

Social Network Sites Conflicting Social Spheres

A Study on Facebook Friend Lists Usage Among University Students

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Abstract—We aim to provide an extensive characterisation of Social Network Sites, presenting their most common features, and the reasons why people use them. Communication has been greatly facilitated by the development of such websites and, while the benefits of using them are debated, most researchers agree the concept of privacy is not correctly understood and applied in these networks. Therefore, we shall discuss the risks users face while engaging in activities on Social Network Sites and the attitudes of users regarding sharing personal information. The second part of the article is represented by a study on Facebook Friend Lists, a feature provided to achieve network fragmentation and segmentation. Our findings suggest a high percentage of users are not aware of its existence or are not acquainted with it, while others simply do not make use of it. While Lists did not seem to improve the level of online tension, we propose further research question to identify why they did not have an effect and how they could be improved.

Keywords—social networks; Facebook; privacy; social spheres; network segmentation

I. INTRODUCTION

Ever since the Industrial Revolution, the way groups interact, exchange information and reciprocate support has modified; with the Internet becoming an integrated part of every day's life, these changes have become more dramatic and have attracted the attention of researchers as a new, fertile domain for human behaviour studying. Gradually, face-to-face communication and written messages (letters) have been complemented by telephone, then Internet-based communication. The progress from email to building a complex online network of connections to facilitate the maintenance of old and development of new relationships was inevitable.

However, these new technologies brought with them a series of questions for which scientists are still trying to find an answer. And a primary source of concern nowadays is Privacy Control in Social Network Sites (SNSs). A key feature of SNSs is transparency and visibility across the network, the user being the one who has to decide what private details and how much

information to share with others. But users often share too much or are unaware of how they can protect their identities, therefore making themselves vulnerable to threats ranging from serious offenses such as identity theft to minor nuisances, like embarrassment.

New interest has also been taken in establishing social spheres and boundaries for them in SNSs. Conflict situations are well known to appear across networks and researchers are working on determining their sources and how they can be prevented. Due to the flat structure of SNSs and communication visibility, it is hard to control the audiences of one's actions. This is a particularly interesting field of study as it combines privacy issues, not only in terms of personal information disclosed, but also in terms of network composition and shared space, with design questions and user behaviour.

The following article will continue with a brief overview of how SNSs evolved and developed and their major characteristics, after which we shall concentrate on one such major site, namely Facebook¹. We shall look into the reasons behind its popularity and the purposes of its use. We also aim to determine privacy issues which concern Facebook users, what behavioural traits are most likely to cause privacy breaches and how the site allows the user to control the content to be displayed. The main motivation behind this is the need to understand whether the offline network segmentation that naturally happens due to spatial-temporal delimiters can be replicated online and if the users indeed make use of the tools provided by SNSs for such separation (Friend Lists in case of Facebook).

II. SOCIAL NETWORK SITES

A. An Overview

Since its birth, in 1960, the Internet has grown and developed at an astonishing rate, nowadays having a more social-oriented usage, in the form of Social Network Sites. Evolving from the principles of email-based communication and forum-like information exchange, Computer-Mediated

¹ <https://www.facebook.com/>

Communication nowadays is largely based on online social networks. While the benefits and drawbacks of this type of socialising are still fervently debated by researchers, the shift from viewing communities and relationships as “groups” to considering them “networks” has been acknowledged [1].

As a definition, Boyd and Ellison describe social network sites in [2] as a web-based service that allows a user to build a profile, list connections with other users and view other’s connections, all within the said delimited system.

While the technical details and features of SNSs vary, the central interests of users being targeted expanding over a wide range (from sites specifically designed for maintaining and creating contacts and connections, to those shaped for photo or video-sharing, gaming, blogging or instant messaging but who also have a social component to them), the main trait of all such sites is the ability of the user to create a visible profile and a list of Friends, belonging to the same system. The visibility of the network is also a key feature encountered across all SNSs. An individual can traverse the social network by accessing his Friends, and then their Friends, and so on. While most of the SNSs provide options to change the privacy of the list of Friends, most employ a default public value [2].

Although social network sites are generally open to be joined, the initial wave of subscribers is usually constituted of a certain population that wants to differentiate itself; therefore there is a clustered structure to the users, forming groups around factors derived from the offline society (age, education, nationality) [2].

