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Proposing a Model for Analysing Impact of Social Media on Academic Performance of Students: A Case Study of Allameh Tabatabai University

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Abstract

Online social networks are found these days among all generations of internet users so that they have become a noticeable communicative tool especially for scholars and students. Academies' and faculties are increasingly using the social networking sites such as Facebook, LinkedIn, Research Gate etc., for communication with potential university students as well as providing educational content. The present study aims to examine the effects of virtual social networks on educational level of the students. The social networks in Iran have never been studied in terms of the time spent on the social networks and their effects on academies performance. For this purpose, some questionnaires' in Likert spectrum were used in order to ensure the questionnaires' reliability, which were confirmed by the Political Sciences and Law Faculty. Questionnaires' validity was then confirmed by Cronbach-α at 0.821. The sample under study consists of 144 students from political sciences and law faculty of Allameh Tabatabai University. The samples were chosen randomly based on SPSS 22 and smart PLS. The obtained results suggested that there's a significant negative relation between the time spent on the social networks and the academic performance. The results also revealed that more attention to the social networks has no impact on the academic performance. In addition, factors such as students' features, their academic capabilities, prediction of their behaviors like their perception of social attitude towards social networks and their tendency toward virtual social networks are related to convenience of using the social networks. There's a relation between academic capabilities and the time spent on online social networks.

Keywords: Online social networks. University students, Academic performance, Allameh Tabatabai University

1. Introduction

Today, the world is celebrating advancement in communications technology, the scope of which has been expanded through ICT. Modern communication technologies have been undoubtedly turned the whole world into a global village, but this technology can be assimilated to a coin with positive aspects on one side and negative aspects on the other side. This contributes people to keep pace with the developments in the world. Social network sites and softwares include: Twitter, Yahoo Messenger, Facebook, What's App, Skype, Google Talk, Google Messenger, Telegram, Viber for iPhone and Android. Many people use these networks and softwares for physical or virtual interaction and communication with their old and new friends (Asemah et al., 2012). Evolution of technology has led to rapid changes in the world, while using this technology has led to discovery of a wide range of knowledge. Social networks allow tens of thousands of people to carry out diverse professional, educational and social activities at home, community, and other social settings and get access to important information on education, health, nutrition, medicine, regulations, etc., with special emphasis on general health aspects, especially in the field of medicine and treatment (Masic et al., 2012). In addition to entertainment, the social networks are used to get access to and disseminate learning information (Tonta, 2009). Application of the social networks in pursuit of educational goals has been the subject of extensive studies (Isik, 2013). The social networks not only affect the workplace and personal life of individuals, but also more importantly, provide a new perspective towards education (Ponnudura, 2013). The widespread use of the social network by students in recent decades is mainly due to easy access to devices such as smartphones, tablets, Apple mobile phones, iPads and laptops that are connected to the internet (Paul et al., 2012). Addiction to the social networks has dramatically increased during the recent years. The effect of social networks on academic performance of the students is increasingly worrisome. The student's academic performance is presented by their scores (Kirschner et al., 2010) and this is a concern for the universities. Students who spend a lot of time on the social networks and become dependent on them believe that the social networks have

weakened their academic performance and realize that they are suffering from poor university scores because they spend a lot of time on social websites such as Facebook, Twitter, MySpace, instead of spending their valuable time on study. The excessive use of social networks may certainly have a negative impact on the balance of potential benefits and serious consequences on the educational performance of the victims. The students spend time commenting, updating, reading and sharing numerous posts on the social networks (Paul et al., 2012). The time spent by the students on the social networks will have a negative impact on their academic performance. The present study is an attempt to investigate the effect of virtual social networks on the Academic performance of the students at Allameh Tabatabai University. In the present study, the attempt is made to develop a framework or a general model to describe the main direct and indirect drivers of the students' academic performance. The impact of social networks on the academic performance is of particular importance. Considering the subject under study, the structural equation modeling approach is used to investigate the structure of the model and the relationships between pairs of variables.

2. Review of Literature

Social networks are turning into the main tool for education and entertainment. Humans are naturally interested in interacting with people and finding common ground and interests with them. Two main trends are dominant in the universities: the first trend is associated with the use of social network as a tool for supporting activities which is the main goal of educational institutions, instructors and students. The second trend that is unfavorable, is mainly associated with domination of the social network and imposition of the student behaviors and time management. The following section deals with the literature on these two trends and the students' performance.

