The Ages, Genders, Positive Comments, And Likes As Predictors Of Facebook Users’ Buying Intention: An Insight Into The Difference Of Age And Gender

Ngoc-Long Nguyen. Ph.D. Student of Business School of Hunan University, China; Lecturer of Faculty of Business Administration, Industrial University of Ho Chi Minh City.

Ai-Zhong HE. Professor, Doctoral Supervisor, Business School of Hunan University, Hunan, China.

Abstract
A large and still growing body of evidence has shown the effects of sociodemographic factors on buying behavior. The rapidly favorable exchange information on Facebook social network increasingly plays an important role in accounting for the buying decision making of customers. This study used a sample of 278 Facebook users, 150 men and 128 women at all the ages for the analyses. At first step, the multivariate logistic regression was used to assess the impact of gender, age, number of positive likes, and number of positive comments on buying behavior of customers. Next, methods of statistical tests were employed to analyze the effects of two sociodemographic factors (genders and ages) on the number of positive likes and number of positive comments that had been received by Facebook users. Preliminary results showed a purchasing decision of customers was affected by all the factors of age, sex, number of positive likes, and number of positive comments. The results of the tests at second step showed the people at different ages received significantly different numbers of positive likes and comments. Otherwise, the differences between those who were not of the same sex are not statistically significant. Although there have been many studies about Facebook users but no study ever discussed the impacts of positive likes and comments on the buying behavior. This research has shown these effects and, furthermore, proved the influences of gender and age on getting positive likes and comments of Facebook users.

Introduction
The traditional shopping behavior has been altered quickly by the impact of technological development and the Internet. The Facebook social network with 1.44 billion monthly active users as of March 2015 (Facebook, 2015) has become one of the biggest environmental factors influential to purchase intentions of consumers (Huang, 2012). No border for friendship and no time restriction for the news feed update have made Facebook users ever easy to affect others’ perception and behaviors.
Among countless information about personal issues, work, study, and many other interests, brands are usually discussed as hot topics on private wall posts where many positive or negative comments may change the attitudes of consumers towards a specific product or service. Very earlier researchers mentioned the group and friends as preferences for brand references (Nelson et al., 2011). In the last decade, the trend of modern brand reference has been shifted to the cyber world because of the very updated and quick transfers of information. The Facebook friends, as a result, play very important role in the daily living of people and affect, somehow, their buying decisions. Therefore, Facebook friends have become a critical source of information in the buying decision making process of consumers. It is by this criterion that the theorists and practitioners might assess the advisability from this new formation to provide the marketing policy makers with the best views of social network Facebook friends.

Many studies have used the “likes” on Facebook as the object of research (e.g. Gittelman et al., 2015, Hodson, 2014, Timian et al., 2013), masses of courses and articles have been designed to provide businesses methods and tools to increase the likes of fans on Facebook fanpages. Facebookers have long considered the number of likes as a scale of quality of the massage updated in timeline statuses. A newsfeed receiving “rich” likes is weight up as the most attractive information and often appeals to other Facebook friends. A person who always has statuses with rich likes is regarded as a star by the Facebook community (Hille and Bakker, 2013). Similarly, comments following the statuses are also considered as pieces of online word-of-mouth that also have a significant impact on the information value of the newsfeeds (Hollenbeck and Kaikati, 2012). If a fan page (or a relating brand newsfeed update), obviously, receives the much more likes and positive comments, it will have the greater impact on involved members’ perceive.

Although the likes and comments have appealed to researchers for many years, almost studies focused on these criteria in fan pages of businesses, no one covers the research area of private Facebook pages. The comments and likes generated on brand-relating newsfeed updates of individuals totally have been ignored. Meanwhile, these fractions increasingly impact on buying decisions of consumers’ behavior. The omittance of this gap is a big shortcoming and need to be assessed. The purpose of our study aimed to overcome this gap including the assessment of impacts of Gender, Ages, "positive likes" and "positive comments" on buying intention. Concurrently, we analyzed the influences of different genders and ages on the positive likes and positive comments that were received from the community by the Facebookers who had written newsfeet updates about brands.

