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Abstract

Several non-traditional learning opportunities and online instructions have been adopted in the universities and other educational institutions during the past decades. The adaptation of e-learning in higher education has many advantages but, on the other hand, high costs constitute the major concerns of such educational systems. Blended learning systems have been employed to overcome the drawbacks of traditional learning and to avoid the failure of elearning. This research aims to assess student perceptions regarding some essential factors of blended learning as well as their overall satisfaction and general attitudes during learning process. A cross-sectional survey consisting of eleven questions has been conducted targeting 180 students of the Faculty of Tourism and Hotel, Helwan University who have been enrolled in one of the blended learning courses in academic year 2016/2017. The results show that applying blended learning platform has increased markedly the overall interaction between the lecturer and students. Students were significantly satisfied with different communication patterns of the professors, including the communication of important course topics (P=0.043), goals (P=0.006), and important deadlines of various activities (P=0.008). In addition, the role of learning activities in helping the students to construct explanations and solutions, the feeling of students that their viewpoints were acknowledged by their lecturer, and students' participations in the course discussions were significantly associated with the overall students' satisfaction (P<0.05, P=0.01, and P=0.02, respectively). Online discussions and students' interactions with the professors and other students were significantly

enhanced components of blended learning in this study. The overall satisfaction rate is highly reasonable due to the attractive methods of providing blended learning through our platform with the help of well-trained professors.

Keywords

E-learning - Blended learning / Hybrid instruction - Learning / Course management system (LMS/CMS)

Introduction

With the development of Internet and related technologies, a blast of nontraditional learning opportunities and online instructions have been widely adopted in universities and other educational organizations during the past few years (Huang *et al.*, 2012; *Kim et al.*, 2009; Sarfo & Ansong-Gyimah, 2010)

E-learning customs the information and communication technologies to distribute and deliver knowledge (Ruiz *et al.*, 2006; Tsang, 2007). Previous studies have exposed that the adaptation of e-learning in higher education has many advantages such as the possibility of using multimedia content (Moriz, 2008), connecting people and resources, enabling active learning, deepen understanding, enhancing critical thinking skills as well as encouraging creative communication (Khan *et al.*, 2012; Romero-Frias & Arquero, 2013). Additionally, E-learning could be a relief for instructors. For example, it is much easier to update courses and documents that are available online than updating printed materials (Beutelspacher & Stock, 2011).

However, major disadvantages in integrating e-learning into higher education included high costs for preparing content materials, considerable costs for system maintenance, the depression and isolation that the students

feel in the virtual environment as well as lack of social interaction (Mandl & Kopp, 2006; Moriz, 2008; Wu *et al.*, 2010). The low achievement rates of elearning courses, and the importance of instructor-student and student-student interactions in classrooms have consequently suggested that e-learning alone is unlikely to be the most efficient strategy for teaching and learning in higher education (Coates *et al.*, 2005; Reich, 2015).

The essential problems of online instruction, which include the difficulty of limited resources (such as money, time, software, and hardware) led to a new idea: Why not mix the benefits of online courses with the benefits of face-to-face courses? Many instructors all over the world complement their courses with simulations, online exercises, and immediate online feedback, creating richer education environments through hypermedia and multimedia. The integration of these tools into courses introduces a new way of learning strategy. This new strategy has numerous names: mediated learning, web-assisted instruction, web-enhanced instruction, or blended learning (Delialioglu & Yildirim, 2007).

In recent years, Blended Learning has occurred to overcome the drawbacks of traditional learning and to avoid the failure of e-learning by offering a combination of various learning models or strategies. It blends different event-based learning activities, including face-to-face class room, student-centered learning, and live e-learning, that enhances learning quality, and learners' interactivity (Al-Huneidi & Schreurs, 2013).

Allen and Seaman (2007) defined various types of courses within the following categories

1. "Traditional: Courses that do not use the online technology— content is delivered orally or in writing."

- 2. "Web-Facilitated: Courses which use web-based technology to facilitate what is essentially a face-to-face course [only 1-29% online]. Uses webpages or course management system (CMS) to post for example the syllabus and assignments."
- 3. "Blended/Hybrid: Courses that blends face-to-face and online delivery. Considerable part of the content is delivered online [30 79%], usually uses online discussions, and typically has some face-to-face meetings."
- 4. "Online: courses where almost all of the content is delivered online [80+%]. Normally has no face-to-face meetings."

One of the main targets of teaching in tourism and hospitality higher education is to achieve a better outcome and to reduce the number of students dropping out from the course. In order to reach these goals a change in the traditional teaching methods used might be required (Orton-Johnson, 2009). Traditional or face-to-face learning has some benefits such as learning in a social interaction environment, that facilitate exchanging of ideas, and lower the possibility of misunderstanding. However face-to-face learning permits very limited space for self- directed learning and student-centered learning, limits the possibilities for customizing the course content to reflect learners' skills (Mackay & Stockport, 2006).

Before the introduction of the Internet website revolution, the lecturer used to be the main source of information for his/her students. Many researchers have proved that the Internet website revolution has impacted on student achievements, attitudes and performance. For example, studies have shown that internet technologies have changed the teaching methods in the classroom, from the student-lecturer model to a teacher-facilitator model (Giles, 2009; Rimm-Kaufman & Hamre, 2010).

