

AN EXAMINATION OF AD CLUTTER AND TASK ORIENTATION ON
AVOIDANCE OF SOCIAL MEDIA ADVERTISING: A PSYCHOLOGICAL
REACTANCE PERSPECTIVE

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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled

AN EXAMINATION OF AD CLUTTER AND TASK ORIENTATION ON
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a candidate for the degree of Master of Arts,

and hereby certify that, in their opinion, it is worthy of acceptance.

Professor Shelly Rodgers

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DEDICATION

To my professor parents who have always supported my academic achievements and life
pursuits

To Cecilia who always has faith in me even with seven thousand miles apart

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ABSTRACT

While the integration of advertising into users' content feeds (i.e. "Promoted Tweets" or "Sponsored Posts") has proven successful in driving revenue for advertisers, such efforts have started to gather complaints from social media users. As the amount of advertising has grown, social media users have started to experience greater interruption, which might lead to negative psychological consequences such as perceived intrusiveness and ad avoidance. Drawing on the theoretical framework of psychological reactance theory, the current study aimed to empirically examine the effects of ad clutter and task orientation on Twitter users' perceived intrusiveness and avoidance of promoted tweets. A mixed factorial experiment (2 x 2) was conducted online, and the results suggest that users' perceived intrusiveness and avoidance of promoted tweets were significantly influenced by the level of ad clutter in the Twitter feed. Effects of task orientation did not achieve statistical significance. Theoretical contributions to existing Internet ad clutter models and practical implications are discussed based on the findings from the study.

Chapter 1

INTRODUCTION

Popular social networking sites (SNS) like Facebook and Twitter have developed a variety of new ad formats (i.e. “promoted tweet,” “sponsored post,” etc.) and placement options (i.e. in-feed, sidebar, etc.) in the past five years. While the increasing amount of social media advertising has enabled advertisers to grow an online presence, social media users are experiencing greater ad clutter and interruption, which may result in avoidance of advertising and other related psychological effects. These negative consequences could not only compromise the user experience of SNS, but may pose a threat to advertising effectiveness in the long run. Existing literature has identified ad clutter and goal impediment as two major antecedents of Internet ad avoidance, but little research has examined potential interruption effects on social media using an experimental design.

To address this gap, the purpose of this study is to examine how different levels of ad clutter can influence perceived intrusiveness and advertising avoidance of promoted tweets, as well as how Twitter users’ task orientation will impact these psychological effects. An evaluation of avoidance effects will expand knowledge of social media users’ processing of promoted social media contents, and provide insights on how to improve the theoretical model of Internet ad avoidance. Practical implications from this study will benefit both advertisers and web platform designers on developing ad placement strategies that can engage the social media audience while minimizing negative user experience.

Chapter 2

LITERATURE REVIEW

Background

“Promoted tweets,” i.e., the type of sponsored tweet intended to promote brands or products, has been the primary revenue driver for Twitter, Inc. along with two other advertising products, “promoted trends” and “promoted accounts” (Edwards, 2013). Since the introduction of “promoted tweets” in 2010 (Learmonth, 2010), a series of new ad formats have been added to the increasingly crowded Twitter feeds. This trend to increase the amount of advertising has been a continual challenge in advertising in social media, with new forms of advertising being tried, such as the newest feature called “promoted moments” announced in October 2015 to provide more advertising opportunities (Frier, 2015).

While Twitter has made some effort to make “promoted tweets” appear in a user-friendly fashion, the problem with “intrusiveness” still exists (Dredge, 2014). To date, Twitter users are given the choice to turn off a “promoted tweet” after they see it, but this option cannot guarantee that the forced exposure of this type of advertisement would not elicit any negative psychological effects, such as advertising avoidance and perceived intrusiveness.

While the phenomenon of ad clutter has not received enough attention from advertisers and businessmen who care primarily about impressions, clicks and conversions, the psychological effect of the exposure to advertising on social media has gained scholarly interest. A recent report on social media advertising literature (Knoll,

2015) revealed that effects of ad exposure on social media was among one of the primary research streams. However, little empirical evidence has been obtained regarding the short-term psychological consequences of exposure of social media ads, and more research was concerned about the brand- or product-related attitudes on social media, leaving significant gaps in our understanding of other potential psychological consequences than a cluttered ad environment may exert on individual social media users.

The following literature review will begin by reviewing the proposed theoretical framework of reactance theory and then to apply this framework to the current context of “promoted tweets.” Literature related to the core concepts examined in this study (i.e., ad avoidance, ad clutter, task orientation, and perceived intrusiveness) will then be defined and connected to the overarching framework.

Psychological Reactance Theory and Forced-viewing Online Advertisements

Brehm (1966) introduced the concept of “psychological reactance” to explain the motivated emotional state as a result of perceived loss of freedom in a specific environment. According to this theory (Brehm, 1966; Brehm & Brehm, 1981), reactance will arise when external attempts, often persuasive or coercive, exert a threat to freedom that has been enjoyed by individuals before these attempts are made. As a result, individuals are motivated by the increased level of reactance to regain their freedom or control of the situation, which will lead to a series of negative psychological effects.

Reactance theory has been applied to many disciplines concerning consumer behavior since its introduction, including responses to advertising. Clee and Wicklund (1980) indicated that the potential application of reactance theory to examine people’s

defensive responses to manipulative advertisements, and that too much product information can cause reactance effects, especially when consumers' completion of purchase task is threatened by unexpected information (Clee & Wicklund, 1980).

Edwards, Li and Lee (2002) first applied this theory to examine forced exposure of online advertising, and defined "perceived intrusiveness" as the underlying mechanism that caused irritation and avoidance of pop-up ads, a particular type of ad that interrupted the user's task while viewing content online via their computers. The researchers argued that Internet users would experience loss of freedom and control of the online environment when they were forced to view online ads they didn't intend to, and this interruption of the users' ongoing task will trigger an increased psychological reactance, which will lead to an increase in perceived intrusiveness, ad irritation and ad avoidance (Edwards et al., 2002). Following this initial research, reactance effects—like perceived intrusiveness—have been examined on a great variety of forced-exposure online ad formats, such as pop-ups and banner ads (Edwards et al., 2002; Cong & Meeds, 2007), unsolicited emails (Morimoto & Chang, 2009), advertising in online video sites (Kim et al, 2013), and mobile advertising (Rau, Liao & Chen, 2013).

Unfortunately, scholarly research has not kept pace with technology, prompting additional theorizing on potential psychological reactance effects in social network sites, or SNSs. The present study argues that ads on SNSs should conform to a similar psychological reactance effect for two reasons. Take Twitter as an example. First, a Twitter user may be forced to view promoted tweets within their content feeds. While Twitter users may have a variety of reasons for visiting this site (i.e., getting recent news, learning about friends, entertaining themselves, etc.), it is unlikely for users to actively

seek out Twitter ads. As a result, when Twitter ads appear unexpectedly in Twitter feeds, users' ongoing task will be interrupted, though only for a short period of time, and users are likely to experience a temporary loss of freedom within the browser. The resulting behavioral choices are to either scroll over the ad, or "dismiss" the ad to continue.

Second, the format of the promoted tweet is similar to the basic banner ad, which consists of brand name, ad message, picture of the product or service, and a "call-to-action" button (Rodgers & Thorson 2000) (See Figure 1). If banner ads on a news website generate perceived intrusiveness, as suggested by earlier studies (Edwards, Li & Lee, 2004), Twitter ads logically will generate the similar, if not more severe, reactance effects. To expound upon this point, this next section reviews the literature on advertising avoidance on social media.

Advertising Avoidance on Social Media

Speck and Elliott (1997) first defined advertising avoidance as viewers' actions to reduce exposure to advertising, and found that search hinderance is the most important antecedent of advertising avoidance of print media. Cho and Cheon (2004) developed an integrated Internet advertising avoidance model by incorporating three aspects of avoidance effects (cognitive, affective, and behavioral). They also identified three major antecedents of Internet ad avoidance: perceived goal impediment, perceived ad clutter, and perceived ad irritation (Cho & Cheon, 2004).

A few recent studies have revised this three-factor Internet avoidance model to accommodate the context of social media. For example, Kelly et al. (2010) evaluated the applicability of this model on teenage Facebook users and found that lack of personal relevance and skepticism toward ad messages were two additional antecedents of ad

avoidance, both of which exerted stronger effects than goal impediment or ad clutter. However, using results of a national survey, Kelly (2014) confirmed the significance of perceived goal impediment and perceived ad irritation as antecedents of avoidance of Facebook advertising. Another researcher developed a behavioral model of avoidance and found that perceived ad clutter, intrusiveness, and irritation could lead to ad avoidance on social media (Guardia, n. d.).

As noted, Cho and Cheon's (2004) revised Internet advertising avoidance model incorporates cognitive, affective, and behavioral components. Because effects may differ depending on which component is examined, the present study will focus on the cognitive aspect of advertising avoidance effects. This will help to focus the research and may crystalize predictions made in relation to the model.

