

PERSONALITY' SEGMENTATION ON THE FACEBOOK USER IN THAILAND

Sangroengrob Tibrat

Department of Technology Management, Assumption University,
592/3 Ramkhamhaeng 24, Hua Mak, Bangkok Thailand 10240
tibrat@scitech.au.edu

Abstract

Nowadays social network such as Facebook, has become very popular online communities. These social networks are focus on sharing people's interests and activities. There are many impacted factors on the use of social network. Furthermore, not only the impacted factors that make the differences on use of it but also the user personality traits play as a significance role of shaping their behavior of usage. While many studies concentrate on comparing between Introversion and Extraversion, in fact people have combined more than one personality in themselves. They may have the lead of personality but more likely to share between each personality. This research intends to find out the segmentation in term of usage behavior of Facebook which based on Big-Five personality traits. Therefore factor analysis is used, following by cluster analysis and testing the hypothesis by Chi-square test. Judgmental sampling technique will be used for data collection process.

Keyword: *Big-Five personality traits, Social Network, Cluster Analysis, Facebook*

JEL Classification: O3

1. INTRODUCTION

Without any questions the number of Facebook' users in Thailand are increasingly every year. In October 2009, the Facebook users are still less than 1.5 million (<http://facebookblog.in.th/2009/10/asia-facebook-users-in-october/>), being 4.6 million in August 2010 (<http://facebookblog.in.th/2009/10/asia-facebook-users-in-october/>) and currently having approaching 10 million this year (<http://www.socialbakers.com/facebook-statistics/>) with the rank of 19 for entirely country that are using Facebook. Facebook has been used not only as the marketing tool for many years, but also being use to increase productivity

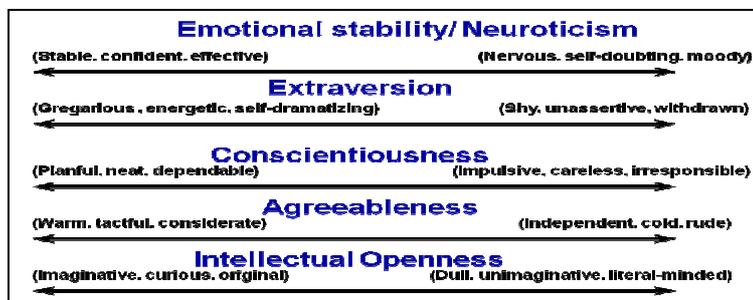
(Bennett, et al., 2009; Ferreira and Plessis, 2009), employees satisfaction and culture (Bennett, et al., 2009; Pitt and Bennett, 2008), increase core competency for SME organization (Laere and Heene, 2003). To understand the personalities of people who use the Facebook will be benefit for marketer to be able to segment the product or advertising that can be matching with the Facebook users profile (Golbeck, et al., 2011). Nevertheless, some journalists mention that Facebook can be used as the tool to evaluate the people without running the personality trait test (<http://www.balpreetkaur.com/facebook-can-serve-as-personality-test/>). The question is to analyze the users' profile of the Facebook can be used as a substitution of testing on personality trait or not. Therefore, to understand the Facebook users' behavior, it still requires analyzing their personality.

2. LITERATURE REVIEWS

2.1 Personality Traits

Personality has been used as the predictors of human behavior for long time. This is because it is classified as “the relatively enduring pattern of thoughts, emotions and behaviors that characterize a person along with the psychological process behind those characteristics” (McShane and Von Glinow, 2010, p. 38), while personality traits are being classified as the basic component of personality (Slocum and Hellriegle, 2007). Although, the personality traits have been explored into many, “Big Five” personality is one of the successful that is being used in many studies (Golberg, 1990; Wehrli, 2008; Kalimeri, et. al, 2010). Big-Five Personality factors consist of extraversion, neuroticism, agreeable, intellectual openness and conscientiousness.

