Personality Types and Facebook Advertising: An Exploratory Study

Abstract

The "Five-Factor" model of personality types has been utilised by a number of computer science and psychology academics as a framework to explore aspects of Internet adoption, and more recently Social Media adoption and behaviours. While the use of personality type models in research has been less popular with marketing academics, the Five Factor Model has been used to predict the emotional appeal of advertising based on personality types and potentially provide guidelines for tailoring adverts accordingly. Given the growing impact of advertising on Social Media platforms, especially Facebook's on-going refinements to its advertising models, the question arises for both academics and practitioners alike whether personality type models such as Five-Factor can successfully be used to predict consumer responses to promotional messages delivered via Social Media. This paper describes an exploratory study in which participants were shown a series of Facebook promotional posts and asked to describe their responses, along with completing a questionnaire to assess Five-Factor personality type. The results of the study suggest that responses to Facebook promotional messages may indeed vary based on the user's personality type, but further research is needed to validate these findings. The study also underscores the challenges of assessing personality type in time-limited studies and suggests that further research is needed to evaluate the suitability of this approach for practitioners.

Introduction

[INSERT SIDEHEADING HERE: "The growing importance of Facebook advertising"]

The Internet is unquestioningly a major factor in the lives of consumers. No longer just a means to search and obtain information, products or services, the digital world has evolved into a world in which content is created and shared amongst consumers, and a world in which social interaction is originated and facilitated. It is estimated that over 50% of the 2.4 billion global online population regularly visited social networks in 2012, and this number is expected to increase to over 70% in 2014 (1). One of the

most popular social network platforms is Facebook, which in 2013 claimed to have 757 million users accessing its platform on a daily basis and reported $2.34 billion revenue in advertising in the fourth quarter of 2013 (2). For marketing academics and practitioners alike, it is therefore of growing importance to understand not just the overall behaviour of users on Facebook and other social media, but also to understand how these users engage with the various types of advertising presented on social media platforms and if there are any ways to segment or otherwise predict these levels of engagement.

Social Media and Personality Traits

[INSERT SIDEHEADING HERE: "The Five-Factor model of personality types"]

Identifying personality types as a predictor of online behaviour in order to improve the effectiveness of interaction design has long been a target of Human-Computing-Interaction researchers, who have often used the Five-Factor model of personality types (3) to measure correlations between these constructs and a variety of online behaviours (4, 5). The Five-Factor model identifies five personality types as follows:

- Extraversion: Low levels indicate a quiet and shy personality, high levels an adventurous, social, talkative one.
- Conscientiousness: Low levels indicate a disorganised, easily distracted personality, high levels demonstrate a strong work ethic, orderly and thorough.
- Agreeableness: Low levels indicate a distant and reserved personality, high levels a friendly and sympathetic one.
- Neuroticism: Low levels indicate stability and emotional control, high levels indicate a sensitive, nervous personality.
- Openness: Low levels indicate a personality resistant to change and grounded in tradition, high levels an innovative, novelty-seeking personality.

The Five-Factor types are usually assessed via a 44-item "Big Five Inventory" (6), however a shorter 10-item version, "TIPI" has been developed for studies where participant time is limited and quick results are needed (7).

[INSERT SIDEHEADING HERE: "Using the Five-Factor model in Interaction research"]

Using the Five-Factor model, Human-Computing Interaction researchers initially investigated Internet adoption (5), but have also explored Social Media adoption. For example, research by Ryan and Xenos (8) demonstrated that Facebook users exhibited higher levels of Extraversion and lower levels of Conscientiousness, while that of Hughes et al (9) showed Facebook usage also correlated with Neuroticism while Correa et al (10) demonstrated correlations with higher levels of Openness.

However, many of these studies have specifically examined adoption behaviour, rather than post-adoption behaviour. Given the size of the global Facebook population it can be reasonably assumed that there must now be a substantial number of Facebook users who do not match the above profiles. Recognising this, research has beginning to focus more on correlations between personality type and specific behaviours within Facebook, for example uploading and tagging of photos (11), and suggests that successfully identifying Facebook user personalities could improve advertising and recommender systems.