To begin, research on television commercials (Bellman, et al., 2010) suggests that cognitive avoidance happens when media users intentionally ignore the ads while still being exposed to the ads. This scenario is similar to what a Twitter user may react to when exposed to Twitter ads: while some Twitter users may intentionally avoid seeing the ads while browsing their Twitter feeds, they are still forced to see the ads - unless they choose to close their eyes. Even if Twitter has offered its users an option to "dismiss" an ad with a click of a button, this action may prompt users to stay longer on the ads they did not want to see in the first place. On the other hand, cognitive avoidance, rather than affective or behavioral avoidance, may be better indicated by the measure of perceived intrusiveness, as both concepts are concerned with interruption of cognitive processes. In short, evaluating cognitive aspects of avoidance effects is considered by the current research as both sufficient and plausible to understand social media users'

psychological outcomes upon exposure to a Twitter ad. Task orientation helps to understand the motivation of Twitter users.

Task Orientation of Web Users

As noted, perceived goal impediment is a major antecedent of advertising avoidance (Cho & Cheon, 2004). By using the measures designed by Cho and Cheon (2004), Kelly (2014) found from a national survey of consumers that perceived goal impediment was also a significant antecedent of avoidance of advertising on social media.

According to the Interactive Advertising Model (IAM), goal orientation, or modes of online activities have an influence on how consumers perceive and process Internet advertising (Rodgers & Thorson, 2000). Compared to consuming traditional media content, Internet users are more likely to engage in goal-orientated activities, and individuals who are goal orientated should feel more frustrated when reacting to pop-up ads than “playful” surfers without a clear purpose of their online activities (Rodgers & Thorson, 2000). For instance, Duff and Faber (2011) found that individuals who are goal-directed online are more likely to avoid distractive information.

Edwards, Li and Lee (2002) argued that perceived intrusiveness is less about what emotional or behavioral outcomes might result from viewing an irritating ad, and more about the psychological consequence that occurs when the cognitive process is interrupted. As a concept related to goal impediment, “tasks and goals” in the literature on perceived intrusiveness are often thought of as conscious or unconscious cognitive processes when Internet users are engaging in some form of online activity (e.g., reading news).

Task type, while conducting an Internet search, can also make a difference in whether consumers avoid Internet advertising. In an experiment evaluating attitudes toward online banner ads, participants who were told to perform an exploration search were more likely to ignore banner ads than those with a known-item search task (Portnoy, 2013). Other studies on Internet advertising have examined the influence of task orientation on indicators like “banner blindness”, such as ad recall (Nugaeva, 2012; Hershberger & Costea, 2009).

The present study draws on these findings to apply them to a SNS context, and theorizes that a higher level of goal-directedness will lead to stronger defensive psychological reactions (Rodgers & Thorson, 2000), and argues that perceived goal impediment should be a function of task orientation. In terms of ads on social media, the present study proposes that information seekers who are more goal-directed when browsing social media contents should experience a higher level of goal impediment, which will lead to a higher level of cognitive avoidance of advertising. On the other hand, information seekers should be more defensive toward distraction resulting from Twitter ads compared to explorers, and the nature of intrusiveness is the interruption of flow (Ha, 1996), so they should endure a higher level of perceived intrusiveness compared to explorers. This discussion leads to the first two hypotheses:

(H1) Information seekers will experience a higher level of perceived intrusiveness than explorers exposed to Twitter ads.

(H2) Information seekers will experience a higher level of cognitive avoidance than explorers exposed to Twitter ads.

Ad Clutter on the Internet

Early scholarship on mass advertising avoidance claimed that ad clutter, the excessive amount of advertising, is a major antecedent of negative attitudes towards advertising in print and broadcast media due to its disruptive nature (Speck & Elliott, 1997b), and the magnitude of the negative effect varies by media type (Elliot & Speck, 1998). Scholars re-evaluated several new formats of Internet advertising and confirmed from a national survey of Internet users (Cho & Cheon, 2004) that perceived ad clutter was a significant factor of ad avoidance and ad irritation when users were “overdosed” with excessive amounts of Internet advertising. A recent study used a natural experiment on Facebook suggesting that ad clutter could lead to lower ad recall, and that smaller brands were more likely to be ignored than well-known brands (Nelson-Field, Riebe, & Shar, 2013).

Ha (1996) argued that ad clutter occurs when the amount of advertising exceeds media users’ acceptance level, and ad clutter consists of three dimensions: quantity, intrusiveness and competitiveness. This definition was later adapted to an integrated model of ad clutter to accommodate both online and offline mediums (Ha & McCann, 2008). The researchers (Ha & McCann, 2008) also incorporated reactance theory to explain three factors of the high cluttered condition: first, when the ads were immediately and forcefully displayed rather than delayed; second, when webpages were navigational rather than destination oriented; third, when ads appeared within the editorial contents rather than in other locations. Furthermore, it was also shown that a higher frequency and number of ads within a webpage led to higher perceived ad clutter level.

Based on the observation of Twitter's user interface and user activities, the three factors mentioned by Ha and McCann (2008) can be incorporated in the current study. First, promoted tweets in the content feeds are beyond users' control and would presumably appear forcefully and immediately whenever users enter the page or "refresh" the feeds; second, the Twitter page should be considered as both a navigational page and a destination page, as Twitter users may feel to choose to interact within the webpage or they may follow a link to leave the page for other interested contents. Third, most of the ads on Twitter appear within the content feeds (promoted tweets) rather than sidebars (promoted trends and account). As the frequency and number of Twitter ads increases as users scroll through their content feeds, it is logical to think that increasing the number of Twitter ads may represent a perceived level of ad clutter.

Thus, as the number or frequency of Twitter ads increases, users should experience more perceived interruption, which will lead to a higher level of cognitive avoidance and an increased level of intrusiveness. This leads to the next two hypotheses:

(H3) Users in the high ad clutter condition will experience a higher level of perceived intrusiveness of Twitter ads than users in the low ad clutter condition.

(H4) Users in the high ad clutter condition will have a higher level of cognitive avoidance of Twitter ads than users in the low ad clutter condition.

A qualitative study on teenage users of Facebook (Kelly, Kerr & Drennan, 2010) argued that perceived ad clutter was not an important reason for advertising avoidance. However, it should be noted that a larger amount of advertising on Facebook did not become common until 2012, two years after the cited study. The amount of advertising has continued to grow since then, and more importantly, the number of social media ads

appear more often in users' content feeds, which could be psychologically processed as an interruption of users' cognitive processes and ongoing tasks. Thus, it is necessary to look at Twitter, a social media platform that has just become a more cluttered space for advertising over the last five years.

Research Questions and Hypotheses

To summarize the discussion above, the present study has two main research questions and four hypotheses concerning task orientation and ad clutter (see Table 1 for a summary).

RQ1: How will task orientation influence social media users perceived intrusiveness and cognitive avoidance of Twitter ads?

(H1) Information seekers will experience a higher level of perceived intrusiveness and of Twitter ads than explorers.

(H2) Information seekers will experience a higher level of cognitive avoidance of Twitter ads than explorers.

RQ2: How will ad clutter influence perceived intrusiveness and cognitive avoidance of Twitter ads?

(H3) Users in the high ad clutter condition will experience a higher level of perceived intrusiveness of Twitter ads than users in the low ad clutter condition.

(H4) Users in the high ad clutter condition will have a higher level of cognitive avoidance of Twitter ads than users in the low ad clutter condition.

Chapter 3

METHODOLOGY

Experimental Design

A 2 (ad clutter: high clutter vs. low clutter) x 2 (task orientation: goal-directed vs. explorative) mixed design factorial experiment was conducted to examine the hypotheses. The experiment was self-administered through Qualtrics, an online survey software. Ad clutter is a within-subject variable and task orientation is a between-subject variable. This mixed factorial design is rationalized due to the nature of the two independent variables. On one hand, the perception of ad clutter will be likely to vary among Twitter users. The decision to make ad clutter a within-subjects factor can potentially reduce this type of error variance due to individual differences. For task orientation, if participants are assigned to two different tasks, one right after another, there may be a strong carry-over effect, as people may not be able to switch their task mode in such a short period of time. Thus, it seems logical to treat task orientation as a between-subjects factor in an effort to reduce a potential rehearsal effect.

Operational Definitions of Independent Variables

Advertising clutter. Perceived ad clutter is conceptualized as the perceived excessiveness of advertising within the same viewer or webpage (Ha, 1996; Ha & McCann, 2008). The operational definition in the present study is the frequency of exposure to promoted tweets in a given number of tweets in the Twitter feed. As the frequency and the amount of advertising in Twitter feed are correlated, the manipulation of this variable is to control the ratio between number of promoted tweets and the number

of non-promoted tweets. For the two levels of ad clutter as a within-subject factor: participants in high clutter condition will view one promoted tweet in every four tweets, and they will only view one promoted tweet in every ten tweets in the low clutter condition.

Task orientation. Task orientation represents the goal-directedness of the social media users. It is a between-subject factor with two levels: participants will be assigned to either the “goal-directed” task of reading the Twitter feeds and identifying the most popular news topics, or an “explorative” task of reading the Twitter feeds without a specific task. Research has suggested information-seekers are "goal-directed" with an identified task, actively searching for relevant information while surfers are "experiential" viewers using the Web for the sake of surfing (Hoffman & Novak, Li, 1996; Li & Bukovac, 1999). Therefore, participants will behave as either information seekers or explorers according to their assigned tasks before viewing the Twitter feed.

