

# Faculty Members' Attitudes Towards Using Moodle at Palestine Technical Khadoorie (PTUK)

Reham A. Salhab<sup>1,\*</sup>

<sup>1</sup>Technology Education Department, Palestine Technical University Khadoorie (PTUK), Tulkarem, Palsetine

\*Correspondence: Technology Education Department, Palestine Technical University Khadoorie (PTUK), Tulkarem, Palsetine. E-mail: r.salhab@ptuk.edu.ps

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## Abstract

Digital education reshaped the teaching and learning processes in higher education worldwide. This study investigates the attitudes of faculty members at Palestine Technical Khadoorie University (PTUK) towards using Modular Object Oriented Dynamic Learning Environment (MOODLE). A questionnaire was designed to conduct the present study at PTUK. A convenient sample of 41 participants from two different colleges, Applied Science and Humanities colleges contributed in this study. Findings revealed that faculty members at PTUK had positive attitudes towards Moodle. Nevertheless, there was a significant difference between faculty member attitudes with regard to no. of training sessions offered by PTUK.

**Keywords:** digital education, Moodle, PTUK, teaching, learning

## 1. Introduction

In response to the interaction between of innovative technologies and traditional teaching, learning shifted from traditional face-to-face models to blended interactive learning environments which provides instructor with a valuable opportunity to improve their teaching methods, to assess student learning, and enhances learning community. Instructors consider augmenting traditional methods of teaching with tasks and different methods of assessment that take advantage of the online environment's great flexibility and its new capabilities and strengths (Pachler & Daly, 2011). Digital education aims to create an interactive environment rich in applications based on computer technology and the Internet, and enables students to access their learning resources timely and anywhere. Digital education defined as providing educational content with its explanatory notes, exercises and interaction and follow-up partially or comprehensively in the classroom or remotely through programs or stored on computers or through the Internet (Carnell & Fung 2017). Hamed (2019) also defined digital education as educational system that uses information technology and computer networks to strengthen and expand the educational process through a variety of means, including computer, Internet and electronic programs prepared by specialists in academic institutions or companies. So, digital teaching works to provide education through advanced technological methods such as:

Internet, CDs, cassettes, videos, DVDs, Cell phones, PDAs, electronic notebooks

The term "digital learning" is used to describe a range of learning situations, including

Electronic learning, web learning, virtual classroom classes and more (Hamed, 2019).

Electronic Learning ( e-learning) also called virtual learning Environments (VLE)has been recently adopted by many higher education institutions since it offered meaningful and active learning that put more emphasis on how to learn and to think in multiple ways (Brown, Dehoney, & Millichap, 2015). E-Learning is an instructional process that traditionally uses a computer and internet in which includes content, media elements, forums, exams, chartrooms, and videoconferences (Bates & Sangrà, 2011).

The e- learning process has introduced new and unambiguous teaching methods by connecting groups of learners by video streaming, chartrooms, and discussion boards (Black, Beck, Dawson, Jinks, & DiPietro, 2007). The E-Learning network is highly spreadable as a result of technological development, so universities started offering

courses through network, including regular attendance ones. This pattern has prompted several universities around the world to introduce several programs for regular courses. This type of learning increases students' capacities and performance and widens their knowledge base (Tinmaz, 2012).

E-learning has introduced innovations in recent learning and teaching methods, as it has invested the latest and modern techniques in learning processes (Breen & Paul, 2018). E-learning provides learners with various and multiple skills and learning experiences. Learning electronically, combines several ways to achieve maximum productivity (Ozkan & Koseler, 2009).

Blended Learning is a form of e-learning, as learners can access the university's academic portal and from there to the course site assigned by the campus (Horton, 2011). The course site includes questions that should be answered after or before the lectures and learners can follow variety of responses. This process will improve the ability to generate many different and new ideas, and thus develop higher intellectual skills such as creative thinking, critical thinking, and other cognitive skills. In addition, learners interact with each other. Blended learning should be imposed by a pedagogical model to promote active learning, otherwise negative results might happen (Jacob, Wilson, & Baker, 2015).

Learning management system (LMS) is an integral part of e learning courses, whether it is blended format, online format or web facilitated format (Masadeh & Elfeky, 2016). Some of the examples of these systems are: Sakai; Jenzabar; eCollege; Blackboard; Moodle; Webtrain (Santos, Inan, & Denton, 2012). The user of these systems notes that all of them are based on the principle of interaction between the elements of the educational process by implementing multimedia explaining the curriculum, texts, group forums, individual and collaborative projects. Regrettably, not all LMSs are basically used as a tool for interaction, rather it is used information dissemination (Kvavik & Caruso, 2005, Piotrowski, 2010).

A considerable amount of research has been done recently that showed teachers acceptance of digital technology in the classroom (Inan & Lowther, 2010, Perrotta, 2013) These studies focused at three variables of teachers acceptance, personal beliefs, ICT infrastructure and teachers' skills to use digital technology.)

Badia, 2014 focused on Moodle which is web-based platform in the academic institution of a group of instructors and student pursuing a bachelor degree at a university in Palestine. Moodle is an open source Course Management System (CMS) that allows educators to create an online environment in support of teaching and learning activities. Within CMSs are features such as file uploads, discussion forums, assignment submission functions, calendar entries and grading options. One commonality shared by CMSs is that they are organized in a course-based mode, and linked with course enrollment.

### *1.1 Significance of the Study*

Palestine Technical University-Khadoori (PTUK) had fostered Moodle since 2011 and decided to use and extend an existing e-learning platform to support lessons offered at PTUK, to encourage faculty instructors to develop their lessons online that will be delivered synchronously and asynchronously to be implemented in their traditional lessons. This study goal is to investigate the attitudes of PTUK faculty members since it is still a new experience for them.

Many instructors still don't know what is blended learning or even what some of the terms used to describe it, others may have a notion of what's involved, but feel some trepidation about handling the issues they may encounter. In this study the results of questionnaire are presented in order to reflect the attitudes of instructors toward Moodle and consequently the impact of implementing LMS in everyday teaching practice on the academic experience. Participation in the study was anonymous faculty members.

### *1.2 Statement of the Problem and the Study's Questions*

The study aimed to assess the attitudes of using Modular Object Oriented Dynamic Learning Environment on faculty members of Science and Arts students' and lecturers' at PTUK. The results of this study should be of interest to PTUK as most faculty members teach courses via Moodle platform. In addition, it can help many universities that are still reluctant to decide the extent of their offerings of online or blended courses. This study aimed to identify the answer of the following questions:

Q1. What are the attitudes of faculty members in Applied Sciences and Humanities towards using Moodle in the teaching and learning processes.

Q2: Is there any statistically significant difference between faculty members' attitudes which can be attributed to academic degree, gender, years of experience, age, college classification, no. of classes being taught by Moodle, and no. training sessions.

## 2. Literature Review

A relatively fair number of papers had been published on faculty members' and students' attitudes towards LMS platforms in Palestinian universities. Moodle is one of these platforms, that are most popular used among Palestinian universities since 2011. Carnell & Fung (2017) reported that about 85% of faculty members use Moodle and 74% of them note that it improves teaching and learning. On the other hand, Carnell and Fung (2017) showed that the institution should train its faculty members to use advanced features in Moodle.

Most e-learning platforms provide tools such as forums, emails, blogs, walls (asynchronous tools), discussion rooms (synchronous tools), wikis, glossaries, texts, and online surveys (collective construction and interactive tools). They also include educational activities, books, videos, audio, files (educational tools); profile, registration, groups, databases, frequency control and daily classes (administrative tools) (Badia, Martín, & Gómez, 2018). In this context, Moodle (Modular Object Oriented Dynamic Learning Environment) tool is defined as a platform built from a constructivist perspective that emphasizes on research and collaboration through its structure and available features developed for training (Martín-Blas, & Serrano-Fernández, 2009). The training features include both communication (chats, forums, wikis, blogs, glossaries, quizzes) and information (textual data, audio, images, video links, and search tools).

Moodle can be used in e-learning tool and blended learning tool (a combination of face to face and online). Most academic institutions are using blended learning as it offers more space and time. A computer scientist Martin Dougiamas from Perth University in Australia, created Moodle where he began to think of this system when all learning management systems were found to be expensive and were designed by engineers who lack an educational and pedagogical backgrounds. So he found it necessary to employ his educational and technical expertise in the design of an open source learning management system available for any individual use for free (<http://moodle.org>, 2019).

Dougiamas adopted the Social Constructive theory which was based on the idea that favors learners learn better when they engage in social processes to build knowledge. The difference between the philosophy of the traditional class and the philosophy of social constructivism is as a difference between lectures and discussions. The term refers to a social process that occurs between groups while learning.

Moodle was created based on discussion between learners and active participation and knowledge among them. Teachers who implement Moodle in their teaching, do not require the use of social constructivism in the construction of the course, which Moodle supports it already. Moodle offers the choice of course material that the student can read, see and, but cannot interact with: text pages, webpages, images, educational movies, hyperlinks, educational folders (Franco, 2010). Moreover, it can also add patterns of interactive course material such as: group chat, forums, individual and group projects, surveys on a particular subject, etc. These materials enable students to collaborate and share among themselves and their teachers to build and learn content. (Carvalho, Da Silva, & Freitag, 2013; Sanchez & Hureos, 2010; Lane, 2009)

Moodle is considered to be a program that assists in the development of an electronic learning environment provided through tools and features to implement needed tasks in this direction, such as: a tool used to build the electronic curriculum (gathering-sorting-display) in an organized way. In addition to , it can only be used to a certain users that defined by the teacher or an academic institution, Moodle could be used as method of connection between the site that displays the educational material and its beneficiaries, and a tool that provides users with the educational site with many periodic information when they access the tools (Nordin & Ibrahim, 2012). Moodle is also viewed as a software package that allows the teacher to download the material he or she teaches on a website, allows learners to communicate and interact with each other and communicate with their teachers (Carvalho et al., 2013; Lane, 2009; Nordin et al., 2012).

Moodle software has several advantages, including:

1. Easiness: Moodle software allows users to communicate and interact with the instructional material by connecting to the Internet at any time and from anywhere. Students can review the course material, lectures, assignments and any other audio-visual aids. They can also send their assignments and projects to their teacher as soon as they complete them (Park & Mills, 2014).
2. Provide instant feedback: The program provides instant feedback feed on the results of the tests and the student's interest from the teacher or his colleagues through the discussion board, or e-mail, etc., and provide feedback about the student's program and its benefits. Communication 3 Improving and facilitating process: The software has several characteristics that allow students to communicate with their teachers (Ngampornchai & Adams, 2016)

3. Improving and facilitating learning process: Moodle has several characteristics that allow students to communicate with their teachers and with their colleagues, through several options provided by the software such as announcements, discussions, categorical classes, e-mail and others. Moodle facilitates administrative work on teachers and the educational institution. As for the discussion forum, it helps teachers to share notes, comments, syllabus, opinions and link to provide their students with additional support by encouraging them to respond to the questions and interact with their colleagues (Sallam & Alzouebi, 2014)

4. Moodle software tracks students' use of this software and records results in a statistical file during the learning period which helps teachers in the assessment process. Also teachers can obtain statistical information about all students' progress which helps instructors to track students' participation and their individual assignments, date and time assignments sent by students that will help students to pursue their own progress (William, 2015).

5. Skills building: there are several additional skills in Moodle to help the student to do their tasks efficiently like organization and time management to help students to use time wisely. In addition, Moodle helps the teacher to pay attention to the learning patterns of their students, to help him teach, to download the material and the necessary activities, exercises, tasks and tests, using multimedia (writing, stationary, motion pictures, etc.) For example students who depend on listening and pronunciation and which favors words, language, written and spoken phrases, can be easily met; moreover and look at things from multiple angles so as to benefit from the discussion board in the software, as it allows the learner to search for many topics, the software meets the needs of the visual learner, which learns through the presentation, charts, films, and films; in addition to meeting the needs of the learner who prefers to learn by doing work, that is, who enjoys learning through simulations, role plays, creative movements, and work (Park & Mills, 2014, William, 2015, Masadeh & Elfeky, 2015).

Carvalho et al. (2013) indicated that Moodle software promotes the principles of effective learning by the following:

1. An increased interaction and flexibility learning environments, based on the guidance of the teacher, and instructions and regulations of the educational institution on the process of communication, delivery of assignments, and tests using the digital transmission box, or e-mail in the teacher's special software, it builds confidence among students themselves (Franco, 2010).

2. Moodle allows teachers to share educational material, syllabus, opinions and online assignments with their students to moderate and facilitate student's learning. Also, teachers can use Moodle software to send an e-mail to one student or to a group of student.

3. Helps learners to develop multiple talents by allowing them to choose their own project, discuss with their colleagues, and work collaboratively. This allows learners to search topics that suit their interests and needs, participate in discussions by asking questions or answering questions posed by colleagues.

Fadel, Elbilgahy, Ibrahim & Elmashad (2019) investigated lecturers' at Faculty of Nursing, Mansoura University attitudes towards Moodle. A quasi experiment design was performed. A sample of 30 nursing lecturers participated used; a structured questionnaire was distributed to the nursing lecturers. Results showed that nursing lecturers had positive attitudes towards Moodle after implementing Moodle in their courses.

Further more, Caliskana & Bicena (2016) conducted a study to investigate the perceptions of teacher candidates towards Moodle in certain learning environments. A sample of 120 teachers from Near East University participated in the study. A questionnaire was used as a study tool. Results showed that teachers were excited and had positive experience by using Moodle learning system.

### 3. The Study's Methodology

Data in this study was collected through a questionnaire; the researcher adopted a descriptive approach. Through this approach, data was collected, analyzed, organized and interpreted.

#### 3.1 The Study's Instrument

This study involved a questionnaire as a study's instrument which was developed by the researcher. This questionnaire aims to identify the attitudes of faculty members towards Moodle in. It consists from 31 statements. These statements address two types.

The researcher developed a questionnaire for the study of the attitudes of academic faculty members towards the use of the Moodle system in the teaching and learning processes at Khadouri University. The study tool included two main parts:

First: Personal data relating to the academic qualification, gender, age, years of experience, college classification, number of courses to use Moodle and no. of training sessions of Moodle

Second: This part consisted of 31 paragraphs.

### 3.2 *The Study's Sample*

The study's population involves all faculty members who work at Applied Science and Science faculty and Arts and Educational Sciences faculty at Palestine Technical Khadoorie University (PTUK) (i.e 73 faculty members). A convenient sample of 41 faculty members who work at Applied Science faculty and Arts and Educational Sciences faculty at PTUK participated in this study during the fall semester of academic year 2018/2019. Those members were selected through using the random stratified method. Table (1) describes the characteristics of the sample. The questions divided in 5 groups, the first group contains 7 questions including gender, academic degree, years of experience, age, faculty type, number of course being taught by Moodle numbers of training sessions for Moodle. The researcher used these questions as external factors to examine if they affect their attitudes towards the system. The second group contains 31 questions divided to 6 groups, 11 questions for Moodle facilitation and organizing learning and teaching processes, 7 questions for enhancing teaching methods, 4 question for improving assessment process, 2 questions for effective communication, 7 questions for technical difficulties. A 5-point Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree) was used in the second group to measure faculty responses.

### 3.3 *Reliability and Validity of the Study Instrument*

Reliability and validity of the items in the questionnaire were measured. Reliability was measured by calculating coefficient using the equation Cronbach's Alpha of 0.895 on all paragraphs of the questionnaire which is suitable for statistical analysis and for the purposes of study. The researchers checked the questionnaire's validity. That was done through passing the questionnaire to 9 educational experts who work at different Palestinian universities.

### 3.4 *Study' Design*

The researcher used the descriptive approach method to study the relationship between the variables of the study and the collection of information and the use of statistical analysis to examine the hypotheses in order to interpret the results. The study included the following variables:

Independent variables:

- 1- Academic degree with three levels
- 2 - Gender variable and has two levels.
- 3- Age with four levels
4. Years experience and has three levels.
- 5 - Number of courses and has five items
- 6 - Training sessions courses has three items
- 7- College classification and has two items

The following variables were included in the responses to the questionnaires related to the study of the attitudes of academic faculty members towards the use of Moodle in the teaching and learning processes at Palestine Technical University Khadoorie (PTUK). To process the data, the SPSS program was used by using the following treatments:

- Frequency and Percent
- Averages, Means, SD
- T- test for one sample
- T- test for two independent samples
- ANOVA
- Cronbach Alpha to calculate the coefficient of Reliability

**Table 1.** The Characteristics of the Sample

Variable	characteristics	frequency	Percent
Academic degree	Bachelor	12	29.3
	Master	15	36.6
	Doctorate	14	34.1
	total	41	100.0
Gender	male	21	51.2
	female	20	48.8
	Total	41	100.0
Age	35 – 25	21	51.2
	45 – 36	6	14.6
	55 -46	14	34.1
	total	41	100.0
Teaching Experience	< 5	24	58.5
	6-10	3	7.3
	>11	14	34.1
	total	41	100.0
No. of courses being taught by Moodle	One course	7	17.1
	Two courses	7	17.1
	Three courses	10	24.4
	Four courses	8	19.5
	Five courses	9	22.0
	total	41	100.0
No. of training sessions	none	31	75.6
	> 1	4	9.8
	>3	6	14.6
	total	41	100.0
College classification	Applied Sciences	32	78.0
	Arts and Educational Sciences	9	22.0
	total	41	100.0
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	>3	6	14.6
	total	41	100.0
College classification	Applied Sciences	32	78.0
	Arts and Educational Sciences	9	22.0
	total	41	100.0

#### 4. Results & Study Analysis

This section deals with answers to the questions of the study and its statistical examination on the program of statistical packages for social sciences (SPSS).

The first question of the study is what are the attitudes of Faculty members who teach at Applied Science and Humanities at PTUK towards using Moodle in teaching and learning processes. To answer this question, mean, standard deviations and percents were calculated. A single sample T-test and the results of tables (2-6) were used as follows:

**Table 2.** Results of the T- test for One Sample of the Field of the Academic Lecturers' Trend Scale Towards the Use of Moodle in the Teaching and Learning Processes at PTUK

Field	SD	Mean	Degree	order	Sig	T value	Percent
Facilitating and organizing of learning teaching processes	0.49568	3.5701	High	1	.000	7.364	71.402
Enhancing Teaching methods	0.67438	3.4344	High	5	.000	4.124	68.688
Assessment process improvement	0.70824	3.5549	High	2	.000	5.017	71.098
Effective Communication process	0.67037	3.4756	High	4	.000	4.543	69.512
Moodle technical Difficulties	0.55369	3.5261	High	3	.000	6.084	70.522
Total construct	0.47216	3.5122	High		.000	6.946	70.244

The results of Table (2) show that the level of lecturers' attitudes towards using Moodle in the teaching and learning processes are of an average of 3.5122 and a relative percent of 70.244 with high agreement. The results also showed that the level of facilitation and organization of learning and teaching processes was 3.570 with 71.402 percent. The results of enhancing teaching methods were 3.4344 with 68.688 percent. The results showed that the effectiveness of communication process was 3.4756 and 69.512 percent. So, there are positive attitudes of the faculty members towards using Moodle in the learning teaching processes.

**Table 3.** Means, Standard Deviations, Percents and the T Value of the Sample Scores on the Field of Facilitation and Organization of learning and Teaching Processes

Items	Means	Sig	T value	percent	S.D	Order	Agreement
Moodle affects learning process positively	4.0976	.000	8.783	81.952	0.80015	2	High
Moodle facilitates assignments posting	4.1463	.000	10.616	82.926	0.69141	1	High
Moodle is a one more added task for the lecturers	3.6098	.000	4.250	72.196	0.91864	5	High
Moodle improves student academic achievement	3.2683	.109	1.637	65.366	1.04939	9	High
Technical Assistant is available frequently	3.5122	.002	3.270	70.244	1.00304	7	High
Moodle will replace traditional teaching	3.0244	.891	.138	60.488	1.12889	11	High
Moodle increases the cooperation between institutes	3.5366	.000	4.612	70.732	0.7449	6	High
Moodle reinforce competition between institutions	3.4878	.002	3.376	69.756	0.92526	8	High
Moodle saves time when posting tasks	3.8293	.000	6.151	76.586	0.8632	3	High
Moodle offers deep learning	3.0732	.637	.476	61.464	0.98464	10	Medium
Moodle offers flexibility	3.675	.000	5.152	73.5	0.82858	4	High
Total	3.5701	.000	7.364	71.402	0.49568		High

The results of Table (3) indicate that the level of attitudes of faculty members towards the use of Moodle in the teaching learning process at Palestine Technical Khadoorie University (PTUK) on the facilitation and organization of learning teaching processes came at an average of 3.5701 and a relative weight of 71.402. The process of posting homework and evaluation with an average of 4.4163 and a relative weight of 82.926, which is significantly high and paragraph amounted to 0.000 and this value is less than  $\alpha = 0.05$ , while it was found that the lowest order was the sixth paragraph (Learning by Moodle Will replace traditional teaching) with a mean of 3.0244 and a 60.48 percent, a moderate with a significance of 0.891 and this value is greater than  $\alpha = 0.05$  which means faculty members did not agree that Moodle will replace traditional teaching one day. Moreover, faculty members disagree that Moodle offers deep learning.

**Table 4.** Means, Standard Deviations, Percents and T Value of the Sample Scores on the Field of Teaching Methods Development

Items	SD	Means	Agreement	Order	Sig	T-value	percent
Learners care more when they use Moodle	1.02529	3.2683	High	5	.102	1.676	65.366
Moodle should be used in all subjects	1.10911	3.525	High	4	.005	2.994	70.5
Moodle improves teaching methods	0.97718	3.5366	High	3	.001	3.516	70.732
Moodle reinforces cooperation between students	1.01092	3.6829	High	1	.000	4.326	73.658
Moodle enhances creative thinking	1.01272	3.2195	Mid	6	.173	1.388	64.39
Moodle enhances critical thinking	1.06095	3.2195	Mid	6	.193	1.325	64.39
Moodle gives feedback better than traditional teaching	0.89101	3.6098	High	2	.000	4.382	72.196
Total	0.67438	3.4344	High		.000	4.124	68.688

The results of table (4) indicate that the level of attitudes of faculty members towards the use of Moodle in the learning teaching processes on the field of enhancing teaching methods came at an average of 3.4344 and a 68.688 percent . The results showed that the highest ranking of the fourth paragraph is that Moodle reinforces cooperation between students with an average of 3.6829 and a 73.658 percent. The level of significance calculated on this paragraph is 0.000 and this value is less than the specified level  $\alpha = 0.05$ , while the lowest in the order was the fifth paragraph, Moodle enhances creative thinking of 3.219 5 with a 64.39 percent and a0.173 significance which means that faculty members disagree that Moodle affects critical thinking. The sixth paragraph (Moodle enhances critical thinking among students) with an average of 3.2195 and a 64.39percent with a medium degree. This paragraph is also not significant because the significance level is higher than the  $\alpha = 0.05$ .

**Table 5.** Mean, Standard Deviations, Percents and T Value of the Sample Scores on the Field of Assessment Process Improvement

Item	SD	Mean	Sig	T value	Percent	l	Agreement
Moodle cut expenses of assignments	0.90054	3.8049	.000	5.723	76.098	1	High
Moodle improves students motor skills	0.88345	3.6585	.000	4.773	73.17	2	High
Moodle helps to identify the strength and weakness areas in learners	1.0865	3.3415	.051	2.012	66.83	4	High
Moodle enhances the effectiveness of teaching	0.99939	3.4146	.011	2.657	68.292	3	High
Total	0.70824	3.5549	.000	5.017	71.098		High

The results of Table (5) indicate that the level of attitudes of faculty members towards the use Moodle in the teaching learning processes on the improvement of the evaluation process was at an average of 3.5549 and a 71.0798 percent. The results showed that the highest order of the first paragraph, the average level of the tasks assigned by the students was 3.8049 and a 76,098 percent. The level of significance of this paragraph is 0.000. This value is less than the specified level of  $\alpha = 0.05$ , while the lowest in the order was the third paragraph To recognize weakness and strength of students with a mean 3.3415 and 66.83 percent, with a significance of 0.051 level ,and this value is higher than the level of significance of the specified hypothesis  $\alpha = 0.05$ .

**Table 6.** Mean, Standard Deviations, Percents and T Value of the Sample Scores on the Field of Effective Communication Process

Item	Mean	SD	T	Sig	N	Agreement Degree	
Moodle helps to build effective communication with students	3.5854	0.86532	71.708	4.332	.000	1	High
Moodle helps students to communicate with each other	3.3659	0.94223	67.318	2.486	.017	2	High
Total	3.4756	0.67037	69.512	4.543	.000		High

The results of Table (6) indicate that the attitudes of faculty memberstowards the use of Moodlein teaching learning processes on effective communication process came at an average of 3.4756 and 69.512 percent. The results showed that the highest order of the first paragraph, Moodle helps to build effective communication with students with 3.5854 average and 71.708 percent. The level of significance calculated on this paragraph is 0.000 and this value is



less than the specified level of  $\alpha = 0.05$ , while the lowest in the order was the second paragraph (Effective discussion among students themselves) with a mean of 3.3659 with 67.318 percent. This paragraph is a significant function because the level of significance calculated on this paragraph is 0.017 and this value is less than the level of significance specified by the hypothesis  $\alpha = 0.05$

**Table 7.** Mean, Standard Deviations, Percents and T Value of the Sample Scores on the Field Moodle Challenges

Field	Mean	SD	RP	T value	P	Order	Agreement
I used many tools in Moodle	3.5854	0.83593	71.708	4.484	.000	3	High
Traditional Methods are better than moodle	3.6341	1.13481	72.682	3.578	.001	2	High
Internet access for lecturer	3.8293	0.91931	76.586	5.776	.000	1	High
Moodle is slowing the teaching process because of technical problems	3.4634	1.02707	69.268	2.889	.006	4	High
Technicians deal effectively with Moodle issues	3.3659	0.91532	67.318	2.559	.014	6	High
PTUK offers training sessions for instructors	3.3659	0.91532	67.318	2.559	.014	6	High
PTUK offers a proper technical assistance for moodle	3.439	1.11912	68.78	2.512	.016	5	High
Total	3.5261	0.55369	70.522	6.084	.000		High

The results of Table (7) indicate that attitudes of faculty members towards the use of Moodle in the teaching learning processes on the field of challenges of Moodle came at an average of 3.5261 and a 70.522 percent. The results also showed that the highest ranking of the third paragraph (Internet access service) came with an average of 3.8293 and 76.586 percent. The level of significance calculated on this paragraph is 0.000 and this value is less than the specified level  $\alpha = 0.05$ , while the lowest value was the fifth paragraph, technicians resolve Moodle issues effectively (with an average of 3.3659, a 67.318 percent as well as a sixth category). The university offers a proper technical center with a mean of 3.3659 and 67.318 percent. The level of significance calculated on these two paragraphs is less than the significance level specified by the hypothesis  $\alpha = 0.05$

To answer the second question of the study which is: Is there any statistically significant difference between faculty members' attitudes which can be attributed to academic degree, gender, years of experience, age, college classification, no. of classes being taught by Moodle, and no. training sessions. To answer this question one way ANOVA was calculated. Results above have shown that there is a difference in means and standard deviations. Table (8) verify if there is a significant difference by ANOVA test.

**Table 8.** One way ANOVA: Academic Degree

Variable	Group	DF	Mean of square	SD	F	Sig
<b>Facilitating and organizing Teaching Learning processes</b>	Between Groups	2	.574	.287	1.178	.319
	Within Groups	38	9.255	.244		
	Total	40	9.828			
<b>Teaching methods improvement</b>	Between Groups	2	1.918	.959	2.239	.120
	Within Groups	38	16.274	.428		
	Total	40	18.191			
<b>Assessment process improvement</b>	Between Groups	2	.716	.358	.703	.501
	Within Groups	38	19.348	.509		
	Total	40	20.064			
<b>Communication process improvement</b>	Between Groups	2	1.638	.819	1.905	.163
	Within Groups	38	16.338	.430		
	Total	40	17.976			
<b>Moodle usage challenges</b>	Between Groups	2	.954	.477	1.603	.215
	Within Groups	38	11.308	.298		
	Total	40	12.263			
Total	Between Groups	2	.993	.496	2.380	.106
	Within Groups	38	7.925	.209		
	Total	40	8.917			

Table (8) showed that there is no statistically significant differences due to academic degree because  $\alpha > 0.005$ . To check other variables like, T-value has been calculated. In Table (9)

**Table 9.** T-test

Variable	21 =F		20 =M		T	$\alpha$
	Mean	SD	Mean	SD		
Facilitating and organizing of educational learning process	3.5584	.51127	3.5823	.49175	-.152	.880
Teaching methods improvement	3.4558	.64463	3.4119	.72040	.206	.838
Assessment process improvement	3.7500	.60725	3.3500	.76261	1.863	.070
Communication process	3.6667	.73030	3.2750	.54952	1.933	.061
Moodle usage challenges	3.6531	.61041	3.3929	.46551	1.529	.134
Total construct	3.6168	.46921	3.4024	.46132	1.474	.148

Table (9) shows that there are no statistically significance differences between instructors attitudes due to gender since  $\alpha > 0.05$

Another variable which is years of experiences of faculty members was also being investigated. Results in table (10) have shown that there are differences in means, so to support this hypothesis ANOVA test have been used.

**Table 10.** ANOVA Test

Variable		F	$\sum SD^2$	SD Average	F	$\alpha$
Facilitating and organizing of teaching earning processes	Between Groups	2	.758	.379	1.588	.218
	Within Groups	38	9.070	.239		
	Total	40	9.828			
Teaching methods improvement	Between Groups	2	.815	.408	.891	.419
	Within Groups	38	17.376	.457		
	Total	40	18.191			
Assessment process improvement	Between Groups	2	1.867	.934	1.950	.156
	Within Groups	38	18.197	.479		
	Total	40	20.064			
Moodle usage challenges	Between Groups	2	2.214	1.107	2.668	.082
	Within Groups	38	15.762	.415		
	Total	40	17.976			
Communication process	Between Groups	2	.205	.102	.322	.726
	Within Groups	38	12.058	.317		
	Total	40	12.263			
Total	Between Groups	2	.971	.485	2.321	.112
	Within Groups	38	7.947	.209		
	Total	40	8.917			

It was shown by table (10) that there are no statistically significant differences between instructors attitudes toward Moodle at PTUK and years of experience.

It was found the there are no statistically significant differences between teachers attitudes toward teaching and learning process and age PTUK. Results in table (11) have shown that there are differences in Means, so to support this hypothesis ANOVA test have been used.

**Table 11.** ANOVA Test: Age

Variable		F	$\sum$ SD2	SD	F	$\alpha$
<b>Facilitating and organizing Teaching Learning processes</b>	Between Groups	2	.284	.142	.566	.572
	Within Groups	38	9.544	.251		
	Total	40	9.828			
<b>Teaching methods improvement</b>	Between Groups	2	.922	.461	1.015	.372
	Within Groups	38	17.269	.454		
	Total	40	18.191			
<b>Assessment process improvement</b>	Between Groups	2	.207	.103	.198	.821
	Within Groups	38	19.857	.523		
	Total	40	20.064			
<b>Communication process improvement</b>	Between Groups	2	1.190	.595	1.347	.272
	Within Groups	38	16.786	.442		
	Total	40	17.976			
<b>Moodle usage challenges</b>	Between Groups	2	.403	.202	.646	.530
	Within Groups	38	11.860	.312		
	Total	40	12.263			
Total	Between Groups	2	.482	.241	1.085	.348
	Within Groups	38	8.436	.222		
	Total	40	8.917			

There are no statistically significant differences between teacher's attitudes toward teaching and learning process and faculty at PTUK due to college specification. Results in table (12) have shown that there are no differences in Means, so to support this hypothesis a T test have been used.

**Table 12.** T-test

Variable	Science N=32		Humanities N= 9		T	$\alpha$
	Mean	SD	Mean	SD		
Facilitating and organizing Teaching Learning processes	3.5685	.50883	3.5758	.47456	-.038	.969
Enhancing teaching methods	3.4583	.64455	3.3492	.80847	.424	.674
Improving assessment process	3.5781	.73627	3.4722	.63053	.392	.697
Teaching methods improvement	3.4688	.65915	3.5000	.75000	-.122	.904
	3.5000	.55979	3.6190	.55328	-.565	.575
Total	3.5147	.47296	3.5032	.49776	.064	.950

The previous table shows that there are no statistically significant differences among faculty members PTUK in facilitating and organizing the teaching learning processes due to college specification. In other words there are no differences in their attitudes due to college specification.

There are no statistically significant differences among faculty at PTUK due to no. of course being taught. A NOVA test has been done shown in table (13).

**Table 13.** ANOVA Test: No. of Courses Being Taught by Moodle

Variable		F	$\sum$ SD	SD	F	$\alpha$
Facilitating and organizing Teaching Learning processes	Between Groups	2	.574	.287	1.178	.319
	Within Groups	38	9.255	.244		
	Total	40	9.828			
Teaching methods improvement	Between Groups	2	1.918	.959	2.239	.120
	Within Groups	38	16.274	.428		
	Total	40	18.191			
Assessment process improvement	Between Groups	2	.716	.358	.703	.501
	Within Groups	38	19.348	.509		
	Total	40	20.064			
Communication process improvement	Between Groups	2	1.638	.819	1.905	.163
	Within Groups	38	16.338	.430		
	Total	40	17.976			
Moodle usage challenges	Between Groups	2	.954	.477	1.603	.215
	Within Groups	38	11.308	.298		
	Total	40	12.263			
Total	Between Groups	2	.993	.496	2.380	.106
	Within Groups	38	7.925	.209		
	Total	40	8.917	.287		

Table (14) shows that there are no statistically significant differences among faculty members at PTUK due to no. of training sessions.

**Table 14.** ANOVA: Illustrates the Differences in Attitudes According to No. of Training Sessions

Variable		F	$\sum$ SD <sup>2</sup>	SD	F	$\alpha$
<b>Facilitating and organizing Teaching Learning processes</b>	Between Groups	2	.980	.490	2.104	.136
	Within Groups	38	8.848	.233		
	Total	40	9.828			
<b>Teaching methods improvement</b>	Between Groups	2	.836	.418	.916	.409
	Within Groups	38	17.355	.457		
	Total	40	18.191			
<b>Assessment process improvement</b>	Between Groups	2	2.339	1.169	2.507	.095
	Within Groups	38	17.725	.466		
	Total	40	20.064			
<b>Communication process improvement</b>	Between Groups	2	4.630	2.315	6.592	.003
	Within Groups	38	13.345	.351		
	Total	40	17.976			
<b>Moodle usage challenges</b>	Between Groups	2	1.458	.729	2.563	.090
	Within Groups	38	10.805	.284		
	Total	40	12.263			
Total	Between Groups	2	1.757	.879	4.662	.015
	Within Groups	38	7.160	.188		
	Total	40	8.917			

From the above table, it appears that there are no differences of statistical significance level (0.05) in the attitudes of faculty members towards using Moodle due to the no. of training sessions being offered at PTUK in four categories: facilitating and organizing teaching learning processes, improving teaching methods ,improving assessment process, and challenges of using Moodle. On the other hand, there is a difference in the effective communication due to no. of training sessions.

**Table 15.** Differences in Attitudes According to No. of Training Sessions Attended

Communication process improvement	Means Differences	$\alpha$
Not attended any session	-.95968*	.004
Attended more than a session	-.62634*	.023
Total	-.59874*	.013

From the above table, it appears that there are differences of statistical significance level (0.05) in the attitudes of faculty members towards using Moodle due to no. of training sessions that university offer,  $\alpha < 0.05$

## 5. Discussion

This study aimed to examine the attitudes of faculty members towards Moodle at PTUK in Science and Humanities colleges. Based on the results discussed previously, it is clear that faculty members at PTUK have positive attitudes towards using Moodle, and that there are no differences in the attitudes due to, age, gender, academic degree, years of experience, