

This is a self-archived version of an original article. This version may differ from the original in pagination and typographic details.

Author(s): Köse, Dicle Berfin

Title: Rolling or Scrolling? The Effect of Content Type on Habitual Use of Facebook

Year: 2020

Version: Accepted version (Final draft)

Copyright: © 2020 Association for Information Systems

Rights: In Copyright

Rights url: <http://rightsstatements.org/page/InC/1.0/?language=en>

Please cite the original version:

Köse, D. B. (2020). Rolling or Scrolling? The Effect of Content Type on Habitual Use of Facebook. In PACIS 2020 : Proceedings of the 24th Pacific Asia Conference on Information Systems. Information Systems (IS) for the Future. Association for Information Systems. <https://aisel.aisnet.org/pacis2020/57/>

Rolling or Scrolling? The Effect of Content Type on Habitual Use of Facebook

Completed Research Paper

Dicle Berfin Köse
University of Jyväskylä
Jyväskylä, Finland
contact@dicleberfin.com

Abstract

The paper investigates how content type (i.e., hedonic and utilitarian content) is related to satisfaction, habitual use, use intensity and discontinued use intentions in the context of social media services. The research model was empirically tested using a survey study (n = 142) that was conducted among Facebook users. The results show that hedonic content is a strong predictor of habitual use of and satisfaction with Facebook. In turn, utilitarian content has a positive effect on satisfaction; however, it does not significantly affect habitual use. Additionally, habit affects use intensity more than satisfaction but has no significant effect on discontinued use intention. These results suggest that emphasizing hedonic content might be more effective in creating habitual use of a system. However, the balance between hedonic and utilitarian content should be arranged so that it is optimum for user satisfaction and does not cause excessive use of the system.

Keywords: Hedonic content, Utilitarian content, Habit, Social media services, Facebook, Dual information systems, Use intensity, Discontinued use intention, Satisfaction

Introduction

Many contemporary information systems (IS) are as successful as the amount of time that people spend on them. For this reason, many of these systems are designed to be habit-forming or addictive (Oremus 2017). For example, scarcity in the form of temporarily available snaps or statuses, notifications, presence features, and feedback forms, such as number of likes, are highly habit-forming features of social media (Ali et al. 2018; Andersson 2018). Infinite scroll, in other words, swiping through content endlessly, is a highly habit-forming feature, whose design was inspired by the bottomless bowl experiment (Andersson 2018). Predictably, social media services, such as Facebook and Twitter, thrive on this feature; they provide endless amounts of content, personalized according to their users' consumption. Still, among the most "hooking" features of digital applications are reward and infotainment; content that is both enjoyable and informative is a key addictive feature (Ali et al. 2018). Therefore, many contemporary IS converge these two types of content, which can be consumed according to the user's context, and they are referred to as dual IS (Chesney 2006; Wu and Lu 2013). Users can both receive their news from Facebook and spend hours watching cat videos. Likewise, Twitter is used for various ends, such as political campaigns, entertainment, and advertisements. However, it is not only the social media services that have both hedonic and utilitarian content and are designed to be habit-forming. Other types of dual IS may contain both hedonic and utilitarian content and can be used habitually as well. For instance, gamified systems, with their affective and informational feedback (Hassan et al. 2019), blend hedonic and utilitarian content to increase user motivation and engagement in various activities (Koivisto and Hamari 2019).

Despite the various habit-forming uses of content by practitioners in different types of dual IS, its effect on habituated use largely remains unresearched, not to mention the quality of the content's importance in making people keep using the system (Zhou et al. 2018). Additionally, while the success of IS through habituated use constitutes one side of the coin, unhealthy use of IS by consumers because of this habituation constitutes the other. Internet addiction is prevalent among 6% of users globally (Cheng and Li 2014). It is currently being debated for inclusion in the official list of diseases by health professionals, just as gaming addiction was recognized as a disorder by the World Health Organization (Brey et al. 2019). Moreover, to predict and control behavioral patterns particularly related to health, studying habit and the factors causing it can provide novel insights (Ouellette and Wood 1998).

In this vein, the research objective of this study is to investigate the relation between content type and habitual use in the context of social media services (i.e., Facebook). More specifically, the research question is "Does hedonic or utilitarian content predict habituated use, satisfaction, use intensity, and discontinued use intention in the context of dual IS?". To achieve this aim, cross-sectional data from Facebook users were collected through a psychometric survey. Facebook is one of the prominent social media services that contains a rich amount of content that appeals differently to different people. Besides, its dual nature, along with other social media and social networking services, is increasingly recognized (e.g., Cocosila and Igonor 2015; Hu et al. 2015; Xu et al. 2012). Therefore, it is a suitable system for testing our research question.

This research investigates a relatively unexplored area in the IS literature and enriches existing studies on content type and the use of dual information systems. It contributes to research by studying the relationship between content type, habitual use, use intensity and discontinued use intention. In fact, it is the first study to empirically test the effects of hedonic and utilitarian content on habitual use, use intensity and discontinued use intention. Therefore, it contributes to theory by examining previously unexplored relationships. The results of this study provide design implications regarding social media and social networking services, and also other types of dual IS. In brief, they inform about how content can be tailored for optimum user experience.

The remainder of this paper is organized into eight sections. The second section introduces the concept of dual IS and describes how contemporary technologies converge both hedonic and utilitarian benefits. The third section discusses content and its various forms in the IS context. The fourth section introduces the concepts of satisfaction and habit in the context of IS. The fifth section presents the research model and the hypotheses. The sixth section describes the study data and methods and presents the results. In the seventh section, theoretical and design implications, as well as limitations and directions for future research, are discussed. And the paper conclusions are presented in the last section.

Dual Information Systems

The initial utilitarian IS were designed for use in organizational contexts to replace manual tasks, with the aim of increasing employee efficiency and performance. In many cases, this human-work profit was gained through automation and could be measured by task duration, error rate, and learning time (Butler 1996). For these reasons, when interacting with these systems, the users focused on the outcomes that were external to system use, such as task completion and performance increase. With the proliferation of IS in non-organizational consumer contexts, their uses diversified. A second type emerged - hedonic IS, which were mainly used for the pleasure derived from them (van der Heijden 2004). Some examples of these hedonic systems were viewed as video games, Internet services, and other systems that are used in leisure environments.