Participants

Participants were recruited from two undergraduate classes at a large mid-western university. A total of 31 students from the first class participated in the pretest. Two weeks later, 216 students from the second class participated in the main experiment. Extra credits were given as a compensation for the participation, and alternative assignments were available for those who wish to receive extra credits but did not want to participate in the study. Incomplete responses were removed from the data analysis.

According to results from demographic questions, 69.9% of participants were female, 29.6% were male, .5% preferred not to answer. Participants age ranged from 17 to 28 years old, while 98.6% of participants were 18 to 22 years old.

IRB and Treatment of Human Subjects

As with all research projects involving human subjects, IRB approval was obtained prior to the pretest, and each participant was given the opportunity to review and provide consent upon the start of their experiment sessions. All materials in the study were pre-approved by IRB, and all procedures and treatments were in accordance with IRB standards.

Procedure

The procedures for the pretest and the main experiment were similar. Both experiments were self-administered online through Qualtrics. Participants were given 10 days to complete their participation after they received the survey links from their instructors. All participants were randomly assigned to two groups: Group A were assigned as information seekers, and Group B were assigned as explorers. Random assignment is necessary to eliminate systematic differences between and the two groups at the outset of the experiment. This random assignment was achieved by using Qualtrics' block randomization features with an equal distribution to ensure number of participants in two groups were similar.

An individual experiment session for each participant consisted of two viewing sections followed by a series of questions related to the contents of Twitter feed. A task description was given at the beginning of each of the two viewing sections. Participants in Group A ("information seekers") given a task to read all the tweets and to find the breaking news topic in the Twitter feed; those in Group B ("explorers") were given no additional task but to read all of the tweets.

Participants were then instructed to scroll down and read all the tweets in the Twitter feed displayed on their screen, and were told that the page will proceed automatically once the time is expired. A count-up timer was displayed to remind participants that the viewing section was being timed. In order to ensure all participants will spend similar amount of time on the Twitter feed, a time range limit of 120 seconds to 240 seconds was pre-determined and set by the auto-submit and disable-submit feature in Qualtrics. In other words, students were limited to spend at most 240 seconds on viewing the Twitter feed, and the page will proceed automatically after 240 seconds. However, participants were given an option to click the “Next” button to force advance when they reach the bottom of the Twitter feed, but they were not allowed to do so until have spent at least 120 seconds on the page (the button was displayed only after 120 seconds has passed). This time range limit was calculated based on an informal test in which five students were asked to read all of the tweets at their normal speed.

After each of the viewing sections, a series of questions regarding perceived intrusiveness, and ad avoidance and personal involvement were presented to the participants. Manipulation check questions were also asked after each viewing section. The second viewing section will start right after they completed all the questions in the first section. Demographic questions and Twitter use questions were asked at the very end of the experiment session. Participants were given the option to submit their student identification number in order to receive extra credits. Participants were thanked and debriefed at the end of the session.

Stimulus Materials

Two mockup Twitter feeds were created by the researcher for the current study (See Figure 1). The mockup Twitter feeds and the tweets used were edited using Photoshop based on the screenshots of Twitter's webpages. The size and resolution of the Twitter feeds were similar to the ones on the actual website. Each of the two mockup Twitter feeds had a length of 17000 pixels and a width of 1280px. All design features, such as font size and background color, were same for two Twitter feeds.

Each Twitter feed had a mixture of both organic tweets and promoted tweets. The total number of tweets were approximately 150. All organic tweets and the promoted tweets were carefully read and selected by the researchers. Tweets that contained offensive or disgusting images or those related to inappropriate topics or languages were not selected, as they would potentially confound the results. The organic tweets consisted of news tweets and other tweets. The total number of news tweets were similar among two clutter conditions, but the dominant news topic was different. News tweets used for high clutter condition were related to topic of the "2015 Academy Award," while those for low clutter condition were related to "Syrian refugees." The order of the two conditions were randomized for all participants.

The promoted tweets used for both conditions were collected from actual promoted tweets, and covered the most relevant brand categories for college students: sports, food, travel, technology and local. Both well-known brands (i.e. New Balance) and lesser-known brands (i.e. Unisys) were selected. While the total number of promoted tweets varied in two conditions, the brand categories remained similar. This control of

brand relevance was to ensure that contents of the promoted tweets were relevant and interesting for a general college audience.

As discussed earlier, two clutter conditions differed in total number of promoted tweets: there were about one promoted tweet in every four tweets (1: 4) for high clutter condition and one in ten (1:10) for low clutter condition (See Figure 4). This ratio was determined by a small group of five graduate students, the researcher himself included, and was modified based on the results from the pretest. The ratio between promoted tweets and organic tweets of low clutter condition was changed from 1: 9 to 1:10 after the pretest, while the ratio of high clutter condition remained unchanged.

Scales of Dependent Measures

Perceived intrusiveness. Perceived intrusiveness is defined as the perceived interruption of social media users' ongoing tasks (Ha, 1996; Li, Edwards & Lee, 2004). The scale of perceived intrusiveness adopted for this study was adapted from a study on pop-up ads (Edwards, Li & Lee, 2002), which consists of 7 items: distracting, disturbing, forced, interfering, intrusive, invasive and obtrusive. The semantic differential format was used to replace the Likert scale in order to avoid the negative assumption. The question was tailored to the Twitter context "In the Twitter page you just saw, to what extent do you think the Twitter ads are..."(see Appendix C for details). The revised scales of perceived intrusiveness achieved a Cronbach's alpha of .856.

Advertising avoidance. Advertising avoidance, in the present study, is defined as social media users' actions to reduce exposure to ads by cognitive means (Elliot & Speck, 1997a). The scale for advertising avoidance was adapted from the Likert scale for a survey study designed by Cho and Cheon (2004) to investigate reasons of advertising

avoidance online. While the original scale consisted of three dimensions (cognitive, behavioral and affective), the present study only used the four items associated with cognitive avoidance, as they are most relevant to what we are concerned with psychological reactance. An additional question was added to the cognitive avoidance scale to reflect Twitter's unique characteristics. The questions asked if the respondents had intentionally scrolled past or skipped the promoted tweets in their reading process, a typical phenomenon indicating their cognitive avoidance. All other questions were rephrased in a more direct manner: for example, "put my eyes on" was replaced by "avoid looking." (See Appendix 2 for details) The adapted scales of ad avoidance achieved a Cronbach's alpha of .867.

Manipulation Checks

Ad clutter and task orientation. A group of additional questions were added to the post-exposure questionnaire as the manipulation check for ad clutter and task orientation (see Appendix C). The manipulation checks consisted of four questions for ad clutter (5 items; $\alpha = .895$) and two questions for task orientation (2 items; $\alpha = .846$).

Report of news trends. A text-entry question was added to ask participants to identify the breaking news topics from the Twitter feed, in accordance with the task for Group A ("information seekers"). This question was not displayed for Group B ("explorers"). Results from SPSS indicated that more than 80% of participants who were "information seekers" correctly identified the "breaking news."

Covariates and Categorization Variables

Attitude toward Twitter feed. Three questions related to attitude toward Twitter feed asked about participants' overall experience of reading the Twitter feed (3 items; $\alpha =$

.786). Two other questions asked about how likely participants like to follow or share the Twitter feed. These five questions (see Appendix C) served as distractor items and were asked before the measures of dependent variables.

Personal involvement. Two groups of 9-item semantic differential scales were added to measure the influence of personal involvement of Twitter feed (9 items; $\alpha = .872$) and promoted tweets (9 items; $\alpha = .784$) respectively (see Appendix C). The scales were adapted from the personal involvement inventory revised by Zaichkowsky (1994), in which the author viewed personal involvement of advertising as both relevant to cognitive and affective aspects of mental activities. As a result, personal involvement measures were analyzed as covariates in the data analysis later.

Twitter use. Research suggested skills would influence engagement of Internet use as well as consumer responses to ad stimuli (Rodgers & Thorson, 2000), and history, frequency of use of Twitter can serve as the indicator of skill. In addition, participants were also asked to report their motives of using Twitter. See Appendix C for details.

Demographic items. Questions regarding gender, age, education and monthly income, will be added at the end of the questionnaire. Demographic data will be collected so that responses can be categorized.

Pretest

A smaller group ($N = 31$) of undergraduate students were recruited for a pretest prior to the main experiment. The primary reason of the pretest was to ensure that the experimental conditions associated with both independent variables would pass manipulation checks in order to achieve the desired level of internal validity. Specifically, the pretest was concerned with (1) whether the manipulation of high clutter condition

would yield significantly higher levels of perceived ad clutter than low clutter condition; and (2) whether the task assigned to the “information seekers” would yield a higher level of goal-directedness than that of “explorers.”

In addition, a preliminary statistical analysis would also be conducted to see if the dependent measures related to perceived intrusiveness and advertising avoidance would generate the results in the hypothesized direction. Adjustments were made to both manipulation check questions and measures related to advertising avoidance after the analysis of the pretest result. The details of statistical analyses and changes will be discussed in the following results section.

Chapter 4

RESULTS

Statistical Analyses

This chapter presented the results of both the pretest (N=31) and the main experiment (N=216). IBM SPSS Statistics Version 22 was used to analyze the results. Significant levels (p-value) were obtained for all statistical analyses in the present study, and a p-value of 0.05 or less was set as the criteria to determine the statistical significance.