Studies show that the students often expect to use and learn with latest technology while they complete their college education (Benson et al., 2002). Therefore, instructors have started to introduce the new electronic information technologies to their courses with increasing frequency (Bills & Stanley, 2001). The evolution of Information and Communication Technologies (ICTs) has permitted the younger generations to be well equipped with technological devices such as tablets and smartphones. In view of this technological shift, the education sector has integrated the application of ICTs in education resulting in the establishment of e-learning platforms (Lee, 2010).

In May 2008, Egypt, at the World Economic Forum on the Middle East, celebrated launching the Egyptian Education Initiative (EEI). EEI aimed to motivate learning skills, deliver equitable and high-quality education for all learners regardless of their location, number or gender, and convert learning into an interactive experience. In order to fulfill these aims, the Egyptian government set up a plan in 2008 to establish the infrastructure required for enhancing e-learning, which includes (MCIT, 2008, 2010):

- 1-Provide universities with high-speed internet networks;
- 2-Establish video conference amenities linking all the universities;
- 3-Piloting the wireless campus;
- 4-Supply 52 labs in Helwan University as a pilot model (20 students / computer);
- 5-Establish an e-content development lab in each university for assisting staff produce e-learning materials;
- 6-Training both administrators and staff to use information technology efficiently;

7-Invite world-class specialists and local experts to check the current availabilities to ensure that technical materials are sufficient, efficient and in place.

However, a study conducted in 2011 claimed that the Egyptian government has succeeded in creating some of the required infrastructure for e-learning. Yet, deficiencies still exist and the e-learning in tourism higher education is still in its early phase in Egypt. The study showed that only 7 out of twenty seven public and private tourism colleges provide some e-learning services, that varies between simple services (e.g. news groups and e-mail groups) to somewhat sophisticated services (e.g. downloadable PowerPoint presentations or text-format materials) (Afifi, 2011).

Although the advantages could be achieved from applying e-learning in tourism and hospitality higher education, such as possibility of learning from anywhere and at any time, faster learning delivery, and reaching unlimited number of learners (Alepis & Virvou, 2014; Graff, 2003; Terrell & Dringus, 2000), there are a few disadvantages which include lower motivation to complete courses, less learner satisfaction, lack interaction between lecturer and peers, difficulty to use real tools, and high initial costs for developing courses. Moreover, some researchers claimed that the application of full e-learning courses in tourism higher education would be hard as the fact that tourism is a practical pedagogy, where a significant share of the studying hours are spent either in the field (e.g. hotels, sites) or in a simulated training atmosphere (e.g. food service or kitchen training) (Afifi & Wahab, 2010).

As a result of changing environment within both the educational provider and the tourism and hospitality sector it is urged that in order to address the challenges and the need of the new students, higher and

established educational institutions should follow a blended mix toward education. A blended approach refers to using ICT for complementing and enhancing rather than entirely substituting the traditional learning and teaching practices (Bañados, 2006; Calabrese & Faiella, 2011; Sigala & Baum, 2003).

"Blended learning" or "hybrid instruction" are terms usually used to refer to courses that combine the efficiency of the face-to-face teaching environment and ICT-mediated teaching and learning environment (Driscoll, 2002; Graham & Allen, 2009; López-Pérez et al., 2011; MacDonald, 2008; Mason, 2005; Stubbs et al., 2006). Blended learning is the fastest increasing trend in e-learning (Ward & LaBranche, 2003), and it is hardly to consider it a brand new term rather than "a new name for an old friend" as the concept has been around for many years.

Many researchers have presented their efforts on investigating the meaning of blended learning. For example, Bielawski and Metcalf (2003) indicated that blended learning focuses on improving achievement of learning objectives by applying the "right" learning technologies to match the "right" personal learning style to transfer the "right" skills to the "right" person at the "right" time.

Blended e-learning offers a new learning approach which changes the traditional face-to-face learning through applying non-time limitation and non-geographical online learning on-campus, as teachers and students, students and students could meet online when they are off-campus.

Smith (2001) defined blended learning as a method of learning at a distance that uses technology (low-tech, such as voice mail or conference calls or high-tech, such as television and the Internet) combined with traditional (or, stand-up) education or training.Delialioglu and Yildirim

(2007) stated that Blended learning environment aims to combine the qualities of online instruction, such as sufficiency, efficiency, and freedom to access information anytime with least effort, with qualities of traditional classroom instruction, such as helping students to work with the new information presented, and interact with teacher and peers in the classroom.

Sharpe *et al.*(2006) identified three models of blended learning as following

- a) Transmissive pedagogy model: Actual teaching and learning follows the traditional face-to-face styles of lectures and seminars, but provide extra support to the students through placing lecture notes on the web.
- b) Transformative model: Facilitates extensive use of ICT tools beyond virtual learning environments (VLEs) to improve and change students' mode of interaction, studying and learning. It transforms learners from just recipients of knowledge to where learners are actively involved in the construction of knowledge through dynamic interactions in the teaching and learning environment.
- c) A holistic model of technology use to support learning: This is a newer characterization of blended learning where most learners do not distinguish between learning with or without technology. Faculty facilitates learning by using the learners' own technologies such as mobile phones, online communities and instant messaging to support the students' learning at any place and at any time.

Blended learning environment could be supported by many platforms such as learning management systems (LMSs), or Course Management Systems (CMSs). Generally, LMSs are scalable systems, that can be used to support an entire university's teaching and learning programs (Wang, 2010). The main tools that all LMSs provide are: a) Content delivery and

development which may involve (learning resources, learning objects, files, links to internet resources, etc.); b) synchronous and Asynchronous and communication that may involve (announcement areas, e-mail, chat, forums etc.) and summative and formative assessment mainly involves (tools for self-evaluation, multiple choice questions etc.) (Coates et al., 2005).

