

## The Analysis of Social Media Usage for Collaborative Learning

Sona MARDIKYAN

Department of Management Information Systems, Bogazici University

Begum YILMAZ

Department of Management Information Systems, Bogazici University

**Abstract:** In today's world it is obvious that social media usage is getting involved into every aspect of our lives. Naturally, even collaborative learning processes, such as team creation, communication between team members, file sharing etc., are conducted via various social media channels. It is very crucial to understand that how these two concepts interact with each other and how different parameters affect them separately and together, as taking into consideration how these concepts play a big role in our daily lives. The purpose of this study is to discover the relationship between social media and collaborative learning in a deeper manner, specifying differences among categories like several age ranges, genders, and educational levels in this relationship and with the difference of past researches, to understand better the satisfaction level of people using these two concepts together. In order to understand better the relationship between social media and collaborative learning and the satisfaction level of using both of them; interactivity with peers, interactivity with teachers, engagement, perceived ease of use, perceived usefulness which affect social media usage and positive interdependence, individual accountability, active learning and group processing which affect collaborative learning are questioned in an online survey study. After examining and cleaning the collected data, most appropriate analyses are determined. Regression analysis shows that the change in the satisfaction level of the people who use social media for collaborative learning is related with perceived usefulness, individual accountability, active learning and age.

**Keywords:** Social media, Collaborative learning, Regression analysis

### Introduction

Social media is getting widespread day by day among all people. In today's technological age, social media is getting an essential part of our lives and even in office or class. In this situation it is unthinkable that it does not have an effect on education as well. Naturally, rapid growth of the social media bring along certain effects on other related concepts such as collaborative learning. One of the base principles of collaborative learning is working in groups, therefore, for different complex grouping processes social media tools and using them is an easy and appealing way. A great deal of research has been conducted regarding the effect of social media on other related concepts. However, only a few of these studies have examined the effect of social media on collaborative learning and how people can satisfy from this interaction. In this study, in addition to specifying the satisfaction level of using social media for collaborative learning, it is also aimed to make explicit distinctness in this relationship regarding the demographic factors of students such as gender, educational level and age.

### Literature Review

In today's world social media is inevitable part of our daily lives. Every single day, millions of people interact through social media and it creates a new online layer where people organize their lives. According to Tess (2013), defining social media is difficult because of the fact that it is in state of change. However, Edosomwan

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et al. (2011) stated that social media is not a new concept; it has been changing since the dawn of human interaction. According to Dabbagh and Reo (2011) social media refers to networked tools or technologies that emphasize the social sides of the web like a medium of communication, collaboration, and inventive expression. In recent times, social media has impacted many aspects of human communication. There are technical, social, cultural, business related and even economic perspectives of social media usage. According to Van Dijck (2013), social media platforms changed the nature of private and public communication undoubtedly. Moreover, Van Dijck (2013) depicted that, the need for connectedness drove people to social media channels. With Web 2.0 users moved more of their everyday activities to online environments. Sometimes it can be seen that in the literature, the words of Web 2.0, User Generated Content and social media are used interchangeably. However, Kaplan and Haenlein (2010) specify the difference between these terms and they explain that social media can be considered as a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content.

Under such a penetration, it is unthinkable that such a prevalent thing is not related with learning activities. Tess (2013) stated that social media which has received recent attention could be an effective tool for educational purposes and the potential role for social media as a facilitator and enhancer of learning is worth to investigate. According to Liao et al. (2015), when students work together in groups or engage in collaborative activities, a channel for students opens up to argue and negotiate with each other and this ends up with a better learning experience through the collaborative exchange of views and feedback. As another point of view, Dillenbourg (1999) said that collaborative learning is the situation in which two or more people learn or attempt to learn something together. Via social media, a variety of actions such as connectivity, networking, instant messaging, information sharing etc. can be conducted and some of these actions are getting slightly more important when it comes to collaborative learning. Alkathlan and Al-Daraiseh (2017) depicted that in social networking sites there are lots of opportunities for collaborative situations where several learning mechanisms can be implemented. Using these diverse features of social networking sites such as groups, discussion boards and messages can ensure the collaboration among peers which results their cognitive and self-explanation capabilities. Al-Rahmi and Othman (2013) pointed that social media is easing both teaching and learning, especially among students. Specifically on certain collaborative learning processes, like interactivity with peers, it is getting more crucial. The social media can be utilized for increasing researchers collaborative learning on group tasks, for instance it can be said that using social media makes it easy to reach other peers. Additionally, this case is not valid for only peers and students; the same case is valid for teachers, too. Gruzd et al. (2012) expresses that the purpose of social media in higher education includes enhancing communication and information sharing among both teachers and students. Wolf et al. (2012) stated that there is a demand for more effective collaborative learning through smooth communication between students and teachers. Therefore, social media channels can be counted for an alternative to communicate with others during collaborative learning processes.

