Study on Evaluating the Utilization of Social Media Tools (SMT) in Collaborative Learning Case Study: Faculty of Medicine, King Khalid University

Vasanthi Muniasamy, Intisar Magboul Ejalani, M. Anandhavalli, K. Gauthaman

Abstract—Social Media (SM) is websites increasingly popular and built to allow people to express themselves and to interact socially with others. Most SMT are dominated by youth particularly College students. The proliferation of popular social media tools, which can accessed from any communication devices has become pervasive in the lives of today's student life. Connecting traditional education to social media tools are a relatively new era and any collaborative tool could be used for learning activities. This study focuses (i) how the social media tools are useful for the learning activities of the students of faculty of medicine in King Khalid University (ii) whether the social media affects the collaborative learning with interaction among students, among course instructor, their engagement, perceived ease of use and perceived ease of usefulness (TAM) (iii) overall, the students satisfy with this collaborative learning through Social media.

Keywords—Social Media, Web 2.0, Perceived ease of use, perceived usefulness, Collaborative Learning.

I. INTRODUCTION

TECHNOLOGY has inevitably become the most powerful tool in almost every aspect of human's daily life. Technology is regarded as a major revolution and this has a significant impact on education. The use of Information Technology (IT) and the Internet are the new paradigm of learning in 21st century. These technological advancements allow people to easily access, gather, analyze, and share, transfer data & knowledge. This makes it possible for them to function as teachers, study-mates and more importantly, as tools to improve entire teaching and learning process [1]. Learning communities have evolved from the traditional classroom to virtual education settings in which students come together in a virtual environment to exchange ideas, solve problems, explore alternatives, and create new meanings along a connected journey. Now the students are Net Generation or digital natives. These digital natives bring new challenges to the teaching and learning environment. In the last seven years, the social media technology becomes more popular

Mrs. Vasanthi Muniasamy is with the Department of Information Systems, King Khalid University, Abha, Kingdom of Saudi Arabia (phone: +96 - 541454976; e-mail: ruledbyrobotics2080@ yahoo.co.in).

Dr. .Entissar Magboul Eljailani is with the Department of Management, King Khalid University, Abha, Kingdom of Saudi Arabia (e-mail: ealjelani@kku.edu.sa).

Dr. M. Anandhavalli is with the Department of Information Systems, King Khalid University, Abha, Kingdom of Saudi Arabia (e-mail: anandhi@gmail.com).

Dr. K. Gauthaman is with the Department of Pharmacology, King Khalid University, Abha, Kingdom of Saudi Arabia (e-mail:Gauthaman@gmail.com)

characterization of websites that allowed digital users to interact with each other as contributors to a website [2]. As educational resources, social media tools can also be used to differentiate the learning process. The social media resources allow learners to elect and share learning materials that best meet their learning style and interests. The dynamic and engaging nature of many social media tools may encourage students to expand more time and energy on their academic activities as a consequence of the collaborative, constructivist and authentic learning opportunities they can create. Usually, new systems fail because the end users do not accept to use. Either because they do not see any benefits from using these systems or they see these systems too complex which cause a lot of troubles for them. Social media tools are one of these new systems that can be accepted or rejected by end users. According to [3], any new systems are multidisciplinary, where the success depends on two factors: [i] **Technological factor**, i.e. software and hardware that are used to build the system. [ii] **Human factor**, i.e. the users of the system. The purpose of this study is to develop a general framework for evaluating the utilization of social media tools in collaborative learning in King Khalid University particularly focuses the faculty of medicine. This framework defines the key direct and indirect drivers of student's satisfaction about SMT in their academic side through collaborative learning with interaction with peers, interaction with teacher, engagement, perceived ease of use, and perceived usefulness of TAM (Technology Acceptance model).