Advertising and Personality Traits

[INSERT SIDEHEADING HERE: "Using the Five-Factor model in Advertising research"]

While the Five Factor model has been used to investigate perceptions of service quality (12) and customer satisfaction (13), personality traits have not been a popular means of market segmentation despite their potential applicability (14). Personality traits have been used in academic research to examine consumer responses to advertising, and while some of this research has utilised country/culture specific personality scales (15), there is a body of research that relies on the Five-Factor model to specifically explore consumer responses to emotional appeals in advertising. For example, advertising that implies social rewards or excitement has been shown to appeal to people with high levels of Extraversion (16), while advertising that implies safety and security is more likely to appeal to people with higher levels of Neuroticism (17). Those with low levels of Agreeableness have been found to be more likely to experience mixed emotions and consequently less favourable attitudes

when viewing advertisements (18). It has also been speculated that consumers with high levels of Conscientiousness would react more favourably to advertising that provides information rather than generates emotions (14).

However, there is also some evidence that the relationship between personality type and advertising is not only more complicated, but may in fact be reversed. The work of Nairn and Berthon (19) suggests that consumer personality type scores can be influenced by the amount and type of advertising they have recently been exposed to, especially for children.

[INSERT SIDEHEADING HERE: "What can the Five-Factor model tell us about responses to Facebook ads?"]

Despite the concerns of Nairn and Berthon (19), research on personality type and advertising (16, 17, 18) and social media (8, 9, 10) suggests that identifying adult consumer personality types may offer insights into how users respond to promotional messages on social media and provide a possible basis for segmentation. The question arises whether the Five-Factor personality type model is a suitable framework for providing this insight, and whether personality types can be reliably assessed in consumer research.

Methodology

[INSERT SIDEHEADING HERE: "A short personality test, followed by Sponsored Stories and Page Post Ads"]

To being answering the question, an exploratory study was developed to examine the personality types and reported behaviours of UK Facebook users, as this was the platform identified as being both the most popular and the one in which promotional messages would be seen on a regular basis by users. In this study, participants were asked to complete an online questionnaire based on the TIPI version of the Five-Factor Inventory (7). Participants were then presented with various scenarios representing the common types of promotional posts Facebook users could experience on their timeline in 2013. The first two scenarios showed promotional posts that appeared because of a friend's activity, the so-called "Sponsored Story" (Figure 1).

The next two scenarios showed promotional posts that appeared not because of friend activity but rather the result of a paid campaign, the so-called "Page Post Ad". (Figure 2)
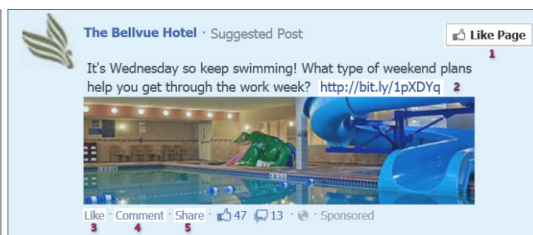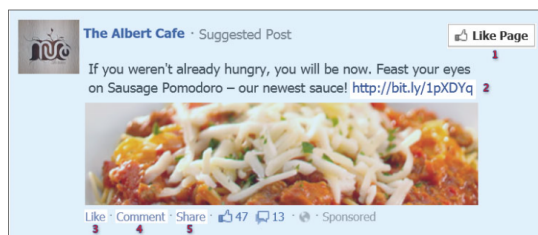
For each scenario, participants were asked to predict the likelihood of any actions they might take as a result (share, comment, etc.), based on a 5-point Likert scale.

Participants were recruited via convenience sampling, and the sample size was 155 staff and students at the University of Portsmouth. After screening for incomplete and duplicated responses, 108 responses were retained for analysis (Table 1).