We often wonder about the differences of offline and online interactions and how these influence our behaviour and our everyday lives. We seek to understand how the “online society” is defined, structured, maintained and what purpose it serves.

While defining a community as a group of connections which cater to social, support and identity needs, it becomes clear the individuals will most likely not belong to the same geographical location. They will have ties with people from their workplace, people who share common interests or values, neighbours, family, all merging into a network to provide the necessary resources, information, care, aid and diversity sought [1].

The changes the expansion of the Internet has brought and the popularity of Computer-Mediated Communication has had researchers debating on the benefits and risks of using SNSs. While some viewed online interactions from a utopian angle, considering it eliminates geographical, racial or age obstacles [1], dystopians claimed the use of the computer will lead us astray from human face-to-face interactions and have us spending more time in front of a screen [3]. While the purpose of this article is not to deepen this debate, we must emphasize that SNSs constantly gain more popularity and have become an integrated part of our lives. Their study, while a fairly new area of research, combines the knowledge of computer scientists, psychologists, sociologists, all trying to perfect these systems,

bring their design closer to a natural, offline network and keep users safe and raise their awareness on the risks they may unknowingly expose themselves to.

The shift to these new technologies also brought a change to the primary unit around which networks form. It is not the group or household that the links form around anymore, but an individual [4]. This allows for greater customisation and flexibility of connections and a better representation of the person through his or her network. Since the spatial boundary has been eliminated, people are linked to other people, independently of where they may geographically be. The dynamics of the ties has also suffered changes, individuals belong to multiple, sometimes overlapping, groups as the tracking of events from within them became easier, the switch between links is cheaper in terms of effort and network boundaries are more permeable, allowing more diverse interactions. Simply said, there is more freedom in information exchange and communication with a wider range of connections.

A major interest area of SNSs is network boundaries and the segmentation into social spheres. While the offline world provides implicit privacy, assuming limitations in terms of place, time and people involved, in the SNSs communication has a highly public character. Therefore, the borders are blurred and an individual has to undergo extra effort to replicate online parameters that would otherwise occur naturally. And the cost of dividing their network may be greater than the cost of potential conflicts.

First of all, we need to clarify what personal boundaries are and why are they needed. People believe the ownership of information belongs to them or is shared with others; therefore they need to control the audience and the borders it reaches. Failing to do so may lead to a feeling of vulnerability. However, due to our social character as humans, we sometimes share private information with others. Therefore, boundaries can be either permeable or impregnable, depending on what the preferences of the individual or the scope of the network and the ability to deal with secrecy plays an important role in the decisions taken [5].

While the public and private spheres are easier to delimit in offline networks, they become harder to separate in SNSs. With network visibility, the concept of public dominates and user behaviour should be adapted to the new context. However, as we shall see in the following sections, users do not seem extremely concerned with these issues.

B. Facebook Use Motivation

The two main studied aspects of Facebook on how the network establishes, promotes and maintains relationships between people are (a) how one's personality influences new friendships and user behaviour and (b) how user behaviour maintains existing friendships [6].

Social capital largely refers to relationships between people and the benefits (emotional and tangible) one draws from them [7]. According to Bourdieu in [8], tight-knit relationships

among people, usually between family and close friends, provide social bonding capital which allows the existence of specific reciprocity, emotional support and companionship. Reciprocity plays an important role in social bonding capital, as individuals who anticipate benefiting from others' people actions are more likely to help others [9].

Although the consequences of online and offline formed social bonding capital are argued, with some researchers claiming online interactions may supplement or replace in-person interactions [10], while others claim social bonding capital will suffer because of the loose ties formed online [11], the online gains of increased Internet and SNSs use have not been adequately examined [12].

The fact remains that the Internet facilitates the formation of connections, either with people also known offline or only online and who share the same interests as the individual, connections which may result in increased social bonding capital [13]. Furthermore, it appears that people who use the Internet have larger social networks and are more likely to receive help from those networks [14].

Many studies exist, seeking to understand the reasons driving people to use SNSs, offering different perspectives into this matter. Researchers have had a special interest in emerging and young adult's use of such networks, as they represent best the dynamics and motives of SNSs usage. As our experiment had as participants university students, we believe presenting research on this target groups would be most significant for our case. The studies we shall discuss employ a variety of methodologies and therefore can cover different aspects of SNSs use, with a particular focus on Facebook.

