MIPRO 2013

36th International Convention

May 20 - 24, 2013
Opatija, Croatia

Proceedings

Conferences:
Microelectronics, Electronics and Electronic Technology /MEET
Distributed Computing and Visualization /DC VIS
Telecommunications & Information /CTI
Computers in Education /CE
Computers in Technical Systems /CTS
Intelligent Systems /CIS
Information Systems Security /ISS
Business Intelligence Systems /miproBIS
Digital Economy - 10th ALADIN /DE
Government, Local Government, Public Services /GLGPS
MIPRO Junior - Student Papers /SP

Edited by:
Petar Biljanović
International Program Committee

Petar Biljanović, General Chair, Croatia
A. Abelilo Gamazo, Spain
S. Amon, Slovenia
V. Andelić, Croatia
M.E. Auer, Austria
M. Baranović, Croatia
L. Bellatreche, France
N. Bogunović, Croatia
A. Budin, Croatia
Ž. Butković, Croatia
Ž. Car, Croatia
M. Colnarić, Slovenia
A. Cuzzocrea, Italy
M. Čičin-Šain, Croatia
D. Čišić, Croatia
M. Delimar, Croatia
T. Eavis, Canada
M. Ferrari, Italy
B. Fetaji, Macedonia
T. Galinač Grbac, Croatia
L. Gavrilovska, Macedonia
M. Golfarelli, Italy
S. Golubić, Croatia
F. Gregoretti, Italy
S. Groš, Croatia
N. Guid, Slovenia
Y. Guo, United Kingdom
J. Henno, Estonia
L. Hluchy, Slovakia
V. Hudek, Croatia
Ž. Hutinski, Croatia
M. Ivanda, Croatia
H. Jaakkola, Finland
R. Jones, Switzerland
P. Kacsuk, Hungary
A. Karaiyanova, Bulgaria
B. Katzy, Germany
C. Kittl, Austria
D. Knežević, Croatia
M. Mauher, Croatia
B. Mikac, Croatia
V. Milutinović, Serbia
A.-I. Mincu, Slovenia
V. Mrvoš, Croatia
J.F. Novak, Croatia
J. Pardillo, Spain
N. Pavešić, Slovenia
I. Petrović, Croatia
J. Radej, Croatia
G. Radić, Croatia
S. Ribarić, Croatia
K. Skala, Croatia
I. Služanović, Croatia
V. Smokvina, Croatia
V. Sruk, Croatia
N. Stojadinović, Serbia
J. Sunde, Australia
A. Szabo, IEEE Croatia Section
L. Szirmay-Kalos, Hungary
D. Šimunić, Croatia
G. Škvarč, Croatia
A. Teixeira, Portugal
E. Tijan, Croatia
A.M. Tjoa, Austria
R. Trobec, Slovenia
I. Turčić-Pršačić, Croatia
W. Ukovich, Italy
I. Uroda, Croatia
T. Vámos, Hungary
M. Varga, Croatia
B. Vrdoljak, Croatia
R. Wrembel, Poland
B. Zajc, IEEE Region 8, Slovenia
The influence of social networks on student’s evaluation and results

Aleksandar Skendzic*, Bozidar Kovacic **, Davorin Valencic ***

*University of Applied Science, Gospic, Croatia
** University of Rijeka/Department of Informatics, Radmilo Matejcic 2, Rijeka, Croatia
*** University of Applied Science Velika Gorica, Velika Gorica, Croatia
*Phone: (385) 51-584-700 Fax: (385) 51-584-749 *E-mail: askendzic@velegs-nikolatesla.hr, **kovacic@inf.uniri.hr, ***davorin_valencic@yahoo.com

Abstract - The influence of social networks, Facebook especially, and on student population are often subject to various investigations. The analysis of the interdependence between the values that determine trends in the use of social networks in the student population is possible to determine the impact of social networks on students' evaluation and results. The starting assumption implies better performance of students who use social networks for occasional contacts with other users in relation to the students who have active status on social networks. The research deals with the validation and analysis of the interdependence of the assumptions set of relevant values. It is expected that the interdependence of time spent on the social network to publish the current status and results achieved (success) exams had a negative correlation coefficient. The results of the research will focus future research on the impact of social student population based on the calculation and analysis of the interdependence of the relevant parameters using social networks.

Keywords: social networks, impact, analysis, student's evaluation.