In addition to all of these, it can be said that group processes in collaborative learning activities is getting easier with usage of social media rather than conventional ways. Al-Rahmi et al. (2015) clearly pointed that the collaborative learning experience in the social media environment is better than in a face-to-face learning and also social media could also benefit students by enabling them to enter new types of collaborative learning according to their interests.

In the light of all of these, it can be depicted that it is logical to approach social media and collaborative learning together. Therefore, the satisfaction level of using these two together is getting more significant.

## **Theoretical Framework and Research Model**

To understand social media usage level and collaborative learning level constructs, the significant factors of both from educational point of view are derived from an elaborated literature review.

### **Social Media Usage**

Interactivity with Peers: One of the opportunities that social media provides is interaction. According to Al-Rahmi et al. (2015) usage of social media facilitates to reach other peers. There are other gainings that social media provides like collaboration, relationship development among students, instantaneous opportunities for curricula dissemination and enhancement to the actual classroom (Fewkes and McCabe, 2012; Junco et al., 2011; Top, 2012).

**Interactivity with Teachers:** It is not always easy getting into interaction with teachers because of the some reasons like formality or limited office hours. According to Gruzd et al. (2011) social media expands this potential and offers some space for informal conversations and also strengthens existing associations. Additionally, Frye et al. (2010) and Liu et al. (2011) asserted that lecturers and supervisors using social media should be able to play an active role in collaboration with students because it is their responsibility to promote student's creativity, assess activities, and explain misunderstanding arising from the content area and knowledge creation in order to sustain the learning environment integrity. Maloney (2007) pointed that some also have welcomed the capability of social media services to provide teachers a forum for simple media and positive networking with students.

**Engagement:** According to Chretien et al. (2009) student's engagement signifies both time and effort and they indicate that peers are extremely influential to student learning.

**Perceived Ease of Use:** Perceived simplicity of use is related to the individual's thought that using the brand new technology requires less effort. Perceived ease using social media is understood to be the extent that students think that using social media could be free from effort; the result of perceived ease of use of the social media on collaborative learning also perceived ease of use as you that a person thinks in the presence of an optimistic user performance relationship (Yampinij et al., 2012).

**Perceived Usefulness:** Perceived usefulness was understood to be "the degree that an individual thinks that utilizing a specific system would increase his/her performance" said Davis (1989). Perceived usefulness of utilizing social media will boost students' effectiveness within the class. Boulos et al. (2006) pointed that previous studies reveal that perceived usefulness helps in utilization of using social media on collaborative learning.

In this research, we aim to investigate the impact of these factors on users' social media usage and then implicitly collaborative learning.

## **Collaborative Learning**

**Positive Interdependence:** Strijbos and De Laat (2010) depicted that individual responsibility and group cohesion correspond with two concepts that are central in collaborative learning: positive interdependence and individual accountability. Positive interdependence is the degree to which the performance of a single group member depends on the performance of other members. In other words, a higher level of positive interdependence can enhance cohesiveness. Cohesiveness can increase stability, satisfaction and efficient communication. With a more basic saying, positive interdependence aims to link group members together.

**Individual Accountability:** Strijbos and De Laat (2010) stated that individual accountability refers to the degree to which group members are held individually accountable for jobs, tasks or duties central to a groups' functioning. In other words, a higher level of individual accountability can enhance group members' individual responsibility for the group. As a better explanation, this term means whether the contribution of a group member has helped to achieve the group's overall goals.

**Active Learning:** Doyle et al. (2016) stated that active learning was enabled by social collaboration. For instance, asking questions of other learners, agreeing with other learners and explaining why, and sometimes disagreeing with other learners and explaining why. In short, active learning can be deemed as every action beyond just listening. In Doyle et al. (2016)'s research, active learning was the most instantiated collaborative learning characteristic for all of the classes. According to research of Tess (2013), it can be said that social software applications promote active participation. In this research, we aim to analyze whether social media usage makes one's usage of behaviors, knowledge and skills more active.

**Group Processing:** file sharing, messaging, meeting: An explorative interview study done by Hrastinski and Aghaee (2012) revealed that the students, that were almost all frequent social media users and also users of the traditional learning management systems, considered it as a complement to social media which they also think complements face to face education settings. They preferred social media for short communications and coordination while face to face meetings for longer communications such as group work. The benefits students reported of using social media is efficiency and time saving. In this research, we aim to analyze whether social media usage facilitates certain group processes like creation of groups, group participation and division of labor.

