STUDENTS' ATTITUDES AND SATISFACTION TOWARDS BLENDED LEARNING IN THE HEALTH SCIENCES

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Abstract

This study investigated students' attitudes and satisfaction towards a blended learning research methods course in The College of Applied Medical Sciences, King Saud University. In total, 51 female undergraduate senior students in the Department of Rehabilitation Sciences participated in the study for two semesters. Students responded to a questionnaire at the end of the course, furthermore, throughout the course students were asked to self-report an online semi-structured feedback journal every two weeks. Results: Team based learning was a highly preferred tool. In the social constructivism model, optimal knowledge and skill learning occurs in groups and through group activities. These results indicated that collaborative learning was the most preferred by students. Students' interactions with peers help them to process the content of the course by adapting and testing multiple peer perspectives. Conclusion: Given students' variable learning aptitudes and curves, peer discussions works as a "scaffolding" mechanism that enhances learning outcome. For content, students perceived tools for digital information as the most preferred outcome. As for structure, students mostly favored team based learning structure. Results revealed a high positive attitude and motivation among students regarding the blended model in teaching research course.

Keywords: Blended learning, attitude, satisfactions, e-learning, team based learning

1 BACKGROUND

E-learning tools have been developed to facilitate traditional teaching and learning strategies. Eventually, e-learning tools have been integrated into classroom that resulted in what is nowadays known as "blended learning." The current study aims to assess students' attitudes and satisfaction towards blended learning in health sciences education.

1.1 Pedagogical Background

Verbally explaining a topic does not lead to students' comprehension of a topic, unless concepts are associated with explanation or real examples. "Knowledge is never acquired passively" (Von Glaserfeld, 1989, p.11). Von Glaserfeld (1989) added that the most frequent source of learning is interaction with others. The main goals of health sciences education are to equip students with the necessary knowledge and skills and to provide them with the strategies and techniques for the future in practicing problem solving (Albarrak, 2011). Furthermore, group interaction allows students to discuss possible solutions to a problem by

identifying diverse perspectives with instructor's guidance. In the health and medical professions, graduates have to work in teams, therefore, the developments in teaching and learning methods have moved to focus on learning in teams (e.g. Dori and Blecher, 2005; Duschl and Hamilton, 1998). In the local context, with the recent developments in learning, science and technology, there is a huge demand for graduates to acquire multi skills including team work skills. Previous studies demonstrated that learning in groups yielded effective learning and was preferred by students over traditional rote learning methods, such as lecturing (e.g. Dori and Blecher, 2005). Educators have to construct a learning environment and tools that foster learning of team work skills. Tools should include curriculum, methods of instructions and assessment (e.g. Dori and Blecher, 2005; Bybee and Ben-Zvi, 1998). Group activities create a platform for interactive and constructive learning by student peers through discussions on course activities, weekly quizzes, research projects and sample exams. (e.g. Dori and Blecher, 2005; Johnson, Johnson and Smith, 1998).

1.2 Educational Technology

At King Saud University, e-learning deanship has been established since 2009, Blackboard as a learning management system (LMS) and virtual classrooms were provided as a platform for teaching and learning. Tools were installed in all colleges including the College of Applied Medical Sciences, where courses materials were uploaded on the LMS and made accessible to both instructors and students using their University emails and passwords. The University strategy was to enhance teaching and learning process to maximize students' learning outcomes. The integration of e-learning into undergraduate, graduate and continuing medical education has a significant positive impact on the delivery and outcome of medical education (Clark, 2002). With technologies, learners could have access to quality resources with flexibility that was not available otherwise (e.g. Wu, et.al., 2010; Demetriadis, Pombortsis, 2007; Hall et.al., 2001). Internet based tools also provide synchronous team, peers and instructors interactions and discussions over course projects.