**Literature review and hypotheses**

**Buying Intention:**

Normally intended behaviors are usually supposedly affected by the seller reputation which were established by the media and surroundings such as relatives, friends, and other acquaintances (Pan et al., 2013). Suggestions and information contributions of other people are the important factors for potential buyers...
to realize the determinants of shopping process. Buying intention is a specific concept of behavioral psychology (Dunn and Weidman, 2015), thus it is also affected by the information and recommendations from relatives or other facilitators. The study of (Hsu et al., 2013) used buying intention as research subject and indicated its relationship with variables including the external environment and personality variables when buyers performed online shopping activities. The role of online communities is to contribute the reduction of risk and uncertainty of buying process by the comments on Facebook and other social networks (Zhang and Gu, 2015). The comment valence is considered as the group effect, which can seem like a great way to change from traditional effects to online digital patterns, and respondents’ purchasing behaviors may be driven by this circumstance. In this study, we selected Buying Intention as the dependent variable predicted by variables of Ages, Genders, Positive Comments, and Positive Likes.

Positive comments and Positive Likes: Number of likes is an important factor of a Facebook user (Kwok and Yu, 2013). Developing a method to get or attract more likes on Facebook has been widely notable in applied Marketing because the marketers believe that the more likes a single electronic page can get, the more attraction it has generated (Heimbach et al., 2015). Similarly, an individual’s status update on Facebook would create strongly contagious enthusiasm if it could receive a lot of likes from other friends because Divall and Kiwin (2012) stated that the rich-likes status update always provides the readers and followers with the interesting information. Research of Barnes (2014) has demonstrated likes can increase sales, and research of Harris and Dennis (2011) indicated the relationship of likes with images of brands and prescribed images of people. Since Facebook was established, Likes nearly affect all aspects of Facebook users. As a factor of Facebook usage, Likes are also affected by external and internal factors from Facebook friends. Although there have been many studies whose research subject focused on likes button of Facebook (e.g. Bachrach et al., 2012, Harris et al., 2013, Ehrenberg, 2013), but Likes were almost regarded as the factors influential in other research factors, the circumstances to motivate friends to press Likes button seem to be a gap, especially the likes on encouraging comments (i.e. positive comments). The positive comment sharing was regarded as the motivation of number of likes from fans or Facebook friends (De Vries et al., 2012) and, naturally, the status updates with prosperousness of positive comments and likes would be able to construct the positive mind of Facebook users towards the being discussed brands. Therefore, our present study used the demographic factors including genders and ages to analyze their impacts on number of positive likes that users received in brand-related updates on their Facebook timelines. Comments that are considered as a kind of electronic word-of-mouth (Bente et al., 2012) have the positive or negative impact on the attitude and behavior of Internet users. Research of Konijn et al. (2013) indicated the comments following video clips on Youtube could change the viewer rating of the clips. In a research, Cheung et al. (2008) also mentioned the comments below an article of an
electronic newspaper page also affected other readers. A status update on Facebook is also weighed up by the number of following comments. When an update receives several comments, it reflects the magnetism of the content and the fondness of readers for the author. By the same token, a brand-relating status update getting positive comments would drive the increase of sales. Otherwise, comments are also affected by the personalities of commenters and other environmental factors because comments are considered as the online behaviors of users. In this study, we consider the age and gender as the factors that affect the positive comments received by the status update writers.

**Ages and Genders:**

So from very early on, some studies have pointed out the impact of gender and age on the behavior of Internet usage (Smith et al., 2006, Thayer and Ray, 2006, Weiser, 2000). Today, older people, especially those who have retired, tend to spend more time on social networks than the young users do. The advantages of Facebook and conveniences of internet access help the old people narrow the distances. The retired people possess abundantly free time everyday and they often use their moments to connect with other Facebook friends at the same age, having similar hobbies, sharing their anecdote conversations that they missed when they were young. Among the tales, a lot of sharing information about brands and buying experiences are mentioned, sometimes the links of products and services are sent to the potential buyers for references. The differences of online behavior between the old and the young drive the discrepancies of decision making and the affected criteria.