The main characteristics of the LMSs are that it is not static, is easily reusable, and provide the lecturers the capability of designing and administrating their courses, as they want. (Kabassi et al., 2016). Recently, many LMSs have been developed for supporting blended learning such as Moodle (http://www.moodle.org), Blackboard (http://www.blackboard.com), Cyber University of NSYSU (http:// cu.nsysu.edu.tw) or WebCT (http://www.webct.com). These systems can provide lecturers and learners with various, flexible instructional methods, educational technologies, learning resources or interaction mechanisms, that they can apply in an interactive learning environment to overcome the limitations of classroom and e-Learning (Wu et al., 2010).

The aim of this study is to evaluate students' satisfaction and general attitudes toward blended learning as the main respondents in the educational process. We assessed also the impact of the pedagogical applicability of blended learning in our organization and the experiences of students on using the different tools in the course. Students' perceptions regarding some essential factors of blended learning were also investigated.

Methods

Research Methodology

The study design consisted of a cross-sectional survey which has been conducted in targeting the students of the Faculty of Tourism and Hotel

Management, Helwan University. We used a descriptive method to various variables related to the interaction, perception, and impression of the students to the blended learning system. Students studying in all academic levels who have been enrolled in one of the blended learning courses in academic year 2016/2017 are considered eligible for inclusion. A random sample of 180 students was employed in this study.

Data Collection

Data required for this study were collected in the form of questionnaire containing qualitative data, distributed in the second semester of the aforementioned academic year. Likert scale analysis was employed for question number 8 related to the interaction of students with other students and with the professor. The questionnaire was used to collect the following data: questions 1-7 (q1-7): demographic data of the students, including name, gender, academic year level, student's working status, whether the student has received a similar course, or has a previous experience with using Moodle; q8: students' interaction with each other and with other professors; q9: students' experience on using different tools employed in the course, including the easiness and usefulness of such tools; q10: students' perception parameters regarding some factors related to the professors (communication patterns, providing instructions and guidance, students' engagement in discussions and tasks, and providing feedbacks) and those factors related to interaction. the students (social course conversations, motivation. discussions, activities, problem solving, knowledge application, and the overall satisfaction); q11: students' perception of the relationship between online and face-to-face learning.

Statistical analysis

Statistical analysis was performed with the Statistical Package for Social Sciences version 19.0 for Windows (SPSS Inc., Chicago, IL, USA). Multiple response analysis was performed for the collected responses of q9. For categorical data obtained from q10, chi-square test was used to assess the correlation between the overall satisfaction of students and other statements related to the personal perception and those professor-related statements. The internal consistency of the questionnaire was analyzed using Cronbach's reliability test. Results are presented as frequency (percentage). A *P* value of <0.05 was considered to reject the null hypothesis.

Results

1-7. Demographic Data of the Participants

Table 1: Demographic characters of the included students (n=180)

	N	%
1- Age (years)		
Range	17-22	
Mean±SD	19.53±1.7٤	
2- Gender		

Male	٤٥	70		
Female	100	٧٥		
3- Year Level				
First	70	38.9		
Second	60	33.3		
Third	30	16.7		
Fourth	20	11.1		
4- First semester to use Moodle				
Yes	100	100		
No	0	0		
5- First semester to have a blended learning course				
Yes	163	90.6		
No	17	9.4		
6- Full-time/Working				
Full-time	100	100		
Working	0	0		
7- Which blended learning course/s would you like to evaluate				
Protocol and etiquette				
Tourism economics				
Eco Hotel				

As mentioned in

Table *I*, this study employed a total of 180 undergraduate students who enrolled into three courses; Protocol and etiquette, tourism economics and Eco-Hotels at the Faculty of Tourism and Hotels, Helwan University. The ages of the participants in this survey ranged between 17 and 22 years-old with a mean of 19.53 (SD=1.75 years). The majority of the participants were females (75%) representing the same for the general population in our academic institution. More than half of the participants were among the first

two academic years (130 students). None of the participating students was working and all of them had the first semester to use Moodle platform.

8. Quality of Students' Interaction with other students and the professor

Five-graded Likert scale response was applied to the satisfaction of the students with their interaction with either other students or the professor when compared to the same interaction in non-Moodle previously established courses. Likert scale response values and mean values of the interaction were demonstrated in

Table 2. The overall interaction with the professor was markedly increased as reported by 164 students (91.1%) and this could be clearly demonstrated from the total mean value of 4.78 (SD=0.82,

Table 2). Likewise,the interaction with other students was also increased in 110 students (61.1%), while those who reported moderate interactions were of considerable numbers (relatively increased in 31 cases and there was no difference in 22 students). The total mean value of such interaction was 4.26 (SD=1.11,

Table 2).

Table 2: Satisfaction of the students with the interaction during blended learning courses

	rs.		Likert Scale Response (%)			
Item	Mean±SDª	Increased (%)	Somewhat	No difference	Somewhat Decreased	Decreased
Quality of	4.26±1.11	110	31 (17.2)	22(12.2)	10 (5.6)	7 (3.9)
interaction		(61.1)				
with other						
students						
Quality of	4.78±0.82	164 (91.1)	6 (3.3)	3 (1.7)	0	7 (3.9)
interaction						
with the						
professor						

a results are based on Likert scale, where 5 categories have been established; 1=

Decreased quality and 5=Increased quality

8. Experiences of the students on using courses' tools

Multiple response analysis of student's experience on using several tools during courses is demonstrated in Table 3 and is graphically represented in Figure 1. Of the total 180 students, the highest response rates were reported for the used resources and assignments with the total responses reaching 474 and 471 responses respectively (the percentages of respondents were 263.3% for the resources and 261.7% for the assignments). On the other hand, the quizzes tool has grabbed the attention of the smallest number of respondents, with a total response of 347 responses (192.8%, Figure 1).