Due to their constantly changing virtual character, SNSs are proving to be a challenging area of research, users moving to new applications or sites before scientists can completely understand and build a clear picture of the previous ones [15]. However, common traits for all forms of online communication appear across different studies and the theoretical framework of offline and online environments being connected is strengthened [16].

Pempek, Yermolayeva and Clavert provide, in their study [17], descriptive information on the use of SNSs by college students, primarily trying to answer questions such as "how much time they spend on Facebook?", "why they use it?" and "how they use it". By using a diary-like method they were able to gather more detailed data on time use, complemented by open-ended questions about the reasons behind the use of Facebook and a survey about the actions they undertake on the website. As young adulthood is the period of a deeper and more meaningful exploration and identifying of self [18], the individuals seek to define themselves with the help of peer feedback and strengthen existing relationships [17]. One important perceived advantage of SNSs is that through them social limitations, such as shyness, are reduced, therefore they represent an easy and accessible way of interacting with peers. Their findings, compliant with the Ellison, Steinfield and Lamp research [19], suggest students use Facebook to communicate

with friends from their offline network, to maintain relationships and connections that otherwise would have been lost, due to geographical differences [17]. Among the most interesting things about SNSs, the students reported staying in touch or reconnecting with friends, learning information about others, "Facebook addiction" or self-presentation. While most students believed there was a generally positive effect on their social life from using Facebook, they also stated it had a rather negative effect on their academic studies. Interesting information comes from the realisation that, while students use Facebook to interact with each other, they spend much of their time reading information from their peers. The most common "lurking" activities were looking at others' profiles, looking at photographs and reading the News Feed [17]. While the SNS provides the option of sending private messages, users are more likely to post comments on "walls", as the visibility of the feature allows the information to be transmitted to more than one person. Overall, the study represents, in a descriptive way, the interactions between students within the SNS, with an emphasis on the idea that observing plays an important role as communicating, with users examining others' profiles and posting comments and photos to be noticed. As a shortcoming for the research we can mention the specific group assessed, which had access to strong Internet connections, possibly generating a particular behaviour or use pattern.

Another relevant study concerning the online and offline social networks belong to Subrahmanyam, Reich, Waechter and Espinoza and deals primarily with the overlap between these networks [16]. They start from the theoretical framework that online users co-construct their environments, which leads to the idea the online and offline worlds are psychologically connected and issues from the offline world will be brought into the virtual one. Consistent with this approach, Ybarra, Mitchell, Wolak and Finkelhor found, while researching cyber bullying, that almost half of the victims knew the bully in person [20]. The Subrahmanyam, Reich, Waechter and Espinoza study proposes the hypothesis that emerging adults shall use SNSs as means of supporting interpersonal relations, promoting social contact and strengthening offline friendships. Their results suggest that common activities included reading/responding to messages, comments, posts in their walls, browsing friends' profiles, tagging photos. The reasons why the participants used the SNSs were, much like the previous study discussed, were social reasons involving offline friends, because all their friends had accounts, keeping in touch with relatives and family and making plans [16]. The people most interaction happened with were users already known, rather than new acquaintances. It has also been observed online communities are used to sustain the real, offline ones, through activities such as event planning [21]. Almost half of the online network overlapped with the offline one, with time spent on the SNS having a negative influence on the correspondence. While studying the behaviour of "adding" friends to the users' network, it is shown the majority will only add someone they also know offline [16]. Overall, the perceived benefits of using a SNS weren't felt regarding changes in friendships or relationships. Again, the general pattern of using a SNS for

maintaining connections with people they know offline appears, this study adding valuable information about the adjacency of offline and online worlds. As limitations, we can name the self-reporting nature of the survey employed, the limited number of friends they could name, perhaps leading to a magnified degree of overlap between networks.