1.3 Blended Learning

Blended learning has emerged as a term referring to a hybrid strategy that combines traditional face-to-face instructions with online and virtual instructions. This approach evolved as a solution to the conflicts arising between the two methods as well as a formula to gain the benefits of both methods in learning (Graham, 2006; Delialioglu and Yildirim, 2007). Blended learning environments "offer the convenience and flexibility of online courses yet still maintain the interactivity and face-to-face contact offered through traditional courses" (Jones et al., 2003, p. 43). This would enable medical educators to design programs that use the most appropriate learning modalities and technologies to stimulate and promote an effective learning environment. Examples include a lecture supplemented with an online tutorial, a group assignment using a wiki, surgical procedures (e.g. laparoscopy) via video streaming or the use of virtual online patients and robot technology (Hayashi, 2006; Albarrak 2011). Blended learning is a model where students learn the content of their curriculum via different platforms including, online, face-to-face and many other teaching methods. According to Wu, Tennyson, and Hsia (2010), blended learning is a "combination of online and face-to-face instruction and the convergence between traditional face-to-face learning and e-learning environments" (p.3). Albarrak (2013) defines blended learning as an approach that combines both e-learning technology with traditional instructor-based education. In this study, we refer to blended learning as an integration of multi-instruction methods including face-to-face instructions, online synchronous and asynchronous instruction, web-based instruction, and group instruction. In an attempt to improve the classical teaching methods that depends solely on face-to-face lecturing, where students are passive audience to a more interactive, technology based collaborative learning environment (Delialioglu and Yildirim, 2007).

Integration of e-learning into traditional sciences and medical education can be effective in addressing most medical education challenges (Albarrak, 2010). There are various examples of successful integration of e-learning modes in medical programs around the world. Technology has been effectively used to deliver learning material, enhance communication and administration; there is also evidence that e-learning has been useful in providing health and medical education (Albarrak, 2010; Albarrak & Alghammas 2009). Previous studies have indicated positive learners' attitudes and satisfaction towards online and blended course environments (Albarrak, et. al., 2009). In a study by Delialioglu and Yildirim (2007), students (N 25) preferred the delivery of assignments through the course website; however, group work and discussions were the least preferred. Most of their students also preferred participating in activities than listening to lectures. In a study by Demetriadis, and Pombortsis (2007), students showed a positive attitude regarding e-lectures in a blended learning course. Regionally, few studies indicated high positive attitude of female and male students toward blended learning courses (Alseweed, 2013; Al-Saai, Al-Kaabi, and Al-Muftah, 2011).

The aim of the current study is to assess students' attitudes, and satisfaction towards a blended learning research methods course. The statement of the problem is that traditional classrooms no longer satisfy todays' students' learning needs and outcomes. An integration of variable learning and teaching elements into a blended environment could be a solution to fit variable learning styles. Accessibility of information is variable and paucity of qualified faculty with accredited clinical training in Saudi Arabia makes e-learning an essential teaching strategy that should be integrated into course design.

2. METHODS

The study was conducted in the academic year 2014\2015. In order to achieve the study objectives, a mixed quantitative-qualitative design was conducted. The quantitative part of the study was an online questionnaire while the qualitative part was a semi-structured and biweekly online self-reported student feedback. Students' satisfaction and attitude were assessed employing a modified questionnaire based on literature review on blended learning environments and models (e.g. Delialioglu and Yildirim, 2007).

2.1 Participants

Fifty one female students participated in the study during the fall semester of 2014 and spring of 2015. All participants were female undergraduate senior students enrolled in research methods course during their final semester at the Department of Rehabilitation Sciences at King Saud University. All students completed a full time enrollment in the course. Twenty four students attended the course during the fall semester of 2014, and 28 students attended the course during the spring semester of 2015. The language of teaching the course was English. All students were bilinguals who can read, write, and speak English language fluently. All students were native to the environment. They all completed a pre-medical year where computer literacy, statistics and English language were part of the curriculum. The study lasted 28 weeks. From the beginning of the study following the instructor's explanation of team work, students grouped into several teams. All teams were instructed to elect their leader, create a team name and a team action plan for the course activities including the research project. Team processes supervised by an expert instructor in management and leadership were diversified based on the course activities. The goal was to train students on different aspects of team work, including those from management and leadership perspective. All students participated in the course activities with 100% attendance. All students voluntarily completed the study questionnaire resulting in a 100% response rate.

2.2 Procedures

The elements of the course were driven from different educational resources and previous research. The course is described according to four elements: structure, content, delivery and assessment.

