Students and the Risk of Virtual Relationships in Social Media

Improving Learning Environments

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Abstract—This study is aimed to analyze the risks of students' virtual relationships in social media. The study's sample consisted of 200 students from the Ajman University (UAE). The study used a questionnaire survey to identify the risks of virtual relationships. It was found that virtual communication in social media is of moderate risk for youth. The study found that there are no relevant differences in risk assessment between genders. The respondents have distinguished risk groups that should be given priority attention. Among them were the reduction of real communication compared to virtual, diminishing the importance of communication with teachers, the danger of interference with users' personal data, and the lack of caution in the virtual communication process. The study offered recommendations to reduce the virtual communication risk through the cumulative effort of family and university, leisure-time activities, and awareness-rising classes.

Keywords—Virtual relationships; Social media; Emerging technologies; Youth; Learning Environments

1 Introduction

A virtual community is a social network of individuals who interact via communication media [1, 2], crossing geographical and political boundaries to pursue mutual interests or goals [3]. The most common virtual communities are online communities operating under social networking services [4, 5]. Virtual relationships within virtual communities [6], whether strong or weak, positive or negative, shallow or deep [7], impact individual's attitudes, values, goals, and behavior in a way similar to that offline [8].

The era of social networking began in 1997 with Six Degrees.com, the first recognizable social network site that allowed users to create profiles, comment on news, and exchange messages with other participants [5]. The most popular social media websites in the world are Facebook, Twitter, Instagram, Snapchat, and WhatsApp [9]. Educational institutions may use these social networking apps to work with students and follow up on their progress through life and learning [5, 10]. The

recent social media boom impacted greatly communication [9, 11]. Students make up a bulk of social networking service users, accounting for 93.48% of the Facebook user base and 63.77% of the Google user base [12]. It was emphasized that an excessive use of the Internet leads to lower academic success while having access to the Internet at home increases the time students spend online [13]. There are reports on the prevalence of psychosocial problems among students [14], i.e., internet addiction, social isolation, lack of concentration, and depression [15].

Vast attention is given to the gamification of learning as the most effective way to attract students' attention and reduce addiction to virtual communication. Gamification is understood as the use of computer game elements in learning process, and the introduction of gaming technologies in the organization and presentation of study material. The primary goal of educational games is learning rather than entertainment [16-18]. Recently, many researchers have focused on opportunities of virtual environment. In particular, analytic applications are being developed and integrated into the creation of modern educational games. This greatly facilitates the development of new gamification education tools that can captivate youth [19].

Students use social networks mostly for entertainment and to build social relationships with other people [20]. This study is concerned with the risks that come with virtual relationships in social media and affect youth, specifically cyberbullying, sexting, and depression. Cyberbullying refers to the act of spreading false, embarrassing or hostile information about a person. It is among the biggest risks of using the Internet and can cause profound social and psychological consequences such as depression, anxiety, isolation, and suicide [21, 22]. Sexting is defined as sending, receiving, and forwarding sexually explicit messages and photos to non-expecting individuals via mobile media and computers. According to recent studies, 20% of adolescents post nude or semi-nude photos of themselves, some of them are accused of spreading pornography and faced felony pornography charges [7, 8, 23]. Depression develops as a result of spending too much time on social media sites such as Facebook. Depressive symptoms include social isolation, addiction, destructive and self-aggressive behavior, loosely speaking etc. Spending too much time on social media destroys families [24-26].

The relevance of the study stems from the following points:

a) students are obsessed with using social media.
b) personal information posted on the internet or stored in a cloud and on electronic devices can be easily stolen by hackers.
c) social media, especially Facebook and other networks, increasingly consume time, leaving no room for work and study.
d) the rate of crimes against social media users such as fraud, theft, sexual extortion, etc. grows, posing a threat to security and sustainability of the Arab society.