After reviewing the main reasons individuals would use a SNS, we would like to discuss the differences between online and offline relationships. Grieve, Indian, Witteveen, Tolan and Marrington investigate, for the first time in the literature, whether online social connectedness is different than offline linkage. Social connectedness is a concept derived from the belongingness theory [22] and is closely related to the wellbeing of a person [23]. Grieve et al. explored the possibility of deriving social connectedness from the use of Facebook and looked at its psychological implications. While establishing that Facebook connectedness is different from the offline, the study brings interesting data about the positive psychological outcomes associated with it. The relationships developed on the SNS proved to be a source not only for social bonding, but also a factor to lower levels of depression and anxiety and a better overall sense of wellbeing. Among the limitations of this research we may point it relied on self-reporting and it used a convenience sample, but due to the experimental nature of the study, we believe the findings to be relevant and encourage for further exploration of the area.

C. Privacy Concerns

The increasing popularity of SNSs raised questions about the safety of people using them, whether they are aware of the dangers they expose themselves by sharing and disclosing information over such websites and if they know what details exposed can be used to harm them. Therefore, researchers have started investigating the Privacy Policies and the users' behaviours concerning information sharing. On a more concerning matter, a study by Chothia, Singh and Smyth [24] shows how publicly available information from Facebook could even be used to reset bank passwords. They also showed how connections between online friends could reveal sensitive information to attackers. The online environment seems to give users the impression of anonymity or intimacy and they feel more willing to reveal information about their selves, most of the times without fully understanding the risks they make themselves vulnerable to. While most SNSs provide the users with options to control the visibility of their profile, participants are keen to disclose as much information as possible to as many people as possible [25] and therefore pay little attention to the privacy settings or misuse them due to not understanding them well enough. The considerably bigger sizes of the online networks, compared to the offline ones are explained through the higher number of weak ties existing in the former. This also brings to attention the existence of "invisible audiences", users underestimating the number of viewers their online actions would have [26]. While the offline world provides implicit privacy, online the individual must undergo supplementary effort to become private, as all actions are public by default. Risks users bare themselves to range

from serious offences such as identity theft, fake identities, data theft, blackmailing, to milder ones, as online tension, especially with family members, embarrassment or discrimination.

As there is no agreed framework in defining what "privacy" really means, each researcher is left to give his or her own interpretation to the concept, thus generating a variety of results, the issue being viewed from many personal angles. Also, there is the question of what domain does privacy belong to. Should it be something defined and protected by law, is it an individual's interest or is it a social norm, belonging to a group's dynamics? No clear representation of the notions privacy should cover exists either. One could refer to information safety, values, opinions, financial details, demographics, medical information or physical privacy. Much confusion is generated from the debate on how it is achieved or its purpose. Proposed methods range from isolation, solitude to intimacy or boundaries management [26].

Research on the topic can be approached from two different perspectives, one being investigative research on how to use technologies to manage privacy and being related to user behaviour, the other being the responsive approach, focusing on designing systems to protect people's privacy. While the first deals with challenges such as lacking methodology and contextual integrity, the former tries to enforce privacy by design and employs user intervention to educate or influence people with regards of awareness and behaviour change [26].

Gross and Aquisti found in their study [25] that most of the college Facebook users participating in their research were oblivious, unconcerned or pragmatic about personal data. Personal data is not protected adequately, students providing their real names on the network which, together with the profile photograph make possible the linking between the profile and the offline person. More concerning is the revealing of the birth date, which can be used in forging identities. Half of the participants also listed their current residence and more than a third disclosed a phone number. The majority of users also stated their dating preferences, current relationship status, political views and various interests. While the willingness to share personal information might be explained by the attempt of establishing a degree of trust and intimacy between an individual and the others, a reason for this behaviour could also be the tendency of users not to change the default settings, or the fact that the cost of securing personal details might be much higher than the cost of a risk generated by the disclosure [25].

User privacy control and privacy settings play an important role in the information visibility of profile, friends, user generated content or comments. Krishnamurthy and Wills [27] manage to describe quite extensively the capabilities of SNSs regarding privacy. Their investigation reveals the default settings for the thumbnail (profile photograph) and the list of friends is set to maximum visibility, to all users, and the profile, user generated content and comments settings allow all friends and networks to view them. The permissive character of these settings makes it so that, by default, the user cannot control who has access to their information unless they exert

