, 1990), researchers in the IS area asserted that the emotional characteristics of the utilisation process, in addition to performance, should be taken into consideration while examining people’s interactions with IS such as web browsing (Trevino and Webster 1992,

Chang and Wang 2008). Several recent studies also indicate that the adoption of IS or acceptance of online shopping is driven by both utilitarian and hedonic benefits (Venkatesh and Brown 2001, Van der Heijden 2004, Kim *et al.* 2005, Kim and Han 2009). Finally, the utilisation process can offer both extrinsic and intrinsic benefits (Mano and Oliver 1993, Babin and Darden 1995). Utilitarian or extrinsic type benefits can be realised when consumers achieve their goal through utilising the system. Intrinsic or hedonic style benefits are perceived by consumers through interactions, including directly using a product or receiving services (Mathwicka *et al.* 2001). The above evidence indicates that users can obtain different values through using systems or performing online shopping (Van der Heijden 2004).

Therefore, simply considering an overall dimension or solely focusing on utilitarian features is insufficient. Researchers should incorporate hedonic benefits, at least, into the research model while attempting to understand users’ satisfaction and continuance intention. Thus, we can conclude that hedonic benefit was obtained from the use process, and utilitarian value was based on the use result. Users of social network sites can be viewed as players fulfilling their will, in that virtual world and achieving something they desire. Users can imagine themselves in the game world enjoying fantasy and fun, and this is exactly the hedonic benefit.

From the utilitarian side, consumers form expectations first and then cognitively assess the instrumental benefit based on functional attributes, such as ‘useful’ or ‘beneficial’. Utilitarian-based behaviours are task-related and rational. Utilitarian benefit is perceived when the pre-existing goal is accomplished in a deliberate and efficient manner. The value determination is then based partly on the cognitively assessed results and the extent to which initial expectations were confirmed. Similar to ‘usefulness’ in TAM, people find the system useful when system functions provide expected benefits. In an online social network context, utilitarian benefit refers to the extent to which people can connect to others through using the website. One major goal of using an online social networking website is to meet new friends, be connected with old friends, and be connected with people sharing the same interest. Individuals find the online social network website useful or have utilitarian benefits only when their goal (to connect with others) is met. In short, for utilitarian benefit, there is an objective goal and the evaluation of utility is based on whether the goal is achieved.

On the other side, consumers also measure the extent to which hedonic benefit can be obtained from the utilisation process. *Hedonic benefit* reflects the potential entertainment and emotional worth of performing activities (Babin *et al.* 1994). Different from utilitarian benefit which is determined by the extent to which initial goals are met, fun and pleasure result largely from sensations derived from the experiencing process (Holbrook and Hirschman 1982). In general, utilitarian benefit is more objective and the evaluation of

hedonic benefit is more subjective. In an online social network context, especially Facebook, users can interact with others through uploading photos, leaving messages, or even playing online games. Individuals perceive that using the system is fun and enjoyable while interacting with others or playing online games. Since individuals sense fun and enjoyment while utilising the system, instead of evaluating whether goals are met, the importance of confirmation is then reduced.

### 3. Hypotheses development

Based on ECT and utilitarian-hedonic literature, a model addressing our research questions was developed, as shown in Figure 1. As indicated, we separated perceived performance into utilitarian and hedonic dimensions. Aligning with traditional EDT, satisfaction is associated with continuance intention (H1), perceived benefit leads to confirmation (H6, H7), and both perceived benefits (H2, H3) and confirmation (H4, H5) are hypothesised to affect satisfaction. In addition, we also hypothesised that certain correlations between two types of benefits (H8) can be observed. In the following section, we discuss each hypothesis individually.

#### 3.1. Continuance intention and satisfaction

Satisfaction has long been considered a critical antecedent of continuance intention (Oliver and Linda 1981). Studies also confirmed this relationship (Bhattacherjee 2001b, Bhattacherjee and Premkumar 2004, Chiu et al. 2005, Lin et al. 2005, 2011, Hong et al. 2006, Thong et al. 2006, Lankton and McKnight 2007, Liang et al. 2007, Limayem et al. 2007, Limayem and Cheung 2008, Deng et al. 2010, Recker 2010, Lee and Kwon 2011). In line with these theories and empirical evidence, we expect that with a higher level of satisfaction when using a social network site, users

will have the intention to use that social network site more. Thus, we propose that

H1: Continuance intention is positively associated with satisfaction regarding the use of social network sites.