Table 1: Respondent Profiles

Variables	Answers	Frequency
Gender	Male	41
	Female	67
Age	18-25	75
	26-35	17
	36-50	7
	51-65	9
How Often Do You Currently Use Facebook?	I don't use Facebook anymore	3
	I use Facebook rarely (once a week or less)	13
	I use Facebook several times a week	31
	I use Facebook every day	61
Which device do you usually use to access Facebook?	Laptop	37
	Tablet	12
	Mobile	49
	Desktop	10

Results and Discussion

To assess personality type, the TIPI results were scored by recoding the reverse-score items, and then the question pairs were averaged, as per the methodology developed by Gosling (20). For all 5 question pairs, average scores were calculated for each individual participant, and then a general arithmetic mean was calculated for each variable to derive personality traits. Table 2 shows the results of this scoring for the study's participants.

	Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Personality Type	1 Openness	3.43	0.72														
	2 Extraversion	3.29	0.64	.134													
	3 Neuroticism	3.30	0.68	.137	-.023												
	4 Agreeableness	3.22	0.80	-.024	.069	-.158											
	5 Conscientiousness	3.40	0.67	-.031	.026	.134	.144										
Page Post Ads	6 Share	1.30	0.51	-.082	-.071	-.191	-.013	-,208*									
	7 Page Like	2.03	0.63	.069	.066	.105	-,284**	-.026	,297**								
	8 Like	1.74	0.69	-.079	,210*	-.064	-.002	-.105	,231*	,358**							
	9 Promotion Link	2.04	0.74	.064	-.070	.016	-.046	-.093	,264**	,436**	.173						
	10 Comment	1.44	0.50	.082	-.024	-,270**	.085	-.039	,553**	,221*	.092	.105					
Sponsored Stories	11 Share	1.70	0.51	,202*	,285**	-.073	.019	-.021	,303**	.054	.185	.035	.021				
	12 Page Like	1.72	0.60	.148	.048	.068	-.155	-.161	.116	,480**	,372**	,196*	.176	-.070			
	13 Like	1.74	0.70	-.059	.174	-.109	-.068	-,236*	,208*	,260**	,607**	,295**	.118	,216*	,355**		
	14 Comment	1.29	0.50	-.133	-.149	-,209*	.146	-,323**	,323**	.068	.111	.070	,460**	-.089	,256**	.165	
	15 Promotion Link	1.96	0.72	.168	.032	.050	-.152	-.022	.084	,286**	.091	,660**	-.094	.087	.105	,229*	-.036

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

[INSERT SIDEHEADING HERE: "No one personality type dominated"]

While previous studies had identified Extraversion and Openness as predictors of Facebook adoption, in fact no one personality type dominated amongst the participants. While this could be a limitation of using the 10-item TIPI questionnaire, this may also be a testimony to the ubiquity and popularity of Facebook, and emphasises the argument that Facebook research needs to move beyond examinations of adoption and focus on post-adoption behaviours.

A Paired-samples T test was conducted to determine whether there was any significant difference between responses to Page Post Ads versus Sponsored Stories, regardless of personality type. The results are shown in Table 3.

Table 3: Reported Responses to Page Post Ads and Sponsored Stories

Engagement Tools	Mean	t	N	Sig.
Share				
Page Post Ads	1.3	-6.808	105	.000
Sponsored Stories	1.7			
Like Post				
Page Post Ads	1.74	0.000	105	1.000
Sponsored Stories	1.74			
Like Page				
Page Post Ads	2.03	5.071	105	.000
Sponsored Stories	1.72			
Comment				
Page Post Ads	1.44	2.917	105	.004
Sponsored Stories	1.29			
Click on Link				
Page Post Ads	2.04	1.380	105	.170
Sponsored Stories	1.96			

[INSERT SIDEHEADING HERE: "A clue to Facebook's termination of Sponsored Stories?"]