Gender suggested by Lin and Lu (2011) impacts on the behaviors of social network members significantly, e.g Facebook, and also affect the number of comments, likes, and friends. The studies of Venkatesh and Morris (2000) indicated the differences of technology acceptance and usage behavior between women and men. In a family, for example, the men very often buy durable products and the women, in the other hand, habitually cover the fast moving consumer goods (Mitchell and Walsh, 2004). As a result, there may exist the difference between the behavior of men and women Facebook users. In current research, we employed the gender to analyze the different decision making processes of men and women in Facebook social network.

According to the analysis above, we supposed the hypotheses:

H1: Age (H1a), Gender (H1b), Positive Comments (H1c), and Likes (H1d) alternately affect the Buying Intention of Facebook users.

H2: Women and men on Facebook receive different numbers of positive comments (H2a) and positive likes (H2b) from Facebook friends.

H3: The different ages receive different numbers of positive comments (H3a) and positive likes (H3b) from Facebook friends.

H4: The differences of ages (H4a) and gender (H4b) drive the differences of buying decision making process.

**Materials and Measures**

**Materials**

Research participants are Facebook users in Vietnam, where there have been over 30 million activated accounts, nearly 38% of population (Tuoitre, 2015) including both men and women at all ages. A small questionnaire was sent via Facebook messenger software to thousands of
different accounts. A selective question was launched to pick up those who have ever posted a brand related status update about a product or service they had ever purchased or intended to buy. After two months, a message was sent to 278 people who had ever posted brand related status updates to examine for their purchase probabilities. 145 responsive users (52.16%) said they have not purchased or intended to buy after they wrote the brand relating status updates. 133 respondents said they had bought the products or service after the updates. Total respondents of the survey included 150 men (53.96%) and 128 women (46.04%). Frequency distribution of ages is presented in Table 1. We collected all the numbers of positive comments and positive likes of brand relating status updates from these 278 users to analyze. The statistical description is listed in Table 2. Positive comments are those that praise or favor the brand(s) and estimated by the subtraction of negative comments from total comments following an update. According to East et al. (2007), the more positive comments a brand receives, the easier that brand is acceptable, consumed, and repurchased. Positive likes is the total number of likes following a status update and the number of likes following the positive comments on that status. The gender and age were surveyed in the first small questionnaire and rechecked through the demography information of Facebookers.

Table 1. The distribution of samples by ages

<table>
<thead>
<tr>
<th>Ages</th>
<th>&lt;20</th>
<th>21-25</th>
<th>26-30</th>
<th>31-35</th>
<th>36-40</th>
<th>&gt;40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>23</td>
<td>88</td>
<td>49</td>
<td>42</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>%</td>
<td>8.3</td>
<td>31.7</td>
<td>17.6</td>
<td>15.1</td>
<td>14.0</td>
<td>13.3</td>
</tr>
</tbody>
</table>

Table 2. The description of continuous variables

<table>
<thead>
<tr>
<th>Measures</th>
<th>n</th>
<th>mean</th>
<th>sd</th>
<th>median</th>
<th>Se</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive.Comments</td>
<td>278</td>
<td>2.37</td>
<td>6.00</td>
<td>3</td>
<td>0.36</td>
</tr>
<tr>
<td>Positive.Likes</td>
<td>278</td>
<td>27.5</td>
<td>30.75</td>
<td>15</td>
<td>1.84</td>
</tr>
</tbody>
</table>

Measures

Before performing the analyses, we computed the VIF to test the autocorrelation. After that, the whole process of analyses was carried out in two steps with the support of R Statistical Environment Team (2007). In the first step, analysis of multivariate logistic regression was utilized to examine the relationship of the purchase intention with other variables including gender, age, number of positive comments, and number of positive likes. In the second step, testing methods and statistical comparisons were employed to analyze the differences of genders and ages in the receipt of positive likes and
positive comments. Because there were a natural diversity of every single variable (including the binary, category, and continuous variables) and all the variables were not conformable with normal distribution, we used the boxplots, Shapiro tests, permutation tests, and Chi-square tests as the appropriate methods for analyses.

