Where do Facebook Intelligent Lists Come From ?

Fatoumata Camara[1,2]**, Gaelle Calvary**[1]
Laboratoire d'Informatique de Grenoble[1]
385 avenue de la Bibliothque 38400 Saint Martin d'Heres
Firstname.Lastname@imag.fr

Rachel Demumieux[2]**, Nadine Mandran**[1]
Orange Labs[2]
2 Avenue Pierre Marzin 22300 Lannion
Firstname.Lastname@orange.com

ABSTRACT

On September 19th 2011, Facebook introduced "Intelligent Lists" which are Friends Lists (FL) automatically created and pre-filled based on users' and their contacts' profiles information (education, work, city of living, kin, etc.). In early 2011, we conducted a study on contact management in Facebook in order to understand users' real needs. Outcomes from this study suggest several recommendations, some of which can be found today in the Facebook Intelligent Lists.
This paper provides explanations on the recent evolution in Facebook contact management. The user study involved 148 participants. From their Facebook accounts, we retrieved 340 Friends Lists and 347 family ties. In the overall, the study has led to numerous interesting outocomes. In this paper, we focus on those related to Friends Lists and, particularly, on recommendations that have not yet been implemented in Facebook.

Author Keywords

SNS, Facebook, contact management, recommendations.

ACM Classification Keywords

H.5.2 Information Interfaces And Presentation: Miscellaneous

General Terms

Human Factors.

INTRODUCTION

Until recently, Social Network Sites (SNS) have ignored the diversity of social ties. All of the network nodes were mixed in a single encompassing group and referred to under the general headings "contacts" or "friends". Yet, existing studies [5, 8, 9] show that the building of an online social network follows an offline-to-online directionality that remains consistent over time [9]. Thus, as in the offline reality, not all online contacts are equal : some are family members ; some others are best friends, just friends or classmates and so forth.

Recent studies have highlighted contacts segmentation as essential in SNS. Binder and al. [2] state the problem of conflicting social spheres as an immediate consequence of the lack of compartmentalization in SNS. Jones and O'Neill [7] demonstrated the feasibility of segmenting Facebook contacts into groups of information sharing. Less recently (i.e. in 2003), Boyd [3] has noted that, even at the simplest levels, people often do not want certain groups of friends to be able to reach out and connect with their other groups of friends.

Major changes have occurred regarding contact management in SNS. For example, Windows Live provides five predefined categories of contacts (family, friends, colleagues, favorites and others) and also makes it possible to create personalized categories. In 2008, Facebook introduced Friends Lists as a means for organizing online contacts. Later on, there was a noted focus on human relationships, allowing users to create the different types of existing kinship (mother, brother, grandson, ect.) and reveal information about to their intimate life (e.g. in a relationship, married).
However, it is worth noting that, in the specific case of Facebook, the integrated contact management features are not extensively used. Marc Zuckerberg, himself, admitted that nobody wants to make lists [1]. Moreover, in the study presented in [7], the contacts sorting task lasted approximately 27 minutes. In the end, the overwhelming consensus among participants of this study was that "organizing contacts requires too much time and effort to be worthwhile". From the same study, it appeared that participants had placed only 20% of friends into predefined groups that were available in that previous Facebook. Participants typically regarded those groups as "too incomplete to be useful".

Indeed, little is known about contact management in SNS and related issues. Only few qualitative studies examined the topic. To tackle our lack of perspective, we conducted a quantitative study (148 participants) on contact management in Facebook. Our goal was to explore users' needs in order to propose recommendations that could possibly improve the contact management User Interface (UI) and task. The study used actual usage data and, unlike previous relevant studies, has not been carried out in specialized contexts. For instance, in [10], the authors focused on the workplace. In [7], the concern was about privacy. To our knowledge, this is the first quantitative study of the kind. Jones and O'Neil investigated Facebook usage collection as well. However, their sample was limited to 15 participants.

This paper reports our study : protocol, participants, data, and analysis, as well as results. It also presents a list of recommendations for an intelligent contact management system.

