Management of personal data by students of the Faculty of Mathematics, Physics, and Computer Science in social networks

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ABSTRACT
This study described the behavior of students of the Faculty of Mathematics, Physics, and Computer Science (FMFC) regarding the management of personal data (PD) in social networks (SNs). It was a non-experimental, descriptive, and cross-sectional study. A questionnaire was applied to a probabilistic purposive sample of 159 students of the FMFC, where subjects were chosen from all years and careers in an approximate number and not less than 40% of the total enrollment of each year. The SNs most used by the respondents were WhatsApp and Facebook. First and last names, voice messages, age, and photos were the PD most shared on the networks; this occurred mainly with family and friends. To protect the data, students prefer to change the password from time to time since their main concern is to publish in SNs using their name; therefore, they attached greater importance to cancel their PD in case of being used inappropriately. Personal data breaches were only reported on the SN Facebook. Social networks are platforms for interaction and flow of an increasing volume of personal and general data, and there is a high risk that they may be violated due to the lack of knowledge of the users themselves.

Keywords: personal data, data management, social networking, personal data security

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1. INTRODUCTION

Every day, through social networks (SNs), a huge volume of data is exchanged, of which a significant percentage constitutes personal data (PD). According to Acuña Llamas (2018): "personal data is any information relating to a natural person, which identifies him or her or makes him or her identifiable. It is the information that describes us, that gives us identity, characterizes us and differentiates us from other individuals." Many times PD are shared in SNs without the knowledge that they can be used by other people for dissimilar purposes, including illicit activities.

Young people constitute a very active social group in SNs, and within this group, university students are a segment with a marked use of these platforms. The interaction with their faculty, the outreach and social dynamics of universities, the socio-communicative needs of young people, as well as the processes of computerization of modern society, motivate more and more university students to create profiles and develop a cyber-life within the network of networks.

Each user who registers and interacts in an SN provides, from the very moment he or she enters the network,

a significant amount of data, mostly of a personal nature and with the capacity to identify the subject in question. To this should be added an even larger volume, which may include voice messages, photos, videos, messages containing identity numbers, e-mail addresses, among others. Providing a greater or lesser number of PD in the networks will depend to a large extent on how much privacy each person wishes to maintain in their profiles and lifestyle on the Internet.

It is, therefore, necessary to know how students handle their PD in SNs in order to teach them about the dangers of this practice and how to minimize the risks to which they are exposed. Given the problem of the lack of knowledge about the behavior of students in the Faculty of Mathematics, Physics, and Computer Science (FMFC) regarding the handling of PD in SNs, the objective of this research is to describe the behavior of students of the FMFC regarding the handling of PD in SNs.

2. METHODOLOGY

Non-experimental, descriptive, and cross-sectional research. Theoretical methods were used: analytical—synthetic and inductive—deductive, as well as empirical: documentary analysis, survey, mathematical, and statistical methods.

An intentional probabilistic sample of 159 individuals (90% confidence interval and 10% margin of error) was chosen from a population of 329 students belonging to the FMFC, which also complied with the requirement that it included no less than 40% of the total enrollment of each of the years for each career, which was chosen by raffle method. A questionnaire of closed questions

was applied to the subjects, designed taking as a reference the one proposed by Nieves Lahaba and Ponjuan Dante (2021), which was structured in the following dimensions:

- General data: Data were requested regarding age, gender, career, and year of study and whether or not he/she uses any SN (Peña García, 2019).
- Social networks used: We inquired about the SNs in which each subject interacted, the time they usually spend on each of their platforms, and the purpose for which they use them (Reolid Martínez, 2018).
- Personal data security: Information was collected on which data respondents most frequently share through their SN, with what type of people this interaction occurs, as well as the routines employed to protect their accounts and data (Weepiu Samekash, 2020).
- Personal data privacy: Information was collected on experiences with data security breaches in any SN and what kind of consequences caused by such a breach were of most concern to them (Donald Frauenstein, 2020).
- Rights over personal data: The level of importance given by the subjects to different situations in which rights over PD could be involved was assessed (Nieves Lahaba & Ponjuan Dante, 2021).
- Measuring instruments: A Likert scale (very important, not important, and not important at all) was used to obtain results regarding the dimension of rights over PD through the rights of access, rectification, cancellation, and opposition (ARCO).