2.2.1 Structure

The structure of the course integrated both traditional and web based elements. The traditional structure included face-to-face class meetings, lab meetings and field testing. During the weekly two hours meeting, students participated in team based learning (TBL) open book quizzes and activities (Parmelee, McMahon, Levine, Billings, and Michaelsen, 2008). Each team discussed the quiz multiple choice items. Then all teams participated in classroom discussions about the quiz. Each session was timed. Smart board tools were used to structure the class activities. Other team based activities that followed the same structure included case studies and working on the research project, such as developing an outline for the project, statement of the problem, research hypotheses and questions. After each team based activity which lasted for about 60 minutes, students participated in an interactive lecturing. A physical lab was also structured for interactive learning. There were three round tables for a weekly two hours team meetings and discussions with the course instructor.

As for the web based elements, the same structure for the face-to-face class meetings was followed when class discussions were delivered via the blackboard and virtual classrooms. For the research data coding, entry and analyses, six desk top computers with course software were installed and placed at continuous wall counters along 3 walls of the lab with convenient stools. A relational database was used to code, enter and analyze the research data. Students were provided with a procedures and operation guideline for the database program which was also installed on each computer for their reference. All teams had a weekly scheduled meeting of two hours with the course instructor. All teams received orientation on the research tools and software which was followed by interactive instruction and hands on training throughout the duration of the study and until projects were presented. Blackboard licensed to King Saud University (Blackboard Collaborate, Inc., Version 11.1.2.5816-g8a9bff8, © 2000-2011) was used for the course website.

We adapted a simple and user-friendly web design as recommended in the literature to facilitate content delivery to students (Delialioglu and Yildirim, 2007; Hall et al., 2001).

2.2.2 Content

All course content was uploaded on the course website. The blackboard contained the course syllabus, lecture slides, team based quizzes, assignments, projects instructions, guidelines for course activities, midterms and final exams samples with key answers, students' online feedback, forums, course tools and grades. The content of the course also included research methods, research projects and field clinical testing. Four clinical research projects in health sciences were conducted. For effective learning outcomes, students joined research projects of senior faculty which address professional and community needs. Students were supervised to work on the research elements of each project. Each project phase was preceded by the relevant theoretical course content, in class or virtual team quizzes and practice, lab meetings and discussions. Those phases include developing the project proposal outline, review and discussion of the literature, methods, experimental tool administration, data transcribing, data coding and entry, reliability, data analyses and processing and proposal writing. For research data tools, students completed two workshops on Excel and SPSS by an experienced research assistant lecturer. The course instructor designed databases for each project using FileMaker Pro 12.0v3 (1084-2012, Inc.), a relational database software. One project only needed an excel spread sheet design which was uploaded on googledocs© for students to access and enter data. The course instructor trained and supervised the students on how to code, enter and retrieve data for reliability and analysis. A statistician form the Graduate Research Center helped each team on data processing and analysis of their project.

2.2.3 Delivery

A faculty and two experienced teaching assistants participated in delivering the course. The course content was delivered synchronically via variable channels. All course content was also uploaded on the blackboard, and each student was communicated with and notified about all course activities on her University email via announcement in the course blackboard. The students met once a week for two hours for the face-to-face instructions and for team based learning tasks. Also, students had a weekly team meeting with the instructor at the lab to discuss the team's research project and engage in interactive training on the project. Nearly, half of lectures content, team based learning quizzes, training on research tools and discussion forums on course content were delivered by the learning management system (LMS) including the blackboard tools and live virtual classrooms. At the beginning of the study, students were oriented on the use of LMS by participating in trial live and recorded sessions. Before the sessions, a guideline on how to access virtual classrooms was sent to all students via web announcement on the blackboard. A continuous support service was provided by the deanship of e-learning in University. One-to-one consultations and inquiries were addressed by course instructors during the weekly office hours, University emails and WhatsApp messaging. All phases of project writing were delivered synchronically and asynchronically via googledocs©.

2.2.4 Assessment

Assessment was administered on all course activities and assignments throughout the study using midterm and final exams with multiple choice and short answer questions, quizzes, forums, written team processes, online feedback writing and research assignments. A sample of the final exam and expected outcome were demonstrated to students. The final research presentation was an open invitation to the college and was evaluated by the instructors and anonymously by students from the other teams using a standard research paper presentation scale. The average of the two evaluations was used towards the research grade.