Figure 1: Big Five personality



Source: Adopted from Hellriegel and Slocum (2004)

2.2 Personality traits and Facebook users' behavior

Self disclosure is “any information that individual communicate (verbally or nonverbally about themselves to others” (Slocum and Hellriegel, 2007; p. 240). According to Altman and Taylor, 1973; Cozby 1973 cited in Bateman, et al., (2011), self-disclosure can be identify in term of amount, depth and duration. Profile in Facebook is one of the sections that related much on the personal information which would be shared or seen online. So the privacy and personal identities are question marks on how far the individual would like to disclose their own identities. Douglas and McGarty (2002) mentioned about people are willing to reveal their information in the online network as Facebook rather than face to face contact.

As extraverted persons are having high social abilities while introverted persons are in opposite, the study of Amichai-Hamburger and colleague, (2002) cited in Ross, et. al., (2008) supported that introverted persons are more likely to show their real attitudes or habits in online society as there are more comfortable. Furthermore, Landers and Lounsbury (2006) agreed that low extraversion persons have a difficult for making a relationship offline. It could be said that the extrovert people are more likely to reveal their personal information (Landers and Lounsbury, 2006; Sheldon, 2008) having the number of friends (Sheldon, 2008) being a center for friends and also play significant role on social network (Wehrli, 2008; Ross et al., 2009) rather than being heavy user (Sheldon, 2008; Ross et al., 2009; Harbaugh, 2010). While, Hardie and Tee (2007) found the high extraverted trait users are less internet user, Wolfradt and Doll (2001) also found that this traits is only associated with interpersonal communication not for the level of usage.

Ross et al. (2009) found that high neuroticism persons prefer to disclose their personal information through the wall and low one is enjoy with the photos as they believe it revealed more information than the wall. The high level of neuroticism are associated with the high usage of internet and addicted one (Hardie and Tee, 2007; Wolfradt and Doll, 2001) also spend more time in social network (Wehrli, 2008; Ross, et al., 2009). Furthermore, the high level of social anxiety which could be a part of neuroticism also found in the high Facebook usage (Sheldon, 2008).

The conscientiousness persons are negatively to internet use and other types of communications (Butt and Phillips, 2008) avoid to uses Facebook (Wehrli, 2008). While Ross et al., (2009) found no significant on the Facebook users from both

conscientiousness and agreeableness traits but have the relationship with openness traits. Nevertheless, one person may share more than one personality therefore; it may need to cluster the group to find out on their correlation with Facebook behavior.

According to literature review, this research will be tested in four research questions. All of them will be tested as the following.

- | | |
|----------------------|---|
| Research question 1: | There are the differences in information disclosure between each personality traits clusters. |
| Research question 2: | There are the differences in social interactive between each personality traits clusters. |
| Research question 3: | There are the differences in privacy setting between each personality traits clusters. |
| Research question 4: | There are the differences in usage time between each personality traits clusters. |

3. METHODOLOGY

3.1 Participate and procedures

This research conducted the survey for 420 respondents by using the judgment sampling technique and classify as the exploratory research design. The screening question was asked to clarify the unit of analysis in order to make sure that they have only one Facebook account. This is because the people who have more than one account may use each account for difference purpose and not really shown their own self in the way of using that Facebook account.

There are three sections of the questionnaires which are the questions related to Facebook usage behavior (4 questions), personality's traits (25 questions with an interval scale 6) and demographic information (6 questions). For usage behavior are defined in terms of information disclosure (nominal scale with can be selected more than 1 up until 8), social interactive (nominal scale with can be selected more than 1 up until 6), privacy setting (nominal scale with can be selected only 1) and usage time (open end with the number of minutes use per day). The personality traits have five personality questions as extraversion, neuroticism, openness, agreeable and conscientiousness. Finally, the demographic information in this study is gender, age, status, education, occupation and income.

Self-administered was used for collecting the data. As the personalities traits questions may cause some uncomfortable for some respondents if it is asking through the online because it can identify back to the respondents. To avoid the

homogeneity issue, quota the area was used. The questionnaires were distributed at 420.