3. RESULTS

The sample was predominantly female (54.72%), and the average age of the respondents was 20.92 years, with a predominance of the 20–21 years age group (18.87%).

The majors and years with the highest representation were Computer Science (46.27%) and Computer Engineering (43.28%), as well as the second (37.31%) and first year (32.09%), which was due to being the two majors and years with the highest enrollment at FMFC.

One hundred percent of the students indicated using some SN, resulting in WhatsApp (99.37%) being the most used, followed by Facebook (90.57%) and Instagram (73.58%), while TikTok turned out to be the least used (4.40%).

Regarding the purposes for which students have used their SNs, the results were as follows:

- WhatsApp: 100% to communicate with family and friends, 77.22% to exchange with teachers and classmates, and 4.43% to be informed about current affairs.
- Facebook: 83.33% to communicate with family and friends, 49.31% to meet other people, and 47.22% to inform themselves about current affairs.
- Instagram: 94.02% to meet other people, 17.95%, 10.26% to be informed about current affairs, and 1.71% to communicate with family and friends.
- Telegram: 68.18% to be informed about current affairs, 31.82% to communicate with family and friends, and 10.61% to meet other people.
- TikTok: 71.43% to meet other people and 57.14% to communicate with family and friends.

- Twitter: 93.33% to be informed about current affairs and 13.33% to meet other people.

Table 1 shows the results regarding the time students dedicate daily to each SN. In WhatsApp, about 70% indicated dedicating between 7 and 8 hr daily, while in Facebook, the majority used it for 2–3 hr, for the rest of the SNs the interval of 1 hr predominated.

%: Percentage calculated based on the total number of users that use each social network.

Table 2 shows the percentage of users who stated that they shared their different PD in relation to each SN. In general, the most shared PD were names and last names, as well as photos.

It was analyzed with which audience the students exchanged their PD, as a result it, was obtained that:

- First and last names: 71.7% were exchanged with family members, 68.55% with friends, 67.3% with teachers, 63.52% with the general public, and 62.26% with acquaintances.
- Photos: 84.91% were exchanged with family members, 76.73% with friends, 30.19% with the general public, 17.61% with acquaintances, and 8.81% with teachers.
- Videos: 90.57% were exchanged with family members, 77.36% with friends, 4.40% with teachers, and 4.4% with acquaintances. This type of PD was not socialized with the general public.
- Voice messages: 95.6% were exchanged with family members, 91.82% with friends, 67.92% with teachers, and 38.36% with acquaintances. This type of PD was not socialized with the general public.

Table 1. Time spent daily by students on each social network.

SOCIAL NETWORKS	NUMBER OF USERS	TIME DEDICATED DAILY BY STUDENTS TO EACH SOCIAL NETWORK					
		1 hr (%)	2–3 hr (%)	4–6 hr (%)	7–8 hr (%)	9–12 hr (%)	≥12 hr (%)
WhatsApp	158	5.7	5.06	4.43	68.99	14.56	1.26
Facebook	144	20.14	55.56	9.72	10.42	4.16	0
Telegram	66	59.09	19.70	10.61	10.60	0	0
Twitter	60	76.67	23.33	0	0	0	0
Instagram	117	52.14	19.66	4.27	17.95	5.98	0
TikTok	7	71.43	28.57	0	0	0	0

Table 2. Percentage of users sharing each type of personal data by each of the social networks.

