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Analysis of Social Networks among Students in Abidjan City

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Abstract

This paper investigates the social networks usage by students in Abidjan city, Côte d'Ivoire. We focus on a descriptive or quantitative analysis to understand the motivations and how students make use of internet and social networks. More than six hundred forms were distributed to persons we have deemed as students. In return, we received more than 93% of the forms that have been processed. The study highlights the materials and the digital platforms that students used the most. The majority of the respondents reported to have access to the social networks in their mobile phones, with WhatsApp leading this application ranking, followed by Instagram, Facebook, YouTube, and Tik Tok. The survey shows that two third of our respondents are aged from 19 to 25 years old and almost half of the respondents spend daily 2 to 5 hours on digital platforms. The investigation also reveals that the main online activities are the e-commerce, chatting, information, and entertainment. The paper addresses also the online harassment of the students and it shows that more than one tenth of them have been victims of cyber-bullying. This study might be useful for governments, institutions, academia, individuals and professionals in order to communicate efficiently with a given population for a better use of social networks and to prevent students from harassment.

Keywords

Social Network, Social Media, Applications, Network Structure View, Status Structure View, Statistics, Digital Platforms, Online Harassment

1. Introduction

The development of electronic, telecommunications, computer science, and the advent of the internet during the last decades has fueled the emergence of the information and communication technology (ICT). Indeed, the exponential growth of new devices such as mobile phones, tablets, personal computer and applications has created a digital era. Thus, the use of the ICT has impacted every single aspect of our life [1] such as economy, educational, science, agriculture, entertainment, and so on... People in general and adolescents in particular use more and more the technology and its derived products or applications in all the domains of life and this has greatly changed the world [2]. Prevision shows that the number of connected devices reach 30 billion whereas the number of mobile subscription will exceed 6 billion by 2023 [1]. The usage of such devices has become popular for the following non-exhaustive reasons: the low costs of manufacturing leading to an affordable price for almost all, the development of social media websites, and the advent of Web 2.0 wherein the users are active by interacting with the platforms they use. It is noteworthy to mention that the use of the ICT is not limited to individuals. The use of ICT's tools and derived products (devices, internet, applications, ...) can be well beneficial for governments, factories, institutions, universities and organizations as well. All these interactions and connections between individuals, institutions, and companies through the use of internet have led to the raise of the social network. Although social network originates from a paradigm of social structure research in sociology in the 1960's, it has recently gained much attention from scholars in a variety of discipline.

The social network can be defined as the relatively stable relationship system formed between individuals members of the society due to interaction [3]. It is understood that social network deals with the interaction and connection between people, and social interaction can affect people's social behavior in turn [3]. Within the context of our study, we can extend this sociological definition by defining the social network as the interaction between individuals, between individuals and organizations, and between organizations by the use of digital platforms. The applications and advantages of the social network are manifold. The social networks via the social medias are used by companies to boost their activities in several domains such as marketing, advertising, entertainment, communications, and much more [4] [5]. People also use the social network to create, share, and exploit content online. Most important, the social networks allow the people to collaborate even in the professional context. Indeed, a person can use the social media to share moments and contents with other individuals located anywhere in the world. This last aspect has a great advantage for humans. The recent corona-virus pandemic and its subsequent lock-downs have illustrated that the social networks sites (SNS) and applications can served as tools for resilience in crisis period where people can not travel and need to stay close with friends and relatives. Students and professional workers also use the

SNS and applications to learn, work, share, and collaborate online [4] [5] [6] [7] in order to improve their performances. Despite these advantages and many more, some studies have pointed out the detrimental effects of the intensive use of the social network. Social network sites and applications can have both negative and positive effects in terms of stress and depression and well-being respectively, depending on people backgrounds [8]. Also, the use of SNS can decrease the performance of students [9] [10] and workers [5] [11] if they spend more time than appropriated on these platforms during their working time. Besides the platforms and applications, the social network is made up of the users and their interactions. Based on their relatively mutual confidence [3], the cultural and educational backgrounds of the users influence the social network which in turns impacts itself the behavior of the users. This perspective is very interesting as we understand that the social networks may impact the way we think, work, consume, in short our style of living. As a consequence, studies use social network analysis to understand social phenomena and social problems [3]. Studies such as [2] [5] [6] [7] [9] [11] [12] have investigated the impact of the SNS and applications on the habits, health, and work performances of the users in several regions (Zambia, Ghana, Taiwan (China), Europe, ...). At the best of our knowledge, no such study has been carried out within the context of Abidjan, the main city of Cote d'Ivoire, and one of the youngest and most dynamic cities in Africa. The objective of the current study is to perform a quantitative and descriptive analysis of the use of the social network sites and applications by students in Abidjan. The study aims to have a better understanding of the motivations of students in the use of social networks and to provide the used canals and platforms. In other words, our study provides a comprehensive way on why and how students in particular use the social networks. The paper is organized as follows: Section 2 states the problematic of the study while Section 3 describes the environment and the methodology of the study. Section 4 presents the results combined with discussions and analysis. Finally, Section 5 ends the paper.