After cleaning the data there were only 405 which had completed in all section. Therefore, the data analysis is based on the 405 respondents which still are able to handle the 95% confidential level of the sample size. The reliability of the study is 0.761 which is acceptable as is over than 0.7 for exploratory research (Zikmund, 2003; Davis 2005).

3.2 Data analysis

Regarding to Facebook usage behavior, they consists of four questions; two multiple response questions, one multiple choice question, and one open-end question. In order to create two new variables from two multiple response questions; information disclosure and social interactive; summated scale were applied to each questions. For information disclosure, its summated scale ranges from 1 to 8. The scales of 4 or lower are classified as low information disclosure. While the scales of 5 or higher are categorized as high information disclosure.

As the same manner, the summated scale of social interactive ranges from 1 to 6. It is classified as low social interactive if the value summated scale is between 1 and 3. Also, the scales of at least 4 are categorized as high social interactive. According to one open-end question mentioned to usage time in minutes, it can be classified into two categories; low usage (at most 60 minutes per day) and high usage (more than 60 minutes per day).

Demographic of this study is 38% male and 62% female. age group less than 20 years at 14.6%, 20 to 30 years at 57.3%, 31 to 40 years at 23.7%, 41 to 50 years at 3.7% and more than 50 years at 0.7%. Meanwhile, 86.2% is single, 13.1% is married and 0.7% is divorce. Education levels are diploma degree (2.7%), bachelor degree (73.1%), master degree (22.7%), doctoral degree (0.7%) and other 0.7%). Occupations of this study are government officer (0.2%), public officer (3.7%), employees (58.5%), business owner (1.5%), students (30.4%) and other at 5.7%. The final demographic of this study is income level with less than 10,000 baht (25.9%), 10,001 to 30,000 baht (47.9%), 30,001 to 50,000 baht (19.8%) and more than 50,000 baht at 6.4%.

Moreover this study has three analytical techniques for analyzing the data. The first statistical method is exploratory factor analysis. The main application of this technique is to detect structure in the relationships between variables and also reduce the number of variables. Hair *et al.* (2010) suggest that a statistically

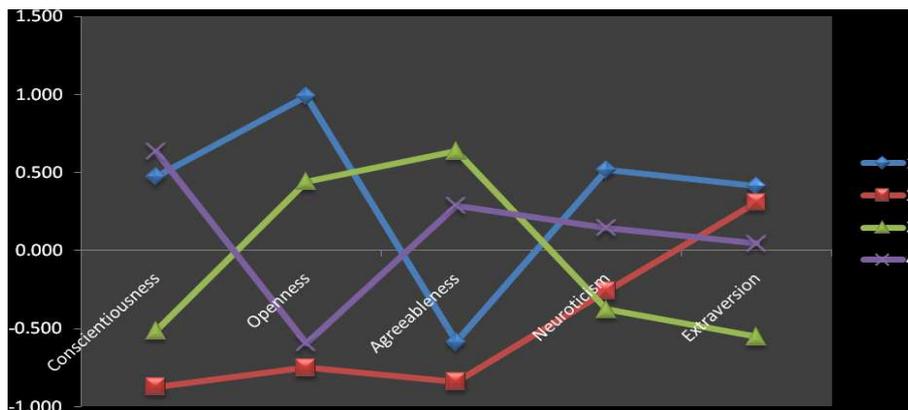
significant of Bartlett's test of sphericity must be presented to indicate the presence of correlations among the questions. Moreover, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value must exceed 0.6 to quantify the degree of intercorrelations among the questions and the appropriateness of exploratory factor analysis. For communality, its value must be higher than 0.5 to indicate that the questions are suitable to be included in factor analysis.