However, today, the boundary between hedonic and utilitarian systems is no longer clear due to technological developments, such as Web 2.0, and design strategies, including gamification. These types of systems are recognized as mixed/dual IS and are used for both utilitarian and hedonic purposes, according to the context-of-use (Chesney 2006) or the task at hand (Wu and Lu 2013). They combine features from both hedonic and utilitarian systems so that fun and utility are experienced at the same time (Gerow et al. 2013). Today, an increasing number of systems are viewed as dual IS (Köse and Hamari 2019). For example, several studies (e.g., Cocosila and Igonor 2015; Hu et al. 2015; Xu et al. 2012) demonstrate the utilitarian use of online social networks despite being initially perceived as

hedonic-only systems, and games are now widely used for utilitarian purposes (e.g., simulation games, serious games) (Hamari and Keronen 2017). Therefore, contemporary technologies are increasingly combining pleasure and utility in various forms. One common way to achieve this is by taking advantage of content. Next, we discuss content in the IS context in more depth.

Content in the Information Systems Context

Information artifact is one of the major components of IS artifacts (e.g., Iivari 2017; Lee et al. 2015), and IS success largely depends on the quality of information, as indicated by DeLone and McLean (1992) almost three decades ago. Despite having acknowledged these aspects, the mainstream IS research has largely disregarded the importance of information assets available in IS (Iivari 2017).

In the realm of traditional IS, the information artifacts are designed at a meta-level, for instance, at the level of entity–relationship diagrams, database schemas, or report layouts (Iivari 2017). However, in contemporary technologies, the content available to a user can take different forms (e.g., images, words, other types of media), and its different aspects gain importance. Emojis, icons, avatars, a video game’s layout and background, the messages received from a system, and so on, are all different types of content consumed by users. In the world of social media, with the emergence of Web 2.0, users are also creators of content that is unstructured by nature. Here, content becomes the essence of a system (Kietzmann et al. 2011); in fact, it is manipulated so that users gain habitual use of the system (Ali et al. 2018; Andersson 2018; Oremus 2017).

In the IS field, the effects of content have been studied by considering its different assets, comprising its inherent hedonic or utilitarian value (Barelka et al. 2013; Dumlao and Ha 2013; Hassan et al. 2019; Torres et al. 2014), its contextual quality in the form of its timeliness and relevance to the user’s context (Koivumaki et al. 2008; Zhou et al. 2018), its interactional quality (Koivumaki et al. 2008; Pianesi et al. 2009), its effect on emotions (e.g., Wenninger et al. 2019), and its overload (e.g., Zhang et al. 2016). All these studies show that the content’s different assets significantly affect users’ satisfaction with and perceived benefits from the use of the system. In fact, an explorative study found that low content quality (particularly low relevance and credibility) could cause users to discontinue using the system (Zhou et al. 2018). However, the researchers have been unable to identify studies that analyzed the aspects of content and their relation to habitual use.

Satisfaction and Habitual Use

Satisfaction and habitual use are two important antecedents of IS use behavior (Bhattacharjee and Lin 2014). Satisfaction is an affective state formed as a result of the appraisal of the difference between expectations about the consumption experience (i.e., IS usage experience) and the actual experience. The level of satisfaction increases when the expectations are low or a system’s performance is better than expected, and it decreases when expectations are higher than the perceived performance of a system. In the latter case, users may develop dissatisfaction because of their unmet expectations.

Habits are behavioral tendencies to repeat responses in steady supporting contexts (Ouellette and Wood 1998). More explicitly, they are goal-directed behaviors that are automatically activated by environmental cues, whose mental representations have been formed by frequent performance of the same behavior in similar situations (Aarts et al. 1998). Therefore, these automatic behaviors strongly depend on the stability of the stimulus; as long as the situations are similar across time and settings and there is no change in behavioral goals, the performance of habitual behavior requires minimal attention and effort (Ouellette and Wood 1998). In line with prior conceptualizations, Limayem et al. (2007) define the IS habit as “the extent to which people tend to perform behaviors (use IS) automatically because of learning” (p. 709). Therefore, the IS habit is not guided by conscious intentions. Rather, it might be triggered by environmental cues, such as the task to be performed with the system or the mere presence of the technology itself at the device or the feature level (Guinea and Markus 2009).

Research Model and Hypotheses

Continued use of IS is a behavior that is not only reasoned, purposeful, or intentional but is also emotional and habitual (Guinea and Markus 2009). In fact, habitual use and satisfaction are salient antecedents of sustained usage of IS and their success (Bhattacharjee and Barfar 2011; Bhattacharjee and Lin 2014). Nonetheless, for today's IS, increased use intensity has become a sign of IS success in addition to sustained usage. However, use intensity can be a sign of not only a system's success but also pathological use patterns. While people are using a service, they may also consider quitting for various reasons, or this discontinuance intention may surface contextually. For this reason, it is important to understand different antecedents of discontinuance intention as well. Therefore, this research studies how content type affects users' habitual use of and satisfaction with IS to eventually influence users' use intensity and discontinued use intentions. To sum up, we analyze the direct effects of hedonic and utilitarian content on satisfaction and habitual use, as well as the direct effects of satisfaction and habitual use on use intensity and discontinued use intention. Thus, we are also able to compare how habit and satisfaction influence use intensity and discontinued use intention. The research model is presented in Figure 1.

