

An exploration of motives and behavior across Facebook and Twitter

SNS motives and behavior

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Abstract

Purpose – The purpose of this paper is to elaborate on how people navigate the social media ecosystem and how they decide, which social network site (SNS) to use. To this end, the current study draws from uses and gratifications (U&G) theory to elicit and compare motives for the use of Facebook and Twitter and uses behavioral data to examine the findings in the context of technology non-use.

Design/methodology/approach – An online survey was administered to 232 Facebook users and the results were complemented with 12 usage variables collected via the Facebook application programming interface for the same users. Exploratory factor analysis identified and described the motives for using Facebook and Twitter and multiple regression models examined the relationships between the motives for using the two sites. A multivariate analysis of variance and a series of *t*-tests investigated the differences in actual behavior between Twitter users and non-users.

Findings – Results suggest that SNS users will use both sites to gratify their need for information, but will only do so for entertainment that has social characteristics. Furthermore, Facebook users that are more embedded in the site and use the site to support their offline life are more likely to also use Twitter.

Practical implications – The paper includes implications for SNS researchers, designers and managers by highlighting the motivational and behavioral differences between users of the two sites and the importance of technological affordances for understanding and explaining SNS selection.

Originality/value – This study extends previous cross-site U&G and non-use research by combining survey and behavioral data.

Keywords Social network sites, Uses and gratifications, Facebook, Twitter, Media selection, Non-use, Facebook API, Behavioral data, Technology affordances

Paper type Research paper

1. Introduction

Social network sites (SNSs) are very popular and users nowadays have an increasing number of possible options available when selecting the most appropriate service to use and spend their time on. Recent surveys show that 72% of the public uses some type of social media platform (Pew Research Center, 2019), while the median American uses three platforms (Pew Research Center, 2018). This plurality and diversity of available SNSs that compete for people's time and attention increases the complexity of the decision that users have to make to select an appropriate medium to satisfy their needs for communication (Zhao *et al.*, 2016).

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Comprehending this decision process can provide a more accurate understanding of people's behavior across SNSs and has the potential to inform SNS research, design and management. In particular, recent research has argued that understanding how people use multiple SNSs can help bridge the social-technical gap (Ackerman, 2000) by highlighting the discrepancy between social requirements and technical capabilities (Zhao *et al.*, 2016). In other words, the rigidly designed technical systems cannot fully satisfy users' fluid and nuanced social needs, so users engage in the use of multiple SNSs in certain ways. Thus, it is particularly important to study and evaluate social-technical systems in the context of other available systems and technologies.

One well-established approach for studying the media selection process is to posit that users select the most appropriate platform driven by their particular *motives* for use. This is theoretically and empirically grounded in the uses and gratifications (U&G) communication perspective, which asserts that people use media actively, purposefully and strategically to fulfill specific needs (Katz *et al.*, 1973; Papacharissi, 2008; Quan-Haase and Young, 2014). Another common approach is to focus on people's *behavior* to determine how usage patterns of an SNS can affect whether someone will also use a different SNS. In this regard, it is becoming increasingly important to pay attention to people's actual behavior, instead of self-reported behavior or behavioral intentions (Buccafurri *et al.*, 2015; Junco, 2013).

While previous research has typically followed either a motivational or a behavioral approach to studying media selection, this article combines motives and behavioral data and follows a two-pronged analytical approach to study Facebook and Twitter in tandem. First, we elicit the motivations of a broad demographic range of 232 users for using Facebook and Twitter through a survey instrument implemented as a custom Facebook application and explore the relationships between the motivations across sites via three regression models. Second, we complement this information with usage data collected via the Facebook application programming interface (API) for the same users and examine differences in Facebook usage for Twitter users and non-users.

Previous research has attempted to give a picture of the SNS ecosystem by describing platform use (Pew Research Center, 2019) and motivations (Alhabash and Ma, 2017). This article aims to go one step further by focusing on the decision-making process of the individuals and looking both at their motivations and their behavior in a high level of granularity. Taken together, our findings suggest that disentangling the media selection process can benefit from moving beyond single-platform motivational studies and demonstrate the value of examining people's both motivations and usage across sites.

2. Related work

2.1 Using multiple social network sites

As SNSs are very popular and diffused in the population, there is an abundance of single-platform SNS studies. However, researchers have noted a lack of cross-platform studies (Hall *et al.*, 2018; Lampinen, 2016; Zhao *et al.*, 2016), especially in the area of media selection. This is an important oversight, as people take part in a converging media environment where SNSs present functional alternates to each other (Papacharissi, 2008). For example, Zhao *et al.* (2016) make the case for further cross-platform studies when describing the current SNS ecosystem in terms of two tensions that users have to manage when communicating using multiple SNSs; a tension between maintaining boundaries between platforms or allowing content and audience to permeate across these boundaries; and a tension between remaining in a stable SNS ecosystem or taking up new SNSs driven by the emergence of new tools, practices and contacts. In a similar vein, Lampinen (2016) argues that it is necessary to study multiple SNSs together to broaden our understanding of how people use technology for privacy management, identity work and interpersonal relationships.

To understand and explain how users navigate this tense and competitive SNS environment, it can be useful to examine how the selection of features provided by a single SNS “affords” different types of activities (Smock *et al.*, 2011; Trepte *et al.*, 2020; Valenzuela *et al.*, 2018; Vitak and Kim, 2014). Stemming from research in psychology (Gibson, 1979) and taken up by human-computer interaction (Norman, 1999), this *affordance* perspective makes reference to the perceived, actionable properties that are visually suggestive of the nature of user interaction with the medium (Sundar and Limperos, 2013). For example, Facebook affords the ability to organize photographs into albums. In turn, this allows users both to curate their photographs for personal archiving (Richardson and Hessey, 2009; Zhao and Lindley, 2014) and to more carefully and strategically present themselves online (Hogan, 2010; Marder *et al.*, 2011). Recent work focusing on perceived affordances for self-presentation has found significant variation across social media platforms; for example, Facebook was found to afford high levels of identity persistence and high visibility control, thus allowing for more granular management of content and identity, while Twitter was characterized by high perceived content persistence and content association affordances, thus, considered more suitable as a broadcast environment with public visibility (DeVito *et al.*, 2017). Notably, Sundar and Limperos (2013) argue that affordances shape not only how we use a medium but also how we assemble meaning from it and, as a result, how we construct and gratify our needs from it. In other words, affordances affect not only motives for using technology but also our behaviors. Thus, they provide a valuable explanatory framework for the current study, which combines motivational and behavioral data to understand SNS selection.

