Possibilities of Applying the Blended Learning Approach in the Faculty of Information Technology

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ABSTRACT

Information and Communication Technology have added many values to the educational process. Several approaches have been developed for this purpose, including e-learning, distance learning, and recently blended learning (a combination of traditional face-to-face learning and pure online learning). They are also referred to as an educational style that requires the student to interact with the student, and the professor with the student either face-to-face or online. This study examines the possibility of applying the blended learning approach in the University of Benghazi - Faculty of Information System, based on the knowledge, attitude, and practice toward this approach from the perspective of students and instructors. Consequently, this research tries to find out if blended learning has acceptance by them, and also aims to assess the knowledge of faculty of information technology students and instructors regarding blended learning.

Additional Key Words and Phrases:
Information technology, Blended Learning, face to face, E-learning

1 INTRODUCTION

For centuries, traditional methods such as lectures have been the most widely used teaching method in higher education. However, traditional lessons, lectures, or teaching are now predestined as passive teaching methods because they do not motivate students to filter out the information being delivered critically. Therefore, they only focus is on face-to-face interaction that does not expand the needed space for collaborative learning, nor does it allow coaches or professors to Implement higher-order thinking. Hence, this model shift from traditional education to an online environment is a major challenge for many higher education teachers [6].

The evolution and growing existence of technology has extremely changed students' behavior and attitudes, also they changed the way they learn, and not only communicate in the classroom, but also outside it. For example, smartphones, computers, online games, and tablets reduced the interest, behavior, and distraction of students from retaining information [3].

The purpose of this study is to clarify the extent to which the blended learning approach can be applied in the faculty of information Technology and its acceptance by faculty and students by providing recommendations based on examining their knowledge, behavior, and practices towardblended learning.

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1.1 Blended learning definitions

Williams, Bland, and Christie defined blended learning as a combination of traditional face-to- face learning and pure online learning; they also refer to it as a teaching pattern that gives instructors, students, and content to be in a different location [10], [14]

Another definition by Allen and Seaman Portray blended learning course is as follows: BlendedCourse that integrates online and f2f methods. The fundamental rate of the content transferred online usually uses online discussions, and most of the time has a reduced number of f2finteractions [5].

Blended learning is described by Thorne as a way of capturing the challenges of pointing learning and development to the needs of individuals by combining the technological advances offered by online learning with the interaction and participation of traditional ways [8].

According to Heinze and Procter, blended learning is defined as learning that is prepared through the effective combination of different types of content delivery methods, teaching models,and learning methods, and their establishment, which provides a good communication path between all parties interested in a subject [2].

1.2 Benefits of blended learning

Integrating online learning modules in your courses can be very helpful and has many benefits: Blended learning allows instructors to choose various instructional strategies and add technolo-gies that complement the course structure and learning objectives [9].

The independent nature of blended learning pushes students to improve their awareness, when Teachers use blended learning models, they can encourage students to meditate and think about how they learn and change their study habits to match their needs [1].

Many teachers who use the media reveal that they can save on teaching time in the classroom and increase students' active learning to learn independently outside the classroom. Then, face-to-face time in the classroom is mostly used for discussion activities to solve problems [11].

1.3 Challenges of blended learning

In addition to having many advantages, blended learning also has shortcomings that must be considered: It takes time to process the contents of the course, where the teacher may have to develop the curriculum in a way suitable for the student and provide technical tools, he has not used before [7].

Teachers should have skills and know-how to use the technology effectively and should spend a lot of time in developing the method, and setting up assessment methods, and be active in the learning process 24 hours to answer and give a statement on the online platform that has been used [12].

The capacity and quality of the internet is a classical challenge, half of the process is operated on an online platform, without a good internet connection it will be difficult [3].

Language and culture are some of the challenges. For example, the dominant languages in Libya are Arabic and English but in a small percentage, so the student may have problems with the resources that are available on the Internet since most of these sources are in English [4].

1.4 Integration of blended learning in higher education

Lectures have always been one of the most common teaching methods used in higher education. Therefore, blended learning has been a turning point from traditional education to an interactive online environment, although it is a challenge for many teachers in the higher education field. Smartphones, computers, and online games have lessened students' interest and distracted them from retaining information. Therefore, the lecturer must restructure and modify the learning process and modify the content of the classroom to keep up with this change, one of the most common ways is to use projectors to support students and help them to respond more quickly and provide examples of real-life experiences. Otherwise, these lectures will appear boring to most of the students. It is time for blended learning to be in line with higher education to help students improve their skills more effectively in this technology-based world [3].

2 PROBLEM STATEMENT

Recently, technology has tried to play a major role in helping humanity leading to the fundamental center of interaction in the social world as well as in leading the process of teaching and learning. Over the years, those in higher education had the opportunities to explore the exciting new technologies imported to educational facilities, instructors, and students.