Begin with 25 questions of personality's traits; the factor analysis is conducted with principal component analysis extraction and varimax rotation. There are 6 components were extracted with 57.624% of total variance explained. The results also show the significant of Bartlett's test of sphericity (sig. < 0.05) and the value of KMO of 0.840. It confirms that 25 questions of personality's traits are appropriate for conducting the exploratory factor analysis. However, there are 5 questions with communality of less than 0.5 (range from 0.389 to 0.493). These questions must be discarded one by one from the analyses.

After 7 iterations of factor analysis, there are only 18 questions left in the analysis with communalities range from 0.535 to 0.753. The Bartlett's test of sphericity is significant at 0.05 (sig. = 0.000) and also indicate that there are correlations among these 18 questions. The value of KMO is 0.827 which indicate the meritorious sampling adequacy. Furthermore, there are 5 components can be extracted with 62.877% of total variance explained. Component 1 has factor loadings range from 0.643 to 0.742 and can be renamed as Conscientiousness. Component 2 has factor loadings range from 0.536 to 0.765 and can be renamed as Openness. Component 3 has factor loadings range from 0.676 to 0.820 and can be renamed as Agreeableness. Component 4 has factor loadings range from 0.784 to 0.851 and can be renamed as Neuroticism. At last, component 5 has factor loadings range from 0.720 to 0.732 and can be renamed as Extraversion. Therefore, five new variables of personality's traits are created.

Secondly, cluster analysis was analyzed for segmentation the personality of respondents in Facebook users. Hair *et al.* (2010) described that there are two types of clustering techniques as Hierarchical Clustering and K-means Clustering. In this research, the recommend clustering technique is K-means Clustering. The result was shown that the appropriate number of clustering are 4 clusters. The personality of each cluster has shown on the figure 2. Finally, chi-square was used to test the hypothesis of the differences between Facebook usage behavior and each cluster of the personality (see table 2).

Figure 2: Final Cluster Centers



Source: Developed for this study

Note: The standardized value is meaning for this table is based on the figure 2. The ranges of standardized value are between -1 and 1.

Cluster 1: Positive level on openness, conscientiousness, extraversion, neuroticism (high emotional stability) with negative level on agreeableness. Then the cluster personality is imaginative, neat, confident, energetic and difficult for agreeableness; age group between 20-30 years, bachelor degree being office employees and income between 10,000- 30,000 Thai Baht. This group represents the new graduations who are working less than five years with energetic, emotional stable and very much believe in themselves.

Cluster 2: Negative level on conscientiousness, openness, agreeableness, neuroticism (emotional instability) and positive on extraversion. This cluster is careless, unimaginative, cold, nervous and self-dramatizing with majority female, age group between 20-30 years being students for bachelor degree and income less than 10,000 Thai Baht. As being students, this group leads personality is, think about only themselves with preference of socially but still getting nervous or do not understand themselves.

Cluster 3: Positive level on agreeableness, openness but negative level on conscientiousness, neuroticism and extraversion. This cluster is original, considerate, impulsive, self-doubting and shy with majority female, age group up to 40 years being office employees with bachelor degree and income up to 50,000 Thai Baht. This group seems to be shy and moody but easily to accept any other people idea.

Cluster 4: Positive level on conscientiousness, agreeableness, neuroticism (emotional stability) and extraversion but negative level on and openness. The persons who are dependable, considerate, emotional effective, self-dramatizing and unimaginative with majority female, age group up to 40 years being office employee, master degree and income up to 50,000 Thai Baht. This group is confident female with less likely to accept the new idea.

3.3 Results and Discussion

According to the result from cluster analysis, there are four clusters for testing the association with usage behaviors. Chi-squares test (χ^2) is used for testing the four of null hypotheses as shown in table 2.