The current work focuses on Facebook and Twitter because they are two of the most popular SNSs, exhibiting high diffusion among the population and a substantial, partially overlapping set of features. They share enough commonalities to be classified in the same social media category with regard to their level of social presence/media richness and self-presentation/self-disclosure, as defined by Kaplan and Haenlein (2010). At the same time, they exhibit significant differences in the number of available features and complexity of their application and even their original intended use. As it is the aim of this paper to consider how Facebook and Twitter may be used in tandem and to shed light on the implications of this use, it is worth highlighting some functional differences between the platforms. Most notably, Twitter is effectively a microblogging platform that originally limited users’ posts to 140 characters (now 280 characters) and features a streamlined user interface that allows for rapid posting without overpopulating other users’ feeds. Furthermore, it allows users “greater anonymity, which may privilege the content of one’s message over one’s projected identity” (Huberman *et al.*, 2008). On the other hand, Facebook offers a much greater variety of features and a more personal, intimate perspective as users have more complete personal profiles and tend to communicate with people they know personally instead of broadcasting information to the general public.

2.2 Understanding multiple social network site use – the motivational approach

Media are consumed for a wide range of purposes and individuals use different platforms to achieve very different ends (Katz *et al.*, 1973; Smock *et al.*, 2011). Scholars have proposed many theories on how different users make the decision to use different media such as the media richness theory (Daft and Lengel, 1984) and the social processing model (Fulk *et al.*, 1987). However, this work has mainly focused on traditional media and on specific or limited contexts, such as advertising, workplace and virtual groups, with researchers pointing out the inadequacy of these approaches for the study of new media (Gu *et al.*, 2011; Palvia *et al.*, 2011). Crucially, in the area of SNSs, there is an abundance of options available and the

adoption and switching costs are very low. In this case, it becomes particularly important to focus our attention on people's motives for using a platform to understand media selection.

U&G is a media use paradigm from mass communications research that has been used extensively for the study of traditional media, such as newspapers, radio and television, has shown to adapt effectively to newer communication technologies, such as email and the internet (Ruggiero, 2000; Stafford *et al.*, 2004) and has emerged recently as a particularly useful approach for the study of SNSs (Quan-Haase and Young, 2014; Sundar and Limperos, 2013). U&G follows an audience-based approach, grounded theoretically on the assumption that individuals select media and content to fulfill felt needs or wants, with these needs expressed as *motivations* for adopting particular medium use (Katz *et al.*, 1973; Stafford *et al.*, 2004). Krcmar and Strizhakova (2009) have made the case that gratifications for using media may be considered as the first stage of media use and, thus, play a key role in understanding media selection. Quan-Haase and Young (2014) further explain that by treating the media audience as active seekers and users, the U&G perspective provides insights about individual preference and interchangeability of communication channels, and thus, allows for more explanatory power in understanding the contemporary media environment.

As the currently dominant SNS, Facebook has been the subject of extensive U&G research. Notable work on this platform has identified seven unique motives for Facebook use, namely, social connection, shared identities, photographs, content, social investigation, social network surfing and status updating (Joinson, 2008). The same study also found specific motives to be associated with user demographics, site visit patterns and privacy settings. Motives for using Facebook were also linked to social and psychological predispositions, and the production of different forms of social capital (Papacharissi and Mendelson, 2011). Smock *et al.* (2011) studied user motivations associated with the use of specific features of Facebook, while Giannakos *et al.* (2013) found evidence of a more ritualistic use of Facebook expressed as a motive for wasting time. Basak and Calisir (2015) found entertainment and status-seeking to have indirect significant effects on continuance intention to use Facebook, whereas information seeking and self-expression to have insignificant effects. Rae and Lonborg (2015) found that motivations for using Facebook moderated the association between Facebook use and psychological well-being.

Research on motivations for using Twitter has been somewhat sparser. Johnson and Yang (2009) made a distinction between informational and social motives of Twitter use and examined the relationships between gratifications obtained and Twitter usage to find that positive relationships existed only in the case of information gratifications and not the social gratifications. Other work focused on scholars' use of Twitter echoes these findings identifying distinct informational and social U&G (Quan-Haase *et al.*, 2015). Coursaris *et al.* (2013) studied how the motivations for information, relaxation and social interaction showcased the differences between active and inactive Twitter users. Finally, Liu *et al.* (2010) attributed continuance intention to use Twitter to content gratification and new technology gratification.

Although the majority of motivational research has been conducted on single platforms, U&G researchers have recognized that the current media environment requires the study of SNSs across platforms and has strongly argued for cross-platform U&G studies (Papacharissi and Mendelson, 2011). It is also important to note that in addition to navigating the complexity of the media ecosystem, there are theoretical implications for cross-platform U&G studies; as Ruggiero (2000) explains:

[...] a wide range of gratifications have been proposed across single-platform studies, with distinct and diffuse typologies, and this disparity in the literature has made it difficult for scholars to compare research findings and to develop internally coherent theoretical frameworks.

Studying media in cross-platform studies, as opposed to comparing motivations for different media elicited from different single-platform studies, can effectively address this problem.

With the proliferation of SNSs, multi-platform U&G studies are becoming increasingly common. In that respect, studies have found differences in the motivations for using different SNSs in terms of relationship management and development (Quan-Haase and Young, 2010), political information (Johnson and Kaye, 2015), interactions with companies (Ruehl and Ingenhoff, 2015), bonding and bridging social capital (Phua *et al.*, 2017) and entertainment and convenience (Alhabash and Ma, 2017). While this research is helpful for understanding media effects and declared intentions for using different platforms, its practical usefulness for understanding media selection remains limited. This is because the focus is on the motives, while users' behavior is typically treated rather superficially. With this in mind, this study plans to complement the motives stated by participants with an objective, accurate and granular account of their SNS behavior.

