Perceived Usefulness of Facebook: Effects of Personality Traits and Gender

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Abstract—Social network sites (SNS), such as MySpace and Facebook, have become an essential part of people's daily lives as they have changed the ways people interact with each other. This study investigates the influence of the big-five factor model on the usefulness of SNS taking into consideration the role of gender. This research has two parts. First, we have examined the impact of personality traits on perceived usefulness for both genders. Second, we have explored gender differences in those relationships. The model was tested using a survey of 397 Facebook users from a major university in the United Arab Emirates (UAE). Statistical analysis was performed to test the relationships among the different research variables using structural equation modeling (SEM). Our findings indicate that the role of personality traits in determining the usefulness of SNS is different between female and male users, which we believe will help researchers and practitioners in the design and marketing of SNS in the future.

Index Terms—social network sites, gender differences, personality traits, perceived usefulness

I. INTRODUCTION

Social network sites (SNS), such as MySpace and Facebook, have changed how people interact with each other by allowing their users to create web pages to develop an online human-relationship with others who share similar interests [1]-[3]. Prior studies have examined various aspects of social networking services, such as self-disclosure [4] and [5], online friendship [6], and online dating [7]. Yet, research related to the extent of the perceived usefulness (PU) of SNS is still limited, specifically in relation to user’s personality traits and gender differences.

Although millions of users have joined SNS, few information systems (IS) studies have examined the influence of personality traits on the perceived usefulness of this new technology. Recent research has examined the role of personality characteristics within SNS context [8]. According to [9], personality is an important factor to understand why people behave the way they do on the Internet. Hence, this study has been motivated by the need of further investigation of the impact of the personality characteristics in determining the feelings of the usefulness of SNS taking into consideration gender differences. Recent studies have applied the Five-Factor Model (FFM) to examine personality traits within different IS contexts. The FFM divides personality into five different dimensions, namely: extraversion, openness to experience, conscientiousness, neuroticism, and agreeableness [10]. The model has been considered as the most useful taxonomy in personality research [11] as well as the most comprehensive and parsimonious model of personality [12]. The five personality traits have been explored within different IS context, such as collaborative technology [13], online review [14], web blogging [15], computer based assessment [16], and Facebook [17].

The context of this study is Facebook use, which is considered one of the most popular and well-known SNS, particularly among university students [18]-[20]. Recent studies have found that over 90% of university students have Facebook accounts [21] and [22]. It is estimated that users usually spend from 10 minutes to more than 2 hour a day on Facebook [23]-[25]. Because our review of the literature has revealed that very few studies have covered the Middle East area in this context, and more specifically the United Arab Emirates (UAE), this study has two objectives. First, this research examines the impact of personality traits on perceived usefulness of SNS in the UAE. Second, this study explores gender differences in those relationships. We believe that the findings of this study will help researchers and practitioners to better understand how different personality traits of each gender can motivate perceived usefulness towards Facebook.

The remaining sections of this study are structured as follows. In Section II the study discusses the theories applied in this study, reviews related literature and presents the proposed hypotheses along with the research framework. The research methodology is presented in Section III followed by data analysis in Section IV. Thereafter, a discussion of the results is presented in Section V. Section VI highlights the implications of the current study to theory and practice, and presents the study limitations and links it with future research.

II. RESEARCH MODEL AND HYPOTHESES

This study has been employed the big-five factor model to examine the effect of personality traits on perceived usefulness towards SNS. The following sections discuss the relationship between each of the five
personality traits and perceived usefulness as postulated in this study. Fig. 1 presents the study’s framework showing the different proposed relationships.

![Figure 1: Research model.](image)

A. **Five-Factor Model (FFM)**

An individual’s personality is defined by a set of unique characteristics which can influence his/her perception and attitude [13]. The Five-Factor Model (FFM) is one of the most adopted personality models in research which explores personality traits [26]-[28]. Several researchers have recently investigated the effect of the five personality traits on user adoption of information systems in different IS contexts such as blogging usage [15], intention to provide an online product review [14], social networks acceptance [25], [29]-[31], Internet use [32] and [33]. However, there is still limited study on the effect of personality on the usefulness of SNS [29] and [34]. This study attempts to fill this gap by identifying the effect of personality traits (openness, conscientiousness, extraversion, neuroticism and agreeableness) on perceived usefulness taking into consideration the role of gender. The following sections discuss the argument of the hypotheses related to each dimension in the model.

