

A Survey About Media Content Consumption in Social Network Platforms

José Coelho Gonçalo Gomes Eduardo Matos Carlos Duarte
LaSIGE, Faculdade de Ciências da Universidade de Lisboa
Campo Grande, Lisboa
{jcoelho, ggomes, ematos, cad}@lasige.fc.ul.pt

Abstract

Social networks have become a pervasive instrument of information consumption and production. With their growing availability, they have become ubiquitous tools to share and consume information in many different content formats. In this paper, we survey how the different content formats and their sources influence social network's usage. The results show that the importance of different media types is perceived differently depending on whether users are producing or consuming media. They also show that different sources of content are given different importance by Facebook users, and that sources also impact the importance of the media type of the information consumed.

Keywords

Facebook, media consumption, sharing, survey, social networks, groups.

1. INTRODUCTION

Social networks continue to play an increasingly important part in many people's lives. Studies showed the existence of a massive 1.43 billion social network users in 2012, representing a 19.2 percent increase over 2011 numbers [Arno12]. Social networking is a concept within which users interact with each other to build social ties, representing a social graph [Sang12]. The way people share and access information has also been revolutionized, since nowadays users typically interact with one another using social communities, also known as Social Network Platforms (SNPs) [Reymann08][Bakshy12]. Social interactions [Wilson09] usually comprehend a range of performed behaviors. Such behaviors were initially focused on the establishment of new ties, but nowadays SNPs are already used for a wider range of purposes, such as watching the newsfeed, creating events, posting media content, or even posting photos or other personal content [Gomes11].

One example of the significance of this trend is that Facebook became a major portal for users to share YouTube videos since it made that possibility available in 2007 [Li12]. Latest statistics released by Unruly Media [Lake11] reveal that a considerable percentage (about 40%) of YouTube video views, occur via Facebook and that the total number of videos shared among Facebook users has also risen to 58,6 million as of January 2011 [Lake11][Li12]. Nowadays, Facebook has already a great support for media content sharing over the social platform itself, providing useful access for anyone that is somehow related to the source user, and wants to interact with that content or simply see information about it.

With the growing number of SNPs users, arises the necessity of providing some contact management strategies. Facebook, for instance, provides filtered access to all the information that is related with a specific list within the user's social graph, through intelligent lists [Camara12] – Friend Lists (FL) automatically created and pre-filled based on users and their contacts profiles information. Other well-known SNPs – Google+ and Twitter – have their features to provide support for group of members of a user's social network. Google+ uses group circles in order to group contacts within the users' rationale. Twitter has also support for list grouping, this being one of the most used features of this SNP.

Camara et al. [Camara12] conducted a quantitative study about contact management in Facebook. Their goal was to explore users' needs such that their recommendations could be used in order to hypothetically improve the contact management user interface and task. Results showed that they focused on the most relevant groups that were created by the users – “family”, “friends”, “studies”, “work”, “places” and “privacy control”. Recommendations obtained from the tests have shown that regarding the existent predefined lists on Facebook, five of them should be presented: “family”, “friends”, “studies”, “work” and “other”. Other recommendations regarding the remaining lists were obtained, namely for personalized and adaptive lists. Since a large number of them are mostly related to places, studies and work and probably represent important entities for users, their suggestion was to automatically propose Friend Lists that were somehow related or correspondent to cities in which a user's institutions are located. Moreover, they also pro-

posed that that contact management UI supported personalized lists creation and allowed control over the automatically created ones [Camara12]. Still, their focus was solely to understand which of the existing Facebook lists the users considered the most important ones. Jones et al. [Jones10] investigated several users' rationales when grouping their contacts for the main purpose of controlling their privacy. The study has found six criteria (Social Circles, Tie Strength, Temporal Episodes, Geographical Locations, Functional Roles and Organizational Boundaries) that those users commonly consider. They have found that the similarity between the groups created by people are extremely dependent both on the composition of the groups themselves, and on the type of groups that are being created. Even though their study has proven some important concepts about contact grouping and group usage, the authors have only focused their efforts on privacy concerns.

It is worth noticing that although several efforts have been made regarding users' group management, all these studies lack one particular perspective – media content visualization grouped by lists or groups. This can be an important information if we consider that several users focus their attention on content visualization [Papadopoulos10], and that content can be grouped using some existing structures [Rabbath11][Camara12].