Still, research suggests that understanding users' motives can provide useful insights into how people navigate the social media ecosystem and how they decide, which SNS to use and spend their time on. Hence, as the first step of our study, with its overall aim of combining motives with behavioral data, we focus on the following research question:

RQ1. What is the relationship between motivations for using Facebook and motivations for using Twitter for the same users?

2.3 Understanding multiple social network sites use – the behavioral approach

2.3.1 Social network sites usage. Usage of SNSs has most commonly been captured by self-report methods using surveys, with typical questions including time spent on site and visit frequency. In the case of Facebook, researchers acknowledging a lack of rigor in such ad-hoc methods have argued for unbundling media use to its constituent features and presenting it with more than unidimensional measures (Smock *et al.*, 2011). At the same time, SNS research is putting increasing emphasis on the study of specific Facebook features, such as direct communication (Wang *et al.*, 2016), groups (Karnik *et al.*, 2013), photograph sharing (Malik *et al.*, 2016) and Facebook likes (Levordashka *et al.*, 2016). This feature-centric work highlights the affordance perspective by providing an in-depth understanding of specific features, but typically does not study usage across features, thus offering limited insights into media selection.

Furthermore, scholars have identified the need to not only unpack SNS usage into its constituents but also to move away from self-reported measures of user activity altogether in favor of computationally collected usage data. A study comparing self-reported and actual Facebook use (Junco, 2013) found significant discrepancies between the two measures, while network researchers have argued that computationally collected usage data can avoid sources of measurement error that may accompany survey research (Lewis *et al.*, 2008) such as recall bias (Brewer, 2000) and interviewer effects (Paik and Sanchagrin, 2013). This sentiment is echoed by research on information disclosure that has verified a discrepancy between stated privacy attitudes and actual behavior, with researchers suggesting the study of people's behavior in realistic situations instead of lab experiments with self-reported behavioral data (Knijnenburg *et al.*, 2013; Quinn, 2016). Further studies on Facebook have addressed this concern by using the Facebook API to gather broader and more granular data about users' online social activities (Luarn and Chiu, 2015; Rieder, 2013; Spiliotopoulos and Oakley, 2019).

2.3.2 Social network sites use and non-use. Multi-platform SNS studies often perform comparisons on different samples of participants for each platform (Lin and Qiu, 2013; Yu, 2016). Buccafurri *et al.* (2015) have discussed the drawbacks of using this approach to sampling and strongly advocate the use of a common sample when examining behavioral

data computationally extracted from the Web, while U&G research has also started following this recommendation (Alhabash and Ma, 2017). However, to our knowledge, no cross-platform SNS study examines both motivations and behaviors by using a common set of users across platforms. This is particularly important because a common set of users is more likely to provide useful insights into the nuances of media selection than distinct samples for each site.

However, a common set of users can lead to methodological challenges, as not all participants make use of all sites that are being studied, and therefore, the study of non-use of a site needs to be taken into account. Researchers have studied aspects of non-use either for technology in general (Baumer *et al.*, 2015; Satchell and Dourish, 2009) or for a single SNS (Baumer *et al.*, 2013; Lampe *et al.*, 2013). From the perspective of continuance intention, the U&G theory suggests that if individuals perceive the obtained gratifications of a medium to be satisfactory, they will continue their usage and not engage in abandonment or non-use (Krasnova *et al.*, 2017; Ku *et al.*, 2013). Other research has found that previous usage behavior and a network effect (i.e. connections already present on a platform) are the most important determinates of continuance intention (Lin, 2016), suggesting a “stickiness” effect of an SNS or an “inertia” effect for using alternate media. Importantly, self-report studies have suggested that differentiation and richness of features are factors that lead to non-use of SNSs (Grandhi *et al.*, 2019), but this remains to be validated with behavioral data. These findings highlight the importance of studying non-use for understanding media selection and call for more research in this area.

Overall, research suggests using behavioral data and a common sample for the study of SNSs in tandem. Hence, our study also addresses the following research question:

RQ2. How do Twitter users and non-users differ in terms of their behavior on Facebook (i.e. their use of specific Facebook features)?

3. Method

3.1 Procedure

Participants were recruited with a request to complete an online survey and were directed to a comprehensive study description page that clearly framed the survey as an academic study, explained the data collection process, provided the contact details of the researchers and requested participants' consent. The description page contained a link that invited participants to login with their Facebook credentials and access the survey, an action that is equivalent to installing a Facebook application. In addition to our description, Facebook displays all data-access permissions granted to an application during installation, thus ensuring that the participants had a comprehensive account of the data captured by the study. The participants had the choice to opt out of the study at any time. After logging in, participants were directed to a survey capturing demographics and their motivations for using Facebook and were, then, prompted to answer whether they were also Twitter users. If the reply was positive, they were presented with an additional set of questions eliciting their motivations for using Twitter. In the background, a number of metrics about each participant's actual Facebook usage were collected with the use of the publicly available Facebook API.

3.2 Participants

A total of 232 usable responses were collected. Summary statistics are provided in [Table 1](#).