- **Conscientiousness**

Conscientious personalities are self-controlled individuals who are efficient, organized, and tend to search for different methods to use technologies to allow them to improve their level of performance at work [35] and [36]. Several studies have investigated the role of conscientious personality within different IS contexts, such as collaborative technology [13], computer based assessment [16], and instant massaging [37].

Researchers argue that a conscientious person who perceives an information system to be useful is more likely than a non-conscientious one to have positive intentions to use the technology in order to perform more tasks and obtain higher benefits [13]. Given the strong motivation of conscientious individuals to improve their level of performance, we believe that they are more likely to carefully consider the usefulness of SNS. Hence, we postulate that conscientious individuals will find SNS to be useful as it allows them to be connected with friends faster and easier. Thus, the following is hypothesized within the context of SNS:

H1: Conscientiousness is positively associated with the perceived usefulness of Facebook.

- **Openness to Experience**

Openness to experience refers to individuals who are intellectuals, receptive to new ideas and experiences, creative, curious, sensitive, flexible, broad-minded, and adventurous [27] and [38]. Since openness to experience individu als tend to be creative and intellectual, SNS can be considered a new experience to communicate with friends and relatives for them [29]. Previous studies have investigated the influence of openness to experience on different technologies, such as Internet banking use [39], and blogging [15].

Since open users are more receptive to new ideas and experiences and they are likely to hold positive attitude towards accepting new technologies [39], we propose that individuals with a high level of openness are more likely to perceive Facebook to be more useful than those with a lower level of openness. Thus, the following hypothesis is posited:

H2: Openness to experience is positively associated with the perceived usefulness of Facebook.

- **Neuroticism**

Neuroticism is related to an individual’s level of emotional control; hence, individuals with low levels of neuroticism tend to be emotionally stable whereas individuals with high level of neuroticism are more likely to experience negative emotions [16]. Neurotic individuals tend to be worried, hostile, anxious, fearful, and depressed [40]. They consider new technology threatening and stressful; hence, they tend to have negative feelings towards its perceived usefulness [13], [41], [16]. Reference [41] argues that neurotic individuals are associated negatively with the perceived usefulness and the users’ extent of confirmation of a university’s bulletin board system in Taiwan. Likewise, we postulate that a neurotic individual will not find SNS as a new type of technology to be useful, thus the following hypothesis is suggested:

H3: Neuroticism is negatively associated with the perceived usefulness of Facebook.

- **Agreeableness**

This personality trait is associated with being “courteous, flexible, trusting, good-natured, forgiving, cooperative, soft-hearted and tolerant” [36]. People that demonstrate this trait also can be considered optimistic and value getting along with others. Prior studies have investigated the influence of agreeableness personality trait on different variables such as perceived usefulness of university’s bulletin board system [41] and usefulness of information on SNS [34]. Similarly, we propose that agreeable individuals are more likely to consider social networking technology useful, as it would help them foster their personal relationships with others. Hence, we propose that agreeable individuals will find Facebook a useful SNS to them:
H4: Agreeableness is positively associated with the perceived usefulness of Facebook.

- Extraversion

Extraversion individuals are sociable, assertive, outgoing, optimistic and active [25] and [36]. Several studies have investigated the role of extravert personality within different IS contexts, such as Internet use [42], mobile phone use [43] and [44], and collaborative technology [13].

Within the context of social network sites, prior studies have examined the role of Extraversion [17], [25], [41], [45] and [46]. Social networking sites are considered a way for extravert individuals to assert themselves and thus could be considered quite useful. Reference [29] argues that extravert individuals find social networking sites to be useful. Similarly, we suggest that extraverted individuals will have a positive influence on the perceived usefulness towards SNS. Therefore, we propose the following hypothesis:

H5: Extraversion is positively associated with the perceived usefulness of Facebook.

B. Gender Differences

The moderating effect of gender on the relationship between different independent and dependent variables has attracted the interest of many IS researchers. Reference [45] has investigated the moderating role of gender on the relationship between customer satisfaction and its antecedents and customer loyalty and its antecedents within the context of mobile instant messages in China. Reference [46] has examined the moderating role of gender on the relationship between perceived control of information gathering, perceived control of information handling and intrinsic motivation among employees in the workplace. Reference [47] has examined the relationship between social norms, perceived enjoyment, and their relationships to intention to adopt an e-commerce taking into consideration the role of gender. Yet, to our knowledge there is no empirical study that addresses the relationship between personality traits and perceived usefulness taking into consideration the role of gender within SNS context. To remedy this, we include in our study the investigation of the moderating effect of gender differences on the relationships between personality traits and perceived usefulness. Hence, we expect that female and male SNS users may perceive the usefulness of Facebook differently as suggested in the following hypotheses:

H6a-e: Gender differences have moderating effects on the proposed relationships between personality traits and perceived usefulness in our model.