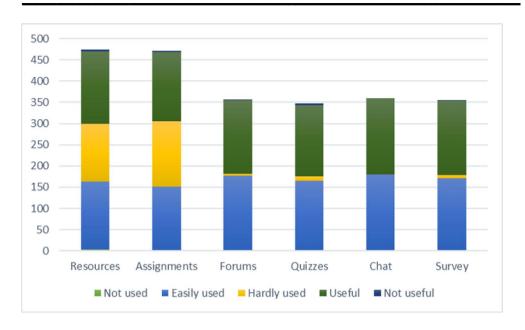


Figure 1: Graphical representation of the number of students' responses after experiencing the different tools employed during blended learning courses.

Further analysis revealed an overall increase in the response to the usefulness and easiness of course materials. For the resources, like the website and lesson files, there was a marked increase in the number of responses to the usefulness of such tool, with 95% of students finding it useful.

Additionally, 88.9% of the respondents indicated that the tool was easily used in all courses. Regarding the online tasks and activities (assignments), there was an approximate equal distribution of respondents who have selected "easily used" and "hardly used" with respondents' percentages of 83.3% and 85.6% respectively. However, the responses were exclusively focused on the usefulness of the course assignments as revealed by 163 responses (90.6%). Of the 357 responses to the discussion tools, namely the forums, most of the responses have shown great usefulness and easiness of the tools (174 and 175 responses respectively).

The marked increase of responses to the usefulness and easiness of using course tools continued for the quizzes, chat tool, and survey. This could be clearly demonstrated for chat tool, where all of the respondents found it useful and easy to use (Table 3). 168 students (93.3%) reported that the quizzes tool was useful and 165 students (91.7%) found them easy to use. Nearly the same results have been shown for the survey tool, where it was easily used as per responses of 171 students (95.5%) and it was useful as per reports of 176 students (98.3%).

Table 3: Students' Perception of several tools employed during the courses

	Response Selection	NR	Percent	PR
Resources	NOT used	4	0.8%	2.2%
	EASILY used	160	33.8%	88.9%
	HARDLY used	135	28.5%	75.0%
	Useful	171	36.1%	95.0%
	Not useful	4	0.8%	2.2%
	Total	474	100.0%	263.3%
Assignments	NOT used	2	0.4%	1.1%
	EASILY used	150	31.8%	83.3%
	HARDLY used	154	32.7%	85.6%
	Useful	163	34.6%	90.6%
	Not useful	2	0.4%	1.1%
	Total	471	100.0%	261.7%
Forums	NOT used	2	0.6%	1.1%
	EASILY used	175	49.0%	97.2%
	HARDLY used	5	1.4%	2.8%
	Useful	174	48.7%	96.7%
	Not useful	1	0.3%	0.6%
	Total	357	100.0%	198.3%
Quizzes	NOT used			

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	EASILY used	165	47.6%	91.7%
	HARDLY used	10	2.9%	5.6%
	Useful	168	48.4%	93.3%
	Not useful	4	1.2%	2.2%
	Total	347	100.0%	192.8%
Chat	NOT used			
	EASILY used	180	50.0%	100.0%
	HARDLY used			
	Useful	180	50.0%	100.0%
	Not useful			
	Total	360	100.0%	200.0%
Survey	NOT used			
	EASILY used	171	48.0%	95.5%
	HARDLY used	7	2.0%	3.9%
	Useful	176	49.4%	98.3%
	Not useful	2	0.6%	1.1%
	Total	356	100.0%	198.9%

NR: number of respondents; PR: percentage of Response

8.Students' perceptions about some factors related to the professors as well as some personal impressions.

A)Factors related to the professor

The results of students' perception about some factors related to their professors are graphically presented in

Table 4. Additionally, the mean values and the results of Cronbach's reliability analysis are shown in Figure 2. For such statements, the students had four selections to choose one of them and, therefore, the highest mean values are those reaching the "4" value. In general, the highest mean values were reported by the students indicating that professors communicated important course topics (10-A1, 3.97±0.23), those showing that professors

provided clear instructions for participation in the course activities (10-A4, 3.89 ± 0.37), and finally students stating that the professors provided tasks which helped them to learn (10-A7, 3.88 ± 0.39). Students were significantly satisfied with different communication patterns of the professors, including the communication of important course topics (P=0.043), goals (P=0.006), and important deadlines of various activities (P=0.008, Table 4).