II. SOCIAL MEDIA – AN OVERVIEW

Connecting formal education to social media tools is a relatively new area. Social media is characterized as Web2.0 e-learning resources that emphasize active participation, connectivity, collaboration and sharing of knowledge and ideas among users. Social networking site like Facebook, a video stream delivered via YouTube, or collaborative discussion and document sharing via Google Apps, more people are using social network and virtual world technologies in the classroom to communicate, express ideas, and form relationships centered on topical interests. Social Media technologies encompass a variety of different meanings that include an increased emphasis on user generated content, data and content sharing, collaborative effort, new ways of interacting with Web-based applications, and the use of the Web as a social platform for generating, repositioning and consuming content. Blogs, another early part of the social

network phenomenon, were sufficiently developed to gain the name weblogs in 1997. The first use of the term Web 2.0 was in 2004. Social Network refers to a perceived second generation of Web development and design that facilitates communications and secures information sharing, interoperability, and collaboration on the World Wide Web. This concept has led to the development and evolution of Web-based communities, hosted services, and applications; such as social-networking sites, video-sharing sites, wikis, blogs. Websites and applications enable users to create and share content or to participate in social networking. SNS (Social Networking Site) is the phrase used to describe any Web site that enables users to create public profiles within that Web site and form relationships with other users of the same Web site who access their profile. Social networking sites can be used to describe community-based Web sites, online discussions forums, chat rooms and other social spaces online. One of the important developments associated with online Internet presence is the advent of social media. These social media tools can be very useful as e-learning tools which can serve for an educational purpose. A social media tool represents "a virtual community" in which people with shared interests can communicate by posting and exchanging information about themselves. Social networking sites have in the recent years gained considerable popularity in global scale, and have attracted a significant part of the online community. In fact, a recent survey of 3000 students from across the US shows that 90% of college students use Facebook and 37% use Twitter [7].

The above observations can be explained by the fact that these sites make it possible for people to connect to each other in an easy and timely manner, and to exchange and share various kinds of information among them. Social media provide a great benefit to the current generation of university and college students as these tools were created with the primary intent of facilitating sharing, discussion and collaboration.
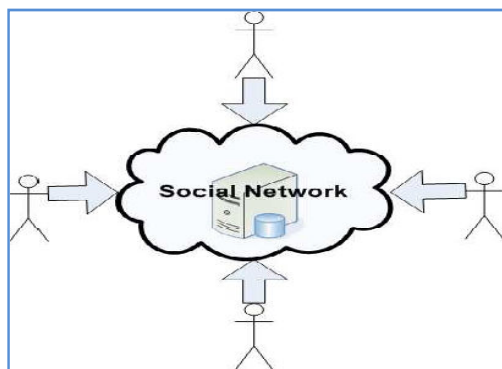

Fig. 1 Sample View of current state of SNA

In King Khalid University, Blackboard system encapsulates all these collaborative learning tools like Facebook, twitter, blog, forums, to enhance the student's academic performance. Social media is playing a big role in boosting academic like in social and education systems as a whole. Fig. 1 shows the simple view of current state of Social Network Application (SNA). In looking at the use of SMT technologies in the education, we need to be aware of some of the advantages and disadvantages. Below we list out some.

A. Advantages

We start with the advantages of using SMT in education.

Students Become Part of the Lesson: When SM technologies are used, students become part of the lesson. They have the opportunity to be an active part of the class. Active participation means they add to the wiki or blog, create a presence on a social network, or become a participant in a virtual world. All of these technologies can engage the students and allow them to contribute to the lesson in an active manner, thus becoming a part of the lesson.

The World Becomes the Classroom: The best way to learn is to become active. SM technologies expand the classroom to the virtual world and allow the world to become the classroom. Because of easy access to the virtual world, the lesson can be open to anyone; it is not confined to a single classroom or a single set of students. This allows students to easily work across boundaries with others who may have different cultures, values, and interests. It is imperative that today's students have a more global perspective and these technologies can help to this.

Collaboration and Competition Increases Learning: There is a large body of research that has documented the beneficial effects of collaborative learning for college students Competition also provides the opportunity for students to learn and widen their knowledge base. Most of these technologies have aspects of collaboration and competition. They allow students to work together, or to compete with one another on projects. When virtual world technologies are used for collaboration and competition in the classroom, learning can increase.