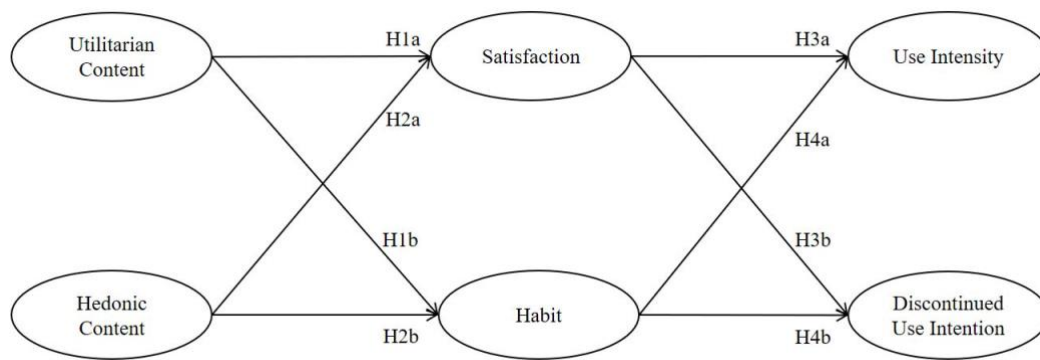


Figure 1. The Research Model

Hedonic and Utilitarian Content

On one hand, hedonic content stands for those aspects of IS that convey pleasurable messages to their users or enable users' enjoyable experiences by providing entertainment, for example. These may take different forms, such as icons, avatars, goal achievement messages, and videos that may be perceived as pleasurable by the users. On the other hand, utilitarian content provides knowledge and contributes to specific tasks or objectives of the users (Dumlao and Ha 2013). Consuming content that meets users' expectations or needs, in terms of pleasure or utility, increases user satisfaction. In turn, satisfactory experiences with the behavior strengthen their connection to the pursued goals, thus increasing the likelihood of habit formation (Aarts et al. 1998). For instance, Dumlao and Ha (2013) show that hedonic and utilitarian tweet quality positively affects user satisfaction with Twitter. Similar research is also supportive of these hypothesized positive effects. For example, in the context of the gamified exercise service HeiaHeia, it has been found that affective feedback has a positive effect on perceived benefits and continued use intention, and informational feedback has a positive effect on continued use intention (Hassan et al. 2019). It is important to note that perceived benefits are influential antecedents of satisfaction, and continued use intention is a prominent antecedent of continued use behavior. Another study on the Chinese microblogging service Sina Weibo shows the importance of content quality (e.g., relevance) for continued use of the system (Zhou et al. 2018). Considering these findings, the following hypotheses are formulated:

H1a. *Utilitarian content positively affects satisfaction.*

H1b. *Utilitarian content positively affects habit.*

H2a. *Hedonic content positively affects satisfaction.*

H2b. Hedonic content positively affects habit.**Satisfaction**

When users are unsatisfied with a system, it is likely that they will not form positive intentions toward that service. In fact, they may form a discontinued use intention, which is a user's mental predisposition to abandon using the system (Bhattacharjee 2001). Discontinued use intention may be assumed as the opposite of continued use intention in a continuum; however, it has different antecedents than continued use intention (Turel 2015). This is because of the co-existence of multiple attitudes toward a psychological object and their emergence in particular contexts (Ajzen 2001). Therefore, dissatisfaction is only one of the reasons why people may discontinue a system's use and/or switch to an alternative. The negative effect of satisfaction on discontinued use intention has been demonstrated in the context of Facebook by previous research as well (e.g., Maier et al. 2015; Turel 2015). Similarly, previous studies have shown the positive effects of dissatisfaction on discontinued use intention in the context of Facebook (Wirth et al. 2015) and in the context of the Chinese social networking service Qzone (Zhang et al. 2016).

Although intention is a prominent antecedent of behavior, it is not equivalent to behavior; in fact, in some cases, people may act differently from their intentions. In the post-adoption context, intentions play a lesser role because users are less likely to spend cognitive resources on forming them when they can rely on more efficient stimulus-based responses through the links between stimulus and action, such as satisfaction (Bhattacharjee and Lin 2014). Therefore, measuring use behavior instead of continued use intention is a more suitable approach in this context. A common conceptualization of behavior in the IS context is use intensity (Venkatesh et al. 2008). Use intensity is the extent to which an information system is used. It reflects both the time spent using the system and the users' cognition of the extent of their use. Satisfaction as an emotive concept affects use behavior (Bhattacharjee and Barfar 2011; Bhattacharjee and Lin 2014). Therefore, satisfaction with a system will have a direct effect on use intensity; the more satisfied the users are, the more intensely they would use the system (within the boundaries of their needs and goals). Previous research has also shown the direct positive effect of satisfaction on usage behavior (e.g., Bhattacharjee and Lin 2014; Limayem and Cheung 2008). Therefore, the following hypotheses are formulated:

H3a. Satisfaction positively affects use intensity.

H3b. Satisfaction negatively affects discontinued use intention.

Habitual Use

Although the performance of habitual behavior does not require conscious intentions, people are inclined to form favorable intentions about acts they have performed repetitively in the past (Ouellette and Wood 1998). Therefore, we posit that habit will be negatively related to discontinued use intention. Besides, automatically triggered IS usage is less prone to discontinuance (Limayem et al. 2007). Moreover, erasing automatic use of IS requires strong motives that can override the habit and discontinue the use of the system. Previous research also supports this notion; Turel (2015) shows the negative effect of habit on discontinued use intention in the context of Facebook, and Zhou et al. (2018) find that low habit is one of the reasons for discontinuing the use of the Chinese microblogging service Sina Weibo. Other examples can be cited from the contradicting continued use intention; the positive effect of habit on continued use intention has been shown in the context of the virtual world Second Life (Barnes 2011) and in the context of online shopping (Liao et al. 2006).