Table 4: The mean values and reliability analysis of the students' perception about some professor-related statements

Mean Cα χ^2 P 3.97±0.23 0.36 9.84 0.043* 1. The professor communicated important course topics 2. The professor communicated important 3.84 ± 0.60 0.34 18.3 0.006* course goals 3. The professor clearly communicated 0.35 17.27 0.008* 3.75 ± 0.68 important due dates/time frame for the activities 5.94 0.2 4. The professor provided clear instructions on 3.89 ± 0.37 0.37 how to participate in the course activities 5. The professor was helpful in guiding the 3.84 ± 0.42 0.33 7.29 0.12 class towards understanding course topics 6. The professor helped to keep students 0.32 3.37 0.76 3.82 ± 0.61 engaged and participating in productive discussion 7. The professor helped keep students on tasks 0.36 5.85 0.44 3.88±0.39 in a way that helped me to learn 8. The professor encouraged students to explore 0.31 3.78 0.43 3.77 ± 0.61 new concepts in the course 9. Professor actions helped in developing a 3.81 ± 0.42 0.36 2.62 0.62 sense of community among students 10. The professor helped to focus discussion on 3.68 ± 0.72 0.38 5.23 0.51

relevant issues in a way that helped me to learn				
11. The professor provided feedback that	3.71±0.74	0.39	7.53	0.27
helped me understand my strengths and				
weaknesses about the course objectives				

^{*} Significant correlation at P<0.05; Ca.: Cronbach's Alpha if Item Deleted; $\chi 2$: Pearson chisquare test values

The strongest agreement of students was reported for the professors' communication of the important course topics with 176 cases (97.8%, Figure 2), then communicating course goals (167 students, 92.8%). It seems that the first statement (10-A1) had the most significant acceptability since there was no strong disagreement among students and only 2 students (1.1%) reported their disagreement about this item. The absolute figures have shown that the statement which received the least number of agreement was number "10-A10" (144 cases, 80%, Figure 2) indicating that the professors faced some difficulties in focusing their discussion in a way which could help the students to learn.

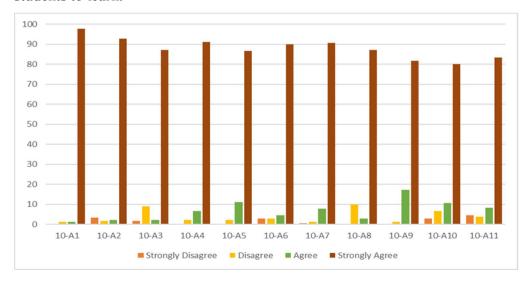


Figure 2: A graphical presentation of the percentages of students' perception about some professor-related statements during blended learning courses

In contrast, despite its marked weak impact, the strongest Mean $C\alpha$ $\chi 2$ P

disagreement was observed for the responses in the statement number 10-A11 (8 cases, 4.4%) and 10-A2 (6 cases, 3.3%). Actually, the former is related to providing feedbacks by the professors which helped the students to determine their self-strengths and -weaknesses, while the latter is related to communicating important course goals.

Personal perceptions

3.71±0.81	0.35	8.21	0.22
3.98 ± 0.14	0.36	2.42	0.29
3.97±0.22	0.34	2.13	0.71
3.84±0.38	0.38	11.82	0.02*
3.68 ± 0.74	0.35	4.91	0.56
3.72±0.71	0.36	14.52	0.01*
3.87 ± 0.48	0.35	2.67	0.85
3.62±0.74	0.44	7.85	0.1
3.52 ± 0.93	0.30	8.29	0.22
3.95±0.24	0.36	2.49	0.65
3.6 ± 0.80	0.27	37.46	0.00*
3.6±0.74	0.30	10.67	0.1
3.37±1.01	0.22	9.86	0.13
3.53±0.80	0.29	12.5	0.05
3.44 ± 0.78	0.37		
	3.98±0.14 3.97±0.22 3.84±0.38 3.68±0.74 3.72±0.71 3.87±0.48 3.62±0.74 3.52±0.93 3.95±0.24 3.6±0.80 3.6±0.74 3.37±1.01	3.98±0.14 0.36 3.97±0.22 0.34 3.84±0.38 0.38 3.68±0.74 0.35 3.72±0.71 0.36 3.87±0.48 0.35 3.62±0.74 0.44 3.52±0.93 0.30 3.95±0.24 0.36 3.6±0.80 0.27 3.6±0.74 0.30 3.37±1.01 0.22	3.98±0.14 0.36 2.42 3.97±0.22 0.34 2.13 3.84±0.38 0.38 11.82 3.68±0.74 0.35 4.91 3.72±0.71 0.36 14.52 3.87±0.48 0.35 2.67 3.62±0.74 0.44 7.85 3.52±0.93 0.30 8.29 3.95±0.24 0.36 2.49 3.6±0.80 0.27 37.46 3.6±0.74 0.30 10.67 3.37±1.01 0.22 9.86 3.53±0.80 0.29 12.5

Table 5 shows the results of statistical analysis of the personal perception factors of students related to the blended learning courses. Figure 3 shows graphically the percentages of responses by the students to statements about their perception. There was an overall good acceptability of

the students-related factors during blended learning courses as revealed by Mean $C\alpha$ χ^2 P

the increase in their strong agreement with positive statements. For example, the highest proportion of students felt comfortable conversing through the online medium (n=176, 97.8%) and the same applies for the acceptability of the online communication as an excellent medium for social interaction (n=176, 97.8%).

It is noteworthy that the aforementioned statements have been recorded the highest mean values of acceptability (3.97±0.22 for the former and 3.98±0.14 for the latter). Nearly the same results were obtained for the statement number 10-B10 where the online discussions helped the students to better appreciate the variation in perspectives (strong agreement in 172 cases, 95.6%, with a mean value 3.95±0.24).