To explain the satisfaction level of using social media for collaborative learning, all of the dimensions of social media and collaborative learning are taken into consideration. We come up with a final model (Fig. 1) which represents all variables together with their relationship.

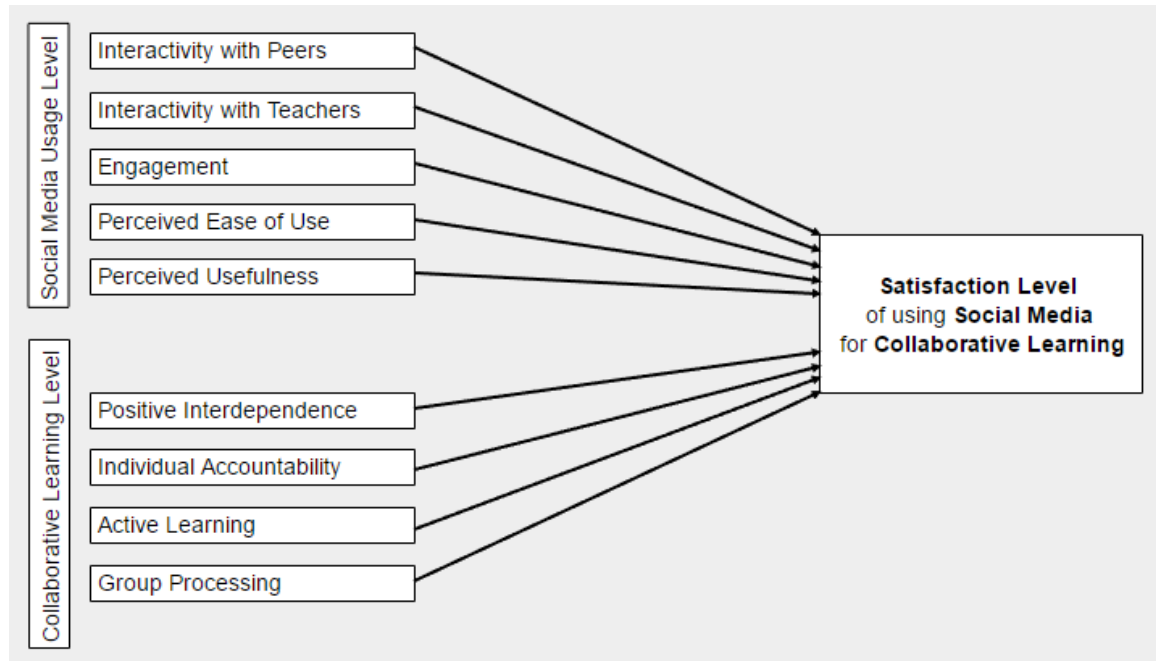


Figure 1. The research model

## Data and Methodology

### Collection of Data

Based on the literature review, a questionnaire is prepared to collect data and to test the research model. The first 3 questions of the survey are related to the demographics of the respondents including age, gender and educational level. Following questions are related to the factors of social media or collaborative learning depicted in the research model. To measure each factor several sub-questions based on the previous studies are asked. The last question is designed to measure the satisfaction level of using social media for collaborative learning. Each question is based on 7-point Likert-scale with preference scale (1: strongly disagree, 7: strongly agree).

The questionnaire in both Turkish and English is created via Google Forms and distributed through social media platforms during March 2017- May 2017. Totally 253 replies were made. After elimination of 3 of them due to missing values or inconsistencies, 250 replies were used in the analysis. It is assumed that the respondents have a reasonable level of experience with social media usage and collaborative learning since the questionnaire is distributed via social media itself. Also a general definition of collaborative learning is involved at the beginning of the survey.

### Methodology

Multiple regression analysis is undertaken to investigate the level of social media usage for collaborative learning. The dependent variable is the last question of the questionnaire which directly measures the level of social media usage for collaborative learning. The independent variables are age, gender, educational level, and the factors of both social media usage and collaborative learning. Averages of variables under each dimension are calculated and used in the analysis. The categorical variable age is transformed to the continuous type variable by taking the midpoint of the 6 different age groups (Less than 18, 18-24, 25-34, 35-44, 45-54, 55 and over) and assign them newly created continuous age variable. In this way, we assume that this new variable may be more informative than a categorical variable. For the categorical variables gender and educational level, dummy variables are created and used in the regression analysis.

## Findings

IBS SPSS Statistics 23.0 is used in order to analyze the collected data with Multiple Linear Regression method.