Two-way repeated measure MANOVAs were selected as the primary statistical method to examine main effects. This is an appropriate statistical method given that: 1) ad clutter is a within-subjects factors that was evaluated on each level of the independent variable by each participant, and 2) both dependent variables are closely related and correlate with one another, so a univariate ANOVA would not be appropriate due to the increased risk of inflating Type I error.

A one-way repeated measures ANOVA and an independent samples t-test were used to check the manipulation of the independent variables.

MANCOVA was used to examine the covariate effects of personal involvement of promoted tweets and twitter feed.

Pretest

A repeated measures ANOVA was run to check the manipulation of ad clutter, the within-subjects factor in the experiment. No significant result was found ($F(1, 29) = .826$, $p > .05$). No significant differences existed between the high clutter condition ($M = 3.23$,

$SD = 0.99$) and the low clutter condition ($M = 3.00$, $SD = 1.06$). The results suggest that the manipulation of ad clutter was not effective, even though the perceived ad clutter means were in the expected direction, suggesting that a slightly different manipulation may be warranted (see below).

An independent samples t-test was used to check the manipulation of task orientation, the between-subjects factor. The results suggested a significant difference in task-orientation between information seekers and explorers ($t(29) = -4.843$, $p < .001$). Goal-directedness was rated significantly higher among information seekers ($M = 4.02$, $SD = .57$) compared to explorers ($M = 2.73$, $SD = .86$). The results suggest that the manipulation of task orientation was successful.

A repeated measures MANOVA was run to examine the effects of task orientation and ad clutter on perceived avoidance and perceived intrusiveness. No significant effect was found for either ad clutter (Wilks' Lambda = .986, $p > .05$) or task orientation (Wilks' Lambda = .982, $p > .05$). Neither ad avoidance nor perceived intrusiveness were significantly influenced by the two factors based on the pretest results. However, a comparison of the mean scores of both dependent variables was in the expected direction.

Manipulation Check

As noted, the pre-test revealed that the manipulation of ad clutter was not successful and several of the questions related to the manipulation check proved confusing or did not adequately capture the ad clutter independent variable. Therefore, the ad clutter manipulation and several of the resulting questions designed to measure the manipulation of ad clutter, were slightly altered to heighten the manipulation. For

example, the ratio between promoted tweets and organic tweets in low clutter condition were changed to 1: 10 from 1:9. The original manipulation check questions, which asked if the promoted tweets were “excessive,” and “numerous,” were replaced by questions on whether the promoted tweets were perceived as “too many” or “too much space” (See Appendix C for details), and this change was validated based on a scale of Ha (1996) on ad clutter on magazines. All other manipulations and questions remained the same unless otherwise indicated. Once the newly manipulated variable was in place, the main experiment was conducted.

Results revealed that a repeated measures ANOVA test from the main experiment showed a significant effect among the different ad clutter conditions ($F(1, 215) = 58.56, p < .001$). Perceived level of ad clutter was rated significantly higher among information seekers ($M = 3.61, SD = .91$) compared to explorers ($M = 2.99, SD = .91$).

Similar to the pretest, an independent t-test on task orientation between information seekers and explorers showed a significant effect ($t(214) = -6.30, p < .001$): information seekers reported a higher level of goal-directedness ($M = 3.51, SD = 1.03$) than explorers ($M = 2.64, SD = 1.01$).

In addition, the majority (80%) of “information seekers” correctly identified the trending news topic (“Syrian refugees” and “2015 Academy Award”), which indicated participants in this group were generally goal-directed.

Results from the main experiment showed that ad clutter and task orientation were effectively manipulated.

Examination of Hypotheses

A repeated measures MANOVA was run to examine the effects of ad clutter and task orientation on perceived intrusiveness and ad avoidance. Ad clutter was found to have a significant effect (Wilks' Lambda = .923, $p < .001$), while task orientation did not have any significant effect (Wilks' Lambda = .987, $p > .05$).

Follow-up univariate ANOVAs indicated that ad clutter had a significant effect on perceived intrusiveness ($F(1, 214) = 17.741, p < .001$): participants reported a higher level of perceived intrusiveness in the high clutter condition ($M = 2.99, SD = .85$) than in the low clutter condition ($M = 2.72, SD = .89$). However, ad clutter did not have a significant effect on ad avoidance.

Hypotheses 1 and 2 predicted that task orientation would have a significant effect on both perceived intrusiveness and advertising avoidance, and that information seekers would experience a higher level of perceived intrusiveness (H1) and advertising avoidance (H2) of promoted tweets than explorers. As no significant effect was found for task orientation in the MANOVA test, neither H1 nor H2 was supported.

Hypotheses 3 and 4 predicted a similar effect of ad clutter on perceived intrusiveness and advertising avoidance of promoted tweets. H3 claimed that Internet users in the high clutter condition would experience a higher level of perceived intrusiveness than in the low clutter condition. Based on the results from the Multivariate test and Univariate ANOVA tests, H3 was supported.

H4 predicted that Internet users in the high clutter condition would have a higher level of advertising avoidance of promoted tweets than in the low clutter condition. While the repeated MANOVA test and the follow-up univariate ANOVA did not yield a

significant result, it was suspected that ad clutter could have a significant effect on one or more aspects of advertising avoidance. Repeated measures ANOVAs were also run on each of the five measures underlying the proposed index of ad avoidance. Results indicated ad clutter had only significantly influenced one aspect of ad avoidance ($F(1, 214) = 4.34, p < .05$): participants in the high clutter condition ($M = 4.98, SD = 1.81$) were more likely to indicate scrolling past the promoted tweets than in the low clutter condition ($M = 4.73, SD = 1.84$). Therefore, H4 was partially supported.

Covariate Effects

To account for the influence of personal involvement, a MANCOVA test was run after the dataset was restructured in a way that different ad clutter conditions could be analyzed equally without consideration of their repeated measures. The reason for this data transformation is that the repeated measures function under GLM command in SPSS can only analyze covariance when the hypothesized covariate is held constant over time. However, both personal involvement of promoted tweets and personal involvement of twitter feed were repeatedly measured in each of the ad clutter conditions, which enhanced the ability to treat these covariates as nuanced factors (i.e., participants' levels of involvement with the Twitter feed may change over the time in which they viewed the Tweets).

According to the MANCOVA test, personal involvement of promoted tweets was significantly related to both perceived intrusiveness and advertising avoidance ($p < .001$). However, significant differences were only found for ad clutter on perceived intrusiveness after parsing out the influence of personal involvement, which was consistent with the results of the MANOVA test.

Demographic Questions

As reported earlier, the majority of participants were female 69.9%, so an additional repeated measure MANOVA test was conducted on male subset and female subset separately. Independent sample t-tests were also run to see if gender has a significant effect on any of the measures. Results from both tests indicated gender did not play a significant role in influencing the responses.

Summary of Results

In sum, H1 and H2 regarding task orientation were not supported. H3 was supported. H4 was partially supported.

Chapter 5

DISCUSSION

Summary of the Results

The current study used psychological reactance theory to evaluate differential effects of both ad clutter and task orientation on social media users' perceived intrusiveness and avoidance of advertising on social media. As the results suggested, only the effect of ad clutter on perceived intrusiveness (H3) was fully supported with statistical significance. The logical connection between psychological reactance level and advertising avoidance turned out to be weaker than hypothesized. All of the four hypotheses in the current study were based on an important implication drawn from the reactance theory: when perceived interruption becomes higher due to the increased amount of advertising, users will experience a temporary loss of control that will increase levels of reactance. According to a repeated measure ANOVA test ($F = 22.59, p < .001$), perceived interruption in high clutter condition ($M = 3.31, SD = 1.18$) was significantly higher than in low clutter condition ($M = 2.87, SD = 1.16$). Such a significant difference, however, did not translate into a significant increase in levels of ad avoidance, as predicted.

More than one possibility may result in the non-significant effects of task orientation. First, Twitter skill and Twitter use history may have influenced the effects of task orientation. Among all the participants ($N = 216$), 11.6% reported they "never used Twitter before this study"; 24.5% reported their Twitter skills were "below average" or "very below average." (see Figure 6 and Figure 7 for details) From a repeated measure

MANOVA test on a subset of participants ($n_1 = 53$) who reported their Twitter skills were “below average” or “very below average”, the effect of task orientation was significant ($F(1,51) = 5.910, p < .05$) on perceived intrusiveness (H1). A similar test was run on a subset of participants ($n_2 = 25$) who reported they “never used Twitter before this study,” and the effect (H1) was also significant ($F(1, 23) = 4.914, p < .05$). In other words, effect of task orientation was only significant for those who were less-skilled or new to Twitter. A possible explanation of this phenomenon is that experienced Twitter users became less sensitive to promoted tweets, but new Twitter users were still reactive to the ad stimuli.

Second, the current experiment sought to demonstrate differential effects between two types of task orientation on the opposing end of the spectrum of “goal-directedness.” Although self-reported goal-directedness between information seekers and explorers was significantly different with the manipulation of assigned tasks, there is no way to guarantee that the explorer group was not at all goal-directed during the experiment session. For example, finishing the experiment assignment is a task in itself; and participants could be multitasking in their experiment session with another task in mind. Second, relevant research suggests information seekers will experience a higher level of banner blindness than explorers, and if such an effect is strong enough, it might offset the significance of the main effects of task orientation, at least to some extent. However, it should be noted that the mean scores for both perceived intrusiveness and ad avoidance of information seekers appeared to be higher than explorers, suggesting the means were in the predicted direction (see Table 4).