When use intensity is high, it can be an antecedent of problematic technology use. In fact, its relation to conflicts involving family, work, and personal well-being has been shown by previous research regarding mobile social networking services (Zheng and Lee 2016). When a system is used habitually, the users may not be paying attention to the amount of time spent using the system. Turel (2015) argues about this effect through habit's numbing influence on self-observation and judgmental processes; habit reduces thinking about the system, the consequences of its use, and specifically stopping its use. Habit's

direct positive effect on usage behavior has been shown in previous research as well (e.g., Bhattacharjee and Lin 2014; Limayem and Hirt 2003); therefore, we posit the following hypotheses:

H4a. *Habit positively affects use intensity.*

H4b. *Habit negatively affects discontinued use intention.*

Empirical Study

The research model and the purported hypotheses are studied via a cross-sectional survey. The majority of the survey items were adapted from previous research to the context of our study. Habitual use items were adopted from the previous studies by Turel (2015) and Limayem et al. (2007). Satisfaction items were adopted from Bhattacharjee's (2001) study, and discontinued use intention items were taken from the study of Maier et al. (2015). Hedonic and utilitarian content items were constructed in line with the dimensions conceptualized in previous research (DeLone and McLean 1992, 2003; van der Heijden 2004). All items, except satisfaction, use intensity, and demographic variables, were measured on a 7-point Likert scale (ranging from strongly disagree to strongly agree). Satisfaction was measured using a semantic differential on a 7-point scale. The items were changed to reflect Facebook use. The item set is presented in Appendix A.

The survey's target population comprised foreigners living in Finland. This group constitutes a suitable population for investigating the research question because they adopt Facebook for various uses, such as job hunting, self-promotion, buying/selling stuff, and coordinating/following events, as well as feelings of community and support. The reason why they do so might stem from the language barrier they face in Finland. Although English is commonly spoken in Finland, many services and jobs are available only in Finnish and Swedish, the two official languages of the country. Therefore, foreigners living in Finland take advantage of Facebook to maintain their lives.

The survey was published in September 2019 in various Facebook groups that bring together foreigners living in Finland. It was actively promoted over a two-month period; during this time, 142 responses were gathered. The incentive to complete the survey was a chance to win one of three €50-gift cards (Amazon, Ticketmaster, or Lippu.fi). The respondents' demographic information is shown in Table 1.

Table 1. Demographic details of the respondents: age, gender, and time using the service.

Age range	N	%	Gender	N	%	Time using the service	N	%
17–20	3	2.1	Female	88	62.0	Less than 3 months	3	2.1
21–25	31	21.8	Male	52	36.6	3 months–6 months	1	0.7
26–30	47	33.1	Other	2	1.4	1 year–2 years	1	0.7
31–35	33	23.2				2 years–4 years	4	2.8
36–40	12	8.5				4 years–6 years	15	10.6
41–45	7	4.9				More than 6 years	118	83.1
Above 45	9	6.3						
Total	142	100.0		142	100.0		142	100.0

Validity and Reliability

The collected data were analyzed via partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3 software. PLS-SEM is more advantageous than co-variance-based structural equation modeling from several perspectives. First, PLS-SEM has no restrictive assumptions about the distribution of the data. Second, it can offer solutions in small sample sizes. Third, it allows unrestricted use of single-item and formative measures. Fourth, it is more suitable for exploratory or predictive research (Hair et al. 2019).

For reflective factors, convergent validity was assessed through composite reliability (CR), Cronbach's alpha (Alpha), and average variance extracted (AVE). CR should be greater than 0.7 (Hair et al. 2019),

Alpha should be greater than 0.7 (Kline 2011), and AVE should be greater than 0.5 (Fornell and Larcker 1981; Hair et al. 2019).

Discriminant validity was assessed using AVE; for each latent variable, the square root of AVE was checked against the variable's correlation with other latent variables to see whether or not it was higher (Fornell and Larcker 1981). The cross-loadings were also checked to validate that no indicator had a higher correlation with another latent variable than its own.

Use intensity was measured as a formative construct. Therefore, its measurement fit was assessed through the path-loading significance of its indicators. The indicators with insignificant path loadings were excluded from the model. Additionally, the indicators of formative factors should not display excessive multicollinearity (Hair Jr et al. 2016); this was also checked through the variance inflation factors (VIF). It was also verified that the use intensity's indicators loaded on their intended composite factor (i.e., use intensity) and that their cross-loadings with other factors were not high.

After these checks, we dropped four items from the measurement model: HCONTENT3 because it was loading on both utilitarian and hedonic content variables higher than 0.7, UCONT1 and UCONT2 because their loadings were lower than 0.7, and USEI3 because its path loading was not significant. Table 2 presents the results of these assessments after HCONTENT3, UCONT1, UCONT2, and USEI3 were dropped from the measurement model.

Table 2. Convergent and Discriminant Validity

	Alpha	CR	AVE	DUI	HABIT	HCONT	SAT	USEI	UCONT
DUI	0.838	0.902	0.753	0.868					
HABIT	0.765	0.865	0.682	-0.190	0.826				
HCONT	0.872	0.913	0.723	-0.322	0.573	0.851			
SAT	0.932	0.951	0.830	-0.320	0.475	0.621	0.911		
USEI				-0.198	0.518	0.340	0.336		
UCONT	0.838	0.902	0.754	-0.334	0.496	0.711	0.530	0.268	0.868

DUI = discontinued use intention, HABIT = habitual use, HCONT = hedonic content, SAT = satisfaction, USEI = use intensity, UCONT = utilitarian content, Alpha = Cronbach's alpha, CR = composite reliability, AVE = average variance extracted. The figures in the diagonal correspond to the square roots of AVE for each construct. The square root of AVE for USEI is missing because this construct was measured as formative.

The data set used in this study consisted of cross-sectional self-reported responses. Therefore, common method bias was a potential threat to the validity of the conclusions as a potential source of measurement error (Podsakoff et al. 2003). In order to prevent common method bias, procedural and statistical remedies were applied. Procedurally, the measurement items were located in a randomized manner and it was ensured that measures of the same-construct were at least six items apart (Podsakoff et al. 2012). Statistically, Harman's single factor test (Podsakoff et al. 2003) and a full collinearity assessment approach (Kock 2015) were used. The results of Harman's single factor test showed four factors with eigenvalues higher than 1 and they cumulatively accounted for 69.40% of the total variance. In addition, the most significant factor accounted for less than 50% of the variance. With regards to full collinearity test, variance inflation factors (VIFs) were generated for all latent variables in the model, and there was no occurrence of a VIF greater than 3.3. Therefore, the model can be considered free of common method bias.