#### 3.2. Satisfaction and perceived benefits

Aligning with traditional EDT, we also hypothesised that there is a relationship between perceived performance and satisfaction. However, as we argued in the literature section, consumption experiences contain both utilitarian and hedonic dimensions (Babin et al. 1994) and the impacts of perceived usefulness and playfulness on satisfaction have been confirmed by various web-based studies (e.g. Hsu and Chiu 2004, Saadé and Bahli 2005, Shang et al. 2005, Roca et al. 2006). First, utilitarian benefit can be perceived by consumers while using a tangible product or service that performs instrumental functions. Social network sites allow users to make contact with past friends, find people who have the same preferences, make new friends, and exchange information quickly. Those functions help users connect with others without costing a lot of time and money. User retention is higher if those functions do perform well.

Second, as viewed from the experiential consumption aspect, consumers purchase some aesthetic products for the pursuit of pleasure, fun, and feelings of enjoyment, full of fantasy and imagery (Holbrook and Hirschman 1982). Social network websites also provide a platform with many mini games and psychological tests allowing users to enjoy the process of using the site. In addition, users can reconnect with old friends, stay connected with family, meet new friends, express themselves, and even know people with similar habits, etc. Those utilitarian functions also allow users to enjoy feeling playful and having fun. This platform serves as a good place for users to seek entertainment

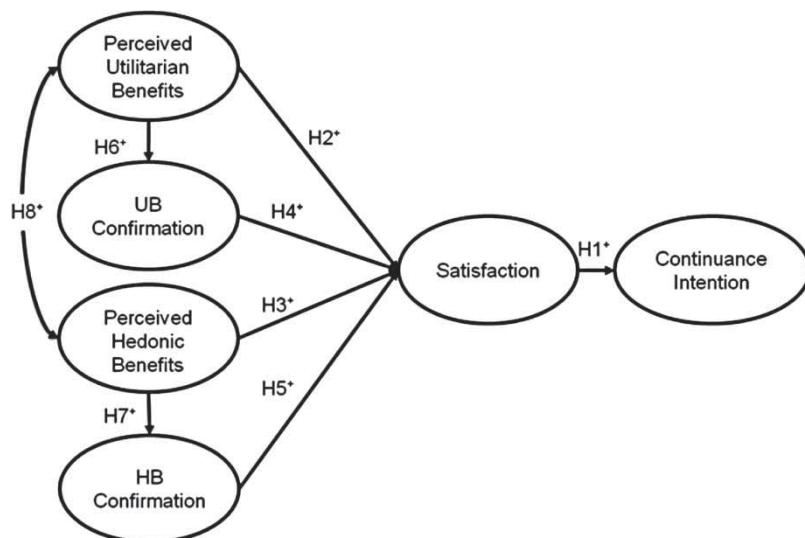


Figure 1. Research model.

(Van der Heijden 2004). People are retained better if they sense more pleasure from using it. Therefore, we hypothesise that

H2: Satisfaction regarding the use of a social network site is positively associated with the perceived utilitarian benefit.

H3: Satisfaction regarding the use of a social network site is positively associated with the perceived hedonic benefit.

### 3.3. Satisfaction and confirmations

Satisfaction is an additive combination of the expectation level and the resulting disconfirmation (Oliver 1980). It is a function of perceived performance and the perceived discrepancy between that perceived performance and the initial expectation (Oliver 1980, 1993, Oliver and Linda 1981, Churchill and Surprenan 1982, Tse and Wilton 1988, Yi 1990). In the IS area, Bhattacherjee (2001b) showed that confirmation of IS expectation was positively related to user satisfaction. Many studies that followed also reached the same results (McKinney *et al.* 2002, Lin *et al.* 2005, Hong *et al.* 2006, Thong *et al.* 2006, Limayem and Cheung 2008, He and Wei 2009, Recker 2010, Lee and Kwon 2011). Therefore, it is reasonable to presume that users tend to be more satisfied when they find a social network site is either higher than or equal to their initial expectation level.