Results on perceived intrusiveness, on the other hand, revealed a significant differential effects between the two clutter conditions. Notwithstanding, it should be noted that while users in high clutter condition have a significantly higher level of perceived intrusiveness of promoted tweets than in low clutter condition, the average mean scores for both condition are below “3” on the semantic differential scale (i.e. more towards “not intrusiveness” rather than “intrusive”).

Theoretical Implications

From a theoretical perspective, the most important implication from this study is that reactance theory is effective in explaining some of the negative psychological effects resulting from forced exposure to advertising in a social media context. While most social media advertising formats, including promoted tweets in the current study, appear in a non-intrusive fashion, reactance levels, indicated by perceived intrusiveness, are significantly higher when social media feed become more cluttered with advertising. Although the differential effects of ad avoidance were not statistically significant in the current experiment, psychological reactance theory can still explain some of the results, such as the intention to scroll past when users see promoted tweets.

More importantly, differential psychological effects like perceived intrusiveness are not limited to goal-directed users who are highly engaged in reading the social media feed, as a similar effect may also occur for those who are less goal-directed or even with no task in mind. Indeed, such effects were often minimal and sometimes unnoticeable, but no matter how hard users tried to avoid or ignore advertising content on social media, differential reactance levels were still noticeable and may have further implications.

Another theoretical contribution of this study lies in the findings on effects of ad clutter on social media. The current study not only provided empirical evidence with an experimental design to support the cognitive aspect of existing models on Internet ad clutter (Ha, 1998; Ha & McCann, 2008; Cho & Cheon, 2004), but also extended understanding of ad clutter to a social media context. Perceived ad clutter correlated positively with number, frequency, and space covered by advertising, as demonstrated by the manipulation check of ad clutter of this study. Yet, task orientation did not differ in negative effects resulting from ad clutter. The study also offered a plausible operational definition of ad clutter on social media: the ratio between promoted social media contents and non-promoted social media contents within a given number of tweets or posts in the feed is positively correlated to the perceived level of ad clutter, regardless of how fast or slow users will scroll on the page. This observation is especially important for research on social media, as future ad formats may be expected to be “buried” in the feed as the promoted tweet example in the current study.

On a broader level, the original value of this research goes beyond the significant results. The present study is one of the first studies using an online experiment to examine psychological effects in reaction to social media advertising. Unlike prior studies that focused on long-term psychological effects (i.e., general attitudes toward advertising on social media or privacy concerns of social media advertising), this research is more concerned with the Internet users’ instant cognitive activities upon viewing social media ads in a realistic setting. Indeed, short-term negative psychological effects resulting from social media advertising will not be as strong as from other

intrusive ad formats (i.e. pop-ups or interstitials), attitude toward the overall social media platform will be formed from everyday interaction.

Practical Implications

On a practical level, implications from the current study may help developers and product managers make informed decisions on ad placement strategies on social media sites with special consideration of user experience. As demonstrated by the findings from this study, social media users may experience significant psychological changes when exposed to promoted content in the social media feed, and when the feed becomes more cluttered, their perceived intrusiveness will grow accordingly. The differential effect of ad clutter itself cannot serve as a reason to decrease the amount of advertising on a given social media website, but the approach to examine the outcomes from the users' perspectives will help website designers to find the optimal amount of advertising on social media, especially for "in-feed" advertising.

Additionally, such implications may be useful for advertisers and media buyers who are interested in investing in social media advertising. While ad "impressions" and exposure to advertising remain the primary criteria for media buyers to compare effectiveness of different ad delivery channels, the results suggest that ad avoidance and perceived intrusiveness may compromise the delivery of online advertisements even for users who are exposed to the ad. With a better understanding of the influence of ad clutter, media buyers can base their decision-making by evaluating possible user experience outcomes resulting from different levels of ad clutter. However, such a methodology requires more extensive research and practical evidence.

Limitation

The present research tried to create a realistic setting for participants in order to achieve higher external validity, but such an effort cannot keep pace with the fast-changing ad formats on popular social media websites. During the 10-month process of this study, Twitter changed the font color of the “Promoted Tweet” symbol from bright yellow to dark grey, a shift that would make promoted tweets less noticeable and more congruent with regular tweets. Additionally, participants in this study can only view Twitter feeds rather than interact with Twitter feeds, as they may in a real-life setting. While the mockup Twitter feed used in the highly controlled experiment was similar to the actual size and resolution of a real Twitter feed, participants could not click or retweet as they would normally might do.

Another limitation of the current research is operationalization of the task orientation. As discussed earlier, goal-directedness should be more of a continuum than separate levels, and the main experiment in this study only attempted to evaluate the differential effects for information seekers, who are highly goal-directed, and explorers, who did not have a task in mind. Furthermore, from a functional perspective (Rodgers & Thorson, 2000), even with the same level of goal-orientation, motives of using social media may also play a role. Future studies are needed to address these conceptual and methodological gaps in the literature.

In addition, the dominant news topics for the two clutter conditions were different in this study. While this manipulation allowed participants to view only two sections (one for each clutter condition) to complete their experiment session, it did not control

potential influences resulting from the news topic. Counterbalancing news topics in both clutter conditions will make the results more reliable.

Future Research

Future research concerned with effects of advertising on social media advertising should do two things to extend the understanding of psychological effects resulting from ad exposure on social media. First, a more direct and reliable approach is needed to measure users' advertising avoidance for behavioral, emotional, and cognitive aspects. For example, observational data could be obtained through an eye-tracking device. Second, experiments on social media advertising should extend beyond the laptop (or personal computer), as used here, to mobile devices, as more users are using social media on a smart phone rather than a larger screen of their laptops. In addition, it will be beneficial to compare psychological effects of similar ad formats in different social media sites (i.e., "promoted tweets" on Twitter and "sponsored posts" on Facebook).

Another direction of this research stream is to use experiments or surveys to find out the acceptance level of perceived ad clutter so that negative psychological effects are minimized. Furthermore, other antecedents of ad avoidance beyond ad clutter and task orientation should also be examined more thoroughly in the social media context. An integrated model of ad avoidance or ad clutter on social media will not be validated until such efforts are made.

Conclusion

The present study examined the effects of ad clutter and task orientation on social media users' perceived intrusiveness and ad avoidance. Results suggest that a higher level of ad clutter resulted in an increased perceived intrusiveness, and a higher intention

to scroll past the advertising content. Information seekers' perceived intrusiveness and avoidance of social media advertising did not differ significantly with explorers. Influence of personal involvement of promoted tweets was significant.

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Appendix A: Tables

Table 1

Repeated Measure MANOVA Multivariate Tests (main experiment)

Effect		<i>Wilks' Lambda</i>	<i>F</i>	<i>df</i>	<i>Sig. (p-value)</i>
Within Subjects	Ad Clutter	.923	8.844	2, 213	.000***
Between Subjects	Task Orientation	.987	1.417	2, 213	.245

Note. *** $p < .001$

Table 2

Univariate Tests of Ad Clutter (main experiment)

Source	Measure	<i>F</i>	<i>df</i>	<i>Sig. (p-value)</i>
Ad Clutter	Perceived Intrusiveness	17.741	1, 214	.000***
	Advertising Avoidance	2.238	1, 214	.136

Note. *** $p < .001$

Table 3

Tests of Between Subjects Effects (main experiment)

Source	Measure	<i>F</i>	<i>df</i>	<i>Sig. (p-value)</i>
Task Orientation	Perceived Intrusiveness	2.610	1, 214	.108
	Advertising Avoidance	.784	1, 214	.377

Table 4

Descriptive Statistics

Measure	Ad Clutter	Task Orientation	<i>M</i>	<i>SD</i>	<i>N</i>
Perceived Intrusiveness	Low	Explorers	2.62	.80	110
		Information Seekers	2.83	.92	106
		Total of Low Clutter	2.72	.89	216
	High	Explorers	2.94	.84	110
		Information Seekers	3.05	.87	106
		Total of High Clutter	2.99	.85	216
Advertising Avoidance	Low	Explorers	4.69	1.41	110
		Information Seekers	4.88	1.43	106
		Total of Low Clutter	4.78	1.42	216
	High	Explorers	4.86	1.51	110
		Information Seekers	4.98	1.37	106
		Total of High Clutter	4.92	1.44	216

Table 5

Summary of Hypotheses and Results

	Hypotheses	Dependent Measures	Statistical Analysis	Results
<i>H1</i>	Information seekers will experience a higher level of perceived intrusiveness and of Twitter ads than explorers.	Perceived intrusiveness; advertising avoidance	Repeated Measure MANOVA; Test of Between-subject Effects	Rejected
<i>H2</i>	Information seekers will experience a higher level of cognitive avoidance of Twitter ads than explorers.	Perceived intrusiveness; advertising avoidance	Repeated Measure MANOVA; Test of Between-subject Effects	Rejected
<i>H3</i>	Users in higher ad clutter condition will experience a higher level of perceived intrusiveness of Twitter ads.	Perceived intrusiveness; advertising avoidance	Repeated Measure MANOVA; Test of Within-subject Effects	Supported
<i>H4</i>	Users in higher ad clutter condition will have a higher level of cognitive avoidance of Twitter ads.	Perceived intrusiveness; advertising avoidance	Repeated Measure MANOVA; Test of Within-subject Effects	Partially Supported