III. DATA COLLECTION AND SUBJECTS

Data were collected from undergraduate students, who had an active Facebook account, at a major university in the UAE. A pilot study was conducted after developing the questionnaire which involved 15 students with experience in using Facebook. The students answered the questionnaire and gave their comments, which was used to refine the measurement items. To distribute the questionnaire among the students, we contacted faculty members from different colleges to gain their acceptance to distribute the questionnaire among their students in their classes and collect them later from them. Students participated voluntarily in completing a questionnaire exploring their use of Facebook. A second round of follow-up was carried out by the researchers themselves together with some of their colleagues to increase the response rate. Five hundred questionnaires were distributed and four hundred and twenty responses were eventually received. Twenty three responses were discarded due to incomplete response or the answers were the same to all the questions; thus, the final number of valid responses was 397. More than half the participants (54.4%) were between 20 and 22 years old. Among the participants, 318 were female (61.2%) and 118 male (38.81%). The highest percentage of participants was at the junior level (29.5%) and the lowest was freshman (15.1%). More than half the participants (54.7%) created their Facebook account more than 4 years ago. 68.2% of the respondents have more than 100 friends on Facebook while 31.7% have 100 or less friends.

The questionnaire is divided into three parts. The first part is the demographic information which consisted of six questions used to collect data about respondents’ characteristics. The second part of the survey consisted of 5 items to measure the constructs of PU, which were adopted from prior studies [1], [3], [48]-[50]. As for the third part which is related to the FFM constructs, this study has adopted 40 items from the 50-item International Personality Item Pool (IPIP) to assess the respondents’ Big Five personality traits [51] and [52]. The IPIP was chosen because it is user friendly and has been extensively used in previous research [8], [29], [53] and [54].

Each personality trait is associated with a set of eight statements. The scale begins with the statement “I see myself as someone who...” and then presents the subject with 8 phrases to complete the sentence. Example phrases include “I see myself as someone who is the life of the party” (Extraversion), “I see myself as someone who sympathizes with others’ feelings” (Agreeableness), “I see myself as someone who get chores done right away” (Conscientiousness), “I see myself as someone who has frequent mood swings” (Neuroticism), and “I see myself as someone who has a vivid imagination” (Openness). Participants rate each construct item in part two and three on a 1 to 5 Likert scale, where 1 indicates “Strongly Disagree” and 5 indicates “Strongly Agree”, with the mid-point (3) representing the state of uncertainty or neutrality.

IV. DATA ANALYSIS AND RESULTS

To test the research model, a structural equation modeling (SEM) was used to allow for simultaneous estimation of the measurement and structural models. The measurement model was first assessed by a confirmatory factor analysis (CFA) to determine if the measurement items for each construct loaded as predicted on their respective constructs. Second, the structural equation
model was calculated to assess the fitness of the model to see if the model provides a good fit to the data. To test the hypotheses of this study, we analyzed standardized coefficients for accepting or rejecting the hypothesized relationships in our model to evaluate the statistical significance for the standardized coefficients.

A confirmatory factor analysis was conducted to examine if the measurement items of each construct loaded as predicted on their respective constructs. Based on the recommended values provided in the literature, a factor should have a minimum of two items and each item factor loading should be greater than 0.40 [55]. As a result of the CFA, all of the items in this study were greater than recommended value with the exception of one item from extraversion, one item from conscientiousness, one item from neuroticism, and one item from openness, which were excluded from the analysis due to low factor loadings. The factor loading of the remaining items varied between .646 and .844.

In this study five common model-fit measures were used to assess the model’s overall goodness of fit: the ratio of c2 to degrees of freedom (df), normalized fit index (NFI), comparative fit index (CFI), root mean square error of approximation (RMSEA) and incremental fit index (IFI). The value of CMIN/DF should be below the desired maximum cut-off of 5.0 [56]. The values of NFI, CFI, and IFI should be above the suggested estimates of 0.90 [57]. Finally, the value of RMSEA has to be less than the suggested value of 0.10 [58]. All of the model-fit indices in this study have exceeded the acceptance levels suggested by researchers, which demonstrates that the measurement model exhibited a reasonably good fit with the data collected (CMIN/DF = 1281.223/579 = 2.213, NFI = 0.901, CFI = 0.904, IFI = 0.903, and RMSEA = 0.055). We therefore proceeded to evaluate the psychometric properties of the measurement model in terms of reliability and validity.