Satisfaction is an emotional response resulting from the cognitive evaluation process when comparing the personal expectation and a product's perceived performance. As we indicated in previous sections, from a rational perspective, the usefulness of a social network site is determined by the extent to which the provided benefits can actually meet users' initial expectations. On the other hand, since users sense hedonic benefit during the utilisation process, we, therefore, expect that direct perception of enjoyment tends to have more impact on satisfaction. Although we suspect that the confirmation of hedonic benefits may not be as important as indicated, to align with theory, we still hypothesise that there is a relationship between the confirmation of hedonic benefit and satisfaction. Therefore, we hypothesise that

H4: Satisfaction regarding the use of a social network site is positively associated with the confirmation of utilitarian benefit.

H5: Satisfaction regarding the use of a social network site is positively associated with the confirmation of hedonic benefit.

### 3.4. Confirmations and perceived benefits

The level of confirmation was determined by the discrepancy between performance and consumer expectation, where performance has a positive effect but expectation has a negative effect (Oliver 1977, Churchill and Surprenan 1982, Spreng *et al.* 1996). Some studies of Internet-based services and software applications also indicated that perceived performance has a significant influence on disconfirmation (McKinney *et al.* 2002, Khalifa and Liu 2003,

Chiu *et al.* 2005, Lankton and McKnight 2007). Regardless of the utilitarian or hedonic benefit, and regardless of the level of expectation, once users are more aware of it, they tend to rate those provided functions as better meeting their expectations. Thus we proposed the following hypotheses:

H6: Confirmation of utilitarian benefit is positively associated with perceived utilitarian benefit.

H7: Confirmation of hedonic benefit is positively associated with perceived hedonic benefit.

### 3.5. Correlation between benefits

Although the use of a social network website generates both utilitarian and hedonic benefits, these two types of benefits might not be mutually exclusive. For example, users may also feel enjoyment when they are reconnected with friends. People can not only interact with their friends but also enjoy the interaction process. Some games in Facebook (e.g. Happy Farm) allow users to purchase gifts for friends or steal grown plants from friends. In addition, the correlation between utilitarian and hedonic has been confirmed in other areas. For example, Ahtola (1985) proposed that utilitarian and hedonic aspects should normally be positively correlated. Crowley *et al.* (1992) classified products into utilitarian and hedonic types and observed a high correlation (0.51) between them. Furthermore, Babin *et al.* (1994) proposed and found a modest correlation between utilitarian and hedonic dimensions. In the IS area, a positive relationship between playfulness and perceived usefulness in an online context has been confirmed by studies (e.g. Saadé and Bahli 2005, Shang *et al.* 2005). Therefore, we propose that

H8: Perceived utilitarian benefit and perceived hedonic benefit are positively correlated.

## 4. Research method

As befitting our research model and purpose, the target sample of this study was users of social network sites. Facebook was then chosen because it is one of the most popular social network websites in Taiwan. The number of registered members increased from 400,000 to 5.4 million between July and December 2009. From four universities located in Taiwan, we collected required the data from students who have Facebook accounts. Among those four universities, two are public and two are private. In addition, one is located in northern Taiwan and the other three are in southern Taiwan. The period of data collection ranged from late February to late March 2011. Actual data collection included two stages. In each university, we first randomly selected 10 required courses in different majors. We then contacted the instructor of each course to clarify the possibility of delivering the survey instrument in the selected courses. Among those 40 courses offered by 26 instructors, we were able to access 20 courses offered

Table 1. Sample characteristics.