2. Statement of the Problem

Abidjan is the biggest city of Cote d'Ivoire with more than 4.7 millions of inhabitants according to the last general population census from 2014 [13]. Obviously, from 2014 to day, the population of Abidjan has increased with an annual growth of 2.6% [14]. Up to day in Cote d'Ivoire, we have noticed a dearth of studies related to the use or the impact of the social networks, the motivation of the users in general, and especially among the students in Abidjan.

Our study aims at filling this gap by providing or understanding the students motivations and the social networks phenomena among this category in Abidjan.

There are two approaches when it comes to study the social networks [3]: the network structure view and the status structure view. For the status structure view, individuals in the society have certain attributes such as the age, gender,

class, and status that can be used to categorize the users and habits. However, the network structure view pertains to the links between individuals. The network structure view and the status structure view are two complementary approaches [3] [15] necessary to have a full understanding of the social network analysis: the former paradigm provides a qualitative analysis while the latter provides a quantitative one. We limit our study to the status structure view, *i.e.*, we study the characteristics of the users, the frequency of use, the motivations, and so on...

Objectives of the Study

The main objectives of the study are the investigation of the characteristics of the students, their habits in terms of use of social network sites and applications, and the frequency of use. The specific objectives will provide answers to the following questions:

- What are the favorite social networks of students?
- On which media do students use social networks?
- What are the motivations (relax, learn, spend time, work, chat with friends, and so on...) of the use of social networks?
- To what extent the students think they are addicted to social networks?
- Have students been the victims of cyber harassment on social networks?
- Do social networks impact the opinions and behaviors of the students?

3. Methodology and Environment

Social networks are an integral part of the lives of people in general. However, consumption practices differ between countries and populations. The study is based on a survey carried out in the city of Abidjan. We have distributed forms containing each more than 15 questions to 615 persons we think were students. In return, we have received 578 filled forms from the respondents, which represent a rate of more than 93%. However, once we received back the forms from the respondents, we discarded those that were not students so that we eventually processed 550 forms.

In the questionnaires, we were interested in the supports used by the students to access to social networks. The different supports are mobile phone, tablet, laptop, or their combination, *i.e.*, a user can access the social network with several supports. Next, we asked the students their preferred social network. There were 12 possible choices, *i.e.*, Facebook, Instagram, Linkedln, Messenger, Netflix, Pinterest, Snapchat, Telegram, Tik Tok, Twitter, WhatsApp, and YouTube. To investigate the time spent per day on social network, we proposed three time intervals: less than 2 hours, between 2 and 5 hours, and more than 5 hours. Other questions related to the cyber harassment or cyber bullying and the user's opinions on the social networks are addressed.

4. Results and Discussions

After the processing of the questionnaires, the results are shown in the following

sections.

4.1. Used Supports

We are first interested in the supports (*i.e.*, hardware) that students used the most to access the social networks. The results are shown in **Figure 1** and indicate that the majority of the respondents (more than 60%) have accessed to the social networks with the mobile phone exclusively, followed by the mobile phone and computer/laptop. We understand this as the mobile phone is usually more affordable than the other devices, convenient to use due to its small size and the mobility it offers.