I. INTRODUCTION

Social networks are relatively “new” way of mass communication among their users. When we speak about this “new mode” of communication, we are obliged to consider it with some reserve. Social communication exists since ever and represents simple way of social communication with the scope of maintaining the existing circle of friends, and it's expanding. Expanding of the circle of friends results with the parallel expansion of social network of users/singles. According to Jacob Moreno, sociometric procedure is one of modes (method) for exploring a social network. This procedure is used in sociometres that is one of the understandings in sociological logic psychology studies. The procedure is based on disclosure of the structure of relations (type of appeal, of authority, respect etc.) within a small social group (group, assembly, class, division...) and the results are represented graphically on sociograms – the graphic expression of social interactions among individuals.

Nevertheless, Moreno defines the term “social communications” and based on that, it is possible to conclude that social networks can be integrated in real world and the social networks of today transfer the concepts and ideas on the widely expanded network – Internet. Internet has become the “ideal” platform for creating social networks, which in this case aren’t limited by area (geographic), but have no obstacles. At the beginning, social networks were used mostly by younger individuals, while, nowadays, they are used even by elderly population. Creation of social networks on internet was allowed mostly by advanced services as MySpace, Facebook, Twitter and many others. Chapter I is going to give the introduction on the phenomena of social networks in society; Chapter II. describes social networks and communication, Chapters III. and IV. express the scope of the research, methodology and the results.

II. SOCIAL NETWORKS

Online social networks can be defined as a “service based on the web that allows individuals to (1) create a public or semi-public profile within a limited system, (2) to articulate the list of other users for sharing the connection and (3) to look and to use their own list of connections within the system.”2 Online social networks use in a way the methodology of “Open Access”. They are available for all users and are not submitted to intellectual property rights and limitations. During the process of registration, the user is informed in advance with privacy rules and availability of personal data. The popularity of online social networks is result of the fact that they are based on social interaction among the users, without being obliged to belong to any interest group like internet pages dedicated to interest communities (chat, news group, different forums and similar). Wellman3 states that “the world is made of

---

networks and not of interest groups". Communication among "users" of social networks is made of "introduction" of persons by own users’ profiles. Users’ profiles "disclose" relevant characteristics of a person (sex, age, hobby, interests, employment, activities) accompanied by multimedia material like photos, video clips or audio recordings. Identity is the key term on social networks. Identity is the mean to recognize the users of a network community. The user of a social network builds the own identity based on personal data, habits and other recognizable characteristics. It is known, that, before the popularization of social networks and the Internet as a media, people were identified by different "fazes" (clothing stiles, habits, activities) that changed in time.

Today, the most popular social network service is Facebook. Facebook has been designed as a support to other social networks at universities. The service started on 2004 as a service for on line social networks just on Harvard, and the user had to have harvard.edu e-mail address. In time, Facebook started to include other universities, high schools, corporations, and in the end, all that are older than 13 years of age. Popularity of Facebook can be seen in numbers: more than 600 millions of active users per month, 50% of active users log every day, average user has 130 friends, users spend on Facebook 700 millions of minutes monthly. The data that 200 million users use Facebook on mobile devices is interesting.

The statistical data for Republic Croatia are given on the next graphic (Picture 1):

![Graph showing Facebook usage in Croatia](image)

**Fig. 1.** Croatia is at 70th place in the world on number of users of social networks in according with the size of the population, and it is notable the growth of users from +2.69% and penetration of 35.97%. 365 diagram

From the statistic point of view, it is possible to deduct, that Facebook has, surely, become widely expanded way of communication and from the sociological point of view it has become the new form of individual or group activity.

New forms of communication, connections and the status of individuals are induced. Social networks have the phenomena of "Internet Addiction". As much this addiction relates to use of social networks, it’s related to the use of internet as a media space, too. To show in more expressive way the "mass expansion" of social networks in all aspects of human society, the research conducted by Cisco Expo in 2010 in business sphere has to be noted. According to that research, 13% of companies were present in social network cannels.

The term "social network" consists in a wide spectrum of users’ social interactions. From acquaintances to introduction, from exchange of experiences to communication and distribution of media materials (photos, videos, speech and etc.). The results of the use show all the advantages and disadvantages of this way of communication. As disadvantages the culture of socializing, of speech, of behavior can be accused and protection of privacy is an always actual problem.