2 Literature Review

Research on the risks of virtual relationships primarily focuses on several areas. First, it is the use of social networks and virtual communication environment as a

means of marketing [27]. The widespread use of marketing technologies does not take into account the needs of people, especially youth, whose motivation has not yet been fully formed, and the psyche is more easily amenable to external influences [1]. For youth-oriented companies, this opens up significant opportunities. However, many researchers tend to study the use of marketing strategies influencing customer choice as a form of risk for the psyche [4, 21]. Most of these risks are not recognized by the customers and regarded as a natural part of the virtual environment. At the same time, advertising can gradually change forms of behavior, form habits and behavioral patterns, which can be difficult to abandon. Many authors point out that the risks of drinking alcohol, smoking, consuming unnecessary medications or dangerous foods come from the advertising content [21].

For over a decade, most of the research has been devoted to the negative impact of virtual games, communication, and content on young people's behavior and academic performance. Here, as a rule, two main forms of risks stand out. The first is depressive states, loss of real interaction, restriction of personal social space, and refusal to communicate outside the virtual environment [28]. A number of researchers believe that the physiology of the human brain and the physical factors of interaction with computer technology play a meaningful role in this case [29].

A lot of studies are devoted to the connection of activity in social media and academic performance of students, as well as psychopathologies that arise due to the excessive use of virtual communication. Many researchers indicate a direct correlation between the amount of time spent on the use of social media and the decline in educational performance as well as breaking of the social relations [9, 10, 13, 30]. Some scholars offer a number of opportunities for building students' psyche stability against the impact of social media, which allows using these media technologies as an effective tool for personal development and learning [31].

Another important aspect in assessing the risks of virtual reality and social media is cybercrime. Researchers point out that it is social media that often serves as a means of involving college and university students in illegal activities, as well as a method of psychological exposure to them, for example, with the aim of intimidation [32, 33].

Scholars agree that virtual communication remains a part of the digital environment, and, one way or another, it is necessary to look for ways to select and disseminate the best practices for its rational use [5]. These practices already play a significant role in the development of e-learning, blended learning, collaborative forms of study, and other forms of training [11].

Virtual environment and various groups in social networks can serve as a source of non-formal education, contribute to the formation of learning links and can be used to process and select useful knowledge in an area of user's interest. Their limitations are related to the fact that the collected computer knowledge is usually unstructured and exists in the form of discussions and forums. Therefore, nowadays, more and more studies appear on how to make virtual communication sources an effective learning tool [34]. During the use of virtual communication, as well as most of today's specially developed virtual tools, such as video games, one can even develop empathy, attentiveness to other people, become more tolerant towards persons with disabilities, and form other important social standards of behavior [35, 36].

As far as it is known so far, no attempts have been made to identify a broader range of virtual communication threats. Many studies focus on several associated risks or their particular aspects, but no general assessment is made. The present work considers the importance of these risks for university students and identifies the most significant of them.

3 Methods

3.1 Research design

This study is based on a research method that describes characteristics of the virtual communication risk [37] and uses comparative and interpretation approaches to reach accurate results [38].

3.2 Participants

A total of 1564 random male and female students from the Ajman University constituted the research population. Out of them, a random sample of 200 students was exposed to a social survey. The sample size necessary to identify social media risks was determined by the following dependences:

$$\text{So} \rightarrow \text{N} \rightarrow = \frac{\rightarrow * \text{n}}{1 + \frac{* \text{n}}{\text{n}}} \tag{1}$$

Where: *N* represents the size of a research population subset; **n* represents the finite population; and *n* represents the research population (n=1564).

$$\text{So} \rightarrow * \text{ n} = \frac{\text{z}^2 \times \sigma^2}{\text{D}^2} \tag{2}$$

Where: *D* represents the estimation error, calculated as an absolute maximum difference between the mean of the sample and the mean of the population; *z* represents a score for 99% confidence interval with a significance level of 0.01 and equals 2.58; and σ represents the variation of social vocabulary.

$$* \text{ n} = \frac{(2.58)^2 \times (5{,}86)^2}{(1)^2} = 229 \tag{3}$$

Hence, the required sample size turned out to be:

$$\text{N} = \frac{229}{1 + \frac{229}{1564}} = 200 \text{ students} \tag{4}$$

3.3 Research instrument

Students within the sample were asked to fill out a specially created 20-item questionnaire form, assessing their attitude towards virtual relationships in social media.