The teaching system in the faculty almost using the traditional methods where is almost similar to the school system where the teacher educates the student and tests them through exams and homework. Now there is an opportunity of applying the blended learning approach.

3 RESEARCH METHODOLOGY

3.1 Data Collection

The method for collecting data was using a Likert scale for the hard copy and the Google form online questionnaire. The questionnaire was tested with the participation of 20 students as a pilot study that helped to organize, remove flaws and ensure the questionnaire is easy to fill and understand. The participants of graduate and undergraduate students filled 275 questionnaires. Students who filled the questionnaire received clarifications about filling out the questionnaire, the questionnaires were available as a google form sample, and 67 students filled the online questionnaire.

3.2 Survey Instrument

Participants were requested to use a rating scale (from "1" 'strongly disagree' to "5" 'strongly agree') to point the degree to which they perceive their attitude towards blended learning. To measure participant knowledge, attitude, and practice toward blended learning. The survey section "knowl-edge" consisted of 7 statements. The "Attitude" section consisted of 4 statements; the "Practice" section consisted of 5 statements. Students and instructors were asked to indicate their level of knowledge, attitude, and practice with the provided statements. They were asked to apply a rating scale (from "1" 'very poor' to "5" 'very good') to indicate the level to which they rate the three domains.

3.3 Participants

Participants in the study were students with a bachelor's degree from the University of Benghazi - Faculty of Information Technology, for the 2019-20 academic years. 678 students as a population sample within the range of (18 - 24<) years old.

A total of 245 students and 25 instructors participated in this research study. All participants in this study were a part of the faculty of Information Technology, the selection process of the students has included all the departments from the 5th semester until the 10th and above. It was   clear what is required of the participants to do, and explain all the statements in the questionnaire to avoid any confusion. As for instructors' they filled a questionnaire and were interviewed to discuss their thought and questions regarding blended learning.

3.4 Data Analysis and evaluation

The results of the questionnaire were analyzed using the SPSS program, for the result and conclu- sions. As for the Likert scale, it was used for the attitudinal data gathering, via 16 statements across three domains: knowledge, attitudes, and practices towards blended learning. That was prepared for both participants, students, and instructors.

4 RESULTS AND DISCUSSING

During this table, a total of seven statements are presented to highlight this topic as shown in Table 1. Means, standard deviations, and relative importance of opinions the study of community members on the students and instructor's knowledge domain and Scores within a range from 4.14 to 4.26 for students, and 4.28 to 4.16 for instructors.

Table 1: instructors and students knowledge domain

N	Statement	students' Knowledge domain			instructor's Knowledge domain		
		Mean	Std. D	Relative importance	Mean	Std. D	Relative importance
1	Blended learning (BL) approach is better than the traditional approach	4.14	0.785	82.8%	4.28	0.678	85.6
2	Blended learning approach should be available for IT students	4.47	0.74	89.4%	4.56	0.507	91.2
3	Traditional learning approach can be totally replaced with the blended learning approach	3.45	1.06	69%	2.92	1.077	58.4
4	Team-Based Learning (TBL) increases students learning capacity	4.2	0.855	84%	4.04	0.735	80.8
5	(TBL) increases students teamwork skills	4.34	0.733	86.8%	4.16	0.8	83.2
6	(TBL) allowed students to ask questions without feeling embarrassed at their lack of knowledge	4.18	0.877	83.6%	4.16	0.688	83.2
7	Working within a team in class helped students to simulate real-life teamwork	4.26	0.71	85.6%	4.16	0.8	83.2
	Total mean	4.26			4.04		
	stander deviation	0.822			1.0569		

Table 1 depicts agreement on prior knowledge areas that can be seen indicating that students andinstructors agreed that blended learning should be available to IT students. With relative importance for students of 89.4% and 91.2 for instructors. , as indicated by the data within the knowledge domain Agree with an overall average of 4.26 for students and 4.04 for instructors.

During this table, a total of 4 statements are presented to highlight this topic as shown in Table 2. Means, standard deviations, and relative importance of opinions the study of communitymembers on the students' and instructor's Attitude domain and Scores within the civil registry ranged from 3.96 to 3.1 for students and 4.12 to 3.4 for instructors.

From analyzing the results discussed above, we can It was concluded that the results in the table indicate that it can be seen from the field of situation that both students and instructor's agreed that a blended learning approach is best for IT students based on their knowledge of this term and that it has the least materiality. The traditional lecture approach facilitated the learning process for my students." Of relative importance to 62% of students and 68 to the instructors. , as evidenced by the data in the Attitude domain, agreed with an overall mean of 3.71 for students and 3.91 for instructors.