3.3 Measures

3.3.1 Motivations for Facebook and Twitter use. Motivations for using Facebook were measured by presenting participants with a list of 28 statements based on [Joinson \(2008\)](#) and

Characteristic	Group/mean	(%)/SD	SNS motives and behavior
<i>Gender</i>			
Male	126	54.3	
Female	106	45.7	
Age	M = 23.9, median = 20	SD = 8.68	
<i>Location</i>			
USA	94	40.5	
India	70	30.2	
Other (30 different countries)	68	29.3	
<i>Employment status</i>			
Full-time students	174	75	
Employed	51	22	
Unemployed	7	3	
<i>Facebook use</i>			
Multiple times per day	95	40.9	
Daily	97	41.8	
Less often	40	17.2	
Facebook use (mins per day)	M = 78, median = 45	SD = 97.4	
Twitter users	104	44.4	
<i>Twitter use</i>			
Multiple times per day	18	17.3	
Daily	16	15.4	
Less often	70	67.3	
Twitter use (mins per day)	M = 29.1, median = 15	SD = 42.9	

Table 1.
Sample characteristics

asking them to answer “How important are the following uses of Facebook to you personally?” on a seven-point Likert scale from “very unimportant” to “very important.” Similarly, motivations for Twitter use were measured with a set of 15 items from [Johnson and Yang \(2009\)](#) and the question “How important are the following uses of Twitter to you personally?” In this study, we opted not to introduce specific hypotheses about gratifications and their relationships, as we are particularly interested in capturing a broad range of gratifications. Hence, these two studies were selected as they include measurement items from a range of previous U&G studies and, like these studies, we follow an exploratory rather than confirmatory approach in the analysis.

3.3.2 Behavioral data. To capture participants’ usage of Facebook, we accessed 12 variables describing the profile and recent activities on the site for each participant. From the profiles we collected the number of Facebook friends, number of groups joined, number of events attended, number of check-ins made, number of likes (to other pages) given, number of interests/activities mentioned in their profile, number of photographs uploaded, number of photographs tagged in and number of photograph albums created. Regarding recent activity, we collected the number of posts, comments and likes (to other posts and comments) the participant made in the past six months.

4. Results

4.1 Motivations for Facebook and Twitter use

To identify the motives for Facebook use, we conducted an exploratory factor analysis with orthogonal rotation (varimax) on the 28 items corresponding to the Facebook questions. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, $KMO = 0.856$.

This value confirms the sample size as “great” (Field, 2009; Kaiser, 1974) for this analysis. Bartlett’s test of sphericity $\chi^2(378) = 3,491, p < 0.001$, indicated that correlations between items were sufficiently large (Field, 2009). Seven factors were found with eigenvalues over Kaiser’s criterion of 1, explaining in combination 68% of the variance (Table 2). The seven factors exhibited good reliability (Cronbach’s α values ranged from 0.717 to 0.900). A cut-off value of 0.5 for factor loadings led to the exclusion of three items (*using the advanced search to look for specific types of people, receiving a friend request and meeting new people*) that did not load highly on a factor or loaded highly on two or more factors.

To identify the motives for Twitter use, we conducted another exploratory factor analysis with orthogonal rotation (varimax) on the 15 items corresponding to the Twitter questions. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = 0.845. This value confirms the sample size as “great” (Field, 2009; Kaiser, 1974) for this analysis. Bartlett’s test of sphericity $\chi^2(105) = 784.32, p < 0.001$, indicated

Items	Mean	SD	Factor loadings
<i>Entertainment/content ($\alpha = 0.886$)</i>			
Applications within Facebook	2.58	1.79	0.856
Playing games	2.05	1.72	0.826
Discovering apps because you see friends have added them	2.20	1.60	0.817
Quizzes	2.14	1.58	0.782
<i>Photographs ($\alpha = 0.876$)</i>			
Being tagged in photographs	3.57	1.95	0.861
Tagging photographs	3.29	1.87	0.836
Sharing/posting photographs	4.32	1.85	0.756
Viewing photographs	4.88	1.58	0.652
<i>Social network surfing ($\alpha = 0.900$)</i>			
Looking at the profiles of people you don’t know	2.70	1.90	0.823
Viewing other people’s friends	2.94	1.84	0.815
Browsing your friends’ friends	2.93	1.83	0.775
<i>Social connection ($\alpha = 0.788$)</i>			
Connecting with people you otherwise would have lost contact with	5.19	1.54	0.772
Reconnecting with people you’ve lost contact with	4.90	1.71	0.738
Finding people you haven’t seen for a while	4.81	1.54	0.715
Finding out what old friends are doing now	4.56	1.58	0.626
Maintaining relationships with people you may not get to see very often	5.60	1.42	0.564
Contacting friends who are away from home	5.65	1.47	0.551
<i>Shared identities ($\alpha = 0.769$)</i>			
Organizing or joining events	3.69	1.92	0.815
Joining groups	3.15	1.83	0.799
Communication with likeminded people	3.86	1.98	0.692
<i>Status updates ($\alpha = 0.785$)</i>			
Seeing what people have put as their status	4.41	1.76	0.760
The newsfeed	5.00	1.77	0.688
Updating your own status	4.13	1.95	0.577
<i>Social investigation ($\alpha = 0.717$)</i>			
Virtual people-watching	2.96	1.96	0.749
Stalking other people	2.63	1.96	0.677

Table 2.
Summary of factors
and individual items
describing motives
for Facebook use

Note: The factors are ordered based on variance explained

that correlations between items were sufficiently large (Field, 2009). Three factors were found with eigenvalues over Kaiser’s criterion of 1, explaining in combination 63.6% of the variance (Table 3). The three factors exhibited very good reliability (Cronbach’s α values ranged from 0.805 to 0.865). A cut-off value of 0.5 for factor loadings led to the exclusion of one item, *seeing what others are up to*, that loaded highly on two factors, *social* and *entertainment* motives.

4.2 Relationships between motivations for Facebook use and Twitter use

To understand the relationships between motivations for Facebook use and Twitter use, three multiple regressions (forced entry method) were conducted with the three Twitter motives (i.e. the factor scores for each participant) as the dependent variables and the seven Facebook motives as the predictors. Examination of collinearity diagnostics for the predictors showed Variance Inflation Factor (VIF) values well below 10 and the tolerance statistics well above 0.2, indicating no multicollinearity in the data (Field, 2009). All three models were significant (Table 4).