Questionnaire validity: The questionnaire construction was shown to a group of experts to make sure that the topic of the research was captured effectively and that all items within the form are consistent with each other and with the survey goals. The questionnaire was also examined for leading and confusing questions. The group of experts consisted of faculty members from the university.

Questionnaire reliability: The same questionnaire normally produces the same results if used again under the same conditions. This study assessed the reliability of the questionnaire with a pilot test using a retest approach. The questionnaire reliability evaluation was performed on a small random sample of 10 students, with a retest interval of 15 days. The correlation coefficient of 0.81 (r) was found, assuming good reliability. The degrees of freedom for the correlation in N-2 were 0.632 (estimated, $p \leq 0.05$) and 0.765 (true, $p \leq 0.01$). The reliability index calculated as the square root of questionnaire's reliability coefficient was 0.90, assuming high reliability.

3.4 Data collection and ethical approval

Random students were studied from September 2019 to January 2020 once they gave verbal consent to participate. All involved were given an assurance of confidentiality. During the survey, no personal data about participants were made public.

4 Results

4.1 Characteristics of the research population

Table 1 presents the frequency values and proportions of the research population obtained after statistical processing, based on gender, age, and the use of various social media.

Table 1. Characteristics of Respondents

Category	Group	Frequency, #	Proportion of Total Population, %
Age	18 years	74	37
	21 years	64	32
	24+	62	31
	Total	200	100
Gender	Female	104	52
	Male	96	48
	Total	200	100
Use of social media	User	187	93.5
	Non-user	13	6.5
	Total	200	100
App	Facebook	84	42
	Instagram	31	15.5
	Snap Chat	18	9
	Twitter	29	14.5
	WhatsApp	38	19
	Total	200	100

The distribution of social media users is presented in detail in Figure 1.

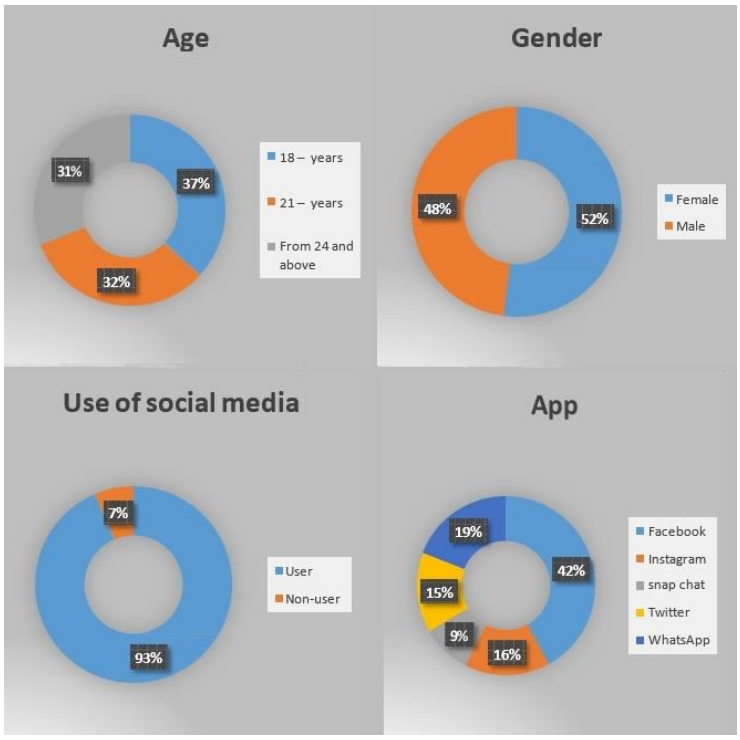

Fig. 1. The Percentage of Respondents by the Following Categories: Age, Gender, Use of Social Media, and App