4.2. Preferred Social Network

It might be important for some reasons to know the preferred or most used social networks by the students. Our investigations shows that the top 5 of the most used social networks in descending order is WhatsApp, Instagram, Facebook, YouTube, and Tik Tok. It also turns out that more than 91% of the students resort to at least one of the five aforementioned social networks. The motivations of the students to utilize a certain social network are shown in subsequent section. **Figure 2** shows a complete view of the preferred social networks of students in Abidjan. It is noteworthy to mention that the pic in the use of WhatsApp among students is a special case, and is of interest. For instance, the top three websites in the world are Google, YouTube, and Facebook [16] while the use of Instagram, Snapchat and Tik Tok is especially common among people under 30 years old [17]. The top three breakdown of online platforms by categories are as social networks and online communities, news and media, and search engines [18]. However, within the context of Cote d'Ivoire where the call costs are still expensive, people in general and students especially resort more and more to WhatsApp to call or communicate in order to reduce the call fees.
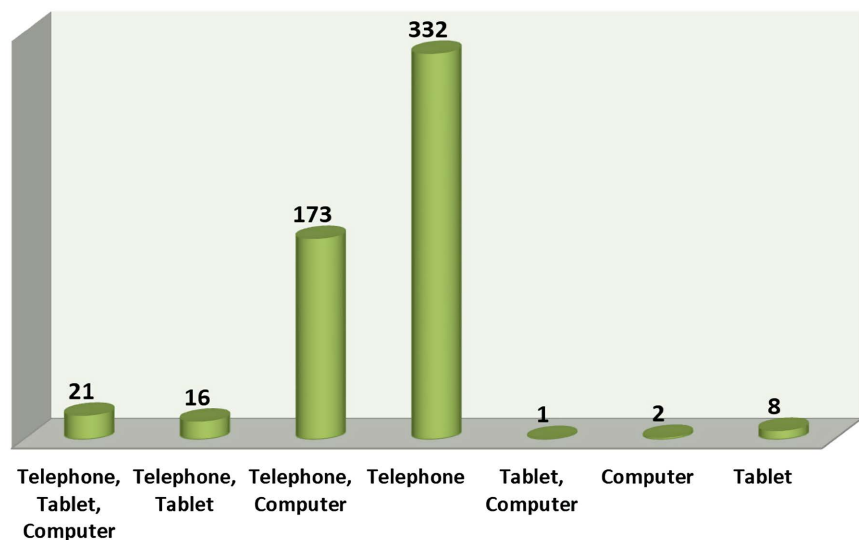

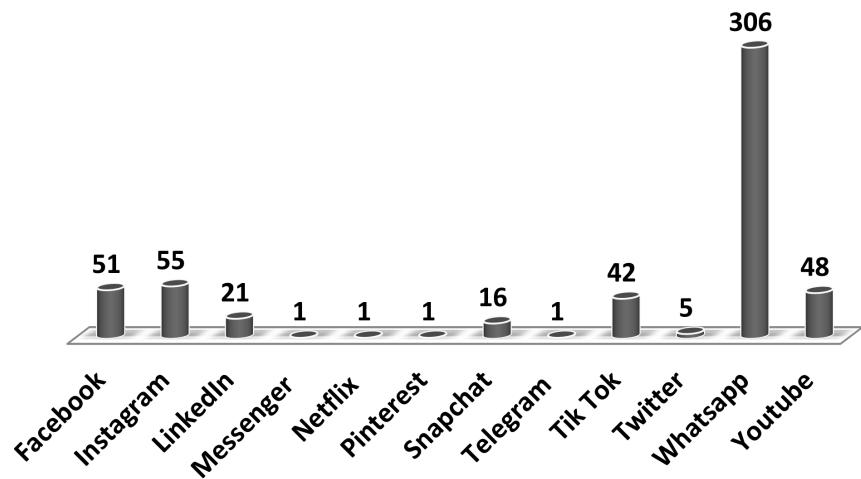**Figure 1.** Different supports used to access the social networks.

Figure 2. Most used social networks in Abidjan.

The vocal note of WhatsApp is particularly popular among users in Abidjan as it is not mandatory to have online connection to send messages, although it is required to be connected to internet to listen to the vocal notes. Moreover, many students use WhatsApp vocal notes to communicate abroad as this is more convenient and cheaper than a regular phone call. We believe that these reasons explain the popularity of WhatsApp among students in Abidjan, and this shall be the case in other academic institutions in Côte d'Ivoire or elsewhere.

4.3. Age Range on Social Networks

The knowledge of the age of the students that connect to the social networks may be importance for some reasons. For instance, this information can be used for marketing purpose as a certain age range might be a target or might be of interest for some communities.