These results suggest that there were some significant differences in the way participants viewed engagement between Page Post Ads and Sponsored Stories. For example, participants said they were more likely to like a page or comment on a Page Post Ad (2.03 and 1.44) than a Sponsored Story (1.72 and 1.29). However, participants also said they more likely to share a Sponsored Story (1.7) than a Page

Post Ad (1.3). These differences are intriguing, especially in light of Facebook's recent announcement that it will be ending the Sponsored Stories programme in 2014 (21). While it was speculated that this decision was taken for legal reasons (22), perhaps these types of posts were also seen by Facebook management as a less effective form of advertising, despite the likelihood of sharing.

Pearson correlation analysis was used to examine the relationships between the Five Factor personality traits and responses to Page Post Ads versus Sponsored Stories, as shown in Table 2.

[INSERT SIDEHEADING HERE: "Extravert types like to share Sponsored Stories, but 'like' Page Post Ads"]

Participants with higher levels of Extraversion were more inclined to share Sponsored Stories (.285) as were those with higher levels of Openness (.202). Given that these two personality types have previously been identified as more willing to share information overall (11, 23), this result is hardly surprising, however there was no correlation with the sharing of Page Post ads. On the other hand, Extraverts were more inclined to "like" Page Post Ads (.210) but not Sponsored Stories. While this personality type has been identified as more willing to like posts overall (11), it is unclear why the Page Post Ad would generate these results and therefore requires further study.

[INSERT SIDEHEADING HERE: "Conscientious types more reticent, but also unpredictable"]

Participants with higher levels of Conscientiousness were reluctant to share Page Post Ads (-.208), but there was no correlation with sharing Sponsored Stories. However these participants also showed a disinclination to like (-.236) or comment on (-.323) Sponsored Stories. This personality type has previously produced inconclusive results for sharing information overall (23), but other studies have shown this personality type negatively correlates with activities such as liking Facebook posts, preferring instead to upload and organise photos (11).

[INSERT SIDEHEADING HERE: "Neurotic types reluctant to engage"]

Participants with higher levels of Neuroticism showed some reluctance to comment on both Page Post Ads (-.270) and Sponsored Stories (-.209), but there was no correlation with sharing either kind of post. Given the shyness of this personality type, this could possibly be indicative of an reluctance to comment on any sort of post.

[INSERT SIDEHEADING HERE: "Agreeable types are the most difficult to identify"]

Participants with higher levels of Agreeableness showed reluctance to "like" pages (-.284), but again no particular correlation with sharing either kind of post. While it is tempting to assume this personality type would be more prone to engage in actions that support a post, in fact research into how this personality type affects any sort of online behaviour has been inconclusive (23, 24), and results for this particular personality type may be unreliable when using the TIPI questionnaire (25).

Limitations and Future Directions in Research

[INSERT SIDEHEADING HERE: "Results are exploratory, need to repeat research with larger and more diverse group of Facebook users"]

While a number of interesting results have come from this exploratory study, there are also several limitations that must be considered in determining the value of this research and future directions. The first limitation concerns the sample site. At 108 participants the sample size was relatively small and while an effort was made to increase ecological validity by not relying exclusively on a student sample, the fact remains that nearly 70% of the respondents were aged 18-25. Given the recent rapid growth in Facebook usage amongst those aged 45-54 (26), it can be argued the sample used was not an accurate reflection of the profile of Facebook users nowadays and would need to be repeated with a more demographically representative sample.

[INSERT SIDEHEADING HERE: "Need to measure actual timeline behaviour, rather than just predicted responses"]

The second limitation of this study is that it examined intentions rather than actual behaviours. There is often a disconnect between reported and actual consumer behaviour (27), and a study that explores actual sharing and liking of promotional

posts on Facebook timelines would prove to be invaluable, if issues of privacy and informed consent could be addressed.

[INSERT SIDEHEADING HERE: "Is a short survey enough to assess personality?"]