2.3 Instrument

2.3.1 Questionnaire

A self-developed questionnaire was designed with constructs and elements of relevance to the study objectives. The constructs of the questionnaire were based on previous research on validated measurements of blended learning environments and modified to fit the study context and population (Tselios, Daskalakis, and Papadopoulou, 2011; Wu, et.al., 2010; Delialioglu, and Yildirim, 2007; Dori and Belcher, 2005; Norman, 2001; Dillman,1999; Couper, et.al., 2001). The constructs assess learners' attitudes and satisfaction which included students' expectation of their performance and usefulness of the blended learning tools (Wu, et.al. 2010; Tselios, et.al., 2011). Students' satisfaction with their achieved knowledge and skills is a construct measured for stakeholders' satisfaction (e.g. Jette, et.al. 2003). Collaborative and interactive learning has also been associated with the effectiveness and positive satisfaction with blended

learning (Wu, et.al., 2010). An indicator of satisfaction in e-learning includes participants' perception of increase in skills and employability outcome (e.g. Commonwealth of Australia, 2010). Table 1 depicts the questionnaire structured with two constructs: attitudes and satisfaction of students about blended learning tools used in this course. The sum of the constructs and elements measures the students' satisfaction with blended learning and its benefits (Wu et.al, 2010). The questionnaire items, a total of 23, were statements about all course blended methods and tools to elicit students' attitudes and satisfaction about their learning outcomes. The questionnaire was administered electronically via googledocs© using one column per page. The first page contained a paragraph introducing the study and its purpose. The items on the questionnaire were measured by a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Toward the end of the semester, students received an announcement via LMS with a brief message about the purpose of the study and a hyperlink to the questionnaire (hosted by googledocs©). The questionnaire was administered in English language. Students' participation was voluntary and confidentiality was applied. Each student responded to the questionnaire at the end of the semester and after the final exams. Reponses to the questionnaire were automatically transported to an Excel spread sheet on googledocs©. Data were coded for count and percentage analyses via pivot tables.

Table 1 the questionnaire constructs and items.

Constructs and Items	Statements
1. Team Based Learning	
1.1 Satisfaction	Team based learning (TBL) increased my learning.
1.2 Satisfaction	TBL helped me develop teamwork skills.
1.3 Satisfaction	Team interactions allowed me to ask questions without feeling embarrassed at my lack of knowledge.*
1.4 Attitude	The team questions and comments created more member interactions.*
1.5 Attitude	The team process is an effective learning assignment to learn about teamwork skills.
1.6 Attitude	Working within a team in class helped me to simulate real life teamwork.
1.7 Attitude	Teamwork created a safe environment for me to work and learn.
2. Online Students' Feedback Writing	
2.1 Attitude	I find writing a weekly feedback for my course is a helpful learning tool.
3. Face-to-Face Lectures	
3.1 Attitude	The lectures facilitated the learning process for me.*
3.2 Attitude	I find that the oral explanations in lectures exceeded the amount of depth in comprehension in comparison with the book.*
4. Blackboard	
4.1 Satisfaction	The blackboard tools facilitated my learning.
4.2 Attitude	Writing a weekly feedback and submitting it through the blackboard helped me to provide continuous feedback.

5. Software and Digital Resources	
5.1 Satisfaction	I learned new skills by applying the software (Filemaker, Excel, SPSS) in research.
5.2 Satisfaction	I learned useful information from the Digital library workshop at the Female students' Campus.
5.3 Attitude	I recommend students to take the Digital library workshop at the Female students' Campus.
6. Googledocs	
6.1 Attitude	The use of googledocs facilitated my teamwork on our research projects.
7. Joining Senior Faculty Research Projects	
7.1 Attitude	Working with senior faculty on research projects gave me an opportunity to learn research skills.
7.2 Attitude	My research topic got me interested to learn about my field.
7.3 Satisfaction	I felt great about my research project.
7.4 Attitude	Working on research projects with senior faculty is a successful learning model.
7.5 Satisfaction	What I learned in my research project will help me in my job
8. Assessment	
8.1 Attitude	The continuous oral and written feedback from the course instructor through different channels (small group meetings, over googledocs, over Blackboard) was effective in my learning.
8.2 Attitude	Class evaluation of the projects presentations was effective.