We found out that the respondents were aged from 13 years old to 30 years old. We decide to cluster them in different age ranges according to the different levels of academic path as follows: 13 - 15 yo (middle school), 16 - 18 yo (high school), 19 - 21 yo (bachelor), 22 - 25 yo (master), and 26 - 30 yo (doctorate). This representation might not be the most accurate but it is representative of the graduates' age in our context. The age of the social networks' users has been grouped and is shown in Figure 3. Two groups of age have emerged as the most prominent within the students, *i.e.*, 19 - 21 years old and 22 - 25 years old representing 31.82% and 32.91% of the users, respectively. We notice that these two ranges of age correspond to the students' age at bachelor and master level and this indicates that these students (or people with similar age) are the most numerous users of social networks. In general, these students have more time to spend on social networks. The lowest range age is 13 - 15 years old (*i.e.*, 2.55%) representing the teenager at middle school. This is not very much surprising as at this age, not all the teenagers have access to mobile phone; and for those you do have it, they are limited by parental authority in the use of social networks.
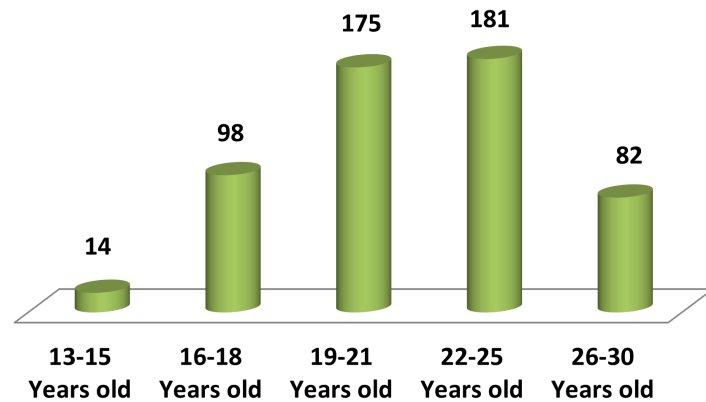
Figure 3. Range age of the social networks' users.

4.4. Occupancy on Social Networks

We would like to know the motivations of the students in the use of the social networks. At a first glance, we want to know whether or not they work on the social networks. The question was **"*Do you work on the social networks*?"** The response to this is clearly illustrated in **Figure 4** where we found that 41% of the respondents use the social networks to work while the remainder 59% use the social platforms for other reasons. This shows that more than half of the students use the social networks for other motivations than work purposes. This results lead to further needs of investigations. Specifically, what do students do on social networks when they do not work? What are their main activities on the social networks.

Figure 5 summarizes the main activities of the students on internet. The top five (in descending order) of the main activities of the students is e-commerce, chatting, information, entertainment, and work. Occupations such as work and studying come at the bottom of the list. These results strengthen those of **Figure 4** showing that the majority of the students do other things on social networks than working or studying. This behavior will have an impact on their academic performances as shown elsewhere by studies such as [6] [9] [10] [11]. Moreover, a few proportion of students (5%) spend their time of the social networks by doing nothing. Although this might seem harmless, it implies the addiction of students to the social networks.

4.5. Time Spent on Social Networks

We investigate the time spent by the students in a day period on the social networks. Three time range were proposed: less than 2 hours, between 2 and 5 hours, and more than 5 hours. The results of our investigations are shown in **Figure 6** and we found that almost half of the respondents (43.62%) spend 2 to 5 hours per day on the social platforms whereas 36.04% and 20.33% spend daily more than 5 hours and less than 2 hours, respectively. In general, we notice that the students spend too much time of internet. Spending too many times on social networks may be detrimental [5] [8] [9] [10] [11], especially if the time is
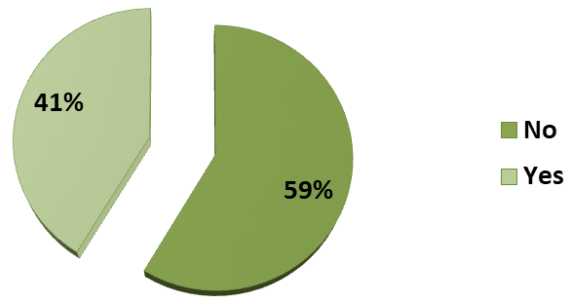
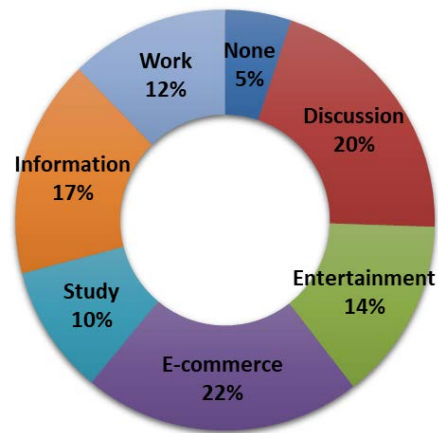**Figure 4.** Proportion of youth working or not on social networks.