SOCIAL NET-WORKS	PERCENTAGE OF STUDENTS SHARING EACH TYPE OF PERSONAL DATA IN EACH OF THE SOCIAL NETWORKS											
	N.A. (%)	F (%)	VID (%)	M.V. (%)	N.I. (%)	D.D (%)	T.P. (%)	C.B. (%)	EMAIL (%)	AGE (%)	GENDER (%)	O.S. (%)
Facebook (144)	89.58	89.58	22.22	20.83	0	0	29.17	0	4.86	89.58	63.89	4.86
Instagram (117)	88.89	95.73	34.19	0	0	0	6.84	0	25.64	37.61	17.95	0
WhatsApp (158)	92.41	91.14	57.59	92.41	5.06	10.76	78.48	5.06	9.49	32.28	22.15	12.66
Telegram (66)	57.58	30.30	10.61	30.30	0	0	46.97	0	10.61	19.70	19.70	10.61
TikTok (7)	0	71.43	100	0	0	0	0	0	0	28.57	42.86	0
Twitter (60)	81.67	30.00	0	0	0	46.67	0	0	45.00	11.67	11.67	11.67

Source: Survey.

N.A.: names and surnames; F: photos; Vid: videos; M.V.: voice messages; N.I.: identity number; D.D.: home address; T.P.: private telephone; C.B.: bank account; O.S.: photos sexual orientation; ( ): number of users who use the SN.

- Personal identity number: 47.8% was shared with family members, 15.09% with teachers, and 9.43% with friends. This PD was not shared with acquaintances or the general public.
- Home address: 52.83% were shared with friends, 35.85% with family members, 27.67% with teachers, and 8.18% with acquaintances. This PD was not shared with acquaintances or the general public.
- Private telephone: 73.58% was exchanged with friends, 69.18% with family members, 58.49% with teachers, 16.98% with acquaintances, and 5.03% with the general public.
- Bank account: 22.64% was exchanged with family members. This data was not socialized with any other type of audience.
- Email: It was exchanged in 59.12% with teachers, 16.98% with relatives, 13.84% with friends, 4.40% with acquaintances, and never with the general public.
- Age: 67.92% were exchanged with friends, 58.49% with teachers, 57.86% with family members, 18.24% with the general public, and 16.98% with acquaintances.
- Gender: 62.26% were exchanged with friends, 48.43% with teachers, 36.48% with family members, 22.01% with the general public, and 16.98% with acquaintances.
- Sexual orientation: 27.04% were exchanged with friends, 18.87% with relatives, 12.58% with acquaintances, 4.4% with teachers, and 4.4% with the general public.

A total of 18.87% of the respondents stated that they had suffered some violation of their PD in the SNs, with 100% of these events being reported on Facebook.

The greatest concern of students regarding privacy (97.76%) was that they post on SNs using their name, followed by having their identity supplanted and losing control of their SNs (both with 87.31%).

When examining the routines used by students to protect their PD in SNs, it was found that "elaborate a complex password" and "change password every so often" were the most employed (60.38%), a result very similar to that published by Nieves Lahaba and Ponjuan Dante (2021). Seventy-five percent of the respondents stated that they combined three or more routines to increase the security of their SNs.

The behavior of the indicators of ARCO to PD analyzed from the category "very important," evidenced results that show that students attach more importance to cancel their PD in case of being misused (79.25%), as well as to request the suspension of data that are inadequate or excessive, without the prejudice of blocking (79.25%).

Table 3 represents the percentage of answers given by respondents to the question: What level of importance do you attach to the situations in which your PD rights could be involved?

4. DISCUSSION

The greater presence of women in this research was influenced by the predominance of this sex in the enrollment of the Faculty, according to data provided by the Teaching Secretariat of the Faculty. Although gender has not been shown to determine a lower or higher use of SNs, several studies have demonstrated the prevalence of females in the samples analyzed (de la Mora Martín et al., 2020; Mendoza et al., 2014).

Table 3. Percentage distribution of the answers given on the level of importance given by the respondents to the situations in which their personal data rights could be involved.