extra effort in changing them. They also point out threats are found not only within one's network, but also from entities which have access to the individual's personal details, such as third-party applications, advertisers or data aggregators. They mention that, while a Facebook application only needs some details from the user's profile, the access must be granted to all information. However, this particularity has changed since the date of the article (2008), the applications now explicitly requesting the desired data. While studying the extent to which users change their profile settings, they found there is a strong negative linear correlation between network size and the percentage of visible users profile within it [27]. This could be due to the more intimate character of smaller networks, which could transmit a sense of trustiness to the users, making them less concerned with information sharing. For a clearer picture of the reasons behind these findings, the behaviour of users belonging to different sized networks should be studied. Also, it appears users are more concerned with their own private details than with the visibility of their friend list. Due to the design of the privacy setting, this finding might have other sources as well, as the two options are in different places within the interface. The "Wall" was the most protected feature of the SNS, however as its settings are included in the profile ones, it would mean they are more accessible to the user.

The cause for extreme visibility in SNSs can be blamed on the unawareness of users of who has access to their private information. The setting of the networks should not be public, by default, but private. A minimum of details should be shown and users should make an effort to become more visible, the opposite of the current mechanism. The offline private character of interactions should be imitated online and privacy settings should allow users to personalise all aspects of their communication.

Concerning user behaviour regarding privacy, a study from 2008 belonging to Lewis, Kaufman and Christakis [28] reveals privacy behaviour is a combination of social influences and personal motivations [28]. We, as individuals, are greatly influenced by our direct peers, the author's hypothesis of users being more concerned and adopting attitudes towards keeping their personal information safe if their friends already present this behaviour proved to be valid. Furthermore, high SNS activity amplifies influence and more active users might have more information on their profiles, therefore more things to hide or they would not wish to be widely known. Other reasons for strengthening profile privacy have been determined to be safety concerns, especially among women and impression management, driven by the user's need to present himself differently to certain networks, playing roles. The more visible the profile would be, the harder for the user to separate and partitioning the roles successfully, discrepancies affecting his credibility [28].

The concept of impression management and role playing raise an interesting question on how would a user separate the specific groups from within his network. This, in turn, leads us to our following discussion on what network segmentation represents and how it can be achieved.

D. Network Segmentation

While privacy plays an important role in personal information safety, we also need to consider network segmentation and the separation of contacts into social spheres.

As SNSs encourage users who share a friend to share a social space, this approach lacks the boundaries and segmentation an offline network provides [29]. Online networks have a flat structure due to the absence of spatial and temporal limits. Also, the persistent character of communication in SNSs facilitates the access to information shared at a previous moment in time [26]. Separate interaction with different spheres does not come by default, due to the high visibility policy of SNSs. To avoid social conflict, users must replicate the offline structure of networks online [29], which raises a cost not many are willing to pay. As no automatic feature that could segment the contacts into social spheres exists, the user must do it manually, which can be a laborious process, especially in case of big network sizes and the spheres must be updated every time a new Friend is added.

While proposed models of applications that could automatically generate distinct Friend Lists for the users exist [30], these are not available to the public. Most research is based on clustering algorithms but it has yet to be tested for efficiency and ease of use. However, they do not deal with the overlap that could exist between these sub-networks.

Reasons for wanting to create Friend Lists (or Circles) are born from the need to keep contacts separated, in order to avoid online tension in the network. Conflicting social spheres can generate tension through three main ways: *broadcast* (linked with high visibility and large network size, users risking to be monitored or stalked), *persistence* (comments, photographs or user generated content does not fade from the network) and *awareness* (users are not being aware of who their audiences are and do not perceive the offline consequences their online actions could have) [29].

Little attention has been paid to the online tension problem in SNS and Binder, Howes and Sutcliffe elaborated a study on Facebook aiming to find what technology features were more likely to generate a strain on the network, what actions determined the tension and which social spheres were liable to cause most disturbances. They also tried to determine how users would split their contacts into categories and how many were in each their online and offline networks.

An interesting finding relates to the existence of family members in one's SNS. The number of family members from one's network had a significant effect on the online tension felt by users. Also, network size and diversity were predictors for tension. Diversity was a variable independent of network size, therefore we can consider that strain is a result of a between social spheres process, not within spheres [29]. The top features reported as being source of disagreement within an individual's network were the "Wall" and the photographs. User behaviour was also considered, with people displaying a less cautious comportment when adding new Friends reporting they had a higher level of tension in their network.