*Dorit and Belcher (2005)

2.3.2 Online Students' Feedback Writing

For the qualitative data, a semi-structured student feedback was posted on the blackboard with guidelines for content and reporting schedule. The instructor introduced the feedback task at the first face-to-face class meeting. Throughout the study, students self-reported online a weekly feedback. The students' feedback were regularly supervised and validated by the course teaching assistants. Students' feedbacks which represented their conclusive reflections were analyzed for constructs that correlate with the quantitative data. Data was manually reviewed and coded for frequency of constructs and elements.

3. RESULTS

Table 2 displays results on students' satisfaction and attitudes towards blended learning elements. Overall, students responded with high satisfaction regarding the blended learning elements. Students were satisfied with team based learning (60.8%) for developing teamwork skills. Learning useful information from the digital library received a high positive satisfaction (60.7%). Students preferred the digital library the most out of the technology tools (60.7%). Students were satisfied with team based learning as a collaborative learning element that helped them to increase their learning (54.9%). Students were strongly satisfied with skills they have gained from the course software (52.9%).

As for students' attitudes toward blended learning elements, they showed a highly positive attitude toward the digital library workshop (57.1%). Students revealed a high positive attitude towards joining senior faculty

research projects (56.9%). Students showed a strong belief about continuous course assessment and feedback (50.9%). As for the team based learning elements, students strongly recommend TBL for increasing members interactions (47.1%), for allowing students to ask questions (45.1%) and as an effective element to learn teamwork skills (45.1%). For technology elements, they perceived that the use of googledocs© tools facilitate teamwork (45.1%). Face-to-face lectures (39.2%) were less preferred than team learning (46.2%). A paired t-test revealed a significant difference between team based learning and face-to-face lectures (p value = 0.02). Writing online feedback received the least positive attitude among students (28.4%). Students do not seem to favor feedback in writing.

Table 2 students' attitudes and satisfactions towards blending learning elements and tools in percentages

Construct Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. Team Based Learning					
1.1 Team based learning (TBL) increased my learning.			5.9%	39.2%	54.9%
1.2 TBL helped me develop teamwork skills.			3.9%	35.3%	60.8%
1.3 Team interactions allowed me to ask questions without feeling embarrassed at my lack of knowledge.*		3.9%	9.8%	41.2%	45.1%
1.4 The team questions and comments created more member interactions.*			5.9%	47.1%	47.1%
1.5 The team process is an effective learning assignment to learn about teamwork skills.		1.9%		52.9%	45.1%
1.6 Working within a team in class helped me to simulate real life teamwork.			11.8%	49.0%	39.2%
1.7 Teamwork created a safe environment for me to work and learn.			9.8%	50.9%	39.2%
2. Online Students' Feedback Writing					
2.1 I find writing a weekly online feedback for my course is a helpful learning tool.		15.7%	15.7%	41.2%	27.5%
3. Face-to-Face lectures					
3.1 The lectures facilitated the learning process for me.* (at least 1/3 live via LMS)		1.9%	13.7%	45.1%	39.2%
3.2 I find that the oral explanations in lectures exceeded the amount of depth in comprehension in comparison with the book.*		5.9%	5.9%	49.0%	39.2%
4. Blackboard					
4.1 The blackboard tools facilitated my learning.			15.7%	52.9%	31.4%
4.2 Writing a weekly feedback and submitting it through the blackboard helped me to provide continuous feedback.		5.9%	15.7%	49.0%	29.4%
5. Software and digital resources					
5.1 I learned new skills by applying software (Filemaker, Excel, SPSS) in research.			5.9%	41.2%	52.9%

5.2 I learned useful information from the Digital library workshop at the Female students' Campus.				39.3%	60.7%
5.3 I recommend students to take the Digital library workshop at the Female students' Campus.			7.1%	35.7%	57.1%
6. Googledocs					
6.1 The use of Googledocs facilitated my teamwork on our research projects.		3.9%	11.8%	39.2%	45.1%
7. Joining Senior faculty Research Project					
7.1 Joining with senior faculty research projects gave me an opportunity to learn research skills		5.9%	9.8%	37.3%	47.1%
7.2 My research topic got me interested to learn about my field.	3.9%	7.8%	5.9%	35.3%	47.1%
7.3 I felt great about my research project.		1.9%		35.3%	62.8%
7.4 Working on research projects with senior faculty is a successful learning model.		1.9%	3.9%	37.3%	56.9%
7.5 What I learned in my research project will help me in my job.		1.9%	15.7%	25.5%	56.9%
8. Assessment					
8.1 The continuous oral and written feedback from the course instructor through different channels (small group meetings, over googledocs, over Blackboard) was effective in my learning.		1.9%	7.8%	39.2%	50.9%
8.2 Participating in class evaluation of the projects presentations was effective.		3.9%	17.7%	33.3%	45.1%