4.3 Differences in Facebook behavior between Twitter users and non-users

A multivariate analysis of variance (MANOVA) was performed to investigate the differences between Facebook-only users and users of both platforms across the variables collected by the Facebook API. The MANOVA test revealed a statistically significant multivariate effect, Hotelling’s trace $T = 0.171$, $F(12, 219) = 3.12$, $p < 0.001$, partial eta squared = 0.146, observed power = 0.993. Follow-up t-tests comparing the means of the 12 variables collected via the Facebook API for both groups found that Twitter users had substantially more Facebook *friends* ($M = 616.3$, $SE = 43.96$) than Twitter non-users ($M = 393.5$, $SE = 25.03$), $t(165.05) = 4.403$, $p < 0.001$, $r = 0.32$. Twitter users also attended more Facebook *events* ($M = 1.728$, $SE = 0.277$) than Twitter non-users ($M = 1.085$, $SE = 0.144$), $t(155.59) = 2.061$, $p < 0.05$, $r = 0.16$. Furthermore, Twitter users made more *check-ins* to locations ($M = 4.272$,

Items	Mean	SD	Factor loadings
<i>Social</i> ($\alpha = 0.856$)			
Meeting new people	3.17	2.02	0.785
Participating in discussions	3.18	1.80	0.732
Communicating with many people at the same time	4.12	2.02	0.694
Keeping in touch with friends or family	3.24	2.13	0.680
Communicating more easily	4.23	1.98	0.608
Expressing yourself freely	4.63	2.06	0.585
Giving or receiving advice	3.31	1.95	0.557
<i>Entertainment</i> ($\alpha = 0.865$)			
Passing the time	4.38	2.17	0.886
Being entertained	4.85	1.98	0.866
Having fun	4.20	1.96	0.788
Relaxing	3.79	1.80	0.634
<i>Information</i> ($\alpha = 0.805$)			
Learning interesting things	5.16	1.64	0.841
Getting information (facts, links, news, knowledge and ideas)	5.39	1.71	0.813
Sharing information with others (facts, links, news, knowledge and ideas)	4.91	1.98	0.812

Table 3. Summary of factors and individual items describing motives for Twitter use

Note: The factors are ordered based on variance explained

$SE = 0.780$) than Twitter non-users ($M = 1.690, SE = 0.391$), $t(152.14) = 2.959, p < 0.01, r = 0.23$. The other activity variables were not found to be significantly different between the two groups. Figure 1 shows the differences in the means of the 12 variables for both groups. Preliminary analysis (not shown) of the data found no statistically significant differences between the two groups in terms of demographics (age, gender, nationality and student status).

5. Discussion

5.1 Explaining the interplay between motivations for Facebook use and Twitter use

The exploratory factor analysis conducted on the answers to the set of Facebook questions yielded seven factors, corresponding to motives for Facebook use, which are generally in

Table 4. Multiple regression models showing the relationship between motives for using Facebook and motives for using Twitter

Motives for Facebook use	Motives for Twitter use		
	Social	Entertainment	Information
Entertainment/content	0.34***	-0.06	0.14
Photographs	0.10	0.34***	-0.16
Social network surfing	0.38***	-0.12	0.11
Social connection	0.12	0.10	-0.07
Shared identities	0.04	-0.36***	0.15
Status updates	0.02	0.17*	0.22*
Social investigation	-0.21*	0.24**	0.09
Intercept	-0.02	0.04	-0.02
Model significance (F -value)	6.57***	7.54***	2.13*
R^2	0.33	0.38	0.14

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. β coefficients are standardized

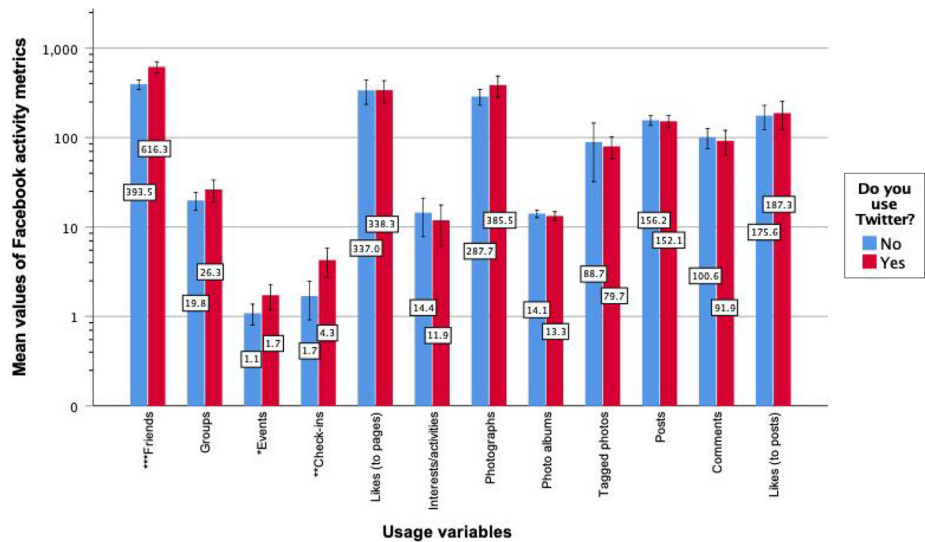


Figure 1. Mean differences in the Facebook activity data (log scale) between users and non-users of Twitter

Notes: Starred variable names indicate statistically significant differences (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed). Error bars indicate 95% confidence interval

line with those identified by [Joinson \(2008\)](#). Interestingly, the results of the analysis conducted on the answers to the Twitter questions did not fully reflect the results of the study of [Johnson and Yang \(2009\)](#) whose items were used in the study. In particular, while only one item was discarded, our analysis suggests the existence of an additional motive, *entertainment*, to the two already identified ones, *social* and *information* motives. This type of apparent divergence is not uncommon as U&G is an exploratory approach, rather than a confirmatory one and can be attributed to possible differences in the sample and recruiting procedure (e.g. 90% of the Johnson and Young study sample came from the USA) or even changes to people's perception and use of a medium over time. For instance, [Coursaris et al. \(2010\)](#) also identified three motives for Twitter use, namely, *social interaction*, *information* and *relaxation* in the place of entertainment. Nevertheless, the examination of the items and their interpretation into factors clearly support the motives identified in the current study.