While this study was conducted when Facebook did not have available the Friend Lists feature, in our own experiment we aimed to determine whether the introduction of this network segmentation tool decreased the level of online tension and if the users are aware and successfully exploit this feature to their own benefit. The next section shall explain in detail the steps we followed in designing our study and the results.

III. EXPERIMENT

Our initial hypothesis is that, instead of being used to broadcast messages towards certain groups only, the Friend Lists are used to take feedback from them. Given the fact that online social networks generate a lot more information than off-line ones, an individual may feel the need to "filter" it, creating Friend Lists based on interests or importance. We will be using part of the questionnaire designed by Ellison, Steinfield, & Lampe [19] to measure the intensity of Facebook use and part of the Binder, Howes, & Sutcliffe questionnaire [29] to understand the interactional behaviour of the users with the social network.

Our target participants are university students, we want to separate them into undergrads and mature students to see if there is any difference between how these categories use Facebook.

Network size and composition off-line and online

For this category we are looking to determine the structure of the network. Using the study of Binder, Howes, & Sutcliffe, we decide to split the possible groups in a participant's network into: immediate family, other birth family, family of spouse or significant other, co-workers, people you know but do not work directly with, best friends/confidantes, just friends, school relations, childhood relations, people known through hobbies.

We also ask a control question about how many contacts are listed on their Facebook page.

Online Tension

We aim to understand what situations raise the on-line tension, namely expressed criticism, social blunders, damaging gossip or breaches of trust, directed at the individual or experienced in the network among others.

Intensity of Facebook Use

Combining the Binder, Howes, & Sutcliffe study [29] with the Ellison, Steinfield, & Lampe questionnaire [19], we decided to ask how many minutes a participant spends on Facebook per day and how many post he/she send, respectively received, during the last week. We also want to know how long they have been using Facebook for.

Friend Lists

We aim to understand whether people make use of Friend Lists and how difficult they find setting them up (low use of FLs, combined with a high usage difficulty would mean, for example, the users are not available to pay the high cost associated with the FLs).

We also aim to understand if they use the FLs to organise their network and keep their social spheres separated when posting, or whether they use them as means of facilitating the access to "news" from certain groups of contacts. Furthermore, we want to determine if they believe the use of FLs helped diminish the tension in their online network. We will be also studying the hypothesis of a relation between network size and whether people use FLs or not.

Hypotheses

H1: People use Friend Lists to read their contact's posts, not broadcast towards certain groups of contacts.

H2: Network size influences the number of user-generated Facebook Friend Lists.

H3: The use of Friend Lists diminishes online tension (comparison between the answers of those who use and don't use Friend Lists and comparison with the results of the Binder, Howes, & Sutcliffe study).

A. Method

1) Participants

Forty-four students, 12 females and 34 males, from the University of Birmingham responded to the questionnaire (n=44). The mean age was 22.3 years old (SD = 3.55), suggesting our sampling managed to reach not only undergraduate students, but also postgraduates, making for a better representation.

2) Methodology

The questionnaire was sent through email to all students of the Computer Science department of the University of Birmingham. The website SurveyMonkey² was used as host for the survey. It can be argued the results of the study will be biased due to the subject the participants are studying and their familiarity to technologies, the Internet and security. However, we emphasize it is an experimental study, aiming to determine behavioural traits in an area that has not received sufficient attention and therefore not enough information is available.

B. Results

Network size descriptive statistics show a mean number of 278 of Friends listed on a user's profile (SD = 36.31). In our sample, gender was not an influencing factor on network size ($p > .252$).

Due to discrepancies between the sum of contacts listed in each category and the total number of Facebook Friends listed on a respondent's profile, we constructed a new variable that represented the total of contacts in the requested categories.

The first, most surprising result is the fact that 45% of the respondents were not familiar with Facebook Friend Lists. Considering the biased character of our sample, the participants coming from an environment where technologies are their main

² <http://www.surveymonkey.com/>

study field, this is unexpected. The questions about using Friend Lists were answered by a number of 24 respondents.