Results
The results of correlations and Logistic regression

VIF of independent variables are respectively: Gender=1.02, Age=1.04, Positive Comments=1.27 and Positive Likes=1.27. All the variables are, therefore, pairwise independent (Rose and Fraser, 2008) and the use of logistic regression model to examine the relationship between Buying Intention and the remaining was utilized. The results of correlations and logistic regression are presented in table 3 and table 4, individually.

Table 3. The correlations of variables

<table>
<thead>
<tr>
<th></th>
<th>Buying.Intention</th>
<th>Gender</th>
<th>Age</th>
<th>Positive.Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.21**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.31*</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive.Comments</td>
<td>.43**</td>
<td>.12*</td>
<td>.32**</td>
<td></td>
</tr>
<tr>
<td>Positive.Like</td>
<td>.41**</td>
<td>.11</td>
<td>.19**</td>
<td>.61**</td>
</tr>
</tbody>
</table>

All independent variables are correlated with Buying Intention and these associations are statistically significant. In particular, the relationship of Gender with Buying Intention is the weakest one (r = .21) and the relationship of Gender and Age and Positive Likes are not statistically significant.

Table 4 presents the logistic regression coefficients of the Buying Intention forecast, according to the dependent variable. All independent variables were covariant with Buying Intention significantly.

Table 4 Coefficients of logistic regression model

|                  | Estimate | Std. Error | z value | Pr(>|z|) |
|------------------|----------|------------|---------|---------|
| (Intercept)      | -2.75363 | 0.45143    | -6.1    | 1.06e-09 *** |
| Gender           | 0.93314  | 0.29475    | 3.166   | 0.001546 **  |
| Age              | 0.36025  | 0.099      | 3.639   | 0.000274 *** |
| Positive.Comments | 0.09693   | 0.03416    | 2.837   | 0.004550 **  |
| Positive.Likes   | 0.03002  | 0.00817    | 3.674   | 0.000239 *** |

Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

The results of the statistical comparisons
The plots in figure 1 present the variance of numbers of positive comments and positive likes that were received by the different ages and genders.
To evaluate the differences of gender and age variables affecting the received positive comments and positive likes as shown in Fig. 1, we considered the level of statistical significances of these differences. Shapiro-Wilk normality test results for Positive Comments and Positive Likes both have P-values < .001, meaning that these two variables did not match normal distribution. So we use Permutation Test method for the comparison of two groups. The test for Positive Comments with factor Gender gave $Z = -1.1416$ ($P = .258$), with factor Age gave $\text{maxT} = 3.5383$ ($P = .002$); the test for Positive Likes with factor Gender gave $Z = -0.2987$ ($P = .79$), with factor Age gave $\text{maxT} = 3.1066$ ($P = .013$). Although Figure 1a and 1b display the differences in the receipts of Positive Comments ($P=.258>.05$) and Positive Likes ($P=.79>.05$) between the men and women, as a result of permutation tests, but the differences are not statistically significant. Otherwise, the differences of ages affecting the receipts of positive comments and positive likes of Facebook users in different ages (Figure 1c, 1d) are statistically significant ($P=.002$ and $P=.013$).

For Gender variable was a binary variable, we continued to consider the gender differences in the purchase
behavior by Chi-square testing. Result gave Chi-square = 11.762 (P < .001). Because the variable Age did not match the normal distribution in Shapiro's test, mentioned above, Wilcoxon non-parametric method tests were performed to examine the differences of Buying Intentions among each different age group (W=6137, P<.001). These results demonstrated differences of genders to be followed by the differences of purchasing decisions and these differences were statistically significant.