### Descriptive Studies

In the sample, 30.4 % of the respondents are males, 68.8 % of the respondents are females and the rest 0.008 % of the respondents do not define themselves as male or female. Most of the respondents (69.2%) are between 18-24 ages, 30% of the respondents are over the age of 25 and the rest of the respondents (0.8 %) are less than the age of 18. 63.6 % of the respondents are undergraduate students, 23.2% of the respondents are graduates, 8.4% of the respondents are high school graduates and 4.8% of respondents are post graduates.

### Regression Analysis

First, Pearson correlation test is applied to all the variables of the analysis. It is found that some variables are strongly correlated with each other. To eliminate multicollinearity problem Stepwise method is used to estimate multiple regression model coefficients. According to the results given in (Table 1), perceived usefulness, active learning, individual accountability and age are the significant variables of the satisfaction level of using social media for collaborative learning. Except age all they have positive impact on the satisfaction level.

Table 1. Coefficients<sup>a</sup>

Model	Unstd. Coefficients		Std. Coefficients	t	Sig.	Collinearity Statistics VIF
	B	Std. Error	Beta			
(Constant)	1.014	.352		2.884	.004	
AVG_PERCEIVEDUSEFULNESS	.661	.049	.619	13.445	.000	2.389
AVG_ACTIVELEARNING	.232	.047	.226	4.895	.000	2.407
AVG_INDIVIDUALACCOUNTABILITY	.129	.039	.129	3.334	.001	1.679
Age	-.040	.013	-.091	-2.987	.003	1.042

a. Dependent Variable: SATISFACTION

Table 2. Model summary and ANOVA table

Model	R	R Square	Adj. R Square	SE Estimate	F	Sig.	Durbin-Watson
4	.885	.783	.779	.8692	220.39	.000	2.032

R Square value in Table 2 shows that the change in the satisfaction level of the people who use social media for collaborative learning is related with perceived usefulness, individual accountability, active learning and age with the percentage of 78.3%. Beta coefficients of the variables show that the most important variable in explaining the variability of the the satisfaction level of social media usage for collaborative learning is perceived usefulness, then active learning, individual accountability, and age respectively.

Other assumptions of the regression analysis are checked. The Durbin-Watson statistic (D-W=2.032) is used to detect the autocorrelation problem. According to the results of the test there is no autocorrelation in the residuals of the model. The P-P plots of the residuals and Skewness and Kurtosis values of residuals ensure that the residuals are normally distributed. Moreover, Homoscedasticity assumption has been met which is controlled by the Spearman Rank correlation test.

## Conclusion

On the basis of the purpose of this study which was to analyze the satisfaction level of the people using social media for collaborative learning, we firstly define several variables that might affect people's social media usage level and collaborative learning level. In addition to these, we also aimed to understand better behavioral distinctness of people with different age, gender and educational levels.

Data are collected through social media platforms. The respondents are students or graduates of public or private educational institutions with different educational levels. According to regression analysis results, it has been found that the change in the satisfaction level of the people who use social media for collaborative learning is related with perceived usefulness, individual accountability, active learning and age.

While comparing this study with the previous ones, it can be said that some results are intriguing. For instance, only perceived usefulness dimension of the social media usage level and only individual accountability and active learning dimensions of collaborative learning level affecting the satisfaction level. As a reason we can assert that there may be still limited usage of social media for collaborative learning. Among the demographic characteristics of people the only significant variable is age. As it is expected, the results show that the social media usage for collaborative learning is popular among younger students. In contrast there is no difference in the satisfaction level of social media usage with respect to gender and different educational levels. For a better explanation of the study, sample can be extended in different age and educational level categories, therefore the analysis can be interpreted with a deeper comprehension.

For further studies, providing variety in participants may give more meaningful outputs. Moreover, instead of the satisfaction, other concepts like academic success and motivation of the people using social media for collaborative learning activities can be evaluated and interpreted.

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### Author Information

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**Sona Mardikyan**

Department of Management Information Systems, Bogazici University, 34342, Istanbul, Turkey  
Address: Boğaziçi Üniversitesi, Hisar Kampüsü, B210, Bebek, İstanbul, Turkey  
Phone: +90 212 3596942  
Fax: +90 212 2873297  
E-mail: sona.mardikyan@boun.edu.tr

**Begum Yilmaz**

Department of Management Information Systems, Bogazici University, 34342, Istanbul, Turkey  
Address: Boğaziçi Üniversitesi, Hisar Kampüsü, B210, Bebek, İstanbul, Turkey  
Phone: +90 5373118525

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