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TOWARDS EMOTIONAL SATISFACTION IN SOCIAL NETWORK SERVICES USE

Complete Research

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Abstract

This study examines the combined effect of positive and negative emotions on user satisfaction with social network services (SNSs). The sample consists of 582 individuals who use SNSs. Our results suggest that as the intensity of positive emotions increases, users are more satisfied with SNSs. This applies to low and medium levels of negative emotions. On the other hand, for all levels of positive emotions, as the intensity of negative emotions increases, there is no significant effect on satisfaction. Our findings suggest the dominating effect of positive emotions over the negative ones in SNSs. We conclude with a summary of theoretical and practical implications along with suggestions for future work.

Keywords: Emotions, Social Network Services, Satisfaction.

Introduction

There has been a major increase over the past years in the use of social networking services (SNSs), which have become an important social service in individuals' every day life. SNSs are the fastest developing personal networking tool and their innovative operation has lead to increased usage (Lin and Lu, 2011) and at the same time has drawn the attention of business and academia (Xu et al., 2012). SNSs are based on users' interactions, they cannot flourish without being adopted by individuals and their worth increases along with their users.

Users' experience different emotions when they use SNSs, which affect their satisfaction and behavior. Extant research have examined the important role of emotions in IS (Beaudry and Pinsonneault, 2010; Pappas et al., 2014), however their role in SNSs remains understudied. Affective states have a positive effect on SNS usage (Xu et al., 2012). Positive emotions, such as enjoyment and pleasure have been found to increase users' satisfaction with online services (Kang et al., 2009; Thong et al., 2006) and their intention to continue using SNSs (Lin and Lu, 2011). Chang and Zhu (2012) posit that people's perceived experience of SNSs and the way they feel when they use SNSs are related with satisfaction. However, these effects have not been verified by all studies, e.g. Chea and Luo (2008), who found no relation of positive and negative emotions with satisfaction with online services, thus suggesting that a different approach on emotions is needed.

This study examines the role emotions in SNSs and provides evidence on how a change in their intensity influences users' satisfaction with them. Previous research has proved the importance of incorporating emotions in SNSs (e.g., García-Crespo et al., 2010; Thelwall et al., 2010), however the effect of different levels of emotion on satisfaction with SNSs remains largely understudied. Therefore, various aspects of emotions should be examined in an attempt to better explain their effects

on user satisfaction. The research is one of the first to include four different types of emotions (*strongly negative, weakly negative, strongly positive, weakly positive*), comprising in total of twenty specific emotions, and aims to explore the relationships between four types of emotions and users' satisfaction with SNSs. Specifically, based on the variances of the strength of emotions, we investigate how a change in emotion intensity leads to increased or reduced satisfaction.

The remainder of this paper is organized as follows. In the next section a review of the literature on emotions and satisfaction with SNSs is presented. Chapter 3, includes the methodology followed by the findings, in chapter 4. The final chapter discusses the findings and draw conclusions highlighting theoretical and practical implications.

1 Literature Review

Recent SNS research has showed that individuals use SNSs for two main reasons (Kwak et al., 2014). First, because they are as a service, useful in order to maintain relationships with others, and second because they lead to positive emotions such as enjoyment or happiness. As Kwak et al. (2014) suggest, focus should be given to emotions, as intrinsic motivators. Additionally, people are motivated to use SNSs by the level of satisfaction they feel, which derives from the way they use SNSs, such as passing their time, being entertained or using applications (Giannakos et al., 2013; Special and Li-Barber (2012). However, behavior and satisfaction varies for different types of users (Ljepava et al., 2013).