During this table, a total of 5 statements are presented to highlight this topic as shown in Table 3. Means, standard deviations, and relative importance of opinions the study of community members on the students' and instructor's Attitude domain and Scores within the civil registry ranged from 4.2 to 4.04 for students and 4.28 to 3.76 for instructors.

Table 2: instructors and students Attitude domain

N	statement	students Attitude Domain			instructor's Attitude Domain		
		Mean	Std. D	Relative Importance	Mean	Std. D	Relative importance
1	I would prefer the Blended learning approach	3.96	0.823	79.2%	4.12	0.6	82.4
2	The blended learning approach is easy to apply and follow	3.62	0.834	72.4%	3.76	1.091	75.2
3	The blended learning approach is the best for IT students	4.16	0.745	83.2%	4.2	0.817	84
4	The traditional lectures approach facilitated the learning process for me.	3.1	1.175	62%	3.4	0.817	68
	Total mean	3.71			3.912		
	stander deviation	0.894			0.8372		

Table 3: instructors and students Practice domain

N	statement	students' Practice domain			instructor's Practice Domain		
		Mean	Std. D	Relative importance	Mean	Std. D	Relative importance
1	I recommend students to engage in a course that applies the (BL) approach	4.2	0.734	84%	4.28	0.678	85.6
2	The use of online word processors (google.docs) tools Facilitate the teamwork for our research projects	4.16	0.721	83.2%	4.24	0.831	84.8
3	I routinely used the Blended learning approach with my students	3.4	0.901	68%	3.6	1.08	72
4	I learned new skills by applying the software (File maker, Excel, SPSS) in research	3.72	1.014	74.4%	4.04	0.735	80.8
5	I find writing weekly feedback for my course is a helpful learning tool	4.04	0.873	80.8%	3.76	0.926	75.2
	Total mean	3.90			3.99		
	stander deviation	0.848			0.898		

The results show that it can be observed from the field of practice that instructor's scored the lowest percentage of the third statement referring to the current practice of blended learning where it is used routinely, which means that blended learning is not frequently used by teachers, so students also scored low in the This statement. Of relative importance to 68% of students and 72 to the instructors. , as evidenced by the data in the Practice domain, agreed with an overall mean of 3.90 for students and 3.99 for instructors.

5 CONCLUSION

This research aims to study the extent to which the blended learning approach can be applied in the faculty of Information Technology - University of Benghazi. The research used the descriptive-analytical and statistical method (SPSS) to understand and analyze the results. A questionnaire was distributed to collect data from the study population, which consisted of students and instructors. The questionnaire was designed on three main domains: pronunciation of knowledge, attitude, and practice, whichled to three results. The blended learning methodology has a high acceptance rate by students and teachers as most of them prefer it according to the field of knowledge. As for the field of behavior, most students believe that the traditional learning methodology did not facilitate the learning process for them, as is the case for faculty members. It was found that the majority of them prefer to use this type of methodology in teaching science courses, and it is evident through the field of practice. By coaches. Finally, the blended learning methodology needs some requirements to be implemented correctly, it does not seem impossible to apply and integrate this methodology into the scientific curricula taught in the college, and this methodology has received many positive opinions in the three areas (knowledge, attitude, and practice). From here, we conclude that blended learning may be a paradigm shift that will pave the way for adopting such a methodology in the future within the College of Information Technology. If some effort is made to ensure that, it is implemented optimally. Many recommendations have been reached that, if followed, will lead to achieving the objectives of applying the blended learning approach in the College of Information Technology and Higher Education.

6 RECOMMENDATIONS

- Providing the appropriate environment for the implementation of this type of approach.
- The presence of specialists to prepare academic subjects to suit this type of approach.
- Different courses require different forms of blended learning to suit the course, the content,and the students' needs; therefore, having a flexible model is important.

- Providing online learning platforms licensed by the university and the faculty administration, to provide the bridge that connects the student and the instructors such as (Moodle which is a free and open-source learning management system, Piazza, Google Classroom, Schoology, Zoom and google meet and G-suite service.
- We recommend using video-communication services such as zoom and Google Meet to provide an interaction between the student and the instructor in the educational process if needed.
- When dealing with a large volume of data to be used in learning, it is preferable to use tools and techniques for data management to better segment and extract information.[13]
- In the case of direct interaction with students in the college, the laboratories or halls of the college are equipped with a network and devices, with the provision of a screen, microphone, and headphones, for example, three laboratories. Course students are distributed to the three laboratories, and the professor is located in lab number one, and the rest of the laboratories are communicating with students through the screen, and thus we have applied social distancing To prevent COVID-19.

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