The content of the students' online feedback was analyzed. Figure 1 depicts percentages of students' self-reported satisfaction about virtual classrooms, team based learning and face-to-face lectures. Percentages were calculated by the number of statements per each of those constructs to the total number of students (N = 51). Students showed the most satisfaction with virtual classrooms: virtual classrooms were an "enjoyable experience" (41.2%), an "effective learning" element (35.3%) and a "convenient" learning element (23.5%). Team based learning was the second preferred by students: they learned "successful collaboration" (33.3%) and "team work skills" (15.7%). They preferred it as a "learning style" (11.8%), an "enjoyable experience" (11.8%) and "Learning from others' knowledge and experiences" (9.8%). However, students were least satisfied with face-to-face lectures which received the least comments (9.8%).

Continuous feedback writing seemed to have improved students' writing as evaluated by instructors. On the online feedback writing, one student commented: "First, I thought that the idea of the reflection is meaningless but journal after another I started realizing that it is really effective in many ways…, also for me as a writer of those journals I started to sense that my writing has improved and the time I needed for writing became less over time which is great." (Student online feedback, 2015)
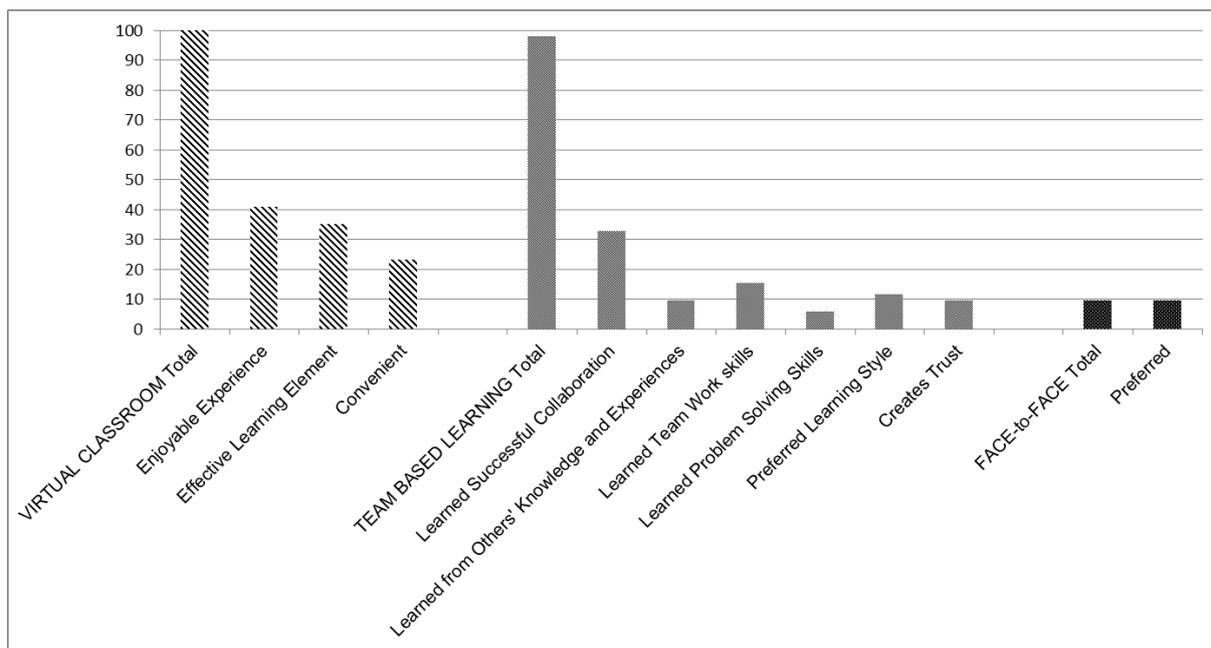
Figure 1 percentages of students' self-reported satisfaction toward blended learning elements.