Measure	Categories	N	%	Measure	Categories	N	%
Average everyday Facebook using time	Under 30 minutes	115	14.6	Friends on Facebook	Under 50	37	5.7
	30 minutes–1 hour	161	24.7		50–100	73	11.2
	1–2 hours	152	23.3		101–200	227	34.8
	2–3 hours	88	13.5		201–300	238	36.4
	3–4 hours	45	6.9		301–400	64	9.8
	4–5 hours	30	4.6		401–600	14	2.1
	More than 5 hours	62	9.5	Internet experience	Less than 1 year	6	0.9
Gender	Male	300	45.9		1–3 years	18	2.8
	Female	353	54.1		3–5 years	55	8.4
Age	16–20	418	64.0		5–10 years	326	49.9
	21–25	230	35.2		More than 10 years	248	38.0
	26–30	0	0.0	Average everyday Internet surfing time	Less than 1 hour	6	0.9
	31–40	4	0.6		1–2 hours	57	8.7
	41–50	1	0.2		2–4 hours	220	33.7
Education	Bachelor	569	87.1		4–6 hours	185	28.3
	Master	81	12.4		6–8 hours	102	15.6
	Doctoral	3	0.5		8–10 hours	40	6.1
					More than 10 hours	43	6.6

by 15 instructors. A total of 796 samples were returned initially. After removing 143 incomplete questionnaires, the final effective sample included 653 effective respondents. Among our samples, 45.9% of them were male and 54.1% were female. These students' ages ranged from 16 to 25 years old. About 87% were in the undergraduate level and the rest were graduate students. Furthermore, most of them had over five years of Internet use experience. The detailed demographic information is listed in Table 1.

The representativeness of our sample is assured through the following approaches. First, we tried to diversify the sources of the sample by collecting random samples from four universities to avoid possible bias resulting from using a single source. Second, we compared two demographic indices (gender and age) with the whole student population in Taiwan. Based on statistical data from 2010 and 2011 published by the Ministry of Education, we found no significant difference between our sample and the population in both gender ( $\chi^2 = 0.901$ , *p*-value = .342) and age ( $\chi^2 = 2.326$ , *p*-value = .127). In addition, we compare the early and late respondents on all variables (with the late respondents being assumed to be similar to non-respondents) and found no significant difference (Armstrong and Overton 1977).

#### 4.1. Construct and measurement

*Perceived Utilitarian Benefit* is defined as the degree to which connections are built and information is exchanged through the use of a social network website. A total of three items developed by the authors were used to capture the extent to which respondents connect to their old friends, know the status of their friends, and exchange information with their friends through the use of Facebook.

*Perceived Hedonic Benefit* refers to pleasure and happiness derived from the use of a social network website (Venkatesh and Brown 2001). A total of four items adapted from Davis *et al.* (1992) were used to measure the extent to which using Facebook is fun, a joy, enjoyable, and very entertaining.

*Satisfaction* refers to respondents' emotional reaction after using the social network website (1996). A total of four items adopted from Spreng *et al.* (1996) were used to capture the extent to which respondents feel satisfied, pleased, contented, and delighted through the use of Facebook.

*Continuance intention* was defined as the behaviour of an individual in regard to continuing to use or reuse the social network site in the future (Davis *et al.* 1989). A total of three items obtained from Davis *et al.* (1989) were used to measure the extent to which respondents were planning and intending to use Facebook in the near future.

##### 4.1.1. Confirmation of utilitarian and hedonic benefits

*Perceived confirmation* represents consumer's subjective, post-only rating of the same discrepancy, either at the overall product or service level or at individual attribute level (Oliver 1980, Tse and Wilton 1988, Bhattacherjee 2001b). Confirmation in this study refers to the perception of congruency between pre-use expectation and actual performance (utilitarian and hedonic benefit) after users really use the social network site (Bhattacherjee 2001b). The definition and items for confirmation of utilitarian benefit and hedonic benefit were all adapted from Bhattacherjee (2001b); both dimensions obtained three items.

Of the measures mentioned above, all used a Likert seven-point scale to anchor between strongly disagree (1) and strongly agree (7).

#### 4.2. Common method variance

Since we collected both independent and dependent variables from the same respondent at the same time, systematic errors resulting from this common method yield potentially misleading conclusions (Campbell and Fiske 1959, Podsakoff et al. 2003). We added one common method construct to examine the variance explained by the method. Since no dramatic changes of model fit were found and the chi-square difference is insignificant ( $\chi^2 = 8.21 < 11.59$  when  $df = 21$ ), we conclude that common method variance might not be a serious concern in our study.