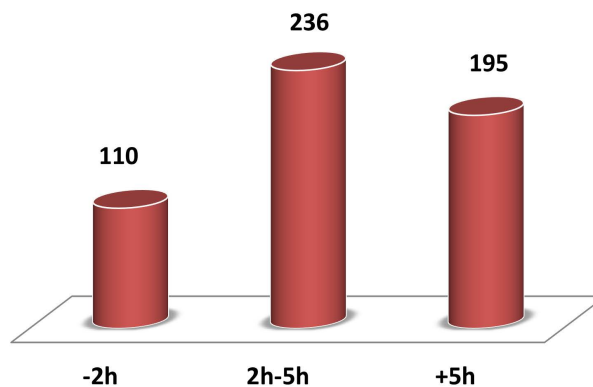**Figure 5.** Main activities on social networks.

Figure 6. Time spent by youth on social networks.

not used for some good reasons (e.g., work, study or information, and so on). Unfortunately, this is the case in our survey as shown in Section 4.4 and illustrated by **Figure 4** and **Figure 5**.

4.6. Addiction on Social Networks

One of the dangers of the social networks is the addiction [19]. It is therefore important to show the participants' perception of being addicted or not to the use of social networks. To investigate this issue, we ask the respondents the following two questions 1) if they can dispense themselves from the social networks

and 2) if they are addicted to the social networks whose answers are respectively shown in **Figure 7** and **Figure 8**. The results indicate that one third (34%) of the students believe that they cannot dispense themselves from the social networks and the same proportion (33%) state that they are addicted to these platforms. These findings agree with the results of Section 4.5 and **Figure 6** as more than 36% of the respondents spend more than 5 hours in the social networks. However, it is noteworthy to state that this result stems from the user's perception, it is not based on individual evaluations of the participants by psychological resources.

4.7. Harassment on Social Networks

The excessive use of the social networks by students may lead to negative consequences [19]. Besides the addiction, another risk of spending too much time on the social networks is the cyber criminality, cyber bullying and youth harassment [20]. For the students in particular, the risk that they undergo online harassment is important [20] [21]. We have investigated this issue as well and the result in **Figure 9** shows that 12% of the respondents state that they have been victims of online harassment. When it is done persistently, cyber harassment might be dangerous for the mental and physical health of the youth as this can cause them serious stress and troubles. In fact, the online harassment can go further up to physical attack, sexual abuse, and stalking [22]. The consequence
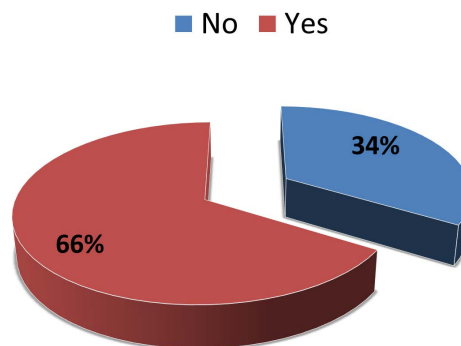

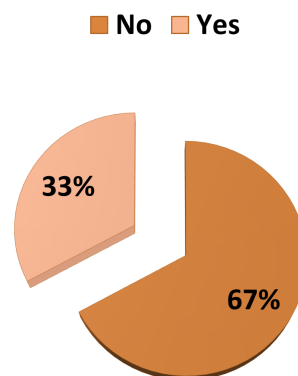**Figure 7.** Can you dispense from the social networks?

Figure 8. Do you think that you are addicted to the social networks?

will be serious for young population, especially the young girls [22]. More important, the majority of the students that have been harassed or bullied do not tell about it as shown by **Figure 10**. As such, it is difficult for the parents and governments to tackle this problematic as reported in [21] [22].

4.8. Viewpoint on Social Networks

We would like to know now the viewpoint of the concerned students on the social networks. For this purpose, we ask the respondents two questions: 1) do you have a good or bad opinion on social networks? and 2) do the social networks impact your behavior?