The third limitation in this study was the use of the 10-question TIPI survey to assess personality type. While this methodology has been shown to be useful in marketing research, especially when a full personality assessment is not practical (25), it can only measure very broad domains for each personality type, and cannot achieve the accuracy of a full-length Five-Factor study.

[INSERT SIDEHEADING HERE: "Expanding this research via Facebook applications may be the way forward, but care is needed."]

One suggestion that could overcome the above limitations would be to convince participants to both complete a full personality survey *and* allow subsequent access to their Facebook profiles and timelines, as was the case with the myPersonality Facebook application (28), which up to 2012 produced a satisfying large sample size for personality type studies on Facebook usage (11) and sentiment analysis (29). An updated version of this application could also potentially provide a suitably large data set for studying specific responses to promotional messaging. Currently a number of "what character type are you" quizzes from entertainment websites such as Zimbio and Buzzfeed are seen and shared by Facebook users, indicating an appetite for taking (and sharing) personality tests. However, moving from a simple quiz to a timeline-tracking application has some serious ethical and operational considerations. The application would have to be restricted to those over 18 years of age, and users would have to be made aware before installing that the application would need full access to their timeline information and why, as was the case for myPersonality. Given the current coverage of Internet privacy issues in the popular press (e.g. NSA surveillance, the "Heartbleed" bug) users may be more reluctant to provide this access than in the past.

Conclusions

This exploratory study set out to answer the question of whether a personality type model, such as Five-Factor, could be used to predict responses to promotional displayed on a consumer's Facebook timeline. In fact, some patterns of potential

interest were discovered, as well as some further justification for Facebook's recent decision to discontinue certain types of promotional posts. Whether this type of research could successfully be expanded and eventually integrated into practice will require further validation by replicating the study across a larger and more demographically representative sample, and eventually other social networks. Consideration would also have to be given to the validity of the short-form TIPI questionnaire as a suitable instrument for assessing personality types, and the trade-offs between the accuracy provided by a consumer filling out a 44-item questionnaire versus the ease and speed of completing 10 questions will need to be carefully managed.

[INSERT SIDEHEADING HERE: "How can practitioners benefit from this research?"]

From a practitioner perspective, the ability to segment consumers by personality type could provide brands with the information needed to improve customisation and targeting of social media campaigns. For example, consumers identified by their Facebook activity as having higher levels of Extraversion could be encouraged to like and share emotional brand messages on their timeline, while consumers identified as having higher levels of Conscientiousness, who are theoretically more reluctant to share, could instead be provided with informational brand messages on their timeline. Understanding the relationships between a consumer's personality and their engagement with social media campaigns would not only benefit brands and agencies but also social media network providers themselves by improving engagement and conversion rates for social media advertising.

1. Berkman F. (2013) *How the World Consumes Social Media*. Mashable. http://mashable.com/2013/01/17/social-media-global/

2. *Facebook Reports Fourth Quarter and Full Year 2013 Results*. (2014). Facebook Investor Relations. http://investor.fb.com/releasedetail.cfm?ReleaseID=821954

3. McCrae RR, John OP. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*. 60(2):175–215

4. Amichai-Hamburger Y. (2002). Internet and personality. *Computers in Human Behavior*. 18(1):1–10

5.   Amichai-Hamburger Y, Ben-Artzi E. (2003). Loneliness and internet use. *Computers in Human Behavior*. 19(1):71–80

6.   McCrae R.R., Costa P.T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of personality and social psychology*. 52(1):81–90

7.   Gosling S.D, Rentfrow P.J, Swann W.B. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality*. 37(6):504–28

8.   Ryan T, Xenos S. (2011). Who uses facebook? an investigation into the relationship between the big five, shyness, narcissism, loneliness, and facebook usage. *Computers in Human Behavior*. 27(5):1658–64

9.   Hughes D.J, Rowe M, Batey M, Lee A. (2012). A tale of two sites: twitter vs. facebook and the personality predictors of social media usage. *Computers in Human Behavior*. 28(2):561–69