Lavy et al., (2015) investigated the effect of social networks on education and non-cognitive behavior of the students. The obtained results showed that the presence of mutual friends in the classroom has a positive and significant effect on the English language, Hebrew language and math test scores. In addition, it was found that various types of the social networks have positive effect on other activities, including the outcome of non-cognitive behaviors such as social joy and violent behavior at school.

Al-Tarawneh (2014) investigated the impact of social networks on students' performance. In this study, he identified the advantages and disadvantages of using Facebook as a social network to improve the students' performance, including their productivity, communication and collaboration. Injection of fun into the educational system can improve the students' motivation for learning and participation. Such step will make it easier to achieve certain levels of productivity. On the other hand, Facebook is associated with some negative impacts such as addiction, waste of time, excessive information and isolation from the physical community. Iorliam et al., (2014) investigated the impact of social network applications on performance of university students in Nigeria. This study showed that the time spent on the social media, the frequency of visits and the number of online friends has a significant relationship with the students' academic performance. Therefore, some suggestions were proposed to limit and control the access to the social media. Meanwhile, the recent studies on the use of social apps for higher education purposes show that the use of the social network software can lead to achieve educational goals such as development of new learning techniques, providing students with control, providing transferable skills, support of collaborative education, enhancement of constructive learning, creation of digital identity and fostering social interaction (Zaidieh, 2012).

In a study by Abu-Shanab et al., (2013), the advantages and disadvantages of Facebook from the perspective of the university students were investigated. A sample of 206 students participated in a poll on 10 advantages and 10 disadvantages of Facebook. The study provided interesting results. This study didn't focus on students' academic performance, but provided an overview of the dominance of the social media in the society. The author discovered the relationship between the function and the use of the social networks.

3. Conceptual Model of Study

The changes in student behaviors may improve their academic performance, it is important to know the factors that often cause obsessive use of the online social networks. Baker and White (2010) used the Ajzen's theory of Planned Behavior Model (TPB) to predict the use of the online social network among adolescents. The TPB model was developed to predict the goals of engaging in specific behaviors and then to predict actual participation in the behaviors (Ajzen's, 1991). The three variables used to predict the goals including attitude towards behavior, perceived behavioral control, and behavioral subjective norm. Baker and White (2010) realized that the attitude towards variables and control of planned behavior play a significant role in prediction of the goals of using the online social networks. However, considering the link between the behavior predictions variables and the time spent on the social networks, they have been used as a behavior predictor for the model construction. The factors in the proposed model can be of interactive and overlapping type, making it difficult to specify the power and direction of the relationship between them. Therefore, Structural Equation Modeling (SEM) has been selected to test the hypotheses. SEM is a powerful alternative to multiple regression that simultaneously examines the multiple regression models. Variables can be independent in some models and dependent in some others. The research hypothesis have been determined according to the research model, and will be examined below. Fig. 1 presents the basic model that will be examined in the following sections using the SEM method.