Appendix B: Figures

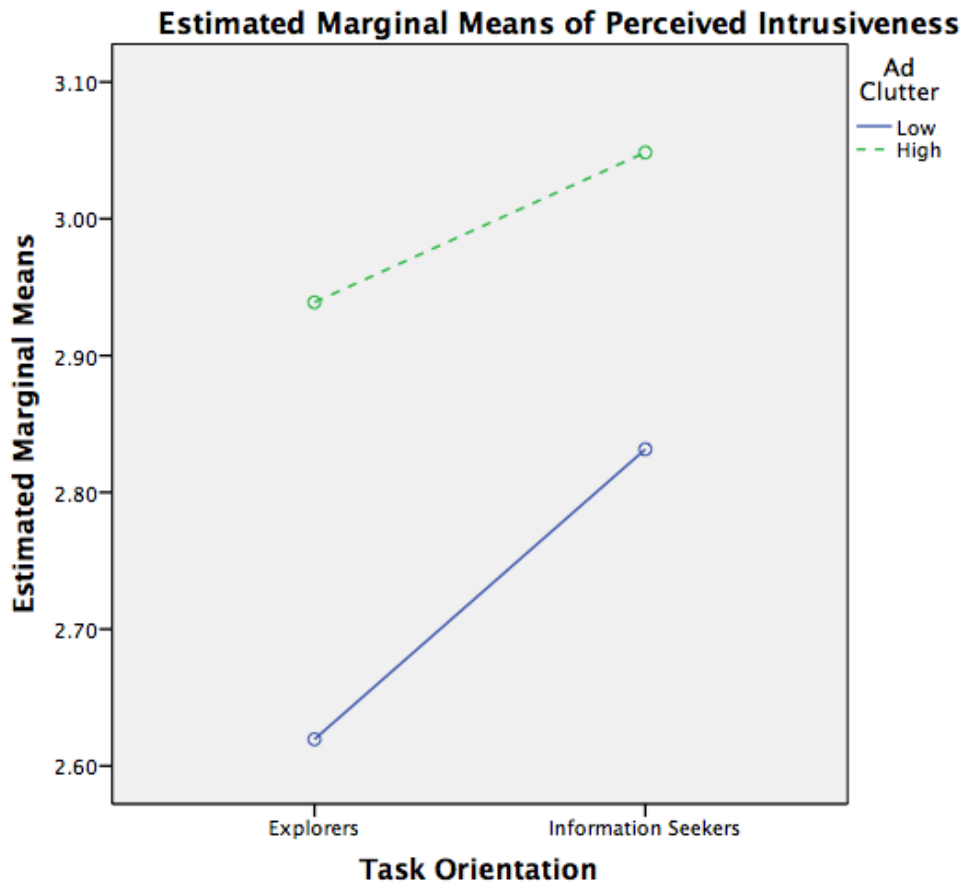


Figure 1. Plots: Means of Perceived Intrusiveness

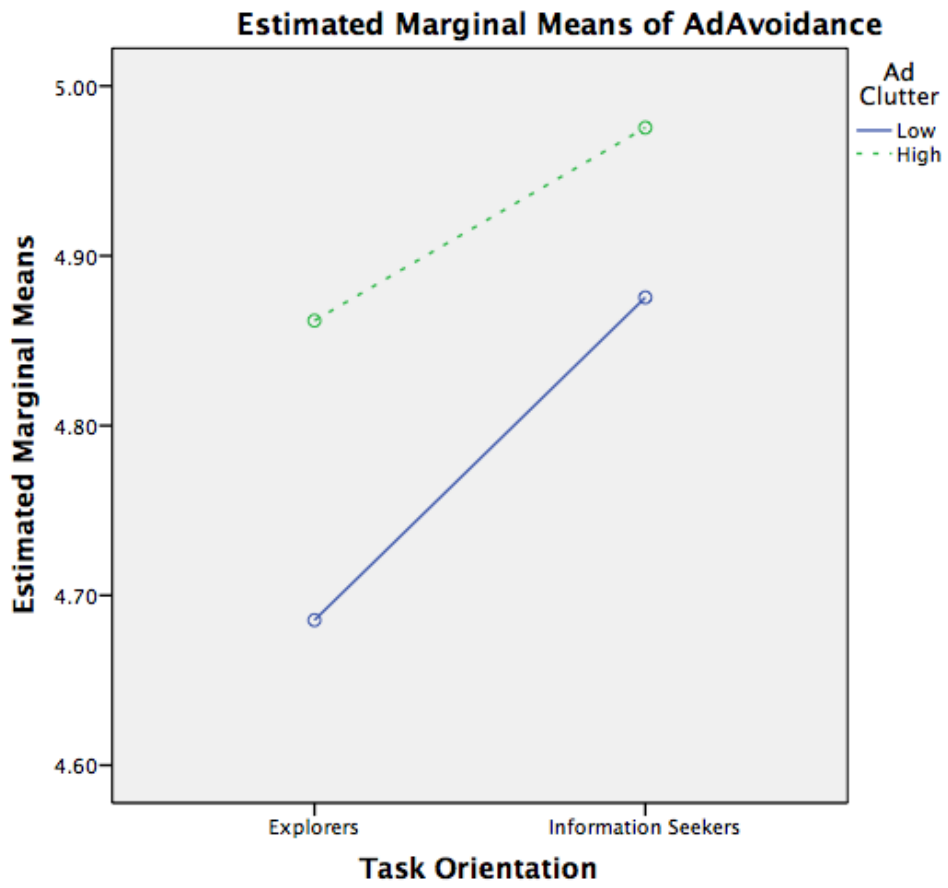


Figure 2. Plots: Means of Advertising Avoidance

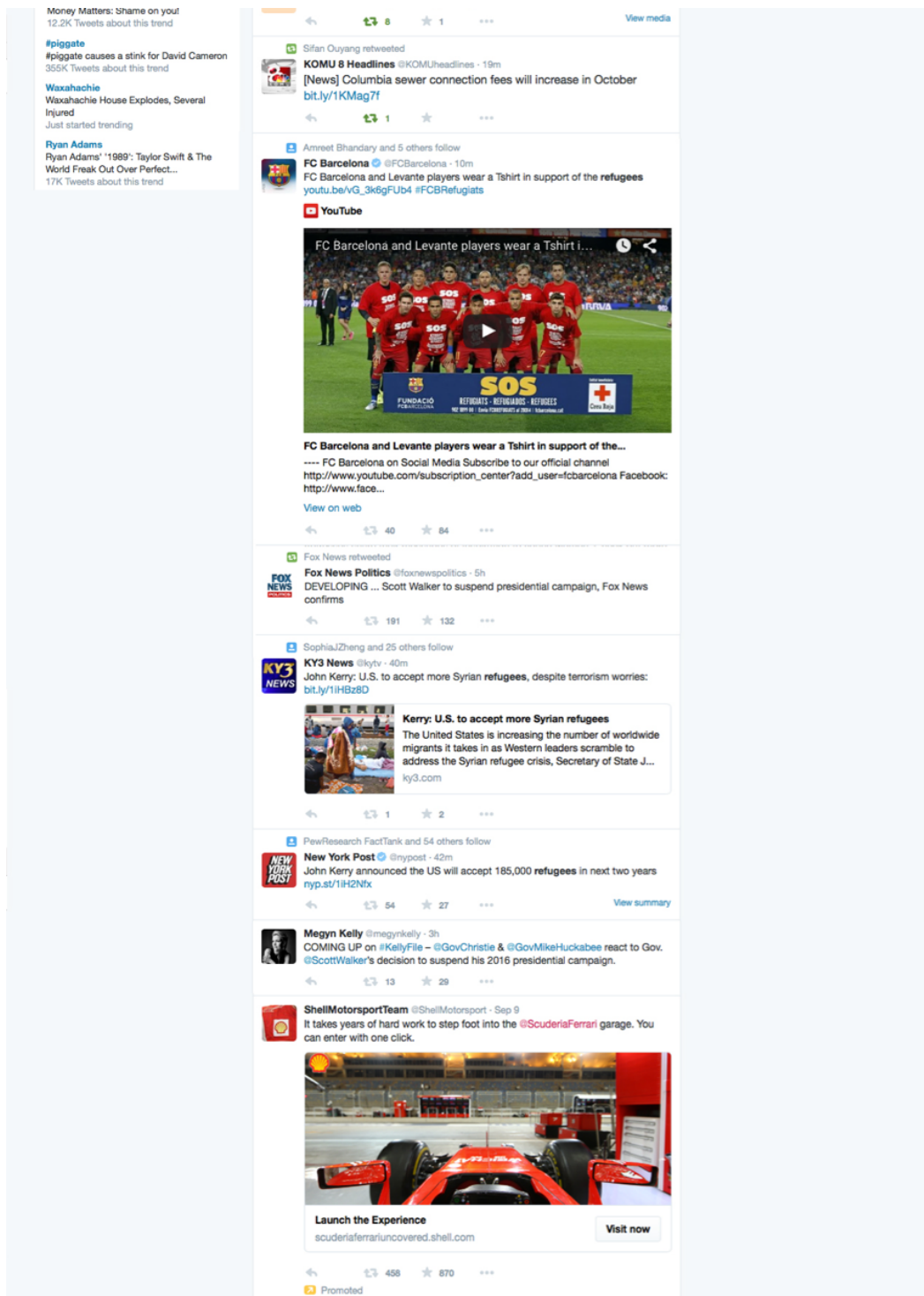


Figure 3. Part of the Twitter feed used in low clutter condition. The breaking news topic presented is “Syrian refugees”. The ratio between promoted tweets and organic tweets is 1:10. A full-size JPG file can be retrieved from the following link: <https://goo.gl/DiZt51>.