1- I have a sense of belonging in the course 2- Online communication is an excellent medium for social interaction 3- I felt comfortable conversing through the online 3.97 \pm 0.22 0.34 2.13 0.71 medium 4- I felt comfortable participating in the course discussions 5- I felt comfortable interacting with other course 3.68 \pm 0.74 0.35 4.91 0.56 participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 3.87 \pm 0.48 0.35 2.67 0.85 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to 3.52 \pm 0.93 0.36 2.49 0.65 explore problems posed in this course 10- Online discussions were valuable in helping me 3.95 \pm 0.24 0.36 2.49 0.65
social interaction 3- I felt comfortable conversing through the online medium 4- I felt comfortable participating in the course discussions 5- I felt comfortable interacting with other course participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.97 \pm 0.22 0.34 2.13 0.71 0.02* 0.38 11.82 0.20* 0.35 4.91 0.36 14.52 0.01* 0.36 14.52 0.01* 0.44 0.44 0.35 0.1
3- I felt comfortable conversing through the online medium 4- I felt comfortable participating in the course discussions 5- I felt comfortable interacting with other course participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 3.87 \pm 0.48 0.35 2.67 0.85 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course
medium 4- I felt comfortable participating in the course discussions 5- I felt comfortable interacting with other course participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 3.87 ± 0.48 0.35 2.67 0.85 3.62 ± 0.74 0.44 7.85 0.1 questions 9- I utilized a variety of information sources to 3.52 ± 0.93 0.30 8.29 0.22 explore problems posed in this course
4- I felt comfortable participating in the course discussions 5- I felt comfortable interacting with other course participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 3.87 \pm 0.48 0.35 2.67 0.85 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course
discussions 5- I felt comfortable interacting with other course participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.68 \pm 0.74 0.35 4.91 0.56 14.52 0.01* 14.52 0.01* 0.85 3.62 \pm 0.74 0.44 7.85 0.1
5- I felt comfortable interacting with other course participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.68 \pm 0.74 0.35 4.91 0.56 3.72 \pm 0.71 0.36 14.52 0.01* 0.85 3.62 \pm 0.74 0.44 7.85 0.1
participants 6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.72 \pm 0.71 0.36 14.52 0.01* 0.85 3.62 \pm 0.74 0.44 7.85 0.1 0.36 14.52 0.85 0.1
6- I felt that my point of view was acknowledge by the teacher and other course participants 7- Course activities were interesting 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.72±0.71 0.36 14.52 0.01* 0.85 0.1 0.44 7.85 0.1 0.22
the teacher and other course participants 7- Course activities were interesting 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.87 \pm 0.48 3.87 \pm 0.48 3.62 \pm 0.74 0.44 7.85 0.1 0.22
7- Course activities were interesting 3.87 \pm 0.48 0.35 2.67 0.85 8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to 3.52 \pm 0.93 0.30 8.29 0.22 explore problems posed in this course
8- I felt motivated to explore content related questions 9- I utilized a variety of information sources to explore problems posed in this course 3.62±0.74 0.44 7.85 0.1 0.22
questions 9- I utilized a variety of information sources to explore problems posed in this course 3.52±0.93 0.30 8.29 0.22
9- I utilized a variety of information sources to 3.52±0.93 0.30 8.29 0.22 explore problems posed in this course
explore problems posed in this course
10- Online discussions were valuable in helping me 3.95±0.24 0.36 2.49 0.65
appreciate different perspectives
11- The learning activities helped me construct 3.6±0.80 0.27 37.46 0.00*
explanations/solutions
12- I can describe ways to test and apply the 3.6 ± 0.74 0.30 10.67 0.1
knowledge created in this course
13- I have developed solutions to course problems 3.37±1.01 0.22 9.86 0.13
that can be applied in practice
14- Given the opportunity I would take another 3.53±0.80 0.29 12.5 0.05
blended learning course in the future
15- Overall, I am satisfied with this blended learning 3.44±0.78 0.37
course

Table 5: Results of the statistical analysis of the students' perception about some personal-related statements

^{*} Significant correlation at P<0.05; Ca. Cronbach's Alpha if Item Deleted; $\chi 2$: Pearson chi-square test values

students who strongly disagreed with having a sense of belonging to the course (n=11, 6.1%) although the number of those strongly agreed was also considerably high (n=157, 87.2%). Despite their few number, the highest percentages of students who strongly disagreed with a statement with those who failed to develop solutions to the emerging practical course problems (n=15, 8.3%, 3.44±0.78, Figure 3). Surprisingly, the lowest mean values of students' perception in this category were reported in the statement number 10-B15, which is related to the overall satisfaction with the blended course as a whole (3.37±1.01,

1- I have a sense of belonging in the course	3.71±0.81	0.35	8.21	0.22
2- Online communication is an excellent medium for	3.98±0.14	0.36	2.42	0.29
social interaction				
3- I felt comfortable conversing through the online	3.97 ± 0.22	0.34	2.13	0.71
medium				
4- I felt comfortable participating in the course	3.84 ± 0.38	0.38	11.82	0.02*
discussions				
5- I felt comfortable interacting with other course	3.68 ± 0.74	0.35	4.91	0.56
participants				
6- I felt that my point of view was acknowledge by	3.72±0.71	0.36	14.52	0.01*
the teacher and other course participants				
7- Course activities were interesting	3.87±0.48	0.35	2.67	0.85
8- I felt motivated to explore content related	3.62±0.74	0.44	7.85	0.1
questions				
9- I utilized a variety of information sources to	3.52±0.93	0.30	8.29	0.22
explore problems posed in this course				
10- Online discussions were valuable in helping me	3.95±0.24	0.36	2.49	0.65
appreciate different perspectives				
11- The learning activities helped me construct	3.6±0.80	0.27	37.46	0.00*
explanations/solutions				
12- I can describe ways to test and apply the	3.6±0.74	0.30	10.67	0.1
knowledge created in this course				
13- I have developed solutions to course problems	3.37±1.01	0.22	9.86	0.13
that can be applied in practice				
14- Given the opportunity I would take another	3.53±0.80	0.29	12.5	0.05
blended learning course in the future	3.23-0.00	0.27	12.0	0.02
15- Overall, I am satisfied with this blended learning	3.44±0.78	0.37		
course	J. TT±0. / 0	0.57		
Course				

Table 5). This may be due to the increase in number of students who disagreed and agreed with such statement if compared to other statement.