According to the results above, the hypotheses H1a, b, c, d; H3a, b; H4a, b are supported. The H3a and H3b were demonstrated but the differences were not statistically significant.

Discussion

Consumer behavior of customers today is heavily influenced by the impact of friends on the virtual space, especially on enormous social network (e.g. Facebook). Many studies have used Facebook users as research subjects, but no study has yet concerned about the impact of the debates on private Facebook walls that increasingly affect consumer sentiment. Our research has filled this gap and found that there were impacts of gender, age, number of positive comments, and number of positive likes on purchasing decisions of Facebook users who wrote the relating-brand status on their personal pages. Further, we have found that people at different ages received different numbers of positive comments and positive likes, and had different levels of buying decision making. Although, our research drew the distinction between men and women in getting positive comments and positive likes but the differences were not statistically significant.

The study of Jalivand and Samiei (2012) has shown the impact of online word-of-mouth to consumers' buying intention. We mentioned above that the positive comments and likes served as the online word-of-mouth for brands in the comments of Facebookers. Our research results have indicated the positive impact from the comments and Likes on buying decisions. The study of Tufekci (2008) also showed the impacts of gender and age on the behavior on Facebook users. In this study, the results displayed the effect of Facebook users' ages on the positive comments and positive likes that were followed the news feed updates. Otherwise, the gender differences of Facebook users were not statistically significant in the receipt of quantities of positive comments and positive likes. This is similar to the studies of Tan and Yang (2014) that showed no gender differences in the behavior of users on social networking.

As suggested in the research of Lin and Lu (2015) and Luarn et al. (2015), many aspects of everyday life are currently affected by the electronic devices and social networks, traditional consumes are being replaced by online transactions, and the information updates about products or services are more than more online searched and powerfully worth helping consumers. The sharing of information online among social network members is easily effective at spreading the good or bad rumors that serve as word-of-mouth factors. As a result, the buying decision making process of an online individual is, besides the personality factors, affected by the comments and likes following the brand-relating status updated on Facebook. The likes and comments on brand updates, therefore,
play an important role in Marketing research because they contribute the impact on buying decisions of consumers. In this study, age had big impact on getting positive comments and positive likes. Bae et al. (2015) pointed out, the bigger the age was, the careful consideration of the purchaser may have. The old often trends towards careful information before making buying decisions. Therefore, products or services that were asked for information references are usually considered carefully before they were written on Facebook to consult friends. And as a result, those status updates were commonly received the positive likes or comments. Thus that’s why the older Facebookers often received more positive comments and positive likes.

In addition to new discoveries within our study, some shortcomings were ignored. This research may also overlook some factors that may influence the purchasing decisions of Facebookers. The previous studies used variables such as number of friends, the frequency of online time, the duration of Facebook lifetime, and the personal characteristics to consider the behavior of Facebook users. These variables that may have impact on the behavior of people using Facebook are completely capable of affecting the commenting and liking behaviors. We suggest that future studies consider these factors as the research criteria in similar studies. Additionally, the intention buying variable in this study is binary variable; future studies may examine this variable in accordance with Likert scale to consider much more abilities of buying decisions. In that case, a linear regression model can be used to identify and indicate the impact of these factors on buying abilities, instead of logistic regression model usage as in this study.

Many studies of behavioral psychology and Marketing online have deepened the psychological aspects of Facebook users, shortly after Facebook launched. However, no study has considered the exchange of information on Facebook as a micro marketing environmental aspect which has a tremendous impact on purchase decisions of consumers. In particular, today Facebook users always appreciate the news feed updates that are interested in by other Facebook friends and reflected by the numbers of following comments or likes. This research has paved the way for the entry into the sphere of influence of the likes and comments in the personal pages of Facebook users to consumer behavior.

REFERENCES

4. BENTE, G., BAPTIST, O. & LEUSCHNER, H. 2012. To buy


17. HODSON, H. 2014. We'd rather 'like' a Facebook cause than donate to it. *New Scientist*, 221, 18-18.