0 84 16

Trends · Change
#Oscar2015

Just started trending

#Hamiltunes
Stop Hunger. Start Peace. Donate Today.

#mondaymotivation
12 Ways To Beat The Monday Blues
38.5K Tweets about this trend

#BabyBella
Prosecutor on Baby Bella torment: 'She screamed to be let out'
Just started trending


#piggate
#piggate causes a stink for David Cameron
355K Tweets about this trend

Waxahachie
Waxahachie House Explodes, Several Injured
Just started trending

Ryan Adams
Ryan Adams' '1989': Taylor Swift & The World Freak Out Over Perfect...
17K Tweets about this trend

MADC Magazine @MADC_magazine · 1m
#MADC: Oscar Winners of 2015 (Full List) - See below a full list of winners from the 87th Academy Awards, ... tinyurl.com/dgww7u

Reebok @Reebok · Sep 17
Watch dunk phenom Sir Issac White defy gravity



Pump to Dunk.
fitness.reebok.com **View now**


2 14

The New York Times @nytimes · 5h
Tips for tidying up in a house full of kids nyti.ms/1LGUirF **View summary**

72 132

girls inc. @GirlsIncOC · Feb 27
Academy Awards actresses answer: "What advice do you have for young women?" What would you say? #AskHerMore
youtube.com/watch?v=5vZLmM...

YouTube



Advice To Young Women From The Oscars Red Carpet
Actresses share their messages of inspiration to young women. Check out more awesome BuzzFeedYellow videos! http://bit.ly/YTbuzzfeedyellow MUSIC Remembering ...

View on web


Fox News retweeted

FOX NEWS @foxnews/politics · 5h
DEVELOPING ... Scott Walker to suspend presidential campaign, Fox News confirms

191 132

Walmart @Walmart · Sep 4
Looking for Printers and Scanners? Walmart's great selection and Everyday Low Prices gives you lots of options.

There's an HP printer for everything



Save big on Printers, Scanners and Supplies at Walmart.
walmart.com **Shop now**

5 16

Stephen Higgins @higginsp
Follow

Find friends

Figure 4. Part of the Twitter feed used in high clutter condition. The breaking news topic presented is “The Oscars 2015”. The ratio between promoted tweets and organic tweets is 1:4. A full-size JPG file can be retrieved from the following link: <https://goo.gl/DiZt51>

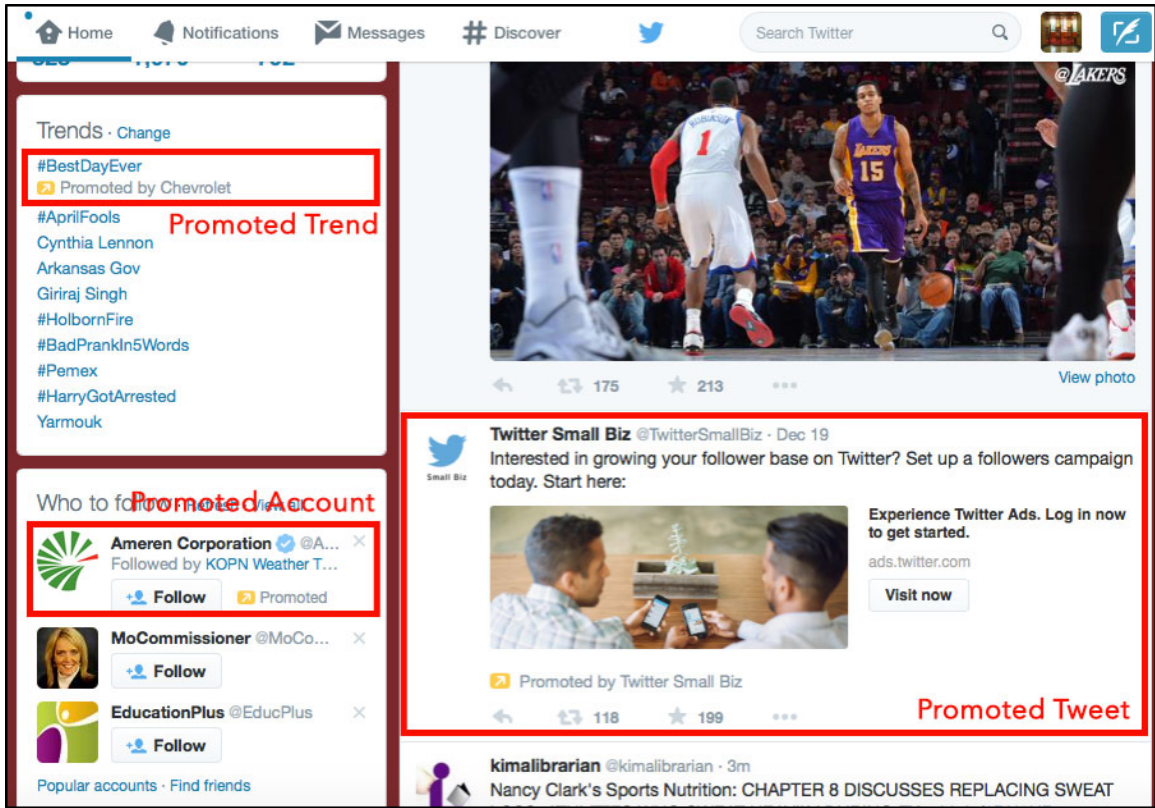


Figure 5. Example of “Promoted Tweet”

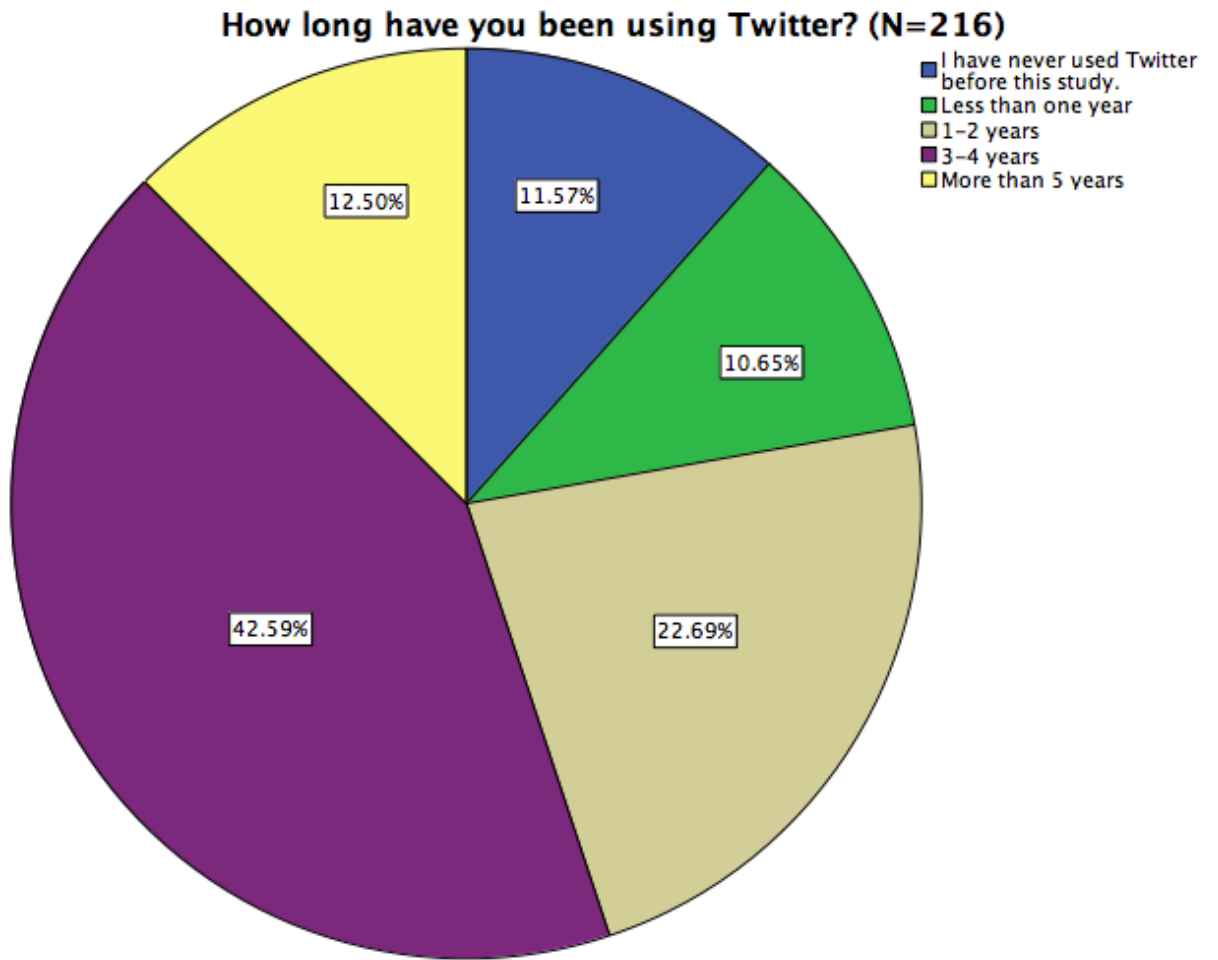


Figure 6. Pie chart: Percentage of Twitter use history.