SITUATIONS IN WHICH YOUR PERSONAL DATA RIGHTS COULD BE INVOLVED	LEVEL OF IMPORTANCE		
	VERY IMPORTANT (%)	NOT VERY IMPORTANT (%)	NOT IMPORTANT AT ALL (%)
Access to the processing of my data	78.62	21.38	0
Cancel my personal data (PD) if they are used improperly	79.25	20.75	0
Knowing where I can rectify my PD	42.14	32.08	25.78
Request cancellation of files where the data is used for advertising purposes	57.23	34.59	4.4
Request and be informed about your PD, the origin of the same	36.92	35.22	21.38
Request the rectification of data when it is inaccurate	42.14	27.04	27.04

(*Continued*)

Table 3. *Continued*

SITUATIONS IN WHICH YOUR PERSONAL DATA RIGHTS COULD BE INVOLVED	LEVEL OF IMPORTANCE		
	VERY IMPORTANT (%)	NOT VERY IMPORTANT (%)	NOT IMPORTANT AT ALL (%)
Knowing the means by which organizations provide information on the use of PD	33.96	46.54	15.72
Request the suspension of data that are inadequate or excessive, without prejudice to the duty to block them	79.25	16.98	0
Oppose the processing or collection of PD when this is not carried out by a public entity	74.84	21.38	0

Regarding age groups, the results obtained were similar to that reported by other studies (de la Mora Martín et al., 2020; Peña García, 2019). The predominance of the 21-year-old group in this study coincided with other research results applied to university students, where a mean age equal to 21.4 years was found (Marín Díaz, 2015; Mendoza et al., 2014; Peña García, 2019).

The greater use of WhatsApp over the rest of the SNs must have been related to a boost in its exploitation due to the COVID-19 pandemic. During the period of non-face-to-face teaching as a result of the confinement, most of the students of the careers at the Universidad Central "Marta Abreu" de Las Villas (UCLV), in addition to using Moodle as a teaching platform, created and used groups on WhatsApp to communicate quickly, orientations about the subjects and other minor academic activities. Everything seems to indicate that this behavior has been maintained, which undoubtedly influenced what was observed during this research. These results are similar to those obtained by Reolid Martínez (2018) and differ from those reached by Bolaños Córdova (2015) and Chunga Chinguel (2016), who reported Facebook as the most popular SN.

With the exception of WhatsApp, where 68.98% indicated that they use it between 7 and 8 hr daily, for the rest of the networks used between 70 and 75% of the students manifested connecting to these for 1 hr or 2–3 hr daily, which is a result approximately equal to that found in other research on this topic (Mendoza et al., 2014; Reolid Martínez, 2018). It is striking the fact that the students who manifested using WhatsApp for 9–12 hr (23) and for more than 12 hr (7), since this would imply an intensive use of such network, even during class hours and other academic activities.

Through SNs, it is possible to share and interact with diverse groups of people, from family and friends to strangers. In a general analysis, students tend to share their PD mainly with friends and family. The above was very evident in the case of WhatsApp, where family and friends obtained equal percentage of responses, a result supported by the studies of Morocho Sarchi (2019) and Del Águila Noriega (2021). Also in this network, a high percentage was observed for the case of teachers, this given as explained above, by the marked use that students make of WhatsApp for academic purposes. The fact that in the Twitter network 66.67% stated that they shared their PD with the general public was noteworthy.

Several studies suggest that profile theft and impersonation are very frequent on Facebook (Marín Dueñas et al., 2020; Quiñones Acevedo, 2016). However, dissimilar international publications refer to facts related to unauthorized uses of SN users' data, both by other people and by the companies that manage these platforms. According to a study conducted at the Universidad Católica Santo Toribio de Mogrovejo, 63.62% of the students surveyed have presented problems with their PD (offensive comments, password theft, or contacts with fake profiles; Chunga Chinguel, 2016).

The results observed regarding students' concern for the privacy of their data differ from those published by Nieves Lahaba and Ponjuan Dante (2021), in that the main concern was being a victim of phishing, followed by "accessing my email account without permission," with "being published in SNs with my name" not being one of the main concerns. It is suggested that the main targets of phishing are mainly adults, especially senior citizens, who are not digital natives and, therefore, have little

knowledge of how to manage their SNs (Donald Frauenstein, 2020).

5. CONCLUSIONS

Social networks constitute platforms for interaction and flow of an increasing volume of personal and general data, with a high risk of their vulnerability due to the lack of knowledge of the users themselves.

In the present study, the most used SNs were WhatsApp and Facebook, with names and surnames and photos being the data most shared by the respondents, mainly with their family and friends.

Facebook turned out to be the only SN in which students experienced that their data had been violated.

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