Figure 11 and **Figure 12** show respectively the results of the two aforementioned questions. Although 43% of the students have a bad opinion on social
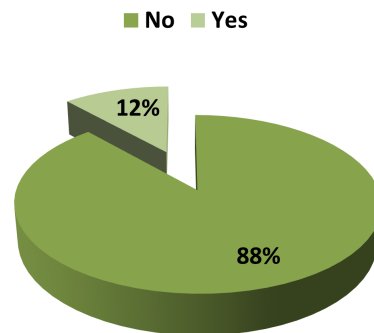

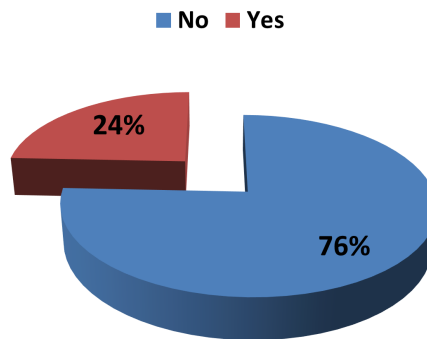**Figure 9.** Have you been victim of harassment on social networks?

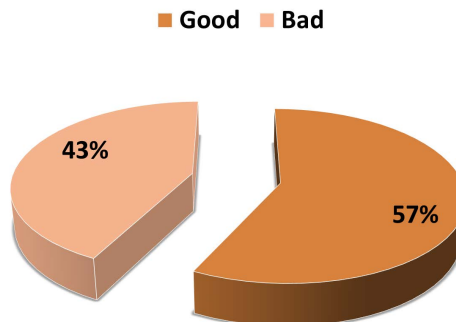**Figure 10.** Have you been talk about your online harassment to someone?

Figure 11. Do you have a good or bad opinion on social networks?
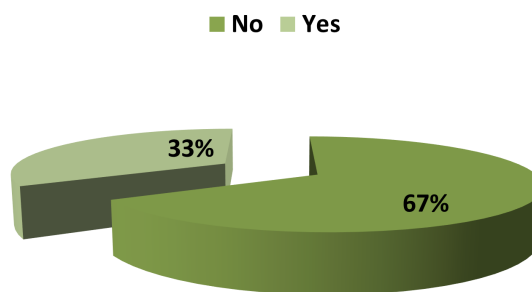
■ **No** ■ **Yes**

Figure 12. Does social networks impact your behavior?

networks, the majority believe that the social networks are good tools to enhance their academic performance and life quality. Those who have a bad idea of the social networks fear the negative consequences that we previously mentioned, e.g., such as the addiction, the online harassment, the decrease of academic performance, and so on... Although they think it is bad, almost the half of the respondents still continue to use the social networks indicating that its benefits might be more valuable and important that the detrimental effect in general.

On the opposite, the majority of the students (67%) believe that the social impact does not impact their behavior while one third of them admit that the social networks impact their attitude either in real life or online. We understand why the online platform is nowadays used as favorite place for news diffusion as the audience is broad, and international. Indeed, the social networks are used as platforms to propagate political opinions and messages, especially in western countries such as the USA where about 43% of adults get their political news primarily through social media or online platforms [23].

5. Conclusions

This study addresses the usage of the social networks and its platforms among students in the biggest city of Côte d'Ivoire, Abidjan. After the processing of the survey results, several findings were obtained. We observed that the mobile phone is the most used devices, WhatsApp is the most used platform, and more than 64% of the respondents are aged from 19 to 25 years old. Almost half of the students state that they work on the social network platforms and e-commerce, discussion, and information are their main activities. Moreover, it turns out that almost half of the students spend 2 to 5 hours on the online platforms whereas more than one third of the students spend more than 5 hours daily. As the users spend too much time on the online platform, we questioned about their addictions and found that about 33% of the students believe that they are addicted to the social networks and the same proportion state that they cannot dispense themselves from it. Our investigation shows that more than 10% of the students have been victims of cyber-bullying. Finally, one third of the questioned students believe that the social networks impact their behaviours.

It is noteworthy to stress that this study focuses on a quantitative or descriptive analysis of the social networks' phenomenon among the students. However,

future research could concern the qualitative analysis such as the impact of the social networks on students' performances at school, the statistical distribution of the time spent by students or users online and their age.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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