The three regression models reveal a noteworthy mix of complementary and antagonistic motivations for using the two SNSs. The Facebook *entertainment/content* motivation, which includes the only Facebook items in the study that are conceivably not social ([Giannakos et al., 2013](#)), namely, using applications, playing games and doing quizzes, is a positive predictor for the Twitter *social* motivation. Interestingly, the motivation for using these apps, games and quizzes is not associated with Twitter *entertainment* motivation, suggesting that, at least as entertainment is concerned, social media users may prefer to focus on a single medium to gratify this need. The *social* Twitter motive is also positively predicted by *social network surfing* and negatively predicted by the *social investigation* Facebook motive. This finding has two important implications. First, it highlights the differences between these two Facebook motives; *social network surfing* is more focused on investigating people one is not currently a friend with on the site, while the *social investigation* motive has more emphasis on the surveillance of people one is already acquainted with and has possibly befriended on the service. It is worth noting here that the composition of the *social investigation* factor in our study is slightly different to the one from [Joinson \(2008\)](#), suggesting a deeper surveillance aspect of this factor and resulting in more emphasis to social browsing and less to social searching as described by [Lampe et al. \(2006\)](#). The second implication of this association of the Twitter *social* motive with the two Facebook motives concerns the affordances of the two sites ([Utz et al., 2015](#); [Vitak and Kim, 2014](#)). Facebook's richer and more structured content allows for a level of surveillance that is deeper than what Twitter allows. So, the deeper level of surveillance that characterizes the *social investigation* motive is not afforded by Twitter, but the more superficial level described in the *social network surfing* motive is.

The *entertainment* motive for using Twitter is positively predicted by the *photographs*, the *status updates* and the *social investigation* Facebook motives, while it is negatively associated with people primarily motivated by *shared identities* on Facebook. While the factor analysis grouped several items thematically under the motive of *photographs*, further examination of the constituent items of this factor suggests that this umbrella term contains a more nuanced account of people's motives. Posting and sharing photographs on Facebook is a predominantly social activity that has been associated with a diverse set of gratifications ([Malik et al., 2016](#)), while a study focusing on photo-tagging on Facebook has also identified a number of gratifications with entertainment being specifically identified as one of them ([Dhir et al., 2017](#)). Moreover, viewing Facebook photographs can have an entertainment element, either when interpreted as "light" surveillance when browsing photographs in one's newsfeed that their friends have posted or when interpreted as a "deeper" form of surveillance when people engage in virtual people-watching and stalking

other people as it is also described in the *social investigation* factor. The *status update* motive, primarily concerned with one's newsfeed and their friends' timelines, may also exhibit distinct entertainment value, especially when considering how the Twitter *entertainment* factor is described by its constituent items; viewing updates, links, check-ins and photographs from one's friends and pages they follow can lead to passing the time, relaxing, having fun and generally being entertained. This finding reflects the dimension of entertainment gratified through browsing the Facebook newsfeed that has been identified in previous research (Lin and Utz, 2015), describes that a similar mechanism may be at play in Twitter and, through the positive correlation found, implies that this specific dimension of entertainment acts in a complementary manner for the two sites, i.e. that users will aim to gratify this entertainment need through both Facebook and Twitter.

The *shared identities* motive is primarily involved with Facebook features that are not available on Twitter, such as organizing and joining events and groups. The fact that it is associated with only one Twitter motive and that association is negative, is another indication that users interested in a specific feature or use of an SNS will make a selection to use that SNS at the expense of a possible alternate that lacks that feature, further highlighting the importance of technological affordances for explaining SNS use.

The *information* Twitter motive is predicted by only one Facebook motive, *status updates* and this is a positive association. The examination of the constituent items reveals a clear parallel between the two factors. Learning interesting things, getting information and sharing information with others on Twitter are very similar activities to seeing what other people have shared on their timelines, browsing or curating the newsfeed and updating one's status on Facebook. This positive association between two similar motives on two different services indicates a complementarity. This complementarity suggests that the motive of *information* is so strong that overcomes the negative effects that information overload can have on usage (Koroleva et al., 2010) and is in line with research demonstrating that, at least in some contexts, information seekers use multiple sources in the process of acquiring information (Rains and Ruppel, 2016). Furthermore, this artifact may be an indication that individual information filtering tools such as the Facebook newsfeed, have mitigated the effect of information overload (Chen et al., 2009). This finding may also be an indication of online social compartmentalization (Wilken, 2015; Zhao et al., 2016); aiming at more effective identity management (Frederic and Woodrow, 2012) or driven by concerns of context collapse (Marwick and Boyd, 2010), one's Facebook connections may be substantially and qualitatively different to their Twitter connections, so it makes sense to receive information from both. Another explanation of this information complementarity may reflect inherently different types of information that users are looking for on Facebook and Twitter; for instance, outside the realms of friends and family, while the same portion of users has reported getting news from both sites, the proportion of users following breaking news on Twitter is nearly twice as high as those who say they do so on Facebook (Pew Research Center, 2015). Besides receiving information, these two motives comprise items that refer to sharing information with others. In this regard, this positive association between the two motives echoes research on personal content sharing, which suggests that SNS users may combine multiple channels to create composite sharing features (Sleeper et al., 2016).

It is worth noting that in the current study we opted to elicit different sets of motivations for the two platforms, instead of assuming that users have the same motivations for using the SNSs in varying degrees of importance. Although this does not allow for a direct comparison between the motivations for using the two platforms (e.g. by comparing their mean values), our approach is arguably more in line with the exploratory nature of the U&G framework. The main benefit of our approach is that it encourages and facilitates the

expression of the unique motivations for each platform based on their individual features and characteristics (Alhabash and Ma, 2017). For instance, the general need for sociality can be gratified with different motivations for Facebook and Twitter or the items that make up the entertainment motivations point to subtle differences into how the two sites gratify the need for entertainment. Another advantage of eliciting different sets of motivations for each platform is that we remove any potential test-retest effect pertaining to the way participants respond to the questions, as different questions are being used for each platform (Alhabash and Ma, 2017). Finally, expecting exactly the same motivations to be present in multiple platforms may be subject to certain validity concerns; for example, Jordan (2018) points out the difficulties in constructing a sample that is simultaneously representative of all the platforms involved in multi-platform studies, something that would typically be necessary when drawing comparisons for the same motivations.