Figure 1 percentages of students' self-reported satisfaction about virtual classrooms, team based learning and face-to-face lectures.

4. DISCUSSION

Virtual classrooms were the most preferred learning element by students as it provides flexibility, convenience and control over delivery of content; hence, an enjoyable experience. In previous studies, students and professionals preferred online and blended learning (Albarrak, et.al., 2009; Alseweed, 2013; Al-Saai, Al-Kaabi & AlMuftah, 2011); e-lectures were also preferred in another study (Demetriadis and Pombortsis, 2007) and online over group work (Delialioglu and Yildirim, 2007). Similarly, Gasaymeh, and Jwaifell 2013, reported graduate students showed a high satisfaction for the use of web based blog in a blended e-learning course.

Results indicated students' preference of team based learning over face-to-face lectures which support previous studies findings where students learned most in groups (Delialioglu and Yildirim, 2007; Wu, et.al., 2010; Dorit and Blecher, 2005); providing evidence for the pedagogical model of collaborative learning (von Glaserfeld, 1989). In the social constructivism model, optimal knowledge and skill learning occurs in groups and through group activities (Von Glasersfeld, 1989). Similar results were found in previous studies (Dori and Blecher, 2005).

"The students' preference for collaboration, especially in classroom meetings, points towards the social aspect of collaboration. In his social learning theory, Bandura (1975) emphasizes modeling of behaviors, attitudes, and emotional reactions while doing purposive, goal-directed activities in a collaborative group. Students' behaviors, attitudes, and emotions affected others while working in groups, discussing a concept, or playing educational games. A similar notion was outlined by Vygotsky (1978) by claiming that social interaction is fundamental in cognitive development. The collaborative classroom environment in the blended learning environment provided opportunities for the social interaction of students." (Delialioglu and Yildirim, 2007).

The current study results indicate that collaborative learning was highly preferred by students. Students' interactions with peers help them to process the content of the course by adapting and testing multiple peer perspectives. Given students variable learning aptitudes and curves, peer discussions works as a "scaffolding" mechanism that enhances learning outcome. Reversely, feedback writing was the least preferred by students. Such gap in students' attitudes indicates that students are motivated to learning by participation versus writing alone. Writing is also a demanding complex, multi-skilled task that requires time and is open-ended, especially for students with English as an acquired second language. Students also preferred participation in assessment as reflected in their positive rating of assessment of their projects. By participating in their evaluation of team performance reinforces learning by participation and sense of responsibility. Lectures were the least preferred (P value = 0.02). Probably students are passive listeners in

a lecture which does not stimulate active learning. Lack of lecture preference was reported by a study by Delialioglu and Yildirim (2007).

It should be noted that the last two feedbacks focused on students' perception of their experience as a whole within the context of their final projects which received the most comments (56%). At this stage, their evaluation actually reflects the knowledge and skills they have developed via the integration of all course elements, specifically the technology tools. Their feedback, therefore, reflects their overall satisfaction with the course outcomes. The feedback "enjoyable experience" (53%) and "learning knowledge and skills for future jobs" (46.4%) was the most reported satisfaction. Few students (less than 10%) mentioned that they have faced few technical issues in accessing their first virtual classroom which was resolved by the course instructor guidance and the e-Deanship student support. Results support the need to integrate e-learning into undergraduate education for its positive impact on the delivery and outcome (Clark, 2002).

5. CONCLUSION

Students' satisfactions and attitudes play an important role in teaching and learning outcomes. Students perceived tools for digital information as the most preferred outcome. e-learning tools provide learners with the flexibility of studying regardless of their location and time zone; it extends students' learning experiences beyond the boundaries of the classroom. As for structure, students mostly favored team based learning approach. Results revealed a high positive attitude and motivation among students regarding blended model in teaching research course. The model introduces a high level of interactivity further enhancing students learning capabilities; a recommendation to implement this blended model in teaching research to undergraduate students is indicated. For future studies, the effect of the blended model on the performance of students and construction and learning skills should be examined.

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