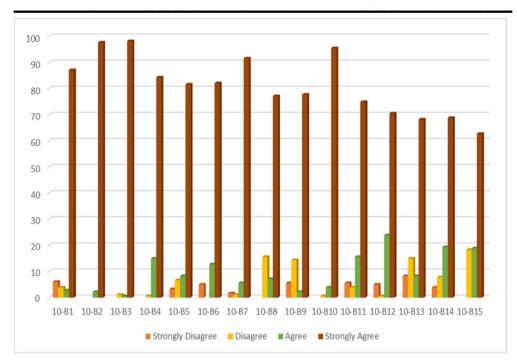


Figure 3: A graphical presentation of the percentages of students' perception about some personal-related statements during blended learning courses

Therefore, we have decided to study the correlation between item number 10-B15 with other factors in this category using the Pearson's Chi Square Test of Independence. Generally, the overall satisfaction of blending courses was significantly associated with the feeling of students that their viewpoints were acknowledged by their mentors and other course participants (P=0.01,

Table 5). In addition, students' participations in the course discussions

	Mean	Сα	χ2	P
1- I have a sense of belonging in the course	3.71±0.81	0.35	8.21	0.22
2- Online communication is an excellent medium for	3.98±0.14	0.36	2.42	0.29
social interaction				
3- I felt comfortable conversing through the online	3.97±0.22	0.34	2.13	0.71
medium				
4- I felt comfortable participating in the course	3.84 ± 0.38	0.38	11.82	0.02*
discussions				
5- I felt comfortable interacting with other course	3.68 ± 0.74	0.35	4.91	0.56
participants				
6- I felt that my point of view was acknowledge by	3.72±0.71	0.36	14.52	0.01*
the teacher and other course participants				
7- Course activities were interesting	3.87 ± 0.48	0.35	2.67	0.85
8- I felt motivated to explore content related	3.62±0.74	0.44	7.85	0.1
questions				
9- I utilized a variety of information sources to	3.52±0.93	0.30	8.29	0.22
explore problems posed in this course				
10- Online discussions were valuable in helping me	3.95±0.24	0.36	2.49	0.65
appreciate different perspectives				
11- The learning activities helped me construct	3.6 ± 0.80	0.27	37.46	0.00*
explanations/solutions				
12- I can describe ways to test and apply the	3.6 ± 0.74	0.30	10.67	0.1
knowledge created in this course				
13- I have developed solutions to course problems	3.37±1.01	0.22	9.86	0.13
that can be applied in practice				
14- Given the opportunity I would take another	3.53±0.80	0.29	12.5	0.05
blended learning course in the future				
15- Overall, I am satisfied with this blended learning	3.44 ± 0.78	0.37		
course				

were significantly associated with their satisfaction (P=0.02). The strongest association was observed between the overall satisfaction and the role of

learning activities in helping the students to construct explanations and ${\it Mean} {\it Ca} {\it \chi2} {\it P}$

solutions (χ^2 =37.46, P<0.05).

Collectively, for question number 10, Cronbach's reliability analysis revealed an overall alpha level 0.371, indicating a relatively inadequate level of inter-term reliability of all items surveyed in question number 10. Notably, such analysis has shown that deleting of the option where the "professor provided a feedback" would have slightly increased the overall reliability to 0.39 (

Table 4). Regarding the students' options, the alpha level has been markedly raised to 0.44 when deleting the item "I felt motivated to explore content related questions" (

2
)
1
2*
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 *
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2
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)*
3
5

Table 5).

8. Relationship between the online and face-to-face learning

Table 6 shows the frequency distribution of student's perception about the difference between online and face-to-face class learning. The majority of students felt that both types of learning enhanced each other, indicating a strong relationship between them (n=157, 87.2%, Table 6). A small number of students has shown weak relationships between these learning aspects with only 2 students (1.1%) indicating that there was a lack of relationship.

Table 6: Frequency distribution of students' perception regarding the relationship between online and face-to-face class learning

	N	Percent
On line and in class work enhanced each other	157	87.2
Online and in class work were relevant to each other	18	10.0
The connection between the two was not always clear	3	1.7
There was little or no connection between two	2	1.1

Discussion

The interest to blended learning has been increased as it may benefit the educational system requiring more investigation and appropriate application along with studying its impact on the students. As demonstrated in this study, using blended learning seems to establish an effective approach toward accomplishing a promising pedagogical process.

For students' interaction, our data revealed high levels of satisfaction related to the interaction with other students and the responsible professor. It is imperative to consider this character as the interaction is a very essential method of connection with others for building trust. In addition, creating an essence of inquiry within the educational atmosphere is a core purpose of blended learning. Blending synchronous verbal communication with the

asynchronous text interaction yielded excellent outcomes (Schrire, 2004). Therefore, while designing blended learning frames, an adequate establishment of social interaction in a formal and non-formal patterns with the peers should be achieved (Beuchot & Bullen, 2005; Garrison & Cleveland-Innes, 2005).