5.2 Social network sites non-use through the lens of media selection

Our tests comparing Twitter users and non-users revealed that having a high number of Facebook friends is associated with having a Twitter account. In fact, in our sample, Twitter users had 223 more Facebook friends than non-users on average (616 versus 393 friends). This indicates that, at least with regard to the number of friends, the two SNSs are not competitive, but instead complementary, i.e. the friends one has on Facebook may be different to their followers on Twitter. An alternate reading of this finding can be that a third confounding factor affects both variables. This factor may be a primarily demographic or psychological antecedent such as overall affinity with technology or general extraversion. Although previous research clearly suggests that the number of friends one has on a specific SNS is a strong predictor of how likely they are to join (Zafarani and Liu, 2014) or to continue using it (Lin, 2016), our data show that this does not prevent them from joining other sites.

On average, Twitter users attended substantially more Facebook events (1.728 versus 1.085) and used Facebook to check-in to locations more than twice more often compared to non-users (4.272 versus 1.690). Interestingly, both of these activities represent functionality that is not available on Twitter. A simple approach to media selection theory would suggest that Twitter users interested in these activities would select to also use Facebook to have access to them and that their decision process would explain this artifact. It is also plausible that this finding may be attributed to a personal antecedent, such as affinity with technology or self-efficacy, i.e. more technologically inclined people will feel more comfortable both in using many SNSs and taking full advantage of their functionality (Bright *et al.*, 2015). These features also represent an *offline* dimension of social media, as they both refer to activities that take place offline. Importantly, this finding also highlights the importance of introducing behavioral data in U&G studies. Facebook events and check-ins would be outcomes associated with the *shared identities* Facebook motive as identified by Joinson (2008). Thus, Facebook users will aim to connect to, communicate and meet with “like-minded people” by participating in (or declaring their interest to) certain events and visiting (or declaring their endorsement to) particular places. However, the *shared identities* motive was not associated positively with any motive for using Twitter and was, in fact, a negative predictor for one of the Twitter motives. In our study, this suggests that although Twitter users report to not be particularly interested in gratifying the need to connect with like-minded people, their behavior when using Facebook clearly suggests that they are.

The underlying assumption of this analysis has been that non-use of an SNS is because of someone’s explicit choice. Although Satchell and Dourish (2009) note *lagging adoption* as the most common form of non-use, we argue that the popularity of the two studied SNSs and the fact that our sample of Twitter non-users is comprising people who are Facebook users

minimizes the influence of lagging adopters, i.e. people who simply have not *yet* adopted a technology. Rather, the type of Twitter non-use in our study is more akin to what [Baumer et al. \(2013\)](#) describe in their research; people who do not use the site, have no intention of joining and provide well-reasoned explanations for their non-use.

Unpacking user activity into its constituents and taking advantage of the full wealth of data that can be collected programatically via the Facebook API was deemed more appropriate for a cross-platform study because the breadth of the data enabled us to unearth specific nuances of use. In particular, we were able to collect 12 usage metrics and find meaningful differences in their use between the groups of Twitter users and non-users for three of them. This provided insights that would not have been possible by using a unidimensional measure of SNS use such as time spent on site. Furthermore, this data collection method has been important in extracting more clear and valid insights, as computationally collected behavioral usage data are more objective, granular and accurate than self-reports of usage ([Junco, 2013](#)). Importantly, this is particularly useful for the study of media selection. While many social media researchers have advocated the use of behavioral data for studying SNS use, using behavioral data to understand non-use can lead to novel insights into media selection by differentiating between what constitutes a *preference* and a *choice* ([Knobloch–Westerwick, 2014](#)).

6. Implications

6.1 Implications for researchers

The findings from this study provide useful insights to SNS researchers interested in media selection as they expose and highlight specific details of the mechanics of SNS selection. Although previous research has used either a motivational or a behavioral approach to describe and explain how people use multiple SNSs, the current paper extends U&G scholarship by combining survey and computational data. This way, we identified connections between motivations for using the two sites that help highlight nuances in these motivations and we have illustrated how the different affordances of the two sites inform the mechanics of the decision process of media selection. In particular, our analysis revealed both antagonistic and complementary use of the two sites based on different motives and we found that six out of the seven Facebook motives emerged as statistically significant positive or negative predictors of Twitter motives. For example, our results show that SNS users will use both sites to gratify their need for information, but will only do so for entertainment that has social characteristics. Furthermore, we showed how specific affordances of Facebook can affect whether one is also a Twitter user. In particular, we found specific Facebook features (check-ins, events and size of the personal network) that differentiate Twitter users and non-users. These findings suggest that disentangling the media selection process in the current converging social media environment can benefit from moving beyond specific media-centric motivational studies and examine both people's motivations and usage across SNSs.

While the current body of research on SNS non-use focuses on single sites, this study informs non-use theory by studying non-use in conjunction with usage of another site, thus providing much-needed context and addressing a long-standing limitation of the non-use literature ([Lampe et al., 2013](#)). Furthermore, the use of a common sample and behavioral data for describing usage and non-use reinforces the assumption that any findings are because of people's explicit choices of media instead of other parameters ([Knobloch–Westerwick, 2014](#)). Researchers with a focus on adoption or continuance intention of technology should consider the study of non-use of technology in the context of the relevant ecosystem of technologies, preferably with the use of common samples and behavioral data.

Following methodologically from research that has found discrepancies between self-reported and actual Facebook use ([Junco, 2013](#)), as well as discrepancies between stated privacy attitudes and actual behavior ([Taddicken, 2014](#)), this study went beyond the single measure of self-

reported usage that is the norm in U&G studies and computationally collected a range of Facebook activity variables. The wide diversity and granularity of the API-collected data allowed detailed comparisons between the two groups in our sample and resulted in unearthing meaningful and specific connections that would have probably remained hidden had self-report measures been used. Social media researchers would be encouraged to consider taking advantage of computational methods for collecting data whenever available.