From data above, the majority of students, 37%, are, as expected, 18 years old, followed by those of 21 (32%) and over 24 (31%). Many high school graduates seek to complete their education to be competitive in the labor market [39]. The period between 18 and 20 years is considered one of the most important stages in life that comes after adolescence and brings responsibilities with it. Given this, the age-based distribution pattern that has been found here is not a coincidence. As students seek to complete their education, they spend most of their time on the Internet learning or communicating with other students. Female students outnumbered their male co-students with a female-male ratio of 52 to 48 percent. This division originated from the fact that women in the Arab community have less freedom to spend time with their friends, as compared to men [40]. This may be the reason why women are more prone to use social media for entertainment and communication. The majority of students, 93%, make use of social media apps, probably due to their ease-of-use and access to the internet services. It turned out that the most popular social media app is Facebook, favored by 42% of students [41, 42]. This finding is consistent with the previous studies [12], which claimed Facebook to be the major app of choice. WhatsApp was the second social media app after Facebook, with 19% of students using it, followed by Instagram (15.5% of student users). Twitter (14.5% of student users) and Snapchat (9%) close the list. These apps are preferable for their multiple features that promote interaction between subscribers.

4.2 The ‘risk of virtual communication’ survey results

Overall, 200 students completed the questionnaire forms. The questionnaire contained twenty statements, each of which the participants had to rate on a ten-point scale, where 1 corresponded to "completely disagree" and 10 meant "completely unconditionally agree". For each statement, the average value for the entire group of respondents was calculated. The survey was conducted anonymously so that no personal data were recorded. Thus, the researchers knew only the numbers that identified the study participants. For the purposes of this research, the analysis was based on the participants' age and gender.

Each of the questionnaire's statements represented one of the possible risk factors identified by the authors during virtual communication in social networks. Figure 2 explicates the results of rating distribution for 20 statements regarding the respondents' gender.

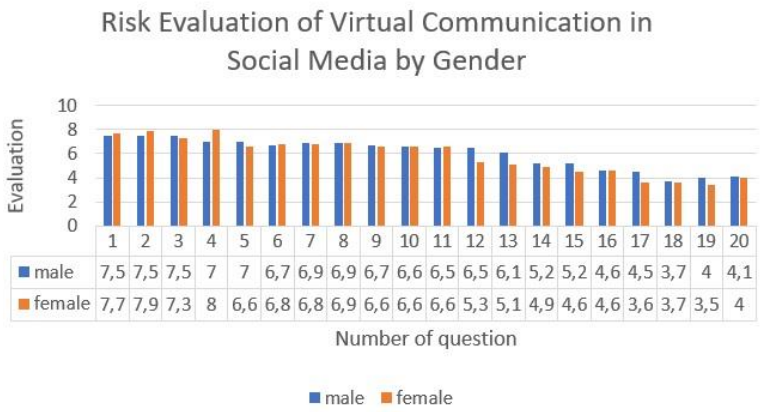

Fig. 2. Risk Evaluation of Virtual Communication in Social Media by Gender

Differences in the estimates of men and women in this examination are within the standard deviation of the sample, that is, cannot be taken into account. The standard deviation for men is 1.269, for women - 1.5066; the total for the entire sample is 1.3781. In any case, answers were not influenced by gender.

The first four statements turned out to be evaluated higher than others. They relate to the expected high rate regarding fears of discussing personal feelings or relationships with friends (6.98 for men and 7.98 for women) and the possibility of data loss (7.5 for men and 7.31 for women). In the first place for both sexes turned out to be the recognition of insufficient caution when communicating on the Internet (7.53 for men and 7.68 for women) and the belief that social media should promote personal development and scientific communication (7.52 for men and 7.88 for women).