OUR STUDY

Protocol

The study consisted of an online survey followed by usage data collection. To access participants' Facebook accounts for usage data collection, we have created a Facebook application using the Graph API (PHP version). To access the questionnaire, participants had to log in to the application through Facebook. The questioning covered demographic information and different aspects of Facebook use (e.g. context, duration, and frequency of use ; numbers of contacts and Friends Lists). Within an average of ten days from the day of participation, we proceeded to data collection from participants' Facebook accounts. During the period of the survey, we paid attention to Facebook in order to be aware of any evolution that could introduce a bias. No change affecting our study occurred.

Still during that period, we kept participants' Facebook IDs in order to avoid multiple participations. Once the data collection completed, IDs were replaced by numerical ordered numbers in order to guarantee anonymity promised to participants.

Participants

One hundred and forty eight people (148), 75 males (51%), 72 females (49%), and 1 unknown (because the participant did not answer the question related to gender) responded to the online survey, and provided access to their Facebook accounts. Most of them were students or senior executives. Twenty five percent (25%) of our participants had more than 350 contacts on Facebook. There was an average of 315.2 contacts (std : 429.7), which is very high (more than the double of Dunbar's number [4]). So unsurprisingly, most of them were seasoned and frequent Facebook users. Our participants were mostly native to Europe (75%) and Africa (41%). The total number of participants native to the other continents did not exceed 10.

Tables 1 and 2 give more information about participant profiles.

16-20	14 (9%)
21-23	34 (23%)
24-26	32 (22%)
27-30	38 (26%)
Older than 30	30 (20%)

Table 1. Participants' age

Students	69 (47%)
Senior executives	46 (31%)
Employees	19 (13%)
Middle management	6 (4%)
Unemployed	2 (1%)
No response	3 (2%)

Table 2. Participants' occupation

Results

We collected 340 Friends Lists from 81 (55%) participants' accounts.

We have examined the names of Friends Lists simultaneously using a classification by synonym and by theme. The classification by synonym involves associating FL labels with the same meaning (for example, the French word "famille" and the English word "family"). The classification by theme involves grouping the FL labels linked to the same topic (for example, all of the Friends Lists labels corresponding to a particular educational establishment, a class at a school, etc. fell under the same heading "Studies").

The classification procedure resulted in 17 groups. Due to space constraints, we focus on the most important of them : the four (4) representing social spheres that are generally mentionned in works on social networks [6] ("Family" (26 FL), "Friends" (27), contacts related to "Studies" (70) and "Work" (19)), the group representing places which was one the largest groups (36), and the group of FL that were obviously aimed at controlling privacy and online presence.

These 6 groups of FL have been examined according to age and occupation. Findings are respectively reported on next two sections. For each age group, as well as for each occupation group, percentages were calculated considering the total number of participants who created the Friends Lists of the particular group.

Analysis of the six groups of Friends Lists according to age
Figure 1 shows results of the analysis of the six groups of Friends Lists according to age.
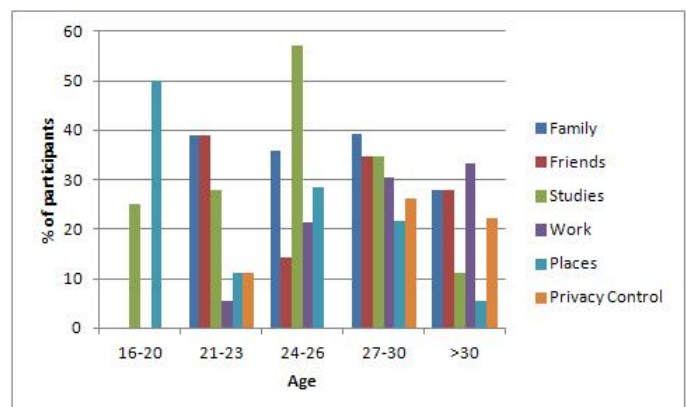First, we note the absence of FL in the group "Family" among

Figure 1. Percentages of participants who created the FL in each group, according to age.

the 16-20 year olds. In this young age group, the lists created are solely related to school life and to geographic locations.

We also note a slight increase in the percentage of participants creating "Studies" FL among the 21-23 years old. Next, we note a significant increase in this percentage among the 24-26 year olds. At the same time, among the 24-26 year olds, there is a notable decrease in the percentage of participants creating "Friends" FL. This trend can most likely be explained by the offline phenomena that, during higher-education years, school life is very important to individuals. Indeed, we can observe that the percentage of participants who created studies-related FL significantly decreases right after the university years (i.e. among the 27-30 years old and older) while an increase in the percentage of participants having created "Friends" and "Work" FL is notable. We notice as well that participants older than 30 years mostly created FL related to work.

Family related FL are present in all four age groups over than 20 years old.

Apparently, older participants are most concerned by privacy : 22.2% of the participants older than 30 and 26% of the 27-30 years old created FL intended to control privacy. Only 11.1% of the 21-23 years old created such FL and none of the 16-20 and 24-26 years old created a FL related to privacy control.

Analysis of Friends Lists according to occupation

Figure 2 shows results of the analysis of the six groups of Friends Lists according to occupation.

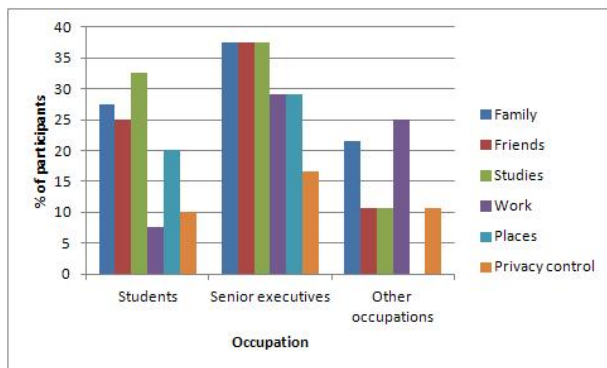First, we note that 30% of students created FL related to stu-

Figure 2. Percentages of participants who created the FL according to occupation.

dies. But, more surprisingly, we observe that even more senior executives (37.5%) had such FL linked to studies. FL related to studies were also created by participants of the other occupations. The last two observations show the strength of ties one makes in higher education years, which may remain throughout life. We can also note that none of the participants in the other occupations created FL related to geographic locations. Yet, this group of FL is one the largest groups. In our opinion, this can be most likely explained by the phenomena that, senior executive positions and student life offer more opportunities for travelling (business trips, internships, conferences, etc.), and thus living in different places.

Senior executives seem to be concerned with privacy. The

percentage of participants in this category creating such FL is the highest.

Kin

We have collected 347 declared kin from 75 (51%) participants' accounts, of which 96% created direct kinship (father, mother, brother, sister) and 30.60% indirect kinship (cousin, nephew, grandmother, etc.).

We have examined many aspects linked to kin. Here, we report a summary of the resulting findings.

Natives from Africa appeared to be the most active in kinship creation. Among the 75 participants who created kinships, 37 were native to Africa versus 29 native to Europe.

Intra-generational family ties (e.g. brother, sister, cousin) appeared to be those mostly created by participants compared to inter-generational ones (e.g. mother, uncle, niece).

A participant had explicitly declared two mothers. Further examinations in this participants' information revealed that this last one was from Africa.

Eighty-two (82) kin, or 23.6 %, were organized in groups by 25 participants. We have noted that almost half of kin were placed in a FL of the group "Family".

IMPACT ON DESIGN : RECOMMENDATIONS

This section presents, based on the aforementioned results, a number of recommendations for contact management in Facebook.

It is important to mention that, despite the quantitive aspect of the study, recommendations listed below should be cautiously considered as they are solely based on Facebook data. Further investigations may be required before applying them to other systems.

– **Predefined Lists**
Most of the existing social spheres involved in an individual's life emerged from the analysis of Friends Lists. With the exception of the 16-20 years old, who created FL only related to studies and geographical locations, and the participants other than students and senior executives, who had not created any FL in the group "Places", we found FL related to family, friends, studies and work in the accounts of the all other participants having created some Friends Lists. Moreover, we have found Friends Lists, of which one was explicitly labeled "other", that seem to be intended for people with no defining qualities.
Based on the aforementioned observations, **we propose that the contact management UI in Facebook comes with 5 predefined lists named :** "Family", **"Friends", "Studies", "Work", and "Other"**.

More than half of the kin that were organized were placed in a FL of the group "Family". Based on this observation, we suggest, for any user, automatically placing any contact explicitly declared as a kin in the list "Family". This recommendation has been implemented and Facebook goes even further by placing inferred kin in the list "Family" as well.

– **Adaptive and Personalized Lists**
A large number of Friends Lists were related to places, studies, and work. These Friends Lists probably represent important entities for users such as cities/countries of born or living, current or former work institution. Based on this observation, we suggest taking into account the personal story of each Facebook user during the automatic process of lists creation and pre-filling. We suggest automatically creating a list corresponding to each institution (related to studies and work) to which the user has declared to be linked. Initially, names of such lists can be set to the institutions names. The system should take advantage of information of the user's contacts for pre-filling automatic lists related to studies and work. For a given institution, the system should place all of the user's contacts who have declared being attached to this last one and follow the same logic for pre-filling Friends Lists related to places.
This recommendation has been implemented in Facebook as well. However, we suggest to go further **by automatically proposing Friends Lists corresponding to cities in which a user's institutions are located**.
In addition, we propose that contact management UI supports personalized lists creation and allows control over the automatically created ones (e.g. change of labels, deletion of contacts or lists, move of contacts).

– **Hierarchical Organization**
A large majority of participants had more than one Friends List. Like in Jones and O'Neil's study [7], some of FL that the participants created seem to be subgroups of larger groups. Based on this observation, **we suggest a hierarchal organization of lists**. In other words, we suggest supporting subgroups creation.
To go further, we propose **considering all of the Friends Lists corresponding to instutions (study, work) as subgroups of the top-level lists "Studies" and "Work". However, we propose considering Friends Lists related to cities of instutions as top-level lists**.

CONCLUSION AND FUTURE WORK

This work investigated users' contact management needs in Facebook and proposes a list of set-ups for an intelligent contact management system. Adaptations concern automatic creation and pre-filling of Friends Lists, according to users' and their contacts' profiles information.
Future work will follow two directions. On the one hand, we will focus on the contact management UI, itself, with the goal to design a more convenient and less time-consuming one. On the other one hand, we will investigate an adaptive visualization of contacts that integrates recommendations presented in this paper.

ACKNOWLEDGEMENT

REFERENCES

1. Zuckerberg : "guess what ? nobody wants to make lists.". http ://techcrunch.com/2010/08/26/facebook-friend-lists/, August 2010.

2. J. Binder, A. Howes, and A. Sutcliffe. The problem of conflicting social spheres : effects of network structure on experienced tension in social network sites. In *Proceedings of the 27th international conference on Human factors in computing systems*, CHI '09, pages 965–974, New York, NY, USA, 2009. ACM.

3. D. Boyd. Reflections on friendster, trust and intimacy. http ://cite-seerx.ist.psu.edu/viewdoc/summary ?doi=10.1.1.82.466, 2003.

4. R. I. M. Dunbar. Co-evolution of neocortex size, group size and language in humans. *Behavioral and Brain Sciences*, 16(4), 1993.

5. N. B. Ellison, C. Steinfield, and C. Lampe. The benefits of facebook "friends :" social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4) :1143–1168, July 2007.

6. C. S. Fischer. *To Dwell Among Friends. Personal Networks in Town and City*. University of Chicago Press, Chicago, 1982.

7. S. Jones and E. O'Neill. Feasibility of structural network clustering for group-based privacy control in social networks. In *Proceedings of the Sixth Symposium on Usable Privacy and Security*, SOUPS '10, pages 9 :1–9 :13, New York, NY, USA, 2010. ACM.

8. C. Lampe, N. Ellison, and C. Steinfield. A face(book) in the crowd : social searching vs. social browsing. In *Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work*, CSCW '06, pages 167–170, New York, NY, USA, 2006. ACM.

9. C. Lampe, N. B. Ellison, and C. Steinfield. Changes in use and perception of facebook. In *Proceedings of the 2008 ACM conference on Computer supported cooperative work*, CSCW '08, pages 721–730, New York, NY, USA, 2008. ACM.

10. M. M. Skeels and J. Grudin. When social networks cross boundaries : a case study of workplace use of facebook and linkedin. In *Proceedings of the ACM 2009 international conference on Supporting group work*, GROUP '09, pages 95–104, New York, NY, USA, 2009. ACM.