Table 2: The hypotheses testing results

Hypotheses	Significant (2-sided)	Results
H _{0#1} There are no differences in information disclosure between each cluster of personality traits.	0.965	Do not rejected H _{0#1}
H _{0#2} There are no differences in social interactive between each cluster of personality traits.	0.584	Do not rejected H _{0#2}
H _{0#3} There are no differences in privacy setting between each cluster of personality traits.	0.654	Do not rejected H _{0#3}
H _{0#4} There are no differences in usage time between each cluster of personality traits.	0.018	Rejected H _{0#4}

Source: Developed for this study

According to Table 2, H_{0#1} H_{0#2} H_{0#3} were not rejected with the significant value higher than 0.05, only H_{0#4} was rejected. Consequently, the RQ 1; RQ 2 and RQ 3 can be explained as the cluster of personality traits did not cause any differences in information disclosure, social interactive and privacy setting. Meanwhile, the result of H_{0#4} shown that each clusters of the personality traits were differentiate behavior of usage time on Facebook (see table 3). Therefore, the answer for RQ4 is the cluster of personality traits can make the difference in the usage time. Table 3 is explained the detail of how each cluster group has been low or high Facebook usage.

According to table 3, the cluster of group1 which have the lead personality traits of openness and extraversion is being low usage at 70.2%. This can be supported by the research of Sheldon (2008); Ross et al., (2009); Harbaugh, (2010); Wolfradt and Doll (2001) that extraversion traits is not the people who spend more time in Facebook.

Table 3: The cluster groups and Facebook usage time

			Crosstab		
			USE		
			Low	High	Total
Cluster Number of Case	1	Count	59	25	84
		% within Cluster Number of Case	70.2%	29.8%	100.0%
2	Count	35	39	74	
	% within Cluster Number of Case	47.3%	52.7%	100.0%	
3	Count	60	55	115	
	% within Cluster Number of Case	52.2%	47.8%	100.0%	
4	Count	71	61	132	
	% within Cluster Number of Case	53.8%	46.2%	100.0%	
Total	Count	225	180	405	
	% within Cluster Number of Case	55.6%	44.4%	100.0%	

Source: Developed for this study

Meanwhile, the cluster of group2 who have the combination of negative in conscientiousness, openness, agreeableness but neuroticism (less emotional stability) and extraversion is the group that makes the high usage of Facebook at 52.7% which confirm the paper of Wolfradt and Doll (2001); Hardie and Tee, (2007); Sheldon (2008); Wehrli (2008); Ross, et al., (2009).

Group 3 is low usage of Facebook at 52.2% however, the percentage between high and low usage are so similar which are less than 5%. This group is the only group that has both introverted personality and neuroticism. So this study not support Hardie and Tee, 2007; Wolfradt and Doll, 2001; Wehrli, 2008; Ross, et al., 2009; Sheldon, 2008 that the persons with the lead of introverted traits and neuroticism are more likely to spend more time on Facebook. Nevertheless, this group has the positive in agreeableness which is showing in the reviews that this trait is not use Facebook (Ross et al., 2009). Therefore, it could be possible that there are more respondents in agreeableness than introverted or neuroticism. Finally, group 4 is also low Facebook usage at 53.8%. The leads personality of this group is conscientiousness and agreeableness with supported the paper of Wahrli, (2008) in terms of conscientiousness but not in agreeableness.

4. CONCLUSION

People do not have only one personality traits however they do have the combination of traits. In this study, the segmentation of big five personality traits into the group with four clusters not make any different for the Facebook users in terms of information disclosure, social interactive and privacy setting. The only factor that cluster group make the difference is usage time. While, cluster 1 which is the positive in conscientiousness, openness, extraversion and emotional stable

but negative in agreeableness represent the high volume of low usage, cluster 2 which is the negative in conscientiousness, openness, agreeableness and emotional stability but positive in extraversion represent the high usage. It can be concluded in some certain level that the people who have more positive in their personality are more likely to use Facebook.

One of the limitations is the sample size as it is only 405 from the large number of Facebook population. Furthermore, the sample size is based only in the city of Bangkok. It could be better to get the sample size larger to explore outside Bangkok.