6.2 Implications for practitioners

Overall, we found evidence that users interested in a specific feature or use of an SNS will make a clear selection to use that SNS at the expense of a possible alternate that lacks that feature. However, if similar functionality is available in multiple services, in some cases users will use those features in only a single SNS, while in other cases they will combine sites. More specifically, our findings show that users will use both Facebook and Twitter to gratify a need for entertainment when there is a social element to it, but will not hesitate to focus on a single medium to gratify a need for entertainment when this is not particularly social (e.g. playing games, using applications and doing quizzes). This suggests that entertainment through SNSs is not monolithic and there is a need for future studies to unpack this concept at least in its social and private constituents, if not along more dimensions. This finding is important for designers and SNS providers who should plan to target their users with more differentiated types of entertainment. The current study also highlights the differences between the social network surfing and the social investigation Facebook motives by exposing a relationship of opposite direction between each of them and the Twitter social motivation. The implication of this is that people interested in “lighter” surveillance will use both sites to achieve it, while Facebook users interested in “deeper” surveillance are not motivated to use Twitter. Reflecting back on the affordances perspective, the provision of deeper surveillance features from Facebook can be a driver for adopting and using the site. Another finding suggests that SNS users will seek to gratify their need for information from both sites. This indicates that there is room for information-focused services in the current SNS ecosystem; new services providing high-quality or domain-specific information and news may act complementarily to the currently established SNSs. Furthermore, information providers should also keep in mind that people combine SNSs to gratify their information needs, something particularly significant as previous research has shown that exposure to multiple sources can be more important than multiple exposures from the same source (González-Bailón *et al.*, 2011).

Finally, adding to previous research that suggests that a network factor is a significant contributor to the “stickiness” of an SNS (Lin and Bhattacharjee, 2008; Lin, 2016), we found that this relationship can be more complex. Our findings show that Facebook users that are more embedded in the site (i.e. have more friends) are significantly more likely to also have a Twitter account. Although “critical mass” has long been recognized as a key factor in media acceptance and selection (Markus, 1987), our study suggests that, in the current social media ecology, the network externalities that characterize the critical mass mechanic and the “stickiness” to a site do not necessarily prevent users from joining another site. We also found that users of features that are more particular to Facebook and are related to an offline dimension such as check-ins and Facebook events were more likely to own a Twitter account. This complementarity corroborates the argument that people do not hesitate to use multiple SNSs to fulfill different goals, thus putting the service loyalty perspective (Shankar *et al.*, 2003) into question and suggesting that it is now meaningful to consider media use in a feature-specific, instead of a medium-specific, manner. It may be the case that the low barrier

of entry to SNSs and the low cost of switching should prompt a rethinking of these concepts of media adoption and continuance intention.

7. Limitations

The reported research sets a starting point for exploring motivations and behaviors for using multiple SNSs but focuses on only two sites – albeit two of the most popular ones currently. Clearly, the inclusion of more social media platforms can paint a more complete picture of media selection in the social media ecosystem. It should be noted, however, that inclusion of more SNSs would bring new challenges with regard to participant recruiting and sampling. In particular, this study opted to use a single set of users instead of performing comparisons on different samples of participants for each platform. This means that including more platforms would lead to a significantly biased sample, i.e. only participants that use three or more SNSs would be included in the study. Limiting the study to two of the most popular and influential platforms addresses this issue and provides a more representative sample. This, in turn, provides a clearer picture of the specific mechanics of media selection and can inform further research into more platforms.

Regarding our data collection approach, it is worth mentioning that researchers have lately started raising concerns about the quality of the API-collected data (Hogan, 2018; Lomborg and Bechmann, 2014). In the case of this study, for example, recent changes to the Facebook API mean that some variables may be replaced, merged or even completely deprecated, and therefore, it is possible that these kinds of studies cannot be replicated with high accuracy. Finally, even though we attempted to respect and accommodate users' privacy concerns, it is apparent that our sample is subject to self-selection bias; not only participants self-selected to be included in the study but also they had to install a custom Facebook application and agree to offer some of their profile and activity data.

8. Conclusion and future directions

In the current media environment where SNSs constantly compete for people's attention and time, users select the most appropriate site driven by their particular motives for use. This study used the U&G theoretical and analytical framework to examine the underlying mechanics of media selection. Toward this end, we elicited the motives for using Facebook and Twitter for the same users and explored the relationships between the two sets of motives. Then, we complemented these findings with a range of behavioral data from the Facebook API. Taken together, both motivations and usage styles accounted for nuances in the media selection process and this triangulation of approaches provided significant explanatory value. Our results suggest that SNS users will use both sites to gratify their need for information, but will only do so for entertainment that has social characteristics. We also find that Facebook users that are more embedded in the site and use the site to support their offline life are more likely to also use Twitter.

Overall, our findings suggest that disentangling the media selection process can benefit from moving beyond single-platform motivational studies and examine people's motivations and usage across sites. As the SNS ecosystem becomes increasingly complex and a bigger part of our lives, we see the need for studies on media selection to combine motivational and behavioral aspects for the study of additional SNS platforms, as well as other emerging communication technologies such as virtual reality. Future work may also decide to drill down to the study of specific features of SNSs, such Facebook groups and fan pages. While the Facebook API presented an excellent platform for data collection in our study, recent changes to the Facebook API and the APIs of other SNSs (Hogan, 2018), lack of control of APIs and several other concerns that researchers have expressed about API data

(Lomborg and Bechmann, 2014; Snodgrass and Soon, 2019) may lead future studies to use alternate computational methods of data collection such as other forms of data mining, Web crawling or log data where they may be available. It is worth noting, however, that such alternate methods of data collection bring new challenges in terms of ethics, privacy and legal compliance; for instance, Freelon (2018) refers to a post-API age of computational research, where adherence to a platform's terms of service constitutes a major challenge for researchers. We expect that work that further explores and investigates the topics unearthed by this research will continue to refine our understanding of SNS use and media selection.

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