Results

The results of the analysis are presented in Figure 2. The research model explains 27.8% of Facebook use intensity and 10.4% of discontinued use intention regarding Facebook. Moreover, utilitarian and hedonic content account for 34.4% of the variance in the habitual use of Facebook and 40.2% of the variance in the satisfaction with it.

Overall, all hypotheses, except H1b, H3a, and H4b, are supported. In line with H1a, utilitarian content has a positive effect on satisfaction with Facebook but has no significant effect on the habitual use of

the system. Therefore, H1b is not supported. Hedonic content is found to be a strong predictor of both satisfaction with Facebook (H2a) and its habitual use (H2b). Satisfaction has a positive yet insignificant effect on use intensity. Therefore, H3a is not supported. However, it negatively influences discontinued use intention, which supports H3b. This means that the more satisfied people are with Facebook use, the less likely they intend to abandon its use. Habit is found to be a strong predictor of use intensity (H4a). Moreover, it has a negative but insignificant effect on discontinued use intention. Therefore, H4b is not supported.

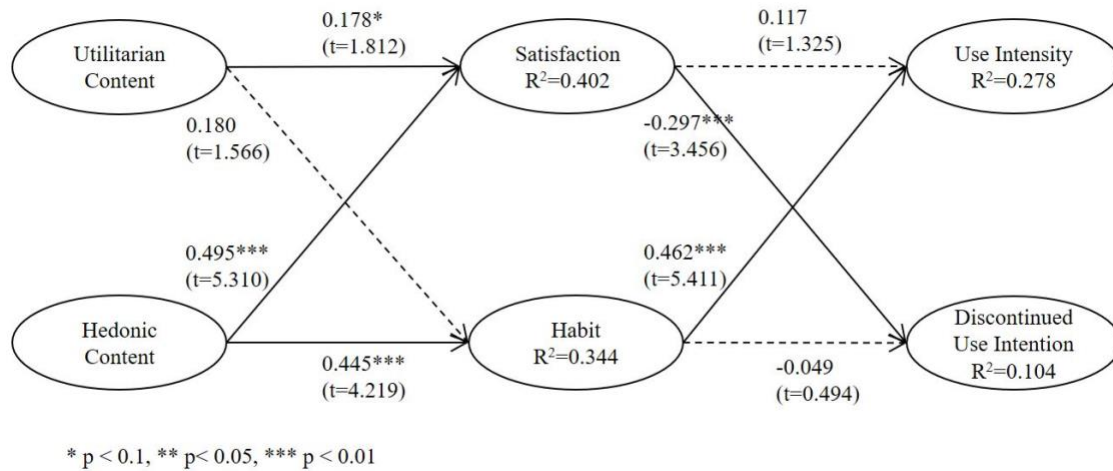


Figure 2. Path Model Results

Discussion

Theoretical Implications

The focus of this research was the effects of hedonic and utilitarian content on the habitual use and the use intensity of a social media service, Facebook. Discontinued use intention was also one of the studied constructs. Overall, the results of this research show that hedonic content consumption is a strong predictor of habitual use and consequent use intentions and use intensity. This research has several theoretical implications and contributions particularly with respect to the largely disregarded area of information assets in the IS field (Iivari 2017) and the use of dual IS.

First, the results indicate that hedonic content is more influential on the habitual use of a dual information system, specifically Facebook, in comparison to utilitarian content. A possible reason is that intrinsic benefits (i.e., pleasurable experiences) are more effective in creating repetitive actions and therefore learned behavior that causes automatic responses. In contrast, utilitarian content has no significant effect on the habitual use of Facebook. This remarkable finding can have implications for other types of dual IS as well.

Second, both utilitarian and hedonic content have a positive effect on satisfaction with Facebook, but hedonic content's effect is more prominent in comparison. Though initially formed as a service for connecting people, Facebook has transformed into a dual information system, serving both hedonic and utilitarian purposes. Despite this transformation, the above-mentioned result demonstrates that overall, hedonic content is still the type that is expected more from Facebook (ignoring the individual user's conception of the system). It also points out that IS satisfaction is derived not only from plain utility but also from pleasurable content.

Third, the results show that use intensity is largely predicted by habitual use. In fact, satisfaction with the system has no significant effect on use intensity. This means that satisfaction with an information system does not project the users' overuse of it; it is habit that paves the way for technology overuse. This finding may also be explained by the lack of cognitive deliberation or consideration of a user's own behavior that is present in habitual use patterns (Ouellette and Wood 1998; Turel and Serenko

2012). Once a habit is formed, people do not recognize or pay attention to the amount of time they spend on an information system, which might lead to an extended length of time spent on the service.

As expected, satisfaction with the system decreases discontinued use intention (Bhattacharjee 2001). However, habit does not show a significant (albeit negative) effect on it. This result is contrary to the previous research finding that habit reduces discontinuance intentions (Turel 2015), and it might stem from the fact that people who habitually use a system do not think about its use but demonstrate their behavior without any contemplation or explicit intention. Nonetheless, this result requires further research to be generalized.

Practical Implications

From a design and management perspective, the results have several implications. To begin with, the results can be interpreted from the view on Facebook as an example of a dual information system; therefore, the findings can also have implications for other types of dual IS.

In terms of habitual use, the findings point out the importance of hedonic content. Accordingly, system managers and designers can emphasize the type of content available in their system. For instance, a Facebook feed may be tailored to show less hedonic/utilitarian content to form or prevent habitual use of the system. This way, users can have an optimum experience with the system that aligns with their needs and goals. This inference may also be applied to for instance gamified systems regarding enhanced affective or informative feedback (see Hassan et al. 2019).

The importance of habitual use for use intensity is also apparent. Therefore, time spent on the service can be used for measuring the degree of habitual use (or one-step further addiction). Thus, different types of content can be displayed to the users according to the amount of time they spend on the service.