BIBLIOGRAPHY

Bateman, P.; Pike, J.C. and Butler, B.S. (2011), "To disclose or not: publicness in social networking sites", *Information Technology & people*, Vol. 24 No. 1

Bennett, J. et al., (2009), "Workplace impact of social networking", *Property Management*, Vol. 28, No. 3, pp. 138-148

Butt, S. and Phillips, J.G. (2008), "Personality and self-reported mobile phone use, *Computers in Human Behavior*, Vol. 24, No. 2, pp. 346-360

Davis, D (2005), (6th), *Business Research for Decision Making*, Thompson Brooks/Cole, Canada

Douglas, K.M. and Mcgarty, C. (2002), "Internet identifiability and beyond: a model of the effects of identifiability on communicative behavior", *Group Dynamics: Theory, Research and Practice*, Vol. 6 pp. 17-26

Ferreira, A and Plessis, T.D. (2009), "Effect of online social networking on employee productivity", *Peer Reviewed Article*, Vol. 14, No. 1,

Golbeck, J., Robles, C. and Turner, K. (2011), "Predicting Personality with Social Media", *CHI2011*, May 7-12, 2011, Vancouver, Canada

Golberg, L.R.(1990), " An alternative description of personality: The big five factor structure:", *Journal of personality and social psychology*, Vol. 59, pp.1216-1229

Hair, J.F., Anderson R.E., Tatham, R. L. and Black, W.C. (2010), (7th), *Multivariate Data Analysis*, Prentice Hall

Harbaugh, E. R. (2010), "The effect of personality styles (Level of introversion-extroversion) on social media use", *The Elon Journal of Undergraduate Research in Communications*, Vol. 1, No.2, pp. 70-86

Hardie, E. and Tee, M.Y. (2007), "Excessive internet used: The role of personality, loneliness and social support networks in internet addiction", Australian Journal of Emerging Technologies and Society, Vol. 5, No. 1, pp. 34-47

Hellriegel, D. and Slocum, J.W. (2004), (10th), Organizational Behavior, Thompson South-Western, Canada

Kalimeri, K., Lepri, B. and Pianesi, F. (2010), "Causal-Modelling of Personality Traits: Extraversion and Locus of Control", SSPW10, <http://groupmedia.media.mit.edu/data.php>

Laere, K.V. and Heene, A. (2003), "Social networks as a source of competitive advantage for the firm", Journal of Workplace Learning, Vol. 15, No.6, pp. 248-258

McShane, S. L. and Von Glinow, M. A. (2010), Organizational Behavior, McGraw-Hill, Boston

Pilerot, O. and Limberg, L. (2011), "Information sharing as a means to reach collective understanding : A study of design scholars' information practices", Journal of Documentation, Vol. 67, No. 2, pp. 312-333

Pitt, M. and Bennett, J. (2008), "Workforce ownership of space in a space sharing environment", Journal of Facilities Management, Vol. 6, No. 4, pp. 290-302

Ross, C., Orr, E.S., Sasic, M., Arseneault, J.M., Simmering, M.G., Orr, R.R. (2009), "Personality and motivations associated with Facebook use", Computer in Human Behavior, Vol. 25, pp. 578-586

Sheldon, P. (2008), "The relationship between unwillingness-to-communicate and students' Facebook use", Journal of Media Psychology, Vol. 20, No. 2, pp. 67-75

Slocum, J. W. and Hellriegel, D. (2007), Fundamentals of Organizational Behavior, Thompson South-Western,

Wehri, S. (2008), "Personality on social network sites: An application of the five factor model", ETH Zurich Sociology Working Paper No.7, www.socioethz.ch

Wolfradt, U. and Doll, J. (2001), "Motives of adolescents to use the Internet as a function of personality traits, personal and social factors", Journal of Educational Computing Research, Vol. 24, pp. 13-27

Zikmund, W. G. (2003), (7th), Business Research Methods, Thomson South-Western, United States of America

<http://www.socialbakers.com/facebook-statistics/>

<http://www.balpreetkaur.com/facebook-can-serve-as-personality-test/>