The restraint of respondents' assessments should be especially noted. A very broad assessment framework provoked the ability to give extremely high or extremely low rates. However, the overall average rates' fluctuation for all the questionnaire statements is close to average values. This suggests that almost all respondents recognize social media and virtual communication in much the same way, and there are no significant differences in views across the sample. Thus, the study results can be successfully applied to all students of the corresponding age, confirming the practical importance of the obtained outcomes.

The second very significant part of the risks concerns the statements that take positions from 14 to 20. They received ratings below 5 points, that is, a low degree of agreement. The possibilities of online sexual relations (4.9 for men, 5.1 for women) and the need to reduce the amount of time spent on the Internet (5.16 for men and 4.55 for women) received relatively poor ratings. Moreover, statements about the greater benefits of real communication compared to virtual (4.56 for both sexes) or the more significant advantages of receiving information from a teacher than from online communication partners (3.98 in men and 3.45 in women) were also evaluated unexpectedly low. This indicates that all these factors represent quite pronounced risks.

As it can be seen, the major risk of virtual communication among students is that they are not the most cautious users of the social media platform and may violate the terms of privacy or become a victim of such violation. Besides, they feel like their freedom should not be restricted and they do not bother with balancing the quality of family and virtual relationships. This is consistent with the previous study [15], where the prevalence of psychosocial issues like social isolation and depression is linked to social media addiction.

5 Discussion

The new generation of young people was born in the era of the Internet, which shaped their perception of the world differently [5, 7, 8, 21, 43]. Most young people are simply not able to spend much time without constantly immersing themselves in virtual reality [22, 31]. Social networks represent the most important corner of this reality, enabling distant social contacts. To some extent, contacts that take place outside a social network or offline are perceived as non-existent or not real [27]. This situation is consistent with the results identified by the present study. Though, as can be seen from Figure 2, this risk is closely related to other similar factors, which have received a close assessment. Thus, increasing social distance is closely linked to virtual addiction.

Many studies have been devoted to Internet and social media addiction over the past five years [25, 26, 28, 31, 44]. Studies on the impact of social media on students and their academic performance show ambivalent results. On the one hand, the excessive Internet use has a negative effect on academic performance and quality of education and may cause depression in those who overreact to the behavior of others [11]. As follows from the current study, students themselves do not recognize this factor as dangerous – the need to reduce the time spent on social media has not received their support. On the other hand, e-learning and the competent use of cloud technologies during learning have a very positive effect on both the speed of knowledge acquisition and skill of using Internet to find information [5, 9]. Digital natives demonstrate an ability to effectively learn in a digital setting using the network resources [10, 28].

Dependencies, as follows from a number of studies, are based on the convenience and attractiveness of electronic devices, primarily for entertainment. The constant development and movement towards the intuitiveness of the user interface affect even the use of mobile devices as access points for e-learning. It was noted that the main reasons for the low frequency of use of mobile devices to access Moodle educational resources were the limitations in the interface usability and reliability [45].

The teachers' example remains the main factor that influences the interaction of youth with network resources. It has been established that the way the instructor uses the e-learning system greatly determines students' action patterns in the learning management systems (op. cit.).

Some studies show a connection between the emergence of personality disorders (e.g., manic-depressive and schizotypal personality disorders) with the amount of time

spent on social media and the Internet in general [22, 31, 44]. Typical behavioral disorders involve changes in motivation, when virtual "likes" from unknown people mean more than the approval of those who you love [5, 29, 33]. People with dissociative disorders often imagine someone's life brighter and better than it actually is [7, 46].

Social networks are increasingly becoming a source of psychological addiction and a tool used to promote criminal activities [23, 32, 44].