How do you think of your skill level of using Twitter? (N=216)

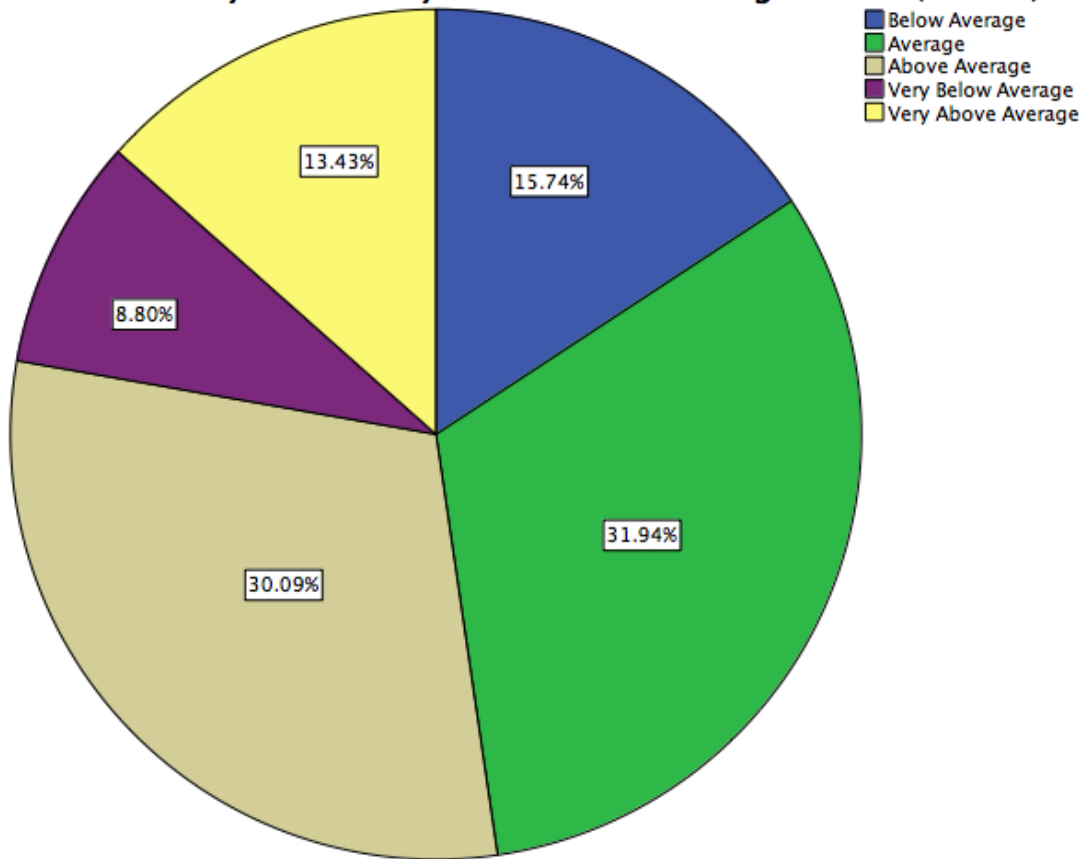


Figure 7. Pie chart: Percentage of Twitter skill

Appendix C: Measurement and Scales

Perceived Intrusiveness Scale

Please indicate your response below to the statement: The Promoted Tweets were...

Disturbing	...1...2...3...4...5...	Not Disturbing
Invasive	...1...2...3...4...5...	Not Invasive
Not Intrusive	...1...2...3...4...5...	Intrusive
Interfering	...1...2...3...4...5...	Not Interfering
Obtrusive	...1...2...3...4...5...	Not Obtrusive
Not Forced	...1...2...3...4...5...	Forced
Not Distracting	...1...2...3...4...5...	Distracting

Advertising Avoidance Scale

While I was reading the Twitter feed, I intentionally avoided looking at any Promoted Tweets.

Strongly Disagree ...1...2...3...4...5...6...7... Strongly Agree

While I was reading the Twitter feed, I intentionally ignored any Promoted Tweets.

Strongly Disagree ...1...2...3...4...5...6...7... Strongly Agree

While I was reading the Twitter feed, I intentionally scrolled past or skipped the Promoted Tweets.

Strongly Disagree ...1...2...3...4...5...6...7... Strongly Agree

While I was reading the Twitter feed, I intentionally stayed on the Promoted Tweets.

Strongly Disagree ...1...2...3...4...5...6...7... Strongly Agree

While I was reading the Twitter feed, I did NOT pay attention to any Promoted Tweets.

Strongly Disagree ...1...2...3...4...5...6...7... Strongly Agree

Manipulation Check for Ad Clutter

I think there were too many Promoted Tweets in the Twitter feed I just read.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

Too much space was devoted to the Promoted Tweets in the Twitter feed I just read.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

I think the Twitter feed I just read was NOT cluttered with Promoted Tweets.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

The Promoted Tweets interrupted my reading of the Twitter feed I just saw.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

I think Twitter should cut down the number of Promoted Tweets in the Twitter feed I just read.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

Manipulation Check for Task Orientation

When I read the Twitter feed just now, I made it my task to look for trending news topic.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

When I read the Twitter feed just now, I had NO particular task in mind.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

Attitude Toward Twitter Feed

The Twitter Feed I just read is...

Good ...1...2...3...4...5... Bad
 Likeable ...1...2...3...4...5... Not Likable
 Not Favorable ...1...2...3...4...5... Favorable

How likely are you to subscribe to this Twitter feed?

Not Likely At All ...1...2...3...4...5... Very Likely

How likely are you to recommend this Twitter feed your friends or family?

Not Likely At All ...1...2...3...4...5... Very Likely

Personal Involvement of Twitter Feed

I personally think the Twitter feed I just read is...

Of No Concern to Me	...1...2...3...4...5...	Of Concern to Me
Not Useful	...1...2...3...4...5...	Useful
Easy to Understand	...1...2...3...4...5...	Not Easy to Understand
Important	...1...2...3...4...5...	Not Important
Interesting	...1...2...3...4...5...	Not Interesting
A Waste of Time	...1...2...3...4...5...	Not a Waste of Time
Appealing	...1...2...3...4...5...	Not Appealing
Helpful	...1...2...3...4...5...	Not Helpful
Informative	...1...2...3...4...5...	Not Informative

Personal Involvement of Promoted Tweets

The Promoted Tweets were...

Of No Concern to Me	...1...2...3...4...5...	Of Concern to Me
Not Useful	...1...2...3...4...5...	Useful
Easy to Understand	...1...2...3...4...5...	Not Easy to Understand
Important	...1...2...3...4...5...	Not Important
Interesting	...1...2...3...4...5...	Not Interesting
A Waste of Time	...1...2...3...4...5...	Not a Waste of Time
Appealing	...1...2...3...4...5...	Not Appealing
Helpful	...1...2...3...4...5...	Not Helpful
Informative	...1...2...3...4...5...	Not Informative

Twitter Use

How many hours PER DAY, on average, do you think you spend on Twitter? (Please type in a numeric value only.) _____ hours.

How long have you been using Twitter?

- I have never used Twitter before this study. (1)
- Less than one year (2)
- 1-2 years (3)
- 3-4 years (4)
- More than 5 years (5)

How do you think of your skill level of using Twitter?

- Very Below Average (4)
- Below Average (1)
- Average (2)
- Above Average (3)
- Very Above Average (5)

I mostly use Twitter to stay on top of the breaking news and trends.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

I mostly use Twitter to look for interesting tweets or funny stories.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

I mostly use Twitter to connect with my friends and family.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

I mostly use Twitter to follow celebrities and famous people.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

I mostly use Twitter to kill time when I am bored.

Strongly Disagree ...1...2...3...4...5... Strongly Agree

Demographic Questions

What is the highest degree or level of education you have received?

- Grade school (1)
- Some College (2)
- Associate's Degree (3)
- Bachelor's Degree (4)
- Master's Degree (5)
- Doctoral Degree (6)
- Professional Degree (7)

Please specify the range of your annual household income:

- \$10,000 or less (1)
- \$10,001 - \$25,000 (2)
- \$25,001- \$45,000 (3)
- \$45,001 - \$60,000 (4)
- \$60,001-\$100,000 (5)
- Above \$100,001 (6)

What's your age? (Please type in a numeric value only.)

___years old

What's your gender?

- Female (1)
- Male (2)
- Prefer not to specify (3)