### TABLE I. RELIABILITY INDICES OF THE CONSTRUCTS

<table>
<thead>
<tr>
<th>Construct</th>
<th>No. of items</th>
<th>Cronbach’s α</th>
<th>Composite reliability</th>
<th>Average variance extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness (PU)</td>
<td>5</td>
<td>0.859</td>
<td>0.818</td>
<td>0.670</td>
</tr>
<tr>
<td>Extraversion (EXT)</td>
<td>7</td>
<td>0.837</td>
<td>0.881</td>
<td>0.515</td>
</tr>
<tr>
<td>Agreeableness (AGR)</td>
<td>8</td>
<td>0.832</td>
<td>0.901</td>
<td>0.535</td>
</tr>
<tr>
<td>Conscientiousness (CON)</td>
<td>7</td>
<td>0.781</td>
<td>0.881</td>
<td>0.513</td>
</tr>
<tr>
<td>Neuroticism (NEU)</td>
<td>7</td>
<td>0.816</td>
<td>0.902</td>
<td>0.569</td>
</tr>
<tr>
<td>Openness (OPP)</td>
<td>7</td>
<td>0.826</td>
<td>0.887</td>
<td>0.536</td>
</tr>
</tbody>
</table>

First, Cronbach’s alpha was used to measure the internal reliability of our model constructs. In this study, the values of Cronbach’s alphas were above the acceptable threshold, which is 0.70 [59], hence we can conclude that the instrument of research is considered reliable (Table I). Second, composite reliability was assessed based on the suggestions of [60] and [61] that a composite reliability of 0.70 or greater is considered acceptable for research. Table I shows that composite reliability of all the constructs has exceeded the recommended values suggested by the researchers. Finally, the values of average variance extracted has exceeded 0.5 recommended by researchers [60] ranging from 0.513 to 0.670 (Table I). Thus, we can state that the scales used in this study are both reliable and valid.

A similar set of fit indices was used to examine the structural model (CMIN/DF = 1281.223/579 = 2.213, NFI = 0.901, CFI = 0.904, IFI = 0.903, and RMSEA = 0.055). Since the goodness-of-fit indices have exceeded the recommended levels suggested by researchers, we conclude that the research model provides an acceptable fit for the data.

![Figure 2. Test results of combined gender (*p < 0.05, **p < 0.001).](image)

**TABLE II. TEST RESULTS OF THE MODERATING EFFECTS OF GENDER (*** P < 0.001)**

<table>
<thead>
<tr>
<th>Hypothesis number</th>
<th>Path</th>
<th>Standardized regression weight of each gender</th>
<th>Hypothesis result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td></td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td></td>
</tr>
<tr>
<td>H6a</td>
<td>CON-PU</td>
<td>-.033(.800)</td>
<td>.180(.014)</td>
</tr>
<tr>
<td>H6b</td>
<td>OPP-PU</td>
<td>.266(.098)</td>
<td>-.018(.840)</td>
</tr>
<tr>
<td>H6c</td>
<td>NEU-PU</td>
<td>-.016(.862)</td>
<td>-.096(.171)</td>
</tr>
<tr>
<td>H6d</td>
<td>AGR-PU</td>
<td>.153(.252)</td>
<td>.322(***</td>
</tr>
<tr>
<td>H6e</td>
<td>EXT-PU</td>
<td>.234(.036)</td>
<td>.206(.014)</td>
</tr>
</tbody>
</table>

The standardized path coefficients for the research model show that only two paths are significant (Fig. 2). Our results indicate that there is a significant relation between Agreeableness and PU (H4), and Extraversion and PU (H5), but there is no significant relation between the remaining three personality traits and PU (H1, H2, and H3).
Next we tested the influence of gender differences on the relationships in our model. In order to evaluate the effect of gender, the sample was first divided in two groups according to the gender declared by users in the survey (Male=154, Female=243). Second, we conducted SEM analysis on the structural model for each gender group. Third, we compared the standardized regression coefficients between structural models considered in pairs (across two groups) to examine whether the strengths of the paths were different between men and women. A comparison between the two results is depicted in Table II.

V. DISCUSSION

The results of this study are grouped into two categories. The first category evaluates results regarding the relationships between the personality traits variables and perceived usefulness of social network sites, specifically Facebook. The second category examines the influence of gender differences on the relationships of our model.