Studies on depressive states among young people, especially students [27], revealed a gap between real life and its perception by social media users. Visually appealing photos posted on a social media platform are perceived as a life goal and a role model but they are usually filtered, fake or artificially created [24, 43]. Frequently, these photos convey important values such as independence, social freedom, complete financial independence, privacy, and opportunity to have fun and travel.

Researchers have been studying the mechanisms and possibilities of forming resistance to the said side effects [8, 30, 31] by strengthening one's awareness of his/her personal interests, encouraging wide friendships, and promoting family values [10, 25, 28]. It is of importance to increase contacts with a teacher, receive information from real friends, and better communicate with family and relatives. The latter have further positive educational impact. Many researchers note that the risks of virtual communication are not linked to gender, age, or the social status of those engaged in virtual communication [7]. However, almost none of the researchers identified specific risks in the personal attitudes or behavior of young people that could serve as markers for teachers and parents.

It should be noted that a significant proportion of respondents using social media seek to find ways of using it for making a living and demonstrate a rather high level of understanding of risks that come with virtual communication (Figure 2). Resistance of students to Internet addiction may be addressed in future studies. Further research on this issue should be concentrated on various aspects of young people's awareness of virtual communication risks and interaction with the digital environment as a whole. Only a few studies have yet been devoted to the formation of personality traits and behaviors that allow avoiding above-mentioned dangers as well as how the learning environment can assist in shaping these traits.

For practical purposes, the results of this paper can be applied to determine the general policy of the interaction of educational organizations with students and their families in order to increase academic performance and reduce the risks associated with virtual communication.

6 Conclusion

Unlike already existing studies, the present paper reviews specific parameters of the most significant risks for young people arising from virtual communication and social networking. These parameters are expressed as meaningful statements that can be relied upon in pedagogical work with young people and students, in particular.

Virtual communication risk is reducible through a cumulative effort of family and university to provide students with leisure-time activities where they can build non-virtual friendships. Young people should be encouraged to understand the dangers of sexual relations on the Internet. Awareness-rising courses should be established through which students can learn about pros and cons of the social networks and about Internet privacy. It seems necessary to encourage youth to inform their parents of any case of threat or blackmailing. The present findings demonstrate the need to loosen the self-expression policy. This study may serve as a motivation to increase the interest of educational institutions in holding seminars to raise the ethical and cyber awareness of young people.

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10 Annex 1

The Questionnaire “Ranking of the risks of social virtual relationships of social media on youth”

1. I am not cautious in my relationships with others on the Internet.
2. I believe that social media has its advantages in the good exploitation of the individual in discussions and useful scientific dialogues.
3. I see that my privacy is violated on the Internet.
4. I ashamed to discuss my friends on the internet in sexual matters.

5. I see the role model and the ideal is in the style of my father's personality and not in friends I have never seen before on the internet.
6. I do not believe in a culture that restricts my freedoms in anything that is permissible or not.
7. I don't care that my relationships with my family are as good as the quality of my relationships with my friends on the internet.
8. I do what I want whenever I want and do not adhere to a religious or moral link on the Internet.
9. I do not accept downloading my personal photos on the internet.
10. I believe that there must be ethical rules in the ways of dealing between males and females on the Internet.
11. I do not allow my online friends to interfere in my personal life.
12. In my opinion, I should check the personalities of those who hesitate on my social media account before agreeing to accept their friendship.
13. I don't care about others criticizing me because of my default towards my life duties.
14. I Reject sexual relationships online.
15. I believe that the period of using social media should be limited to a few hours during the day so as not to waste time.
16. I believe that effective human beings can integrate with his family and close relatives better than the imagination of Internet relations.
17. I like to make friends with my university colleagues better than online friendship.
18. I think that most of the ideas that are circulated on social media are outside the decent framework.
19. I see that the principles and values I learn from my university professors are much better than what I learn from my online friends.
20. I like that many of my online friends have fake names.