### III. Previous Researches

Different researches on influence of Facebook and social networks on students have been published. The first research has been done by scientists from Lockhaven University in Pennsylvania. They have published a study that examined the influence of use of Facebook on faculty grades. The research was made on a sample of 1,800 students, and the conclusion was that there is a certain connection between the use of the biggest social network of the world and bad grades. Of all examined students 92% use Facebook, and they spend averagely 106 minutes. The use of Facebook does not have any influence on students’ exam grades, but students that use it for more than three hours per day have notably weaker results.

The research, also, shows that users that on social networks (e.g. Facebook) share only links or they just check out what their friends do, often have better faculty grades. On the other side, those that just publish states like: OMG, LOL and similar, in which they write what they are doing and where they are, in majority have worse results. In conclusion of this research it is stated that Facebook itself doesn’t have bad influence on students, but it is important the way they use it. If it is used in the context of activities not connected or irrelevant for studying it can have bad influence on students’ grades or results.

The second research has been published by the American Educational Research Association on Ohio State University. This research has showed that people using social networks have worse results on tests. In conclusion, the results of the research have shown that students that use Facebook relatively regularly (meaning daily) have much

---


worse results on tests than students that don’t have the habit of being on Facebook regularly. Students and other persons that use intensively social networks in the form of changing their statuses almost daily can have only 1 hour per week for intensive studying. There is also research done by The Ohio State University at Columbus which surveyed 219 undergraduate students to determine whether or not there was a link between Facebook usage and Grade Point Average (GPA).\textsuperscript{11}

IV. SCOPES AND METHODOLOGY OF RESEARCH

Today, Facebook has more than 500 million users. The website is very popular amongst students in high school and college. Facebook allows students to socialize in multiple ways. But when this technologically enhanced social life is extended into the academic life of students, grades\textsuperscript{12} can be severely affected.

To analyze and confront the results obtained by researches done by Reynol Junco\textsuperscript{13} at the Pennsylvania University and the American Educational Research Association (AERA)\textsuperscript{14}, in this research similar method has been used, but on smaller sample of respondents. This research was supposed to show that even on a smaller number of respondents (100 respondents) there is a connection between students’ results and the use of social networks, and it was supposed to confirm the results of previous researches. The research was done at University of Applied Sciences in Gospic at January 2013. A questionnaire has been prepared for the research sample. The scope of the research is to show correlation between results and the statement that the use of social networks has the influence on the success of students during their course of study. A questionnaire has been focused on the next topics:

- Type of social networks
- Time conducted on social networks during a day
- Time conducted on social networks during a week
- Frequency of updating social network’s profile
- Number of users in social networks
- Time conducted on social networks for educational activities
- Kind of educational activities on social networks
- Average grade of study

It is expected that the correlation between the time spent on social network with the scope of publishing actual state and the results obtained (successes) on exams should have the negative coefficient of correlation.

VI. RESULTS OF RESEARCH

During evaluation of summed results, this is what was obtained (as shown in Table 1, Table 2 and Table 3):

<table>
<thead>
<tr>
<th>Table 1: Time conducted on social networks during a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question: How much time do you spend on social network during a day?</td>
</tr>
<tr>
<td>Answers</td>
</tr>
<tr>
<td>Less than 1 hour</td>
</tr>
<tr>
<td>1 hour</td>
</tr>
<tr>
<td>1-3 hours</td>
</tr>
<tr>
<td>More than 3 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Time conducted on social networks during a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question: How much time do you spend on social network during a week?</td>
</tr>
<tr>
<td>Answers</td>
</tr>
<tr>
<td>Less than 8 hour</td>
</tr>
<tr>
<td>8 hours</td>
</tr>
<tr>
<td>More than 8 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3: Grade of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question: What is your study grade?</td>
</tr>
<tr>
<td>Answers</td>
</tr>
<tr>
<td>Satisfactory</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Very good</td>
</tr>
<tr>
<td>Excellent</td>
</tr>
</tbody>
</table>

During evaluation of summed results, this is what was also obtained (as shown in Figure 1, Figure 2, Figure 3, Figure 4, Figure 5 and Figure 6):

![Figure 1](image)

Fig. 1. Type of social network that students use

Fig. 1. shows that the largest number of students use Facebook as social network (89%), 6% use Twitter and 5% use others social networks.