Overall, it has been noticed that there was a marked increase in the interaction between the students and the professor, in form of web announcements, consultations, or face-to-face communication and the interaction among students by using emails, forum discussions, or class discussions. Regarding the employed tools in blended learning courses, the highest responses in this study were directed toward the resources and assignments. This can be indicative of the ability of students to easily mobilize different learning resources, such as the website, files, and videos, as well as other online tasks and activities. These findings are consistent with another study which revealed that the constructive elements of blended learning could ultimately enable easier group discussions, appropriate activity-based learning, and critical thinking capabilities (Delialioglu & Yildirim, 2007).

Additionally, a more recent study on college nursing students showed a sharp rise in their satisfaction with the used course tools (Hsu, 2011). Cognitive tools were used also in our courses and this was appreciated by the students and reflected in the form of easier interaction and increased involvement in the cognitive activities (Clarebout et al., 2002). Indeed, supportive tools provide extensive ways by which the students could handle the resources and help facilitate problem-solving. A clear explanation of this fact was also noted in our study by the finding of a strong significant

relationship between students' satisfaction with the courses and the learning activities related to building explanations and developing proper solutions.

Students in this study showed a significant association between their overall satisfaction and their participation in course discussions. Indeed, one of the most significant issues while constructing an efficient blending learning paradigm is the strategies and methods used for online discussions and/or instructions which could be provided easily to the students in well-established courses. Such strategies should be integrated with the current teaching styles which should ultimately consider the outline of the pedagogical and technological properties to frame an efficacious course. Other studies showed some degrees of difficulties in terms of the provided instructions and discussions through blended learning systems. An early study (Alonso et al., 2005) has shown that there were several difficulties in the provided support by instructors in the form of instructions, discussions, and feedbacks

As a result, the participating students felt that their performance was not improved as the online discussion system was below their expectations. Therefore, students always expect to receive adequate and engaging feedback through discussion tools or they would be extremely frustrated (So & Brush, 2008; Sweeney et al., 2004). The professors in this study communicated properly with the students as demonstrated from students' satisfaction with communication patterns including providing detailed information about important course topics and goals as well as estimating exact due timeframes for different activities.

It is noteworthy that the main criteria for students' evaluation should be based on a qualitative approach rather than a quantitative one as this would have an impact on the value of the discussion. Online discussion is

based essentially on the personal skills and expertise of the instructor regarding course materials. Additionally, the contemporary students expect that blended learning will facilitate easier cooperation patterns and will push them to be more creative students rather than just recipients of information. An establishment of appropriate powerful discussion tools helps the overall process to be more student-centered. Cox et al. (2003) and Hennessy et al. (2003) stated that the professors should be more proactive and quickly responsive to provide adequate support for the learning process, keep a suitable focus on the main subject, be aware of the achieved progress, and encourage students' reflection.

Therefore, it is imperative to provide professional development programs for the instructors to help perceive the basic online teaching strategies such as course integration, handling online discussions, and providing new and creative online activities which assist in the efficient interaction. All of the aforementioned factors are considered while constructing blended learning courses at our faculty, and this can be clearly demonstrated in the resultant students' perception.

Our courses helped the students to construct explanations and solutions. It is necessary to note that the role of the professor is markedly changed in the blended learning systems. For example, the professor is not in fact the main source of information for the students, but he/she can provide hints during a self-directed pattern of learning to help the student to construct the possible solutions of any emerging issue. In addition to this ability, students' motivation, commitment, and fun would be enhanced by blended learning (Dziuban et al., 2004; Nistor et al., 2005; Vignare & Starenko, 2004). In addition, subjective learning gains are increased significantly by the students in blended learning courses than traditional learning approaches.

Another improved character is the increase in the objective practical knowledge which could be reflected eventually in the form of better test results (Dziuban et al., 2004; Nistor et al., 2005).

Overall, students' satisfaction level was significantly increased regarding our courses through blended learning. This may be ascribed to the higher degrees of flexibility (Dziuban et al., 2004; Harding et al., 2012; Sharpe et al., 2006) and the increased subjective learning outcome provided by blended learning systems. Furthermore, the website is rated very well as per results in our study. As a consequence, students have shown that the new experience of blended learning provided a suitable opportunity to demonstrate better engagement in the learning system. Active participation and better involvement in activity are excellent outcomes of such courses in our experience. Moreover, it has been noticed that the cognitive engagement of the students was markedly enhanced including searching, analyzing and providing targeted criticization (Zhu, 2006).

Although our students showed good perception of the relationship between online and face-to-face class learning, it is necessary to regularly conduct exploratory research related to the various activities to better understand the touchable impact of the integration of both online and face-to-face learning.

One of the limitations of our study is the low number of surveyed students which could interfere with the quality of the results. However, the overall increased satisfaction rates regarding blended learning has been shown in other concerned studies based on large populations. Another limitation is the lack of surveying the final outcome of the courses in the form of test results.

In conclusion, online discussion is one of the markedly enhanced components of blended learning in this study. This affected the overall performance of the students in terms of their response to questions, ability to solve problems, sharing new ideas, and receiving valuable feedbacks from their professor. As a result of successful integration of online sessions to the traditional ones, our students showed great improvements in their interaction with each other and with their professor, a matter which has been considered as an important step in the endeavor of reaching high-quality learning. Finally, the overall satisfaction rate is highly reasonable due to the attractive methods of providing blended learning through our platform with the help of well-trained professors.

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