The Classroom is Available 24/7: All of these technologies are Internet based. This means they are available to students 24 hours a day, 7 days a week. A student simply needs an Internet connection and he/she can be in the classroom. As a result, students can interact in a classroom environment when they are best prepared.

B. Disadvantages

We must also look at some of the disadvantages of SM technologies.

Computing Resources Must Be Available: Not every student has access to computing resources that are connected to the Internet when off campus. This could be a major disadvantage for students who cannot afford or does not have access to a computer or an Internet connection. This is mitigated somewhat by students using friends' or roommates' computers, cybercafés, or college resources to connect if computing resources are not available where they live.

Web Resources Can Be Damaged: Online access is wonderful, but it can be like leaving your valuables on a table in your front yard. Anyone can see your work. If non class

members have access to the wiki or virtual world, they can disrupt the class or cause damage to the environment.

Plagiarism: Plagiarism is very easy in the online world; just copy the paragraph or sentence from the source and paste it to the blog or wiki. This can be a quick response to a question or assignment that results in plagiarism. Students need to be explicitly cautioned about plagiarism when using SM technologies in education.

Levels of Openness: Some students are very fear about the openness of social media technologies. Written assignments and responses are no longer just between the professor and student, but available for anyone to see and evaluate. This openness causes extreme discomfort for some students.
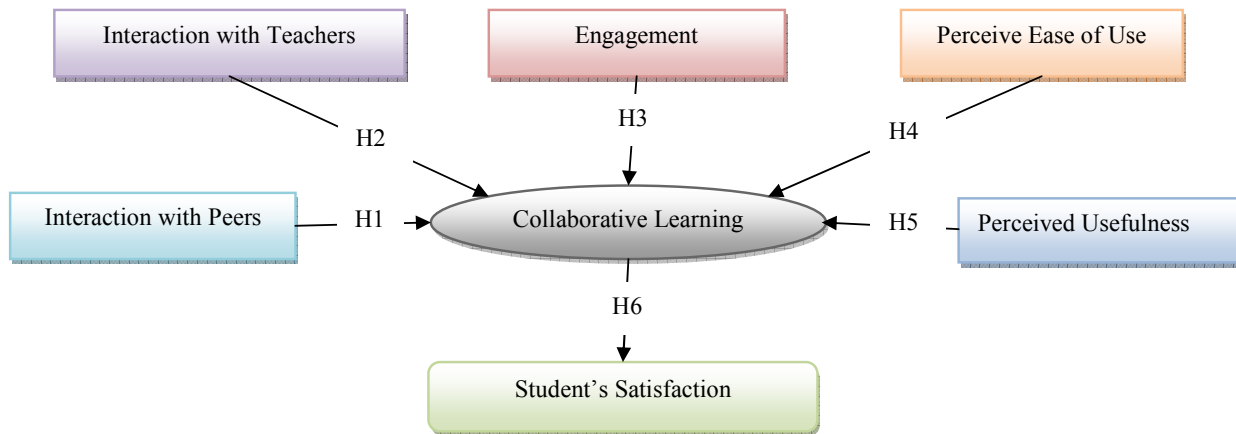

Fig. 2 Research Framework

III. THEORETICAL FRAMEWORK

The Technology Acceptance Model (TAM) is one of the most widely applied models in studies of individual intention and the usage of any new technologies. The model was initially developed and validate by Davis. He developed TAM as a theoretical basis to provide an explanation of the determinants human computer usage behavior that is general directly from generic TRA. According to Davis, this model is important in understanding use of the Information System as well as Information System Acceptance behaviours. TAM is an extension of the Theory of Reasoned Action (TRA). However, the latter theory lacks distinction if the behavior of users towards technology depends on intentions or attitudes. TAM believes that the individual's intention to use the technology depends on how useful the technology is to the user and how easily it can be used in terms of functionality. It is also believed that the usefulness of the technology is directly proportional to the ease of use [6]. Perceived usefulness is also seen as being directly impacted by perceived ease of use.