Nonetheless, system designers and managers should carefully arrange the balance between hedonic and utilitarian content. Utilitarian content is a significant predictor of satisfaction with the system; thus, its lack may positively affect discontinued use intentions. In the context of social media services, this balance may be achieved by tailoring the newsfeed with an appropriate blend of informative and hedonic content. In the context of gamified systems, this can be achieved through the balance of informative and affective feedback. Other types of dual IS should be considered individually, according to their content characteristics.

Limitations and Future Research

This study has several limitations. First, the study should be replicated in other types of dual IS in order to be able to generalize the findings. Second, the data was gathered using a cross-sectional survey; in order to discover causal effects, the study should be conducted using experimental methods. Third, the targeted population's possible reliance on Facebook use might have resulted in a biased sample, particularly with respect to the results regarding use intensity and discontinued use intention. Therefore, extending the sample to a more mixed group can provide a more thorough understanding of the topic.

This study opens up avenues for future research. Future studies can start with examining how content type is consumed demographically. In other words, researchers can analyze the moderating effects of demographic variables on the influence of content type on habitual use of or satisfaction with a system. People view and use dual IS differently (Köse et al. 2019); therefore, the features affecting their habit formation may also vary. Accordingly, future research may take into account user motivation when analyzing features that may cause habitual use. Another avenue for future research can be the analysis of the effects of specific content types (e.g., feedback) on habit formation or use intensity through longitudinal or experimental studies. Similar studies can be conducted on different types of dual IS, such as gamified systems, virtual worlds, and online shopping services. Another direction for future research may be studying how satisfaction or content type affects different forms of IS discontinuance (Soliman and Rinta-Kahila 2020; Zhou et al. 2018).

Conclusion

This study attempts to extend our knowledge regarding the effects of different forms of content on use of dual IS. The results show that hedonic content is more influential than utilitarian content with respect to habitual use. In fact, utilitarian content does not have a significant effect on habitual use. Satisfaction is positively influenced by both hedonic and utilitarian content; however, hedonic content's effect is more prominent. In addition, habitual use predicts a large portion of the variation in use intensity; however, satisfaction does not have a significant impact on it. Contrary to habitual use, satisfaction with the system plays an important role in the variation of discontinued use intention. The results of this study can provide information system managers and designers with useful insights regarding the use of content; they can derive implications with respect to habit formation and user retention in the context of dual IS.

Acknowledgements

This research has been supported by individual study grant from the Foundation for Economic Education (Liikesivistysrahasto).

References

- Aarts, H., Verplanken, B., and Knippenberg, A. 1998. "Predicting Behavior From Actions in the Past: Repeated Decision Making or a Matter of Habit?," *Journal of Applied Social Psychology*, (28:15), pp. 1355–1374 (doi: 10.1111/j.1559-1816.1998.tb01681.x).
- Ajzen, I. 2001. "Nature and operation of attitudes.," *Annual Review of Psychology*, (52:1), pp. 27–58 (doi: 10.1146/annurev.psych.52.1.27).
- Ali, R., Arden-Close, E., and McAlaney, J. 2018. "Digital addiction: how technology keeps us hooked," *The Conversation* (available at <http://theconversation.com/digital-addiction-how-technology-keeps-us-hooked-97499>; retrieved October 19, 2019).
- Andersson, H. 2018. "Social media apps are 'deliberately' addictive to users," *BBC News* (available at <https://www.bbc.com/news/technology-44640959>; retrieved October 18, 2019).
- Barelka, A. J., Jeyaraj, A., and Walinski, R. G. 2013. "Content Acceptance Model and New Media Technologies.," *The Journal of Computer Information Systems*, (53:3), pp. 56–64.
- Barnes, S. J. 2011. "Understanding use continuance in virtual worlds: Empirical test of a research model," *Information & Management*, (48:8), Elsevier B.V., pp. 313–319 (doi: 10.1016/j.im.2011.08.004).
- Bhattacharjee, A. 2001. "Understanding Information Systems Continuance: An Expectation-Confirmation Model," *MIS Quarterly*, (25:3), pp. 351–370.
- Bhattacharjee, A., and Barfar, A. 2011. "Information Technology Continuance Research: Current State and Future Directions," *Asia Pacific Journal of Information Systems*, (21:2), pp. 1–18 (doi: 10.2307/3250921).
- Bhattacharjee, A., and Lin, C.-P. 2014. "A unified model of IT continuance: three complementary perspectives and crossover effects," *European Journal of Information Systems*, (24:4), pp. 1–10 (doi: 10.1057/ejis.2013.36).
- Brey, P., Gauttier, S., and Milam, P.-E. 2019. "Harmful internet use Part II: Impact on culture and society Study," *European Parliamentary Research Service*, Brussels (doi: 10.2861/391152).
- Butler, K. A. 1996. "Usability Engineering Turns 10," *Interactions*, (3:1), pp. 58–75.
- Cheng, C., and Li, A. Y. 2014. "Internet Addiction Prevalence and Quality of (Real) Life: A Meta-Analysis of 31 Nations Across Seven World Regions," *Cyberpsychology, Behavior, and Social Networking*, (17:12), pp. 755–760 (doi: 10.1089/cyber.2014.0317).
- Chesney, T. 2006. "An Acceptance Model for Useful and Fun Information Systems," *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*, (2:2), pp. 225–235.
- Cocosila, M., and Igonor, A. 2015. "How important is the 'social' in social networking? A perceived value empirical investigation," *Information Technology & People*, (28:2), pp. 366–382 (doi: 10.1108/ITP-03-2014-0055).
- DeLone, W. H., and McLean, E. R. 1992. "Information Systems Success: The Quest for the Dependent

- Variable,” *Information Systems Research*, (3:1), pp. 60–95 (doi: 10.1287/isre.3.1.60).
- DeLone, W. H., and McLean, E. R. 2003. “The DeLone and McLean Model of Information Systems Success: A Ten-Year Update,” *Journal of Management Information Systems*, (19:4), pp. 9–30 (doi: 10.1080/07421222.2003.11045748).
- Dumlao, J. A. A., and Ha, S. H. 2013. “Motivational and social capital factors influencing the success of social network sites: Twitter case,” in *PACIS 2013 Proceedings*.
- Fornell, C., and Larcker, D. F. 1981. “Evaluating Structural Equation Models with Unobservable Variables and Measurement Error,” *Journal of Marketing Research*, (18:1), pp. 39–50 (doi: 10.2307/3151312).
- Gerow, J. E., Ayyagari, R., Thatcher, J. B., and Roth, P. L. 2013. “Can we have fun @ work? The role of intrinsic motivation for utilitarian systems,” *European Journal of Information Systems*, (22:3), pp. 360–380 (doi: 10.1057/ejis.2012.25).
- Guinea, A. O. de, and Markus, M. L. 2009. “Why Break the Habit of a Lifetime? Rethinking the Roles of Intention, Habit, and Emotion in Continuing Information Technology Use,” *MIS Quarterly*, (33:3), pp. 433–444.
- Hair, J. F., Risher, J. J., Sarstedt, M., and Ringle, C. M. 2019. “When to use and how to report the results of PLS-SEM,” *European Business Review*, (31:1), pp. 2–24 (doi: 10.1108/EBR-11-2018-0203).
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., and Sarstedt, M. 2016. *A primer on partial least squares structural equation modeling (PLS-SEM)*, (2nd edition.), Los Angeles: Sage Publications.
- Hamari, J., and Keronen, L. 2017. “Why do people play games? A meta-analysis,” *International Journal of Information Management*, (37:3), Elsevier Ltd, pp. 125–141 (doi: 10.1016/j.ijinfomgt.2017.01.006).
- Hassan, L., Dias, A., and Hamari, J. 2019. “How motivational feedback increases user’s benefits and continued use: A study on gamification, quantified-self and social networking,” *International Journal of Information Management*, (46:July 2018), pp. 151–162 (doi: 10.1016/j.ijinfomgt.2018.12.004).
- Hu, T., Kettinger, W. J., and Poston, R. S. 2015. “The effect of online social value on satisfaction and continued use of social media,” *European Journal of Information Systems*, (24:4), Nature Publishing Group, pp. 391–410 (doi: 10.1057/ejis.2014.22).
- Iivari, J. 2017. “Information system artefact or information system application: that is the question,” *Information Systems Journal*, (27:6), pp. 753–774 (doi: 10.1111/isj.12121).
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., and Silvestre, B. S. 2011. “Social media? Get serious! Understanding the functional building blocks of social media,” *Business Horizons*, (54:3), pp. 241–251 (doi: 10.1016/j.bushor.2011.01.005).
- Kline, R. B. 2011. *Principles and practice of structural equation modeling*, (3rd ed.), New York: NY: Guilford Press.
- Kock, N. 2015. “Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach,” *International Journal of e-Collaboration*, (11:4), pp. 1–10 (doi: 10.4018/ijec.2015100101).
- Koivisto, J., and Hamari, J. 2019. “The rise of motivational information systems: A review of gamification research,” *International Journal of Information Management*, (45), pp. 191–210 (doi: 10.1016/j.ijinfomgt.2018.10.013).
- Koivumaki, T., Ristola, A., and Kesti, M. 2008. “The effects of information quality of mobile information services on user satisfaction and service acceptance-empirical evidence from Finland,” *Behaviour and Information Technology*, (27:5), pp. 375–385.
- Köse, D. B., and Hamari, J. 2019. “Dual Information Systems: A Review Of Factors Affecting Their Use,” in *Twenty-fifth Americas Conference on Information Systems*, Cancún, pp. 1–10.
- Köse, D. B., Morschheuser, B., and Hamari, J. 2019. “Is it a tool or a toy? How user’s conception of a system’s purpose affects their experience and use,” *International Journal of Information Management*, (49), pp. 461–474 (doi: 10.1016/j.ijinfomgt.2019.07.016).
- Lee, A. S., Thomas, M., and Baskerville, R. L. 2015. “Going back to basics in design science: from the information technology artifact to the information systems artifact,” *Information Systems Journal*, (25:1), pp. 5–21 (doi: 10.1111/isj.12054).
- Liao, C., Palvia, P., and Lin, H.-N. 2006. “The roles of habit and web site quality in e-commerce,” *International Journal of Information Management*, (26:6), pp. 469–483.
- Limayem, M., and Cheung, C. M. K. 2008. “Understanding information systems continuance: The case