##### 4.2.1. Reliability and validity

The quality of measurement was assured through the following approaches. First, the confirmatory factor analysis result shows that all model fit indices exceeded common acceptance levels, respectively (chi-square/df = 4.35; GFI = 0.90; NFI = 0.94; NNFI = 0.95; CFI = 0.96; IFI = 0.96; RMSEA = 0.07). Second, item reliability, convergent validity, and discriminant validity were also examined. Reliability was assessed through item factor loadings, composite reliability, and Cronbach's alpha. Convergent validity can be examined by item-total correlation (ITC) and average variance extracted (AVE) in which ITC should be higher than 0.3 and AVE should be higher than 0.5. For discriminant validity, the correlation between pairs of constructs should be lower than 0.9 and the square root of AVE should be higher than the inter-construct correlation coefficients (Fornell and Bookstein 1982). As shown in Tables 2 and 3, all indices meet the recommended cut-off values. Therefore, we conclude that the quality of our measurement is assured.

#### 4.3. Hypotheses testing

We used a covariance-based structural equation model with the maximum likelihood method. All tests, based on *t*-test with a 95% confidence interval, were conducted in EQS. The test results, including coefficients, significance level, and variance explained, are shown in Figure 2. Except for H<sub>5</sub>, all our hypotheses were supported. We also calculated the direct, indirect, and total effect of all variables on continuance intention. A comparison was then made to figure out the contribution of each variable. Not surprisingly, satisfaction had the highest effect on continuance intention, with a total effect of 0.74. The total effect is 0.23 for perceived utilitarian benefit, and 0.41 for perceived hedonic benefit, through satisfaction. The total effect of the confirmation of utilitarian benefit through satisfaction on continuance intention is 0.16.

#### 4.4. Discussion

In contrast to traditional theory, our results show that the confirmation of hedonic benefit is not associated with

satisfaction. There are two plausible explanations for this interesting finding: (1) hedonic benefits are experience-oriented and, therefore, need no confirmation; and (2) users do not have clear prior hedonic expectations and, therefore, there is nothing to confirm. For the first one, joy and fun are mainly obtained from the process instead of the outcome. Users enjoy the process of playing games or interacting with friends. Similar to the intrinsic motivation concept, people perform certain behaviours simply because it is fun to do so. They enjoy the process of challenging themselves. For the second one – different from goal-oriented benefits in which a predefined, specific goal exists before the use – users do not have clear expectations about what pleasure should be obtained through interacting with friends or playing games. People may also feel excited when they find an old friend from the social network website. The enjoyment is a byproduct of goal achievement instead of the goal itself. Therefore, it is understandable that users initially treat Facebook.com as a social network tool instead of an online game system. Since the expectation did not clearly pre-exist, confirmation, then, has no effect on satisfaction.

Another noticeable point is that, compared with hedonic benefits, relatively low coefficients and effects of perceived utilitarian benefit and its confirmation were found. The low impact of utilitarian benefit has two major implications. First, having functions providing utilitarian benefits is the nature of the social network website. Users have been rooted in a very clear expectation. Users take it for granted that a social network must provide required social networking functions. Therefore, although perceived utilitarian benefit does affect satisfaction, only a limited effect was found. Utilitarian benefit is similar to the hygiene factor indicated by the two-factor theory (Herzberg 1966). Since connecting to others is the major function of a social network site, users are not surprised when they can actually use the tool to connect with others. Instead, they tend to be dissatisfied if they cannot be in touch with their old friends through using this website. Furthermore, as we argued, users possess a clear expectation regarding utilitarian functions before using the website and, therefore, confirmation does correlate with the level of satisfaction.

On the other hand, hedonic features are similar to motivators indicated by two-factor theory. Motivators are factors about which people do not feel disappointed when such factors are absent, and are strongly delighted when they exist. Therefore, hedonic benefit is much more strongly correlated with satisfaction.

Finally, we also confirmed that perceived utilitarian and hedonic benefits are correlated with each other. This result implies that both perceived utilitarian and hedonic benefits can be perceived simultaneously while using a social network website. For example, Facebook allows users to interact with friends (utilitarian) through playing little games with friends (hedonic). In addition, users may feel enjoyment while being reconnected with old friends or through the interacting with others.