TAM suggests that perceived ease of use and perceived usefulness of Information Technology (IT) are the main determinants factors of IT usage. Davis defines perceived ease of use (PEOU) as, "***the degree to which an individual believes that using a particular system would be free of physical and mental effort***". Moreover, Davis defined perceived usefulness (PU) as "***the degree of which a person believes that using a particular system would enhance his or her job performance***".

The two major key constructs of TAM, PU and PEOU, have capability to predict an individual's attitude towards using a particular system. Both constructs PU and PEOU will influence an individual's attitude. Therefore, TAM model, collaborative learning with interaction with peers (IP), interaction with teachers (IT), student's engagement (ENG), and Student's Satisfaction (SS) are external factors of the current study. The research framework hypothesis is shown in Fig. 2. It is also represented through the Symbolic Form as shown in Fig. 3.

(i) X [as a results of using the SMT satisfies the Student through] Y.
(ii) Y [as a result of using the SMT] Z
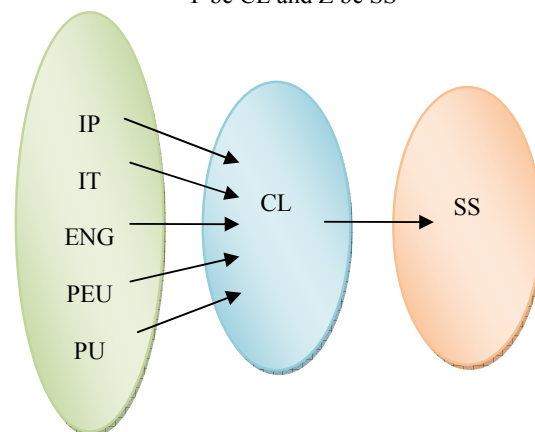
X may be IP, IT, ENG, PEU, PU.
Y be CL and Z be SS

Fig. 3 Symbolic Representation of the Framework

IV. RESEARCH METHODOLOGY

A. Samples

A survey was conducted among the students Faculty of Medicine, King Khalid University, Abha, Kingdom of Saudi Arabia to evaluate the utilization of Social Media Tools in collaborative learning. End of this research, we will find out whether the SMT are satisfy the students (SS) in collaborative learning (CL) considering the attributes like IP, IT, ENG, PEOU and PU. The data was gathered via survey distributed to 74 students.

The questions are easy to understand and each participant is asked to fill out the 30 questionnaire [IP = 4, IT = 4, ENG = 3, PEOU = 4, PU = 4, CL = 4, SS = 7] indicating her agreement or disagreement with each question on a 4-point Likert-type scale (*Agree, Strongly Agree, Disagree and Strongly Disagree*) to measure the students' response. These questions are adopted from previous research [4] and Fig. 2 shows the research model employed in this study. The analysis of this data was performed by SPSS Software.

B. Measures

Measurement validity in terms of reliability and construct validity was evaluated in this study. The *reliability analysis* measured the internal validity and consistency of questions used for each construct by calculating Cronbach's alpha coefficient. Cronbach's alpha of 0.6 to 0.7 was deemed the lower limit of acceptability. An alpha value more than 0.7 would indicate that the items are homogeneous and measuring the same constant.

In this study, the Cronbach's alpha was higher than 0.7 as shown in Table I which implies that the questionnaire is a reliable measurement instrument.

To examine *construct validity* of measures, a *factor analysis* was adopted in this study. Seven factors were requested, based on the fact that the questions were designed to index seven constructs: perceived ease of use (PEOU), perceived usefulness (PU), collaborative learning (CL), interaction with peers (IP), interaction with teachers (IT), and student's engagement (ENG), Student's Satisfaction (SS).

All factor loadings were above 0.6, showing good convergent validity Chesney [5] as shown in Table I. The results revealed the test was an established instrument with high reliability and validity scores.