10.   Correa T, Hinsley A.W, de Zúñiga H.G. (2010). Who interacts on the web?: the intersection of users' personality and social media use. *Computers in Human Behavior*. 26(2):247–53

11.   Bachrach Y, Kosinski M, Graepel T, Kohli P, Stillwell D. (2012). Personality and patterns of facebook usage. *Proceedings of the 3rd Annual ACM Web Science Conference on - WebSci '12*, pp. 24–32

12.   Fan X, Du Y. (2010). How do consumer personality traits affect their perceptions and evaluations of service quality? *2010 International Conference on Service Sciences*, pp. 148–53

13.   Matzler K, Faullant R, Renzl B, Leiter V. (2005). The relationship between personality traits (extraversion and neuroticism), emotions and customer self-satisfaction. *Innovative Marketing*. 1(2):32–39

14.   Myers S, Sen S, Alexandrov A. (2010). The moderating effect of personality traits on attitudes toward advertisements: a contingency framework. *Management & Marketing*. 5(3):3–20

15.   Birknerová Z, Bačík R, Gburová J. (2013). The effectiveness of advertising in relation to the personality of the consumer. *Journal of Finance and Economics*. 1(2):17–21

16.   Mooradian T A. (1996). Personality and ad-evoked feelings: the case for extraversion and neuroticism. *Journal of the Academy of Marketing Science*. 24(2):99–109

17.   Hirsh J.B, Kang S.K, Bodenhausen G.V. (2012). Personalized persuasion: tailoring persuasive appeals to recipients' personality traits. *Psychological science*. 23(6):578–81

18. Orth U.R, Malkewitz K, Bee C. (2010). Gender and personality drivers of consumer mixed emotional response to advertising. *Journal of Current Issues & Research in Advertising*. 32(1):69–80

19. Nairn A, Berthon P. (2003). Creating the customer : the influence of advertising on consumer market segments – evidence and ethics. *Journal of Business Ethics*. 42(1):83–99

20. Gosling S.D. *Scoring the TIPI*. (2014) http://homepage.psy.utexas.edu/HomePage/Faculty/Gosling/scales_we.htm#Ten Item Personality Measure %28TIPI%29

21. Wagner K. (2014) *Facebook Set to Eliminate Sponsored Stories in April*. Mashable. http://mashable.com/2014/01/09/facebook-eliminate-sponsored-stories/

22. Nieva R. (2014) *Facebook to sunset Sponsored Stories by April*. cnet. http://news.cnet.com/8301-1023_3-57616986-93/facebook-to-sunset-sponsored-stories-by-april/

23. Teh P, Yong C, Chong C, Yew S. (2011). Do the big five personality factors affect knowledge sharing behaviour ? a study of malaysian universities. *Malaysian Journal of Library & Information Science*. 16(1):47–62

24. Ross C, Orr E.S, Sisic M, Arseneault J.M, Simmering M.G, Orr R.R. (2009). Personality and motivations associated with facebook use. *Computers in Human Behavior*. 25(2):578–86

25. Rammstedt B, John O.P. (2007). Measuring personality in one minute or less: a 10-item short version of the big five inventory in english and german. *Journal of Research in Personality*. 41(1):203–12

26. *Stream Social Q1 2013: Facebook Active Usage Booms*. GlobalWebIndex. http://blog.globalwebindex.net/Stream-Social

27. Miller D, Jackson P, Rowlands M, Thrift N, Holbrook B. (1998). *Shopping, place and identity*. Padstow

28. *myPersonality Project*. http://mypersonality.org/wiki/doku.php

29. Schwartz H.A, Eichstaedt J.C, Dziurzynski L, Kern M.L, Seligman M.E.P, et al. (2013). Toward personality insights from language exploration in social media . *Proceedings of the AAAI Spring Symposium Series 2013*, 72-79