Table 2. Reliability and validity.

Constructs	Items	Factors	
		Loadings	ITC
Perceived utilitarian benefit CR = 0.831, Cronbach's $\alpha$ = 0.818, AVE = 0.623	1 I can use Facebook to contact with old friends	0.81***	0.56
	2 I can realise my friends' recent situation through Facebook	0.86***	0.61
	3 I can exchange information with friends on Facebook	0.68***	0.55
Utilitarian benefit confirmation CR = 0.896, Cronbach's $\alpha$ = 0.892, AVE = 0.743	1 The utilitarian benefit with using Facebook was better than what I expected	0.89***	0.62
	2 The utilitarian benefit provided by Facebook was better than what I expected	0.92***	0.62
	3 Overall, most of the utilitarian benefit that I expected from using Facebook were confirmed	0.77***	0.61
Perceived hedonic benefit CR = 0.914, Cronbach's $\alpha$ = 0.912, AVE = 0.728	1 Using Facebook is fun	0.84***	0.74
	2 Using Facebook is a joy to me	0.91***	0.76
	3 Using Facebook is enjoyable	0.88***	0.73
	4 Using Facebook is very entertaining	0.78***	0.65
Hedonic benefit confirmation CR = 0.894, Cronbach's $\alpha$ = 0.891, AVE = 0.739	1 The hedonic benefit with using Facebook was better than what I expected	0.88***	0.61
	2 The hedonic benefit provided by Facebook was better than what I expected	0.91***	0.56
	3 Overall, most of the hedonic benefit that I expected from using Facebook were confirmed	0.79***	0.59
Satisfaction CR = 0.932, Cronbach's $\alpha$ = 0.934, AVE = 0.774	1 Overall, using Facebook make me feel satisfied	0.86***	0.78
	2 Overall, using Facebook make me feel pleased	0.91***	0.77
	3 Overall, using Facebook make me feel contented	0.86***	0.74
	4 Overall, using Facebook make me feel delighted	0.89***	0.75
Continuance intention CR = 0.968, Cronbach's $\alpha$ = 0.969, AVE = 0.911	1 I intend to continue using Facebook	0.93***	0.75
	2 I predict I would continue using Facebook in the future	0.97***	0.75
	3 I plan to continue using Facebook	0.97***	0.76

\*\*\* $p < .001$ .

Table 3. Variable characteristics and correlation matrix.

Variables	Mean	SD	M3	M4	VIF	Item correlation matrix					
						PUB	UBC	PHB	HBC	Sat.	CI
Perceived utilitarian benefit	5.75	0.94	-0.14	-0.59	1.77	<b>0.71</b>					
Utilitarian benefit confirmation	5.14	0.94	0.30	-0.30	1.77	0.60	<b>0.78</b>				
Perceived hedonic benefit	5.03	0.96	0.36	-0.09	2.74	0.47	0.44	<b>0.77</b>			
Hedonic benefit confirmation	4.85	0.97	0.06	0.32	1.91	0.28	0.36	0.68	<b>0.77</b>		
Satisfaction	4.94	0.86	0.48	-0.03	2.26	0.52	0.54	0.69	0.51	<b>0.79</b>	
Continuance intention	5.36	0.96	0.09	0.11	N/A	0.59	0.54	0.58	0.39	0.69	<b>0.87</b>

Notes: M3: skewness, M4: kurtosis. The diagonal line of correlation matrix represents the square root of AVE.

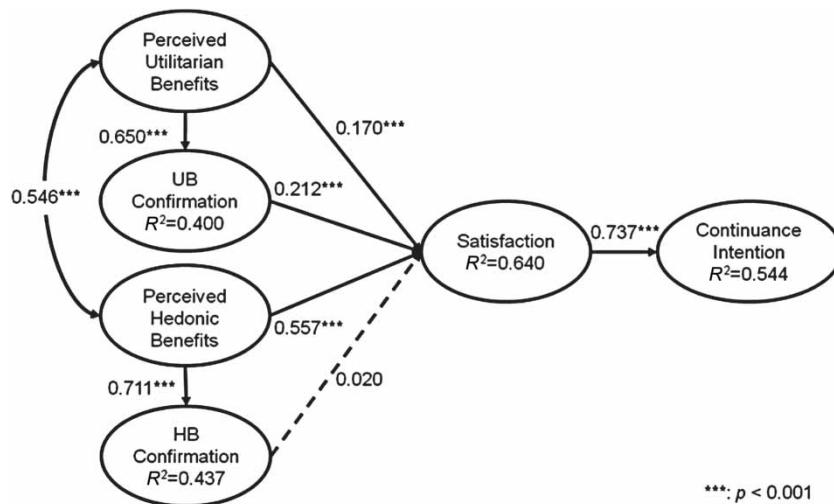


Figure 2. Analysis result.

## 5. Conclusion

The purpose of this study was to extend EDT through distinguishing the aspect of hedonic benefit in the original EDT model and proposing a new model. Besides, the study reinvestigated how the perceived performance and confirmation of both utilitarian and hedonic dimensions affect satisfaction simultaneously. After collecting data from 653 Facebook.com users, the analysis results confirmed most of our hypotheses. Aligning with literature, satisfaction can strongly predict continuance intention. Both perceived utilitarian and hedonic benefits affected satisfaction positively. Based on our analysis results, we concluded that the performance of hedonic benefit could influence user satisfaction more than utilitarian benefit could in a social network context. However, while the confirmation of utilitarian benefits leads to satisfaction, the confirmation of hedonic benefits did not. We hope this result can help social network website designers notice that the performance of hedonic benefits may be the most important element in their design. The more hedonic components are included in the design, the greater the flow of users will be, leading to a high continuance rate.

### 5.1. Limitations

Before we illustrate the implications and contributions of this study, readers should also be aware of the potential limitations of this study. First, we collected data from several universities for convenience. This study can reflect the opinion of the student population and young people only. A more diversified sample should be collected to extend our results to people of other ages. Second, to simplify and purify our research model, we included utilitarian and hedonic benefits only. However, customers may receive different types of benefits which could influence their satisfaction. Third, although we aimed at extending the EDT model, one salient limitation is the failure to include expectation in our

research model because of data collection difficulty. Most of our respondents had already had a Facebook account for a certain period of time. We believe that the recalled initial expectation is inappropriate and inaccurate. Therefore, we collected only one wave of data including perception, confirmation, and consequential variables. The lack of initial expectation data limited our ability to understand the importance of initial expectations. Therefore, we encourage future studies to collect users' initial expectations before they start using the website, and collect perception and confirmation after a period of time. This will allow researchers to explore the importance of expectation on disconfirmation or satisfaction.

### 5.2. Academic implications

The concept of confirmation has been adopted to examine the continuance intention of traditional management IS. This concept needs to be revised with the development of mobile computing, experiential computing, mobile commerce, and social commerce. We decomposed perception and confirmation into different dimensions to understand the continuing use of new applications. Through a rigorous examination process, the result of this study contributes to academia in the following ways.

First, we included both utilitarian and hedonic benefits simultaneously. While studying the extent to which the benefits provided by the website confirm users' expectations, most past studies examined only the overall perception and confirmation of the target system. Our results confirmed that, since a website may provide more than one feature, and customers may receive different benefits while using the website, there is a need to take different types of features into consideration simultaneously. By doing so, the relative importance of different features can then be demonstrated. In this study, satisfaction is a function of both utilitarian and

hedonic benefits that customers received (perceived benefits). Compared with utilitarian benefit, hedonic benefit has a stronger effect. This implies that whether young users in Taiwan are satisfied with a social network website is largely determined by the hedonic benefits provided. This result confirmed the study by [Lin et al. \(2005\)](#), which indicated that hedonic value is more critical for web browsing.

However, different from the previous study ([Jin et al. 2010](#)), disconfirmation of entertainment value has no effect for student Facebook users in Taiwan. Instead, direct hedonic perception generates a much stronger impact on satisfaction. One possible reason is that we only included student-based young Facebook users. This also reflects the truth that many students in Taiwan attend Facebook to have fun with their friends. For example, the HappyFarm game is exceptional successful in Taiwan. Another more plausible reason is that the previous study only took disconfirmation into consideration. We addressed this issue in the followings.

Second, after taking perception into consideration, this study also added a new insight into the EDT research stream. The analysis result indicated that not all confirmations of benefits can increase satisfaction. For utilitarian benefits, both direct perception and the confirmation of expectation are important but confirmation has a slightly higher impact. The link between perception and satisfaction indicates that consumers are satisfied when they find a social network website to be a useful tool which can help them build connections with others. The more important thing is that customers tend to be more satisfied when they find the social network website is as useful as expected.

However, for hedonic benefit, only directly perceived hedonic benefit has an effect on satisfaction. This indicates that not all benefits need to meet expectations so that users or consumers are satisfied. Actually, similar results can be found in [Chiu et al.'s \(2005\)](#) study. They found that the confirmation of usability has a significant impact, but the confirmation of web qualities is not as critical as expected. However, they provide no explanation for this phenomenon. In this study, according to the correlation matrix shown in Table 3, perceived hedonic benefit is highly associated with confirmation, and both of them are moderately correlated with satisfaction. However, the path analysis shows that the effect of perceived hedonic benefits overrides confirmation. The confirmation of affect-oriented hedonic benefits is not critical after taking direct perception into consideration. Since perceived hedonic benefit is received during the utilisation process, such as the playing of online games and interacting with others, this implies that direct perception is more critical for experience-oriented benefits.

As we argued, using a social network website is not only a goal-oriented, but also an experience-oriented process. Consumers tend to be satisfied when they find the tool is useful and meets their expectations, and they feel the utilising process is enjoyable, fun, and exciting. We suggest that whether using the website is as enjoyable as expected

is not important and, instead, whether users are entertained during this process is the key. The combination of past and current study generates one noticeable issue: not all benefit dimensions needed to be confirmed, especially those which are experience-oriented.

Based on this result, we encourage future studies to take different benefit dimensions, other than utilitarian and hedonic, into consideration while adopting confirmation or disconfirmation concepts to understand customers' or users' satisfaction as well as their repurchase or continuance intention. The use of a parsimonious overall perception and confirmation is limited and insufficient. There is a need to first clarify the benefits or values provided by a specific product or service before attempting to understand consumers' continuance or repurchase intentions.

### **5.3. Implications for practitioners**

Two major implications for practitioners can be generated from this study. First, as shown in the analysis result, both the perceived utilitarian and hedonic benefits have direct impact on satisfaction. In order to understand the extent to which users are satisfied with the service provided, website owners should first examine whether the delivered service generates sufficient benefits. Furthermore, hedonic benefit has a significantly stronger impact. An extremely high coefficient of hedonic benefits indicates that college students are more satisfied when the system provides enjoyable games or makes the interaction process between them and their friends interesting. This result is not surprising at all because (1) the major initial purpose for many people in Taiwan to join Facebook is to play small, Flash-based games; and (2) it is enjoyable to rebuild the connection with friends in different locations and interact with those friends through playing games together.

This implies that, although allowing people to build connections with their friends online is critical, the entertainment benefits that users can receive from the website cannot be neglected. Although the initial intention of social network websites is for people to connect with their friends or build new friendships with people who have the same habit or taste (utilitarian benefits), it turns out that hedonic benefit is more critical for young students in determining satisfaction towards the website. Therefore, it is critical for web masters to incorporate entertainment elements into the system design. Managers need to ensure that the website provides entertaining effects that are as enjoyable as possible. We strongly encourage web masters to take hedonic benefits into consideration while designing new functions or determining future strategies. Furthermore, there is no need to consider whether those hedonic benefits can meet customers' expectation because, for the hedonic dimension, what people really care about is to enjoy the utilisation process.

Second, for utilitarian benefits, there is a need for managers to ensure that the provided features are able to meet

users' expectations because both perceived benefits and benefit confirmation are associated with satisfaction. Given that the coefficient of confirmation is higher than perceived utilitarian benefit, we can conclude that confirmation plays a more important role than direct perception in the utilitarian dimension. Although the system can provide various functions to attract users, whether those functions meet users' expectations is important.

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