In the first category, our study has found that only two personality traits from the FFM influence PU, namely Agreeableness and extraversion, thus supporting H4 and H5. The remaining three personality traits have no effect on PU: hence H1, H2, and H3 are rejected. The results of this study support the contradicting results related to the influence of personality traits on PU which have been found by prior studies, where some have found positive relationships and others have found a negative one. For example, Reference [16] investigates the effect of personality traits on user’s acceptance of computer based assessment (CBA) system. Among their findings, they have found that neuroticism has significant negative effect on PU while the other personality traits have no such influence. Reference [13] has examined the influence of students’ personality traits on collaborative technology, and has found that both agreeableness and neuroticism significantly determine PU, while openness to experience has no influence on PU. Similarly, [29] has found that openness to experience does not influence PU among university students using Facebook as a SNS.

In the second category, our study has examined gender differences of personality traits and PU. This study has demonstrated that there are significant differences between females and males toward PU of SNS based on personality traits. Our findings have shown that personality traits of openness to experience and neuroticism for both females and males have no significant influence on perceived usefulness, thus H6b and H6c are rejected. In addition, our results have demonstrated that both extraversion females and males find SNS to be useful, thus H6e is accepted. Also, this study has found that conscientiousness and agreeableness males do not perceive SNS to be useful, while females do, thus H6a is rejected and H6e is accepted.

In conclusion, previous literature is concerned, there is an evidence for contradictory gender differences in user attitude towards SNS. Our findings are consistent with prior studies regarding how females and males perceive SNS in different ways which highlights the need to develop different SNS marketing strategies based on gender. For example, the study of [62] has shown that extraverted men and women are both likely to be more frequent users of social media tools, and that neurotic men are more regular users. The study of [63] has revealed that women low in agreeableness use instant messaging features of SNS more often than women high in agreeableness, whereas men low in openness play more games on SNS compared to men high in openness. Our study has found that only neurotic female and those who are open to experience do not find SNS useful, while only male who are extraversion find SNS useful. Consequently we conclude that female with different personality traits are more likely to find SNS useful than males with the same personality traits.

VI. IMPLICATIONS AND LIMITATIONS

The results of this study provide several implications for the academics and marketing managers of SNS. This study identifies the types of individuals who have positive beliefs about the usefulness of SNS, suggesting that online vendors should ensure that they provide adequate utilitarian value to users of SNS. Because SNS are considered entertainment websites, marketing managers of SNS should emphasize the usefulness aspect of their websites by promoting the websites as a useful medium for keeping in touch with relatives and friends who live abroad.

In relation to personality traits and gender differences, this study provides academic researchers with a better understanding of the factors contributing to the usefulness of SNS and the impact of personality of different genders on the intention. Our findings have revealed that gender moderates the key relationships between personality traits in the model. Practically, this study shows that men and women perceive the usefulness of SNS differently based on their personality, hence our results can be provide managers with the means to identify the personality traits of each gender who find SNS useful. Understanding the personality perspectives of users will assist SNS designers and marketing managers in the design and promotion of SNS in future. For example, women who are agreeable, conscientiousness and extravert find the usefulness of SNS to be important, while women who are open to experience and neurotic do not. Based on these findings, managers are advised to develop marketing strategies which show the benefits of SNS to those women who do not see the usefulness of these sites.

Although this study has presented valuable insights, it has some limitations that must be acknowledged. First, although we had a good sample size, a larger sample could help to uncover missing relationships. Furthermore, this research is limited to undergraduate students at a single university in the UAE. Further research is needed to extend and generalize the present results to other age groups and cultures. Particularly, future research can examine the magnitude of gender differences across different cultures. Second, it will be important to replicate the relationships of this study in similar and different
settings. For example, future research is needed to examine the role of personality traits in other social networking websites, such as LinkedIn and Twitter. Also, this study can be tested in different electronic environments, such as online banking and online shopping, to validate its findings further.

A third limitation is that we have investigated the influence of the big five personality traits on perceived usefulness of SNS but other individual characteristics can play important role such as social identity and narcissism. Fourth, future research can examine the effects of other constructs on perceived usefulness of SNS after taking into account the role of personality traits, such as computer self-efficacy and social norms. Finally, this study has investigated the influence of one moderating factor, namely gender. Other moderating factors were not tested, so it is suggested that further research should take into consideration moderating, such as age.

REFERENCES


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