To suppress that lack of perspective, we conducted a survey of 148 Facebook users. Our main goal with this study was to characterize users' behaviors regarding three concepts: the importance of shared or consumed media content; how relevant is the source of media content for the users; and how is the content's relevance influenced by its source.

2. SURVERY OF MEDIA USE ON FACEBOOK

In order to characterize media consumption and sharing on a social network site, we have surveyed Facebook users. Survey invitations were disseminated via Facebook, to try to sample just from a population of active Facebook users. With the survey we aimed to characterize different media consumption and sharing habits. We considered three types of posts: text only posts; posts with a video; and posts with an image. We also considered the influence of the posts' origin: posts shared by family; posts shared by friends; and posts shared by Facebook pages (e.g. news sites or other institutions that the user follows). Finally, we inquired into the use of Facebook groups. With this data we aim to understand if the users give different importance to different media types based on whether they're consuming or sharing it, and, when consuming, based on their origin.

We considered the following hypothesis:

H1: Facebook users give different importance to the different media types when sharing or consuming information.

H2: Facebook users give different importance to the different information sources.

H3: Facebook users give different importance to different media types based on the source of the post.

2.1 Survey Results

A total of 148 usable responses were received. In this sample 62 (41.9%) users were female and 86 (58.1%) users were male. The average age of the sample was 24.5 years old (SD=5.6). The age distribution of our sample is presented in the histogram shown in Figure 1. More than three quarters (75.7%) of the users in the sample are younger than 27 years old.

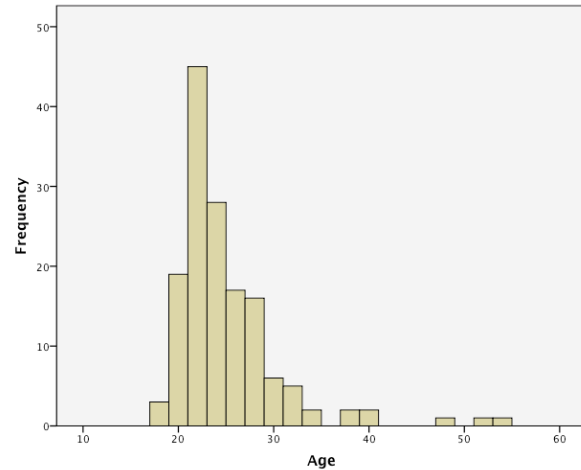


Figure 1. Age distribution of the Facebook users' sample.

Our sample uses different devices to access Facebook as shown in Figure 2. Almost all survey participants use a laptop to access Facebook. Approximately half use a smartphone. When considering all devices, laptops amount to 43% of devices used, while desktop computers amount to 17%. Mobile phones are 8% of the devices used, smartphones represent 22% and tablets amount to 10%. This means that 40% of the devices used by our sample to access Facebook are mobile devices.

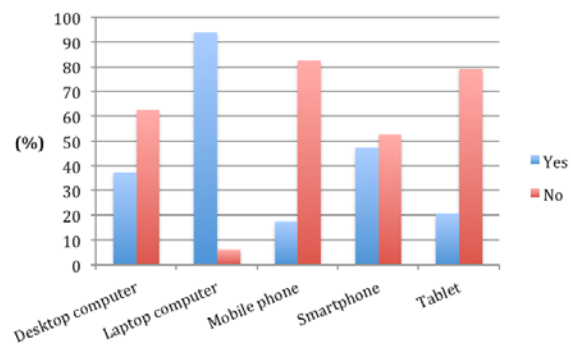


Figure 2. Devices used to access Facebook.

We also assessed our samples' behavior when posting and reading posts on Facebook, independent of their media type. From Figure 3 it is easily perceivable that the behavior is very different. While 66% of the sample browses Facebook more than once daily, and over 93% do it at least daily, these numbers are much lower (13%

post more than once daily and 24% do it at least daily) when posting content.

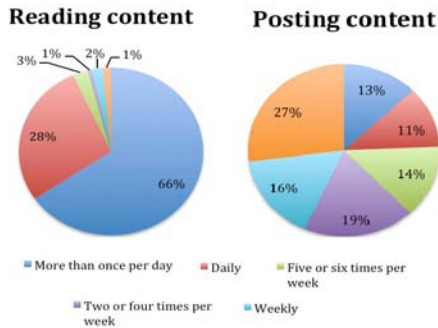


Figure 3. Frequency of reading and posting content.

Table 1 shows the mean number of posts, of different media types, that our sample users read or watched, and posted on average per week. As expected, posts viewed are an order of magnitude higher than those produced. The relations between posts of different media types change when posting or assessing the information. When posting, text is the most used media type, with similar number of video and image posts. However, image post are the most viewed type of media, followed by text posts and video posts. Since the number of posts of the different media types and when posting or viewing do not meet the normality condition (assessed through the Shapiro-Wilk test), we have conducted non-parametric related samples Friedman’s two-way analysis of variance by rank tests on the two groups (consuming and posting) of measures. For content posted no significant differences were found between media types. For content viewed the test found significant differences. Related samples Wilcoxon signed rank tests with Bonferroni correction found significant differences between all pairs of media viewed. Taking this into account, we can state that users give difference importance to different content formats when they are consuming or producing information, thus supporting hypothesis H1.

	Text	Video	Image
Consuming	36.86 (76.36)	19.99 (30.03)	48.87 (100.82)
Posting	3.74 (11.8)	2.26 (3.45)	2.22 (4.56)

Table 1. Mean (and standard deviation) for posts consumed and produced per week with different media types.

To assess hypothesis H2, we asked the survey participants to rate, in a 5 points scale, their interest in information posted in Facebook by their family members, their friends, or institutional pages. Table 2 shows the average importance attributed to the different information sources. We found a statistically significant difference in the importance of the information depending on its origin, $\chi^2(2) = 33.22, p < 0.001$. Post-hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction applied, resulting in a significance level set at $p < 0.017$. There was no significant difference between the family posts and page posts importance ($Z =$

$-0.034, p = 0.973$). However, there were statistically significant reductions in perceived importance in the friends posts vs. family posts ($Z = -5.627, p < 0.001$) and the friends posts vs. page posts ($Z = -5.279, p < 0.001$). These results support hypothesis that Facebook users give different importance to the different content sources (H2).

	Family	Friends	Pages
Importance	3.22 (1.22)	3.89 (0.81)	3.23 (1.1)

Table 2. Mean (and standard deviation) of importance rating attribute to different information sources.

We asked the survey participants to select the most important media type for posts from different sources. Table 3 presents the selected percentages. We can see that image is the preferred media type for all groups. With a Cochran’s Q test, we found that there exists a significant difference in preference among the two kinds of media surveyed ($\chi^2(2) = 15.75, p < 0.01$). A pairwise comparison using continuity-corrected McNemar’s tests with Bonferroni correction revealed that significantly more participants prefer images to video when seeing family originated posts when compared to friend originated posts ($p < 0.001$). No other significant effects were found. These findings thus lend support to the hypothesis that different importance is given to different media types based on the source of the content (H3).

	Family	Friends	Pages
Video	20.9%	39.9%	28.9%
Image	79.1%	60.1%	71.1%

Table 3. Media type preference for posts from different sources.

Finally, we asked participants to characterize their usage of the groups feature in Facebook. From the 148 answers, we learned that 130 (87.8%) participants use Facebook groups. These 130 participants had created 1.88 groups themselves on average ($SD=2.78$). However, it is interesting to understand that, from the participants that use groups, 38.3% of them have not created any groups, and only participate in groups created by other Facebook users. Still, there is a high rate of group usage, and the majority of those that use them, has created at least one group.

3. DISCUSSION

Our survey of 148 Facebook users allowed us to establish an initial characterization of media consumption and sharing habits. We learned that, even though laptops are the main device used to access Facebook, mobile devices represent 40% of the devices used. This means that solutions targeting Facebook usage, considering specifically media content consumption or not, should be aware that there is a large possibility that content will be consumed in a mobile device.

We confirmed that habits of sharing and viewing content are quite different, as might be expected. While over 93% of users view content at least daily, only 24% post content at least daily.

When considering the content's media type, we were able to learn that people give different importance to different media types when they are posting or viewing information. Text posts are the most common when sharing information, but without significant difference to image or video posts. In contrast, image posts are the most frequent when consuming content, followed by text and video, with significant differences between numbers of posts consulted in each media type.

The source of the consumed posts also showed to be a discriminating factor in the importance that users give to posts. Content posted by friends was deemed to be of higher importance than that posted by family or Facebook pages.

The importance given to media type for each of the possible sources of content was also identified as a significant factor. Albeit image posts were preferred to video posts for all content origins, it was possible to establish that this preference is more pronounced when posts originate from a family member than when a friend is the origin.

This survey shows that video and image media are more important to Facebook users than text when consuming information. It has also showed that the importance varies with the content's source. However, although Facebook is beginning to give support to queries based on media type, it does not support different content presentation modes for different groups.

4. CONCLUSIONS AND FUTURE WORK

This work investigated and characterized users' habits regarding media content consumption, considering their groups in Facebook. Previous studies have given several indicators that users often prefer Facebook as good support for media content consumption, despite other viable platforms that also provide support for this type of media [Zhou10][Li12]. Even so, those platforms have also revealed some limitations in presenting several media content types for different sets of grouped users.

Our results, identifying the need to give different relevance to different media types, or to different sources of content, are aligned to recent developments from Facebook itself. Facebook's new Graph Search [Zuckerberg13] feature, will provide an overview of several shared contents filtered by user, type and origin of content. Given our results, this feature can be expected to be very useful for users. Nonetheless, there remains the challenge regarding visualization of contents within a grouped set of contacts, and as future work we propose to study viable ways of presenting filtered media content from a set users.

Further, several studies have proven that tablets are of great usage (even better than mobile phones), especially for multimedia content [Hendrik12]. Our findings concur

to these results. This factor, allied to the fact that users prefer image and video content on SNPs as showed in our work - is a strong indicator that users will possibly shift their main interface for SNP usage, from desktop or laptop, to tablets. This should be taken in future works exploring multimedia presentation in Facebook or other social networks.

5. REFERENCES

- [Arno12] Arno, C., "Worldwide Social Media Usage Trends in 2012," <http://searchenginewatch.com/article/2167518/Worldwide-Social-Media-Usage-Trends-in-2012>, 2012.
- [Bakshy12] Bakshy, E., Park, M., and Marlow, C., "The Role of Social Networks in Information Diffusion," in WWW '12, 2012, pp. 519–528.
- [Camara12] Camara, F., Calvary, G., Demumieux, R., and Mandran, N., "Where do facebook intelligent lists come from?" in IUI '12, 2012, p. 289.
- [Gomes11] Gomes, A. K., and Pimentel, M. da G. C., "Measuring media-based social interactions provided by smartphone applications in social networks," in SBNMA '11, 2011, p. 59.
- [Hendrik12] Hendrik, M., Gove, J. L., and Webb, J. S., "Understanding Tablet Use: A Multi-Method Exploration," in MobileHCI '12, 2012, pp. 1–10.
- [Jones10] Jones, S., and O'Neill, E., "Feasibility of structural network clustering for group-based privacy control in social networks," in SOUPS '10, 2010, p. 13.
- [Lake12] Lake, C., "Online Video Sharing Doubles Within A Year," <http://econsultancy.com/us/blog/7198>, 2011.
- [Li12] Li, H., Liu, J., Xu, K., and Wen, S., "Understanding video propagation in online social networks," in 2012 IEEE 20th International Workshop on Quality of Service, 2012, pp. 1–9.
- [Papadopoulos10] Papadopoulos, S., Zigmolis, Kapiris, C. S., Kompatsiaris, and Vakali, A., "ClustTour: City Exploration by use of Hybrid Photo Clustering," in MM '10, 2010, p. 1617.
- [Rabbath11] Rabbath, M., Sandhaus, P., and Boll, S., "Multimedia retrieval in social networks for photo book creation," in ICMR '11, 2011, pp. 1–2.
- [Reymann08], Reymann, S., Alves, D. S., and Lugmayr, A., "Personalized social networking," in MindTrek '08, 2008, p. 172.
- [Sang12] Sang, J., and Xu, C., "Right buddy makes the difference," in MM '12, 2012, p. 19.
- [Wilson09], Wilson, C., Boe, B., Sala, A. Puttaswamy, K. P. N., and Zhao, B. Y., "User interactions in social networks and their implications," in Proceedings of the fourth ACM european conference on Computer systems - EuroSys '09, 2009, p. 205.
- [Zhou10] Zhou, R., Khemmarat, S., and Gao, L., "The impact of YouTube recommendation system on video views," in IMC '10, 2010, pp. 404–410.
- [Zuckerberg13] Zuckerberg, M., "Facebook Graph Search," <https://www.facebook.com/about/graphsearch>, 2013.