TABLE I
CRONBACH'S ALPHA (RELIABILITY ANALYSIS)

Items	Number of Items	Cronbach's Alpha
Interaction with Peers	4	0.686 (0.7)
Interaction with Teachers	4	0.815 (0.8)
Engagement	3	0.653 (0.7)
Perceived ease of Use	4	0.654 (0.7)
Perceived Use	4	0.652 (0.7)
Collaborative Learning	4	0.738 (0.7)
Student's Satisfaction	7	0.834 (0.8)
Total	30	

Cronbach's Alpha for all loaded factors is given in Table II and it showing 0.868 means good convergent validity.

TABLE II
OVERALL RELIABILITY ANALYSIS
Reliability Statistics

Cronbach's Alpha	N of Items
.868	30

TABLE III
CONSTRUCT VALIDITY (FACTOR ANALYSIS)

Item	IP	IT	ENG	PEOU	PU	CL	SS
IP 1	1.000						
IP 2	0.567						
IP 3	0.269						
IP 4	0.130						
IT 1		1.000					
IT 2		0.634					
IT 3		0.503					
IT 4		0.357					
ENG 1			1.000				
ENG 2			0.454				
ENG 3			0.279				
PEOU 1				1.000			
PEOU 2				0.101			
PEOU 3				0.070			
PEOU 4				0.120			
PU 1					1.000		
PU 2					0.386		
PU 3					0.334		
PU 4					0.330		
CL1						1.000	
CL2						0.573	
CL3						0.426	
CL4						0.618	
SS1							1.000
SS2							0.671
SS3							0.404
SS4							0.526
SS5							0.593
SS6							0.439
SS7							0.553

V. RESULTS AND ANALYSIS

The research model shown in Fig. 2 was tested using SPSS (Statistical Package for the Social Sciences) Software. Regression Analysis is used for testing the hypotheses based on 74 completed surveys collected for this study. Using a hypothesis approach, all the hypotheses are supported as shown in Tables III and IV.

TABLE IV
PEARSON'S CORRELATION

Item	IP	IT	ENG	PEOU	PU	CL	SS
IP	1						
IT	0.294*	1					
ENG	0.193	0.42**	1				
PEOU	0.190	0.50**	0.35**	1			
PU	0.236*	0.28*	0.46**	0.33**	1		
CL	0.348**	0.48**	0.34**	0.43**	0.30**	1	
SS	0.382**	0.42**	0.88	0.40**	0.60**	0.428**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The relationship between the student satisfaction (SS) with collaborative learning (CL) and the relationships between interactivity with peers (INT_P), interactivity with the teacher (INT_T), engagement (ENG), perceived ease of use (PEU),

perceived usefulness (PU) with collaborative learning (CL) were analyzed.

Table IV shows the Pearson correlation coefficient at 99% confidence level. The best correlation was found between the students' satisfaction (SS) with engagement (ENG) in social media tools with correlation coefficient of 0.875. Result of Pearson's correlation indicated that

There is statistically significant positive relationship between interactivity with the teachers and interactivity with peers (r = 0.294, P < 0.05). Results demonstrate that relationship between these two construct is moderate and interactivity with the teachers and interactivity with peer's combination contributing moderately towards students' satisfaction.

Engagement correlation results with interactivity with peers (r = 0.193, P < 0.01) demonstrate weak positive relationship, and with the interactivity with teachers (r = 0.426, P < 0.01) demonstrate positive relationship showing that these two construct are contributing moderately towards students' satisfaction.

Perceived ease of use correlation results with interactivity with peers (r = 0.190, P < 0.01) demonstrate moderate positive relationship but weak, while perceived ease of use results with interactivity with the teachers (r = 0.509, P < 0.01) demonstrate positive good relationship but correlation results with engagement (r = 0.345, P < 0.01) weakness the correlation result.