\textsuperscript{11} Web source: http://yorktown-somers.patch.com/articles/student-perspective-the-academic-influence-of-the-social-network

\textsuperscript{12} Web source: http://www.telegraph.co.uk/education/educationnews/8142721/Social-networking-teachers-blame-Facebook-and-Twitter-for-pupils-poor-grades.html

\textsuperscript{13} Web source: http://www.academia.edu/1207833/Too_much_face_and_not_enough_books_The_relationship_between_multiple_indices_of_Facebook_use_and_academic_performance

\textsuperscript{14} Web source: AERA, url: http://www.aera.net/EducationResearch/tabid/10065/Default.aspx
Fig. 2. Adjust social network profile

How often do you adjust your profile on social network?

- Daily: 48%
- Weekly: 28%
- Monthly: 24%

Fig 2. shows that the largest number of students adjust social network profile (48%) daily, 28% weekly and 24% monthly.

Fig. 3. Average students grades at faculty exams

Your average grade at faculty exams? (approximately)

- Excellent: 38%
- Very good: 33%
- Good: 29%
- Sufficient: 0%

Fig 3. shows that 38% of students have sufficient average grades at faculty exam, 33% very good, 29% good and nobody has excellent average grades.

Fig. 4. Time spent for activities related to studying

Time spent for activities on social networks related to studying

- Less than 1h: 36%
- 1h: 24%
- More than 1h: 40%

Fig 4. shows that 40% of students spent about 1 hour on social network for activities related for studying, 36% less than 1 hour and 24% of students more than 1 hour.

Fig. 5. Education activities on social networks done by students

Education activities on social networks done by students

- Exams information (experiences): 40%
- Exams information (experiences): 38%
- Exchanging teaching materials: 10%
- Group problem solving tasks: 10%
- Something else: 16%

Fig 5. shows that 40% of students use social networks for exams information activities, 38% use social networks for exchanging teaching materials, 16% use social networks for group problem solving and 6% do something else.

Fig. 6. Education activities on social networks done by students

How often do You maintain a profile on a social network?

- Daily: 17%
- Weekly: 10%
- Monthly: 72%

Fig 6. shows that 73% of students maintain social network profile daily, 17% weekly and 10% monthly.

Correlation between daily time spent on social networks and the success of the study is -0.4328 which is a relatively weak correlation. She points to the relatively small effect of daily time spent in social networks and the success of the study, but the decrease of the trial. The correlation between the weekly time spent on social networks and the success of the study is -0.3125 which is a relatively weak correlation. Correlation defines an even smaller impact on the success of studies in relation to the daily time spent in social networks, but it should be noted the negative impact on the success of the study. We conclude that increasing daily or weekly time in social networks influence on declining performance of students. The correlation between the frequency of maintenance profiles in social networks and the success of the study is -0.4921 which is a relatively weak correlation. We conclude that more frequent maintenance profiles on social networks impact on the declining performance of students.

The correlation between the number of users with whom you regularly contacted and success in college is 0.5111 as medium correlations. She points to the positive impact of the number of contacts and performance studies, it can be concluded that some students used to exchange contact information about the study and to exchange information during the preparation of the exam. The correlation
between time spent in social networks for activities related to studying and success in college is -0.3577 which is a relatively weak correlation. She points to the negative impact of time spent in learning activities and performance studies. It can be concluded that working together to prepare for exams through social networks is common for students to study a high average, but is more common among students who have lower student success.

All calculated correlations observed variables and success studies are statistically significant at the number pattern 100 and a significance level of 5%. Influence of the number of contacts and time in social networking activities related to the study on the performance of faying courses has approximately the same correlation as for the success of the entire study and a statistically significant value. It can be concluded that social networks contribute to the success of a negative study, but their influence is relatively poorly correlated to the results of studies, that is not crucial to the success of students. Only the number of contacts in social networks had a positive impact on student achievement, which indicates the use of social networks to share information about the study, as well as developing your communication skills.

VI. CONCLUSION

When students are able to find a balance between socialization and education, Facebook can occasionally be a useful academic tool. Since the site allows students to stay in constant contact with each other, information about assignments, tests, homework, and due dates can be quickly spread amongst them. Through discussions on the site, students would occasionally collaborate on study guides for upcoming examinations, including midterms and finals.

Using correlation method it is expected that the correlation between the times spent on social network with the scope of publishing actual state and the results obtained (successes) on exams should have the negative coefficient of correlation. All results present relatively weak correlation. By this research done we conclude that increasing daily or weekly time in social networks influence on declining performance of students and calculation of correlation index demonstrated it.

REFERENCES