- of Internet-based learning technologies,” *Information and Management*, (45:4), pp. 227–232 (doi: 10.1016/j.im.2008.02.005).
- Limayem, M., and Hirt, S. 2003. “Force of Habit and Information Systems Usage: Theory and Initial Validation,” *Journal of the Association for Information Systems*, (4:1), pp. 65–97 (doi: 10.17705/1jais.00030).
- Limayem, M., Hirt, S. G., and Cheung, C. M. K. 2007. “How Habit Limits the Predictive Power of Intention: The Case of Information Systems Continuance,” *MIS Quarterly*, (31:4), pp. 705–737.
- Maier, C., Laumer, S., Weinert, C., and Weitzel, T. 2015. “The effects of technostress and switching stress on discontinued use of social networking services: a study of Facebook use,” *Information Systems Journal*, (25:3), pp. 275–308 (doi: 10.1111/isj.12068).
- Oremus, W. 2017. “Facebook was designed to be addictive. Does that make it evil?,” *Slate* (available at <https://slate.com/technology/2017/11/facebook-was-designed-to-be-addictive-does-that-make-it-evil.html>; retrieved October 19, 2019).
- Ouellette, J. A., and Wood, W. 1998. “Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior,” *Psychological Bulletin*, (124:1), pp. 54–74.
- Pianesi, F., Graziola, I., Zancanaro, M., and Goren-Bar, D. 2009. “The motivational and control structure underlying the acceptance of adaptive museum guides – An empirical study,” *Interacting with Computers*, (21:3), Elsevier B.V., pp. 186–200 (doi: 10.1016/j.intcom.2009.04.002).
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. 2003. “Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies,” *Journal of Applied Psychology*, (88:5), pp. 879–903 (doi: 10.1037/0021-9010.88.5.879).
- Podsakoff, P. M., MacKenzie, S. B., and Podsakoff, N. P. 2012. “Sources of Method Bias in Social Science Research and Recommendations on How to Control It,” *Annual Review of Psychology*, (63:1), pp. 539–569 (doi: 10.1146/annurev-psych-120710-100452).
- Soliman, W., and Rinta-Kahila, T. 2020. “Toward a refined conceptualization of IS discontinuance: Reflection on the past and a way forward,” *Information & Management*, (57:2), pp. 103–167 (doi: 10.1016/j.im.2019.05.002).
- Torres, R., Johnson, V., and Imhonde, B. 2014. “The Impact of Content Type and Availability on eBook Reader Adoption,” *Journal of Computer Information Systems*, (54:4), pp. 42–51 (doi: 10.1080/08874417.2014.11645721).
- Turel, O. 2015. “Quitting the use of a habituated hedonic information system: a theoretical model and empirical examination of Facebook users,” *European Journal of Information System*, (4:24), Nature Publishing Group, pp. 431–446 (doi: 10.1057/ejis.2014.19).
- Turel, O., and Serenko, A. 2012. “The benefits and dangers of enjoyment with social networking websites,” *European Journal of Information Systems*, (21:5), pp. 512–528 (doi: 10.1057/ejis.2012.1).
- Van der Heijden, H. 2004. “User Acceptance of Hedonic Information Technology,” *MIS Quarterly*, (28:4), pp. 695–704 (doi: 10.2307/25148660).
- Venkatesh, V., Brown, S. A., Maruping, L. M., and Bala, H. 2008. “Predicting Different Conceptualizations of System Use: The Competing Roles of Behavioral Intention, Facilitating Conditions, and Behavioral Expectation,” *MIS Quarterly*, (32:3), pp. 483–502.
- Wenninger, H., Krasnova, H., and Buxmann, P. 2019. “Understanding the role of social networking sites in the subjective well-being of users: a diary study,” *European Journal of Information Systems*, (28:2), Taylor & Francis, pp. 126–148 (doi: 10.1080/0960085X.2018.1496883).
- Wirth, J., Maier, C., Laumer, S., and Weitzel, T. 2015. “Drivers and Consequences of Frustration When Using Social Networking Services: A Quantitative Analysis of Facebook Users,” in *Twenty-first Americas Conference on Information Systems*, Puerto Rico, pp. 1–14.
- Wu, J., and Lu, X. 2013. “Effects of Extrinsic and Intrinsic Motivators on Using Utilitarian, Hedonic, and Dual-Purposed Information Systems: A Meta-Analysis,” *Journal of the Association for Information Systems*, (14:3), pp. 153–191.
- Xu, C., Ryan, S., Prybutok, V., and Wen, C. 2012. “It is not for fun: An examination of social network site usage,” *Information and Management*, (49:5), pp. 210–217 (doi: 10.1016/j.im.2012.05.001).
- Zhang, S., Zhao, L., Lu, Y., and Yang, J. 2016. “Do you get tired of socializing? An empirical explanation of discontinuous usage behaviour in social network services,” *Information & Management*, (53:7), pp. 904–914 (doi: 10.1016/j.im.2016.03.006).

- Zheng, X., and Lee, M. K. O. 2016. "Excessive use of mobile social networking sites: Negative consequences on individuals," *Computers in Human Behavior*, (65), Elsevier Ltd, pp. 65–76 (doi: 10.1016/j.chb.2016.08.011).
- Zhou, Z., Yang, M., and Jin, X.-L. 2018. "Differences in the Reasons of Intermittent versus Permanent Discontinuance in Social Media: An Exploratory Study in Weibo," in *Proceedings of the 51st Hawaii International Conference on System Sciences*, pp. 493–502.

Appendix – The Survey Items

Indicator	Survey Item	Loading	References
HCONT1	The content on Facebook is enjoyable.	0.877	Developed by the authors based on van der Heijden's (2004) study
HCONT2	The content on Facebook is pleasant.	0.811	
HCONT3	The content on Facebook is interesting.*	0.846	
HCONT4	The content on Facebook is fun.	0.859	
HCONT5	The content on Facebook is exciting.	0.854	
UCONT1	The content on Facebook is accurate.*	0.661	Developed by the authors based on DeLone and McLean's (1992, 2003) studies
UCONT2	The content on Facebook is reliable.*	0.671	
UCONT3	The content on Facebook is relevant.	0.842	
UCONT4	The content on Facebook is informative.	0.876	
UCONT5	The content on Facebook is useful.	0.886	
HABIT1	Using Facebook has become automatic to me.	0.815	Limayem et al., 2007; Turel, 2015
HABIT2	Using Facebook is natural to me.	0.892	
HABIT3	When I want to interact with people, using Facebook is an obvious choice for me.	0.765	
SAT1	Very dissatisfied/Very satisfied.	0.921	Bhattacharjee, 2001
SAT2	Very displeased/Very pleased.	0.920	
SAT3	Very frustrated/Very contented.	0.884	
SAT4	Absolutely terrible/Absolutely delighted.	0.918	
USEI1	On average, how many minutes/hours each day do you use Facebook? (0–5 min, 5–15 min, 15–30 min, 31–60 min, 1–2 h, 2–3 h, more than 3 h)	0.831	
USEI2	How do you consider the extent of your use of Facebook? (Zero use: 1 2 3 4 5 6 7 : Very heavy use)	0.945	
USEI3	How often do you use Facebook?*	0.844	
DUI1	In the future, I prefer to use alternatives to Facebook.	0.873	Maier et al., 2015
DUI2	I prefer to use alternatives instead of continuing to use Facebook.	0.884	
DUI3	I prefer using alternatives to Facebook.	0.846	
* Dropped items			