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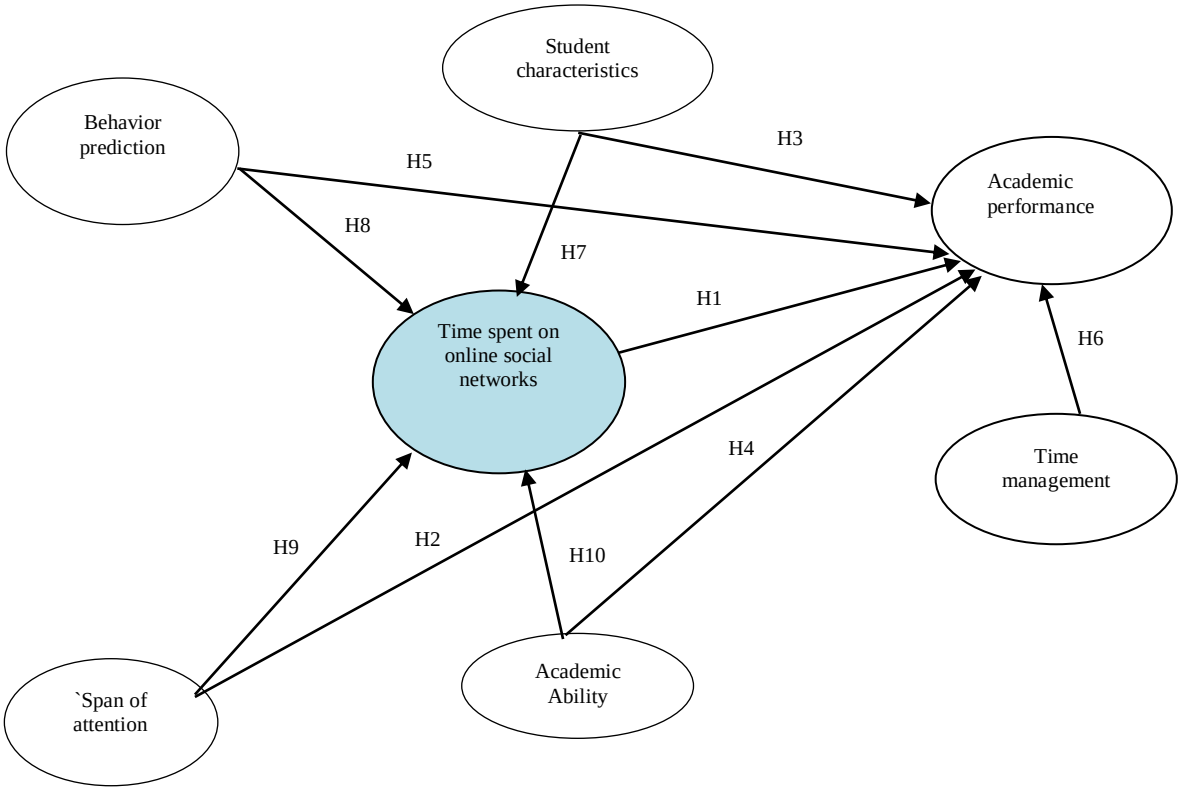

Fig. 1. Conceptual model of research

4. Research Methodology

The present study is applied in terms of objectives and descriptive-survey in terms of data collection. The population under this research includes all the students of Allameh Tabatabai University, at the Faculty of Law and Political Science. A completely randomized sampling method was used in this study. Seven dimensions including behavioral prediction, attention span, and academic ability, student characteristics, time spent on online social networks, time management, and academic performance were studied. The sample size (144 individuals) was calculated using Cochran's formula. The main data collection instrument in this study was a questionnaire. To this end, a researcher-made questionnaire containing 29 items was used to examine the effect of virtual social networks on students' academic level. According to the questionnaire, questions 1 to 3 were used to assess the characteristics of students, questions 4-11 were used to address behavioral predictions, questions 12-14 were used to explore the scope of attention, questions 15-18 were used to indicate academic ability, questions 19-21 were used to measure time spending on online social networks, questions 22 to 25 were used to measure academic performance and questions 26-29 were used to assess time management based on five-point Likert scale. 150 individuals were selected to determine the sample size. Considering that some of the questionnaires were not completed according to the pre-determined criteria, they were crossed out of the total sample and finally the sample size was reduced to 144. Cronbach's alpha coefficient and composite reliability were used to assess the reliability of the questionnaire. All research structures met the minimum conditions for the Cronbach's alpha coefficient (at least 0.6) and the composite reliability (at least 0.7). Therefore, the reliability of the research structures is approved. The Average Variance Extracted (AVE) was also used to evaluate the convergent validity, since it is an appropriate index for determining the convergent validity of the research structures. According to Chin (1998), the minimum acceptable level for Average Variance Extracted index (AVE) is 0.5. Evaluation of this index showed that in all the research structures, the score of this index is much higher than that of the above-mentioned threshold level, and thus, the structures are in a favorable condition in terms of the convergent validity. The results of this study are presented in Table 1. Factor load of the questionnaire was determined using Confirmatory Factor Analysis and Smart PLS software. The results showed that factor load for all items, except for questions 1, 2, 7, 8, 11, 24 and 26 is lower than 0.4. The inclusion of these items in the research model leads to a significant drop in the construct validity indices. Therefore, the final model of the research is obtained by omitting these items, and the field for testing the hypotheses will be provided in the form of Ali's propositions. Fig. 2 shows the factor loads for the items under study.