Regarding the motives for using Friend Lists, the majority of participants reported they do not use the feature to direct messages or restrict access to their posts (61.1% reporting they “Never” do it). The same case applies for reading posts by Friends added in a specific list, 79.1% of respondents admitting they either “Never” did it or used it in “less than 10%” of the cases. The trend continues among the other questions, regarding they use Friend Lists to “hide” posts from certain social spheres or read them. This disconcerting finding could be based on the idea that, even though users are aware of the feature, they do not actually make use of it. But we can only make an assumption, further study being necessary into the issue. We compare the means of the number of Friend Lists the users reported on having and the number of Lists that were automatically generated by Facebook and we notice 52.49% of them are not user-created (5.83 total, 3.06 by users).

This result rather contradicts our first hypothesis, that users employ Friend Lists to read content, rather than write it to specifically-targeted audiences. However, we suggest a new study of user behaviour, to deepen and clarify this issue.

To determine whether the network size influences the number of user-generated Friend Lists we computed a new variable representing the difference between the listed number of Lists and the Facebook auto-generated ones and used a generalised linear model. We obtained significant results testing the intercept model (sig. < .05), therefore we may accept our initial hypothesis that network size influences the number of user-generated Facebook Friend Lists.

We shall continue with presenting the network structure of the respondents. To better characterise it, we converted the absolute numbers in proportions, the results being presented in Table 1.

Table 1 Mean proportions of family, social and work contacts.

	Family	Social	Work
Mean	0.06	0.56	0.38

Running correlation tests, none of the network components seemed to have an impact on perceived online tension, contradicting the findings of Binder, Howes and Sutcliffe [29].

Investigating the perceived improvement in their network (referring to avoiding situations that could lead to tension), for all items the overwhelming majority of respondents did not feel the usage of Friend Lists helped them in any way. We present in Table 2 the cumulative frequencies of responses ranging from “Strongly disagree” to “Neither agree nor disagree” for the questionnaire items.

Table 2 Cumulative frequencies of perceived improvement regarding online tension due to Friend List usage

Item	Cumulative Frequency
Damaging actions directed at myself	89.5%
Breaches of trust between myself and my network	88.9%
Overall tension or conflicts	77.8%

These findings contradict our hypothesis that online tension is diminished by the use of Facebook Friend Lists. 60% of respondents also reported they do not use the feature to organise their network.

While opinions on the difficulty of setting up the Lists varied greatly, it was surprising to find out about 60% of participants were only “somewhat concerned” with the privacy and posting visibility.

C. Implications

While this experiment does not present strong conclusive results, it is a good starting point for further research into the issue. Questions raised include why people are unaware of the existence of the Friend Lists feature, if they use it, how, more specifically they use it, what are the challenges they face when trying to resort to it.

We also mention the biased nature of our sample, all participants being Computer Science students. We strongly advise repeating the experiment, on a larger sample, with better representativeness.

We draw attention to the conflicting results with the Binder, Howes and Sutcliffe study [29] and we would like to point out it does not mean our experiment or methods were wrong, but that our sample could have different characteristics and therefore does not fall under the results of the former research.

Another issue to investigate that we propose is looking into the design of the feature and how it could be improved. As we mentioned in a previous section, attempts to add an automatic sphere separation application to SNSs exist, but they must be further refined.

Despite the lack of positive results, we do feel our work contributes to existing research and, most importantly, raises valuable questions that, once answered, will greatly add to existing literature.

IV. DISCUSSION

The current article seeks to present the characteristics of SNSs, the reasons behind their popularity and intensive use by people worldwide and to discuss the dangers of not employing strong privacy settings on a users’ profile.

The experiment we have conducted determined, first of all, that a high percentage of users are not aware of the features Facebook supplies them with for segmenting their online

network and, if aware, they do not maximise the benefits they could draw from using it. Secondly, we have established network size does influence the number of user-generated Friend Lists. This could be due to the fact that bigger networks generate more content and individuals feel the need to resort to “filter” it, making access to information from a certain group easier. Lastly, we have established the use of Friend Lists is not does not diminish the online tension felt by users.

We can only make assumptions as to why the Friend Lists feature is not as successful as expected, relating finding from previous studies about privacy awareness [28] or the general, public settings used by SNSs [27]. We believe a more “natural”, restricted approach should be used, making user content private by default and requesting extra effort in becoming public across sections or the whole network.

We strongly emphasise the need for further research and believe our work both fills a gap in existing literature on the usage of Friend List and opens up questions that will attract the attention and interest of others researchers as well, as the issues proposed cover a great variety of topics to be investigated.

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