Researchers take a shortsighted approach towards emotions and their influence on user satisfaction. Basically, they describe emotions only by a specific type of emotion, which is unidimensional. Positive emotions, such as happiness and enjoyment, have been found to increase IT use (Beaudry and Pinsonneault, 2010; Pappas et al., 2013), intention to purchase based on online services (Pappas et al., 2012) and intention to use SNSs (Lin and Lu, 2011), while enjoyment has no effect on user satisfaction with SNSs (Kim, 2011) and excitement has no effect on IT use (Beaudry and Pinsonneault, 2010). On the other hand, studies regarding negative emotions, have found that they decrease users' intention to purchase through online services (Pappas et al., 2014). Additionally, anxiety affects IT use, while anger has no effect on IT (Beaudry and Pinsonneault, 2010). Satisfaction is itself an affective state, and we expect it to be strongly related with emotions, however since it is a positive affective state, the relation with emotions is likely to be stronger for positive emotions than negative.

In addition, even if the relation between some types of emotions (e.g., enjoyment, pleasure) and satisfaction has been studied, only in a few studies emotions are considered as a whole. Positive and negative emotions are likely to exist simultaneously in users. Studies have found a correlation among positive and negative emotions that, depending on the situation, may be either positive or negative (Pappas et al., 2014; Yik, 2007). Both types of emotion have an effect on how satisfied someone feels. Kuppens et al. (2008) have found that positive emotions have a much greater effect on a person's satisfaction than negative ones, contradicting the results of Chea and Luo (2008) who found that positive and negative emotions had no effect on satisfaction. This means that, although positive and negative emotions are interrelated, their relationship is not proportional and an increase in one does not imply a reduction in the other. Likewise, Miyamoto et al. (2010) posit that positive and negative emotions can co-occur, creating mixed emotions. Hence, someone might simultaneously experience both positive and negative emotions in the same situation, but for different reasons.

Ergo, a more comprehensive assessment of emotions is essential, since emotions are a multidimensional concept comprised of diverse characteristics. Specifically, a broad range of emotions should be adopted in an attempt to cover all emotional aspects of the users. We adopt the work of Scherer et al. (2013), who attempt to understand emotions semantics. In this study, emotions are divided in four groups based on valence and power/control, namely: strongly negative (negative valence-positive power/control), weakly negative (negative valence-negative power/control), strongly positive (positive valence-positive power/control), and weakly positive (negative valence-positive

power/control). Additionally, each group is divided in three subgroups, low, medium and high, in order to examine how an increase in emotions leads to higher levels users' satisfaction with SNSs.

The importance of examining emotions separated in this way is twofold. First, it enables us to categorize their effect on satisfaction with SNSs, based on their capacity to explain user behavior. Second, it will increase our understanding about the relative effects of emotions on their different capacities to influence users' satisfaction. In other words, we can better understand the effects of different levels and types of emotions on user satisfaction.

2 Methodology

2.1 Sample and Measures

Data were collected by means of an online questionnaire administered to individual users with experience in SNS. It was made clear that there was no reward for the respondents and the participation was voluntary. The survey was executed in March-April 2014. We aimed at 1800 (Greek) users of online shopping, 582 of which finally responded.

As Table 1 shows, the sample of respondents was consisted of mostly women (64.4%) than men (35.6%). With regard to age, the majority of the respondents (39.2%) were under 25 years old, almost equal (37.3%) with people between 25 and 34. Also, 18.7% were between 35 and 44, and 4.7% were over 45. Finally, the majority of the respondents (78.7%) included graduates or post-graduate students.

Demographic Profile		No	%
Gender	Male	207	35.6%
	Female	375	64.4%
Age	0-24	228	39.2%
	25-34	217	37.3%
	35-44	109	18.7%
	45+	28	4.7%
Education	Middle School	14	2.4%
	High School	110	18.9%
	University	295	50.7%
	Post Graduate	163	28%

Table 1. Demographics

The questionnaire consisted of two parts. The first part included questions on the demographics of the sample (age, gender, education). The second part included measures of the various constructs identified in the literature review section. The appendix lists the questionnaire items used to measure each construct, along with descriptive statistics, loadings and the source from which they were adopted. We employed a 7-point Likert scale anchored from 1 (“completely disagree”) to 7 (“completely agree”). We distinguished the factors into 3 categories depending on users' responses; low, medium and high level of each factor. Medium was defined as the mean value of every construct smaller than 5 and greater than 3. The categories of low and high were defined accordingly.

Additionally, the constructs reliability was measured based on Cronbach alpha indicator. The alpha coefficient for the four constructs was higher of 0.7, suggesting that the items have high internal consistency (Table 2).

Constructs	Measures	Mean (S.D.)	Cr. Alpha
Strongly Negative	Anger, Hate, Contempt, Disgust, Fear	2.15 (1.23)	0.859
Weakly Negative	Disappointment, Shame, Regret, Guilt, Sadness, Compassion	2.26 (1.23)	0.872
Strongly Positive	Interest, Amusement, Pride, Joy, Pleasure	3.92 (1.27)	0.866
Weakly Positive	Contentment, Admiration, Love, Relief	2.99 (1.41)	0.875
Satisfaction	I am satisfied with the experience of using SNSs I am pleased with the experience of using SNSs My decision to use SNSs was a wise one My feeling with using SNSs was good	4.44 (1.24)	0.906

Table 2. Constructs and Measures

3 Findings

A Brown-Forsythe test (Brown and Forsythe, 1974) (Table 3) was developed in order to identify the significant difference in means of satisfaction when emotions increased. The significance value for the two groups of emotions (i.e., strongly positive, weakly positive) is smaller than 0.05, identifying the important difference of satisfaction. However, an increase of strongly and weakly negative emotions did not lead to a significant difference in the mean of satisfaction.

Independent Variables		Mean (SD)	Statistic ^a (df)
		Satisfaction	
Strongly Negative	Low	4.52 (1.19)	4.24 (38.19)
	Medium	4.23 (1.22)	
	High	3.58 (1.25)	
Weakly Negative	Low	4.48 (1.22)	0.94 (43.6)
	Medium	4.33 (1.14)	
	High	4.11 (1.93)	
Strongly Positive	Low	3.44 (1.23)	108.6*** (384.8)
	Medium	4.53(1.01)	
	High	5.38 (0.97)	
Weakly Positive	Low	4.03 (1.24)	53.4*** (249.4)
	Medium	4.82 (1.03)	
	High	5.36 (1.07)	

a. Asymptotically F distributed *** p<0.001.

Table 3 Brown-Forsythe Test

However, these results do not specify in which level the differences are greater. Therefore, in order to identify that difference, a Games-Howell post hoc test was conducted, which is most powerful and accurate when variances and sample sizes are unequal (Field, 2005) (Table 4). Both types of positive emotions have a significant influence on satisfaction for all three categories (i.e., low to medium, medium to high, low to high). For negative emotions, a post hoc is unnecessary since no significant differences were found on the Brown-Forsythe test.

Independent Variables			Mean Difference I-J(SE)
	(I)	(J)	
Strongly Positive	Low	Medium	-1.08(0.12)*
	Low	High	-1.94(0.13)*
	Medium	High	-0.86(0.12)*
Weakly Positive	Low	Medium	-0.78(0.09)*
	Low	High	-1.33(0.16)*
	Medium	High	-0.54(0.16)*

Table 4. Games-Howell Post Hoc Test

Following the results of the Post Hoc test, we attempt to examine how satisfaction differs when users experience different levels of the two basic emotions categories (i.e., positive and negative). First, we applied a principal component analysis (PCA) to categorize the full scale of emotions into two distinct categories (i.e., positive and negative), thus creating three levels of intense (i.e., low, medium, high) for each one. Next, we created a new variable, which includes all combinations of the aforementioned categories of emotions (e.g., low negative – low positive, low negative – medium positive, etc.), resulting in a total of 9 different levels of combined emotions. A Games-Howell test was conducted and significant differences in means of satisfaction ($p < 0.05$) were found. Next, with a Games-Howell post hoc test, differences for each level of combined emotions were examined. The results are presented on Table 5.

		Positive Emotions Mean (S.D.)			Remarks
		Low	Medium	High	
Negative Emotions	Low	3.92 (1.23)	4.79 (0.96)	5.59 (0.75)	Means are sig (0.05)
	Medium	3.19 (1.07)	4.42 (1.01)	5.26 (1.15)	Means are sig (0.05)
	High	1.95 (0.89)	4.87 (1.55)	3.93 (1.96)	Means are sig (0.05) only for a shift from Low to Medium Positive Emotions
Remarks		No sig	No sig	No sig	

Table 5. Means of Combined Emotions

In detail, emotions have a significant effect on satisfaction, when negative emotions are low and positive emotions increase from low to medium or high. Similarly, when negative emotions are of medium intensity and positive emotions increase from low to medium or high, there is a significant influence on satisfaction. When negative emotions are high, there is a significant difference on satisfaction only when positive emotions increase from low to medium. However, when users' have low, medium or high positive emotions and their negative emotions increase there is no significant influence on their satisfaction.

4 Discussion and Conclusions

The present study is one of the first to differentiate emotions into four different categories and examine their effects on users' satisfaction with SNSs. The results indicate that emotions are important in SNSs and changing specific types of users' emotions affects their satisfaction.

The contributions of our study are threefold. First, by grouping emotions in four categories we are able to study the different effects on satisfaction. In particular, we found that both types of positive emotions influence satisfaction, while both types of negative emotions have no significant difference on the means of satisfaction. In other words, when positive emotions increase, users' satisfaction with SNSs changes significantly, but when negative emotions increase user' satisfaction does not change significantly. If users feel more intense positive emotions about SNSs it is expected that they will be more satisfied, hence the increase in the mean of satisfaction. On the other hand, when users experience more intense negative emotions their satisfaction is reduced, however not significantly. This seems unexpected, however it suggests that negative emotions are of less importance when it comes to their satisfaction, which itself is a positive affective state.

Second, by dividing each type of emotions into three levels, we are able to identify specifically which change in intensity (e.g., low to medium positive emotions) affects users' satisfaction with SNSs. Strongly positive and weakly positive emotions raise significantly satisfaction, when their intense increases without exceptions (i.e., low to medium, low to high, medium to high), implying the dominant role of positive emotions in the use of SNSs. Users' are likely to be more satisfied when the use of SNSs enhances their feelings. Strongly negative and weakly negative emotions were not examined further since no differences were found in the means of satisfaction, when negative emotions rise.

Third we explain how satisfaction differs, when users feel at the same time both types of emotions on different intensities. Users who experience low negative emotions and, at the same time, their positive emotions show any increase, from low to medium, low to high or medium to high, are more likely to be satisfied. Similarly, users who experience negative emotions of medium intensity while their positive emotions increase to any intensity, they will be more satisfied. This means that even when users have developed low or medium negative emotions towards an SNS, as long as their positive emotions increase, their satisfaction will increase as well. This can be explained by the overwhelming effect of positive emotions over negative ones that we found previously in our study. Adding to this statement, we found that when users experience negative emotions of any intensity, a rise in positive emotions will reduce their satisfaction with SNS, though not significantly. Strikingly, there are no individuals who have experienced negative emotions of high intensity, as opposed to positive emotions,. This might be explained by the fact users have not experienced any "crisis" in SNS use, such as privacy violation, that would invoke negative emotions. To our surprise, there was a significant increase in satisfaction when users experienced high negative emotions and their positive emotions raised from low to medium, and there was no significant difference when positive emotions raised from low to high or medium to high. At this point, we should note that few people experienced emotions of such intensity, thus explaining the unexpected increase of the mean of satisfaction in some cases.

This study presents a unified approach of emotions and provides our contribution to the literature on SNSs and emotional satisfaction. Zhang et al. (2012) suggested an Affective Response Model and our study enforces that affective and cognitive factors must be equivalent in IT research. The fact that positive and negative emotions together influence user satisfaction, suggests that new models should be proposed including a thorough analysis of emotions towards an overall inclusion. Furthermore, aesthetics, which have been found to directly affect emotions, should be considered in the aforementioned models (Wang et al., 2011). However, our findings indicate that when it comes to emotional satisfaction with SNSs, positive emotions are predominantly more important than negative ones. Also, these results suggest that affective factors should be studied as moderators or mediators between cognitive and aesthetic factors and behavior.

Our study partially confirms the results of Kuppens et al. (2008), who revealed the dominating effect of positive emotions over negative ones, on individuals' satisfaction. Although in a different area, their study does not include all aspects of positive and negative emotions, nor does it examine emotion intensity. Our results contradict with Kim et al. (2011), who found that enjoyment, a positive emotion, has no effect on satisfaction from SNS use. Nonetheless, they do not examine both positive and negative emotions together.

This study informs website designers about the implications of the different types of emotions in satisfaction with SNSs. As all social media want to increase their profits by increasing their number of users, they should take into account the important effect of emotions. Users are likely to be more satisfied and use the SNSs more often if they expect desirable items or services. Positive emotions such as pleasure and fun are considered essential for successful products and services (Kim, 2011), thus evoking certain types of positive emotions might help in diminishing negative ones, which may lead in increased user satisfaction. Website designers, besides keeping the negative emotions in low levels and focusing on increasing positive ones, should take note how the increase of one type affects the other. In practical, they should focus on increased quality, to offer all the necessary precautions towards security and privacy. These will help in keeping users' negative emotions in low levels, and increase positive ones.

There are some limitations to this study. First, the results should be interpreted with caution since the data were collected from only one country, thus limiting the generalization of the findings. Second, the findings are based on self-reported data; other methods such as in-depth interviews and observations could provide a complementary picture of the findings. Third, respondents did not exhibit negative emotions of high intensity, thus providing some unexpected results. Future research in SNSs should focus on analyzing emotions into different categories. Furthermore, the implementation of SNSs and their effect on these types of emotions, satisfaction and behavior need to be examined. Additionally, other factors that affect emotions, and especially negative emotions, should be considered as well, such as perceived benefits, privacy, self-esteem and extraversion.

Appendix

Summary of measurement scales

Measures	Source	Mean	S.D.	Loading
Strongly Negative	Scherer et al. (2013)			
When I use SNSs I feel	Anger	2.4244	1.58965	0.742
When I use SNSs I feel	Hate	1.8024	1.32776	0.725
When I use SNSs I feel	Contempt	2.3162	1.63325	0.738
When I use SNSs I feel	Disgust	2.2766	1.65661	0.788
When I use SNSs I feel	Fear	1.9519	1.44232	0.585
Weakly Negative	Scherer et al. (2013)			
When I use SNSs I feel	Disappointment	2.8729	1.89418	0.804
When I use SNSs I feel	Shame	2.0825	1.56557	0.773
When I use SNSs I feel	Regret	1.8729	1.35110	0.656
When I use SNSs I feel	Guilt	1.7165	1.27347	0.618
When I use SNSs I feel	Sadness	2.3041	1.63501	0.809
When I use SNSs I feel	Compassion	2.7182	1.67588	0.585
Strongly Positive	Scherer et al. (2013)			
When I use SNSs I feel	Interest	4.4450	1.46898	0.525
When I use SNSs I feel	Amusement	4.6306	1.55317	0.631
When I use SNSs I feel	Pride	2.4948	1.57513	0.687
When I use SNSs I feel	Joy	3.9038	1.61885	0.743
When I use SNSs I feel	Pleasure	4.1392	1.64475	0.843
Weakly Positive	Scherer et al. (2013)			
When I use SNSs I feel	Contentment	3.6942	1.70630	0.649
When I use SNSs I feel	Admiration	2.9914	1.66101	0.743
When I use SNSs I feel	Love	2.6924	1.64696	0.752
When I use SNSs I feel	Relief	2.5911	1.58450	0.705
Satisfaction	Lu and Hsiao (2010)			
I am satisfied with the experience of using SNSs		4.6615	1.38489	0.875
I am pleased with the experience of using SNSs		4.5447	1.35221	0.878
My decision to use SNSs was a wise one		4.0533	1.50120	0.669
My feeling with using SNSs was good		4.5034	1.39922	0.774

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