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Table 1

Reliability and conformity validity indicators of research structures

Construct	Composite Reliability	Cronbach's Alpha	AVE
Time Management	0.902	0.837	0.755
Student Characteristics	1.000	1.000	1.000
Behavior Prediction	0.906	0.871	0.661
Scope of Attention	0.843	0.722	0.642
Academic Ability	0.867	0.796	0.621
Time Spent	0.881	0.798	0.712
Academic Performance	0.845	0.725	0.645

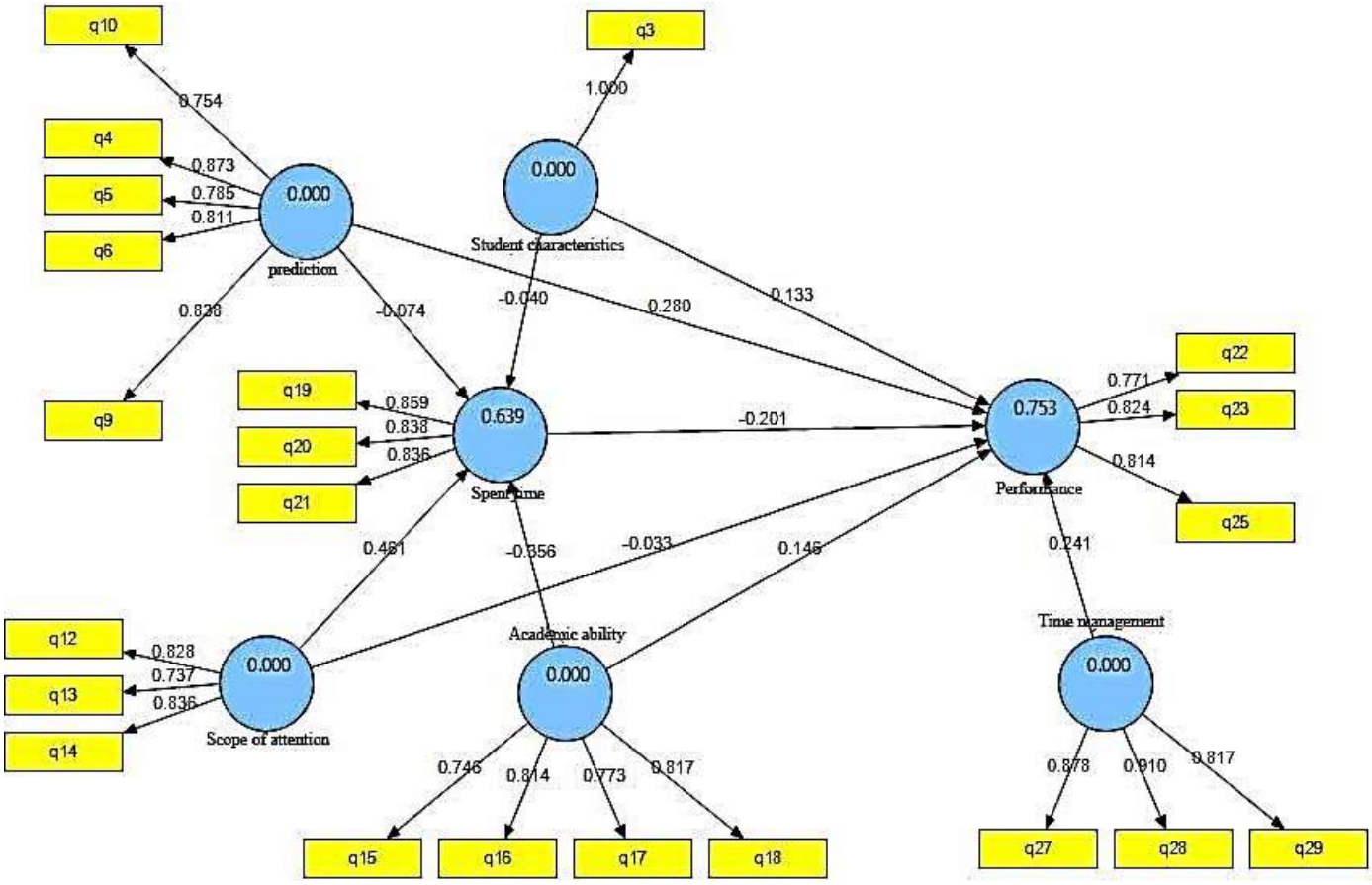

Fig. 2. Output from final measurement model of study

5. Research Methodology

The present study is applied in terms of objectives and descriptive-survey in terms of data collection. The population of this research includes all the students of Allameh Tabatabai University, at the Faculty of Law and Political Science. A completely randomized sampling method was used in this study. Seven dimensions including behavioral prediction, attention span, and academic ability, student characteristics, time spent on online social networks, time management, and academic performance were investigated. The sample size (144 individuals) was calculated using Cochran's formula. The main data collection instrument in this study was a questionnaire. To this end, a researcher-made questionnaire, containing 29 items, was used to examine the effect of virtual social networks on students' academic level. According to the questionnaire, questions 1 to 3 were used to assess the students' characteristics, questions 4-11 were used to indicate the behavioral predictions, questions 12-14 were used to address the scope of attention, questions 15-18 were used to demonstrate the academic ability, questions 19-21 were used to measure the time spent on the online social networks, questions 22 to 25 were used to extract the academic performance and questions 26-29 were used to assess the time management based on the five-point Likert scale. 150 individuals were selected to determine the sample size. Considering that some of the questionnaires

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were not completed according to the pre-determined criteria, they were crossed out of the total sample so that the sample size was finally reduced to 144. The Cronbach's alpha coefficient and the composite reliability were used to evaluate the questionnaire reliability. All the research structures met the minimum requirements for the Cronbach's alpha coefficient (at least 0.6) and the composite reliability (at least 0.7).

Therefore, the reliability of the research structures is approved. The Average Variance Extracted (AVE) method was also used to evaluate the convergent validity, because it is an appropriate index for determining the convergent validity of the research structures. According to Chin (1998), the minimum acceptable level for the AVE index is found as 0.5. Evaluation of this index showed that in all the research structures, the score of this index is much higher than the above-mentioned threshold level, so, the structures are evaluated to be in a favorable condition in terms of the convergent validity. The results of this study are summarized in Table 1. Factor load of the questionnaire was determined using Confirmatory Factor Analysis and Smart PLS software. The obtained results demonstrated that the factor load for all the items, except for the questions 1, 2, 7, 8, 11, 24 and 26 is lower than 0.4. The inclusion of these items in the research model leads to a significant drop in the construct validity indices. Therefore, the final model of the research is obtained by omitting these items, and the field for testing the hypotheses will be provided in the form of Ali's propositions. Fig. 3 illustrates the factor loads for the studied items.

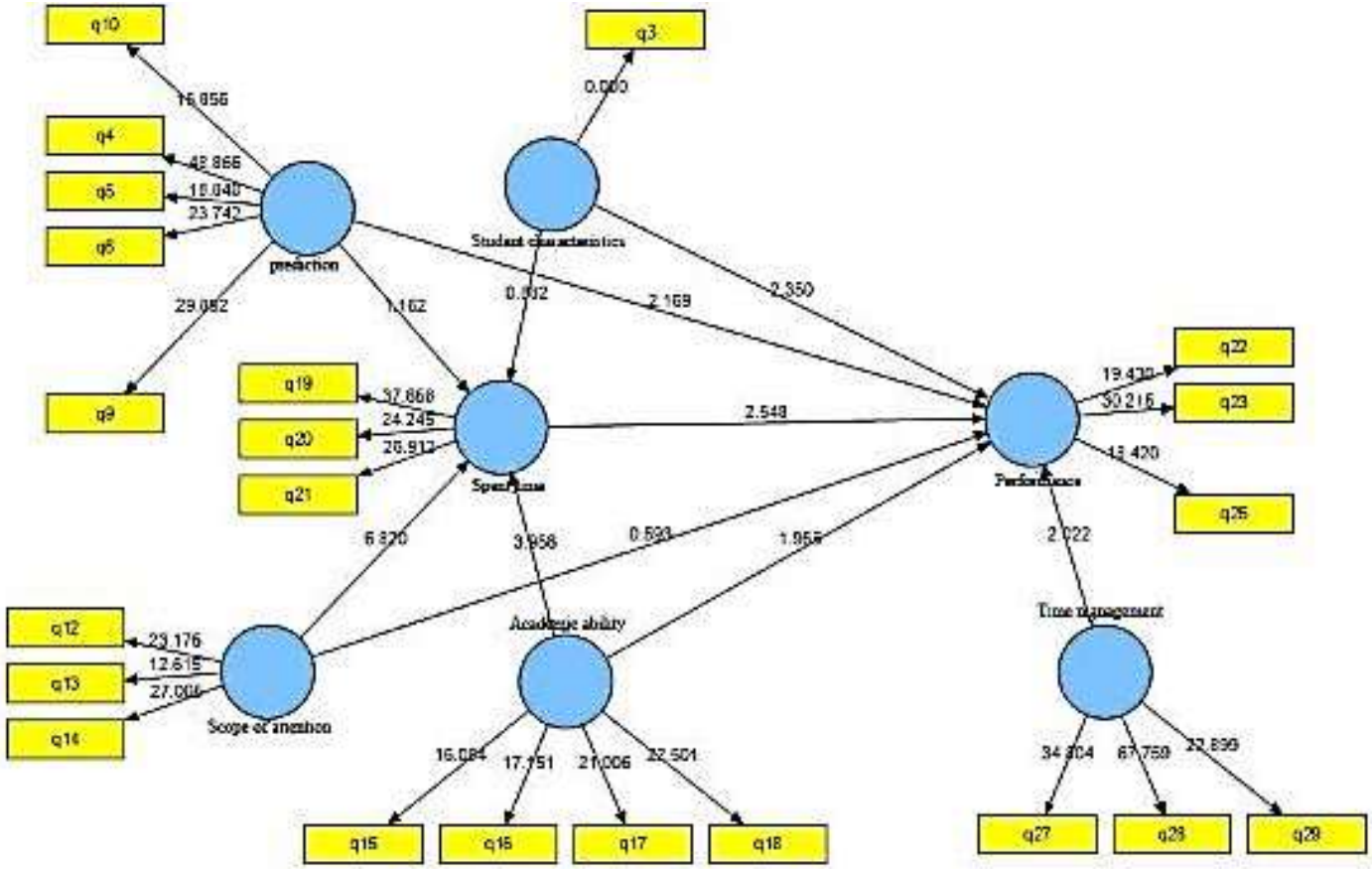

Fig. 3. Path coefficient (T-value) obtained from software output

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Table 2

Results of path coefficient and significance for research hypotheses

Hypothesis	T-statistic	Path Coefficient	Confidence Level	Result
Hypothesis 1: The time spent on an online social network has a significant effect on the academic performance.	0.95 (p<0.05)	-0.201	2.548	Confirmed
Hypothesis 2: The scope of attention has a significant effect on educational performance.	-	-0.033	0.593	Rejected
Hypothesis 3: Characteristics such as gender, marital status and occupation have a positive effect on the academic performance and the use of social networks.	0.95 (p<0.05)	0.133	2.350	Confirmed
Hypothesis 4: The academic ability has a significant effect on the academic performance.	0.95 (p<0.05)	0.146	1.965	Confirmed
Hypothesis 5: The prediction of the student behavior has a significant effect on academic performance.	0.95 (p<0.05)	0.280	2.169	Confirmed
Hypothesis 6: The time management skills have a significant effect on academic performance.	0.95 (p<0.05)	0.241	2.022	Confirmed
Hypothesis 7: Characteristics such as gender, marital status and occupation have a significant effect on the time spent on the online social networks.	-	-0.040	0.882	Rejected
Hypothesis 8: The behavior prediction has a significant effect on the time spent on the online social networks.	-	-0.074	1.162	Rejected
Hypothesis 9: The scope of attention has a significant effect on the time spent on social network.	0.99(p<0.01)	0.461	6.820	Confirmed
Hypothesis 10: The academic ability has a significant effect on the time spent on the online social networks.	0.99(p<0.01)	-0.356	3.956	Confirmed

6. Conclusion

The present study was an attempt to determine the nature of the relationship between the students' academic performance and the time spent on the social networks, as well as the relationship between the time spent on the social networks and the other key factors such as scope of attention and time management skill that seem to affect the student academic performance. The ultimate goal of this study was to create appropriate behavioral changes in the students for using the social networks outside the classroom, in the hope of improving the academic performance. In addition, considering the popularity of the social networks among the students, attempts are made to provide the faculty members with some information on the use of virtual social networks in their curricula. As explained before, the results of this study showed that there is a significant negative relationship between the time spent on the virtual social networks and the academic performance of the students. The time spent on the virtual social networks was strongly influenced by the students' scope of attention and it was found that the scope of attention had no effect on their academic performance. In addition, factors such as student characteristics, academic ability, prediction of student behaviors such as their perception of the community's view of social networks and reasons for their interest in the social networks, and easy use of the social networks are interrelated. The results also show that there is a significant negative relationship between the academic ability and the time spent by the students on the virtual social networks.

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