Perceived usefulness correlation results with interactivity with peers (r = 0.236, P < 0.05) demonstrate weak positive relationship, while perceived usefulness results with interactivity with the teachers (r = 0.283, P < 0.05) demonstrate weak positive relationship but correlation results with engagement (r = 0.455, P < 0.01) demonstrate good positive relationship and the correlation results with perceived ease of use (r = 0.328, P < 0.01) demonstrate moderate positive relationship

Collaborative learning correlation results with interactivity with peers (r=0.348, P<0.01), interactivity with the teachers (r=0.478, P< 0.01) with the engagement (r = 0.336, P< 0.10) Perceived ease of use correlation results (r=0.426, P<0.10) and while perceived usefulness results (r=0.296, P<0.10) demonstrate positive and significant relationship.

Dependent variable students' satisfaction has positive and significant correlation with interactivity with peers (r = 0.382, P<0.10), interactivity with the teachers (r = 0.416, P<0.10) with the engagement (r = 0.875, P<0.10) perceived ease of use correlation results (r = 0.403, P<0.10) weaknesses correlation results, while perceived usefulness results (r =0.595, P< 0.10) and with collaborative learning (r = .428, P< 0.10).

These above results highlight that collaborative learning relationship with interactivity with peers, interactivity with the

teachers, the engagement, perceived ease of use, and perceived usefulness is contributing towards students' satisfaction.

TABLE V
REGRESSION ANALYSIS FOR THE HYPOTHESES H1, H2, H3, H4, H5 AND H6

Variable	B	P
IP	0.152	p < 0.05
IT	0.352	p < 0.05
ENG	0.562	p < 0.05
PEOU	0.065	p < 0.05
PU	0.230	p < 0.05
CL	0.225	p < 0.05
SS	0.295	p < 0.05

Fig. 4 shows the result of research framework and Table V shows the following results.

Interactivity with peers positively significant with collaborative learning (β = 0.152, p < 0.05) While support the interaction among the students may improve the students' satisfaction through the collaborative learning.

Interactivity with teachers positively significant with collaborative learning was (β = 0.352, p < 0.05). These interaction between students and teachers found to be very good than interactivity with peers.

The engagement has positively significant with collaborative learning with standardized beta coefficients was (β = 0.562, p < 0.05). Perceived ease of use has weakly significant with collaborative learning (β = 0.065, p < 0.05) and Perceived usefulness has positively significant with collaborative learning (β = 0.230, p < 0.05). The collaborative learning with students' satisfaction has good significant (β = 0.295, p < 0.05)

Table VI summarizes the results of the Hypothesis testing. These results highlight that collaborative learning relationship with interactivity with peers, interactivity with the teachers, the engagement, perceived ease of use, and perceived usefulness is contributing towards improvement students' satisfaction. In line with the outcome of this study to understand students' satisfaction by using social media in Faculty of Medicine, King Khalid University, the following have been discovered:

To acquire a general satisfaction of social media since it encourages and facilitates student utilization of social media for collaborative learning, and boost the education and experience with students. Students are engaged with the social media and spend more time on it. In terms of interactivity with peers on social media and acquired a higher percentage when it comes to students' academic performance at University since it influences it to be simple for student to go over questions along with other students through social media. It is easy to networking with peers and interact with them each other
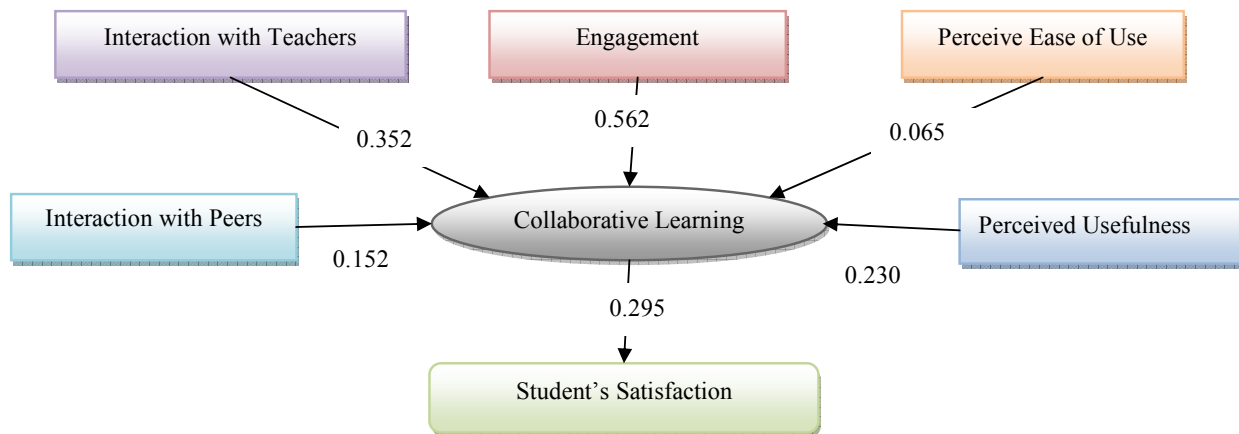
Fig. 4 Results of the Framework

TABLE VI
SUMMARY OF HYPOTHESIS TESTING

Hypotheses	Relationships tested	Results
H1	Interaction with peers as a result of using social media tools will have a significant influence of student's satisfaction through Collaborative Learning	Supported $(p < 0.05)$
H2	Interaction with teachers as a result of using social media tools will have a significant influence of student's satisfaction through Collaborative Learning	Supported $(p < 0.05)$
H3	Students engagement as a result of using social media tools will have a significant influence of student's satisfaction through Collaborative Learning	Supported $(p < 0.05)$
H4	Perceived Ease of use as a result of using social media tools will have a significant influence of student's satisfaction through Collaborative Learning	Supported $(p < 0.05)$
H5	Perceived usefulness as a result of using social media tools will have a significant influence of student's satisfaction through Collaborative Learning	Supported $(p < 0.05)$
H6	Collaborative Learning as a result of using social media tools will have a significant influence of student's satisfaction.	Supported $(p < 0.05)$

VI. CONCLUSION AND FUTURE WORK

Based on data collected from 74 students of Faculty of Medicine, King Khalid University, this research evaluate the utilization of social media tools in education through collaborative learning and find out the result whether the students are satisfied with these tools by considering the five key factors like interactive with peer, interactive with teacher, engagement, perceived ease of use, perceived usefulness.

The results attained suggest that research model provide a powerful explanatory energy of social media satisfaction among students. In the results acquired, it may be concluded that social media satisfies the collaborative learning with the majority of the participants. Providing proper user training is an essential for directing and solidifying students' perception of the usefulness of the technology. Furthermore, perceived usefulness and perceived ease of use were also found to have a significant effect on attitude towards using the technology. In future work, we can consider more external key factors which will affect the student's satisfaction in collaborative learning through social media tools and analyze whether these tools are improve the student's academic performance or not..

REFERENCES

[1] Yee H., Luan W., Ayub A., & Mahmud R. (2009). A Review of the Literature: determinants of Online Learning among Students. European Journal of Social Sciences. 8, 2. 246.
[2] Al-Jarf, R. (2007, March). Cultural issues in online collaborative learning in EFL. Paper presented at the 3rd International Online Conference on Second and Foreign Language Teaching and Research
[3] Ozkan, S. & Koseler, R. (2009). Multi-dimensional students' evaluation of e learning systems in the higher education context: An empirical investigation. Computers & Education (53) p. 1285– 1296. http://dx.doi.org/10.1016/j.compedu.2009.06.011
[4] Waleed Mugahe Al-Rahmi and Mohd Shahizan Othman (2013) .Evaluating Student's Satisfaction of using Social Media through Collaborative Learning in Higher Education".
[5] Chesney, T. (2006). An acceptance model for useful and fun information systems. Human Technology, 2(2), 225-35
[6] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-339.
[7] Micheal M.Van Wyk, (2014). Using Social media in an open Distance Learning Teaching Practice Course. ISSN 2039-9340.M. Young, *The Techincal Writers Handbook.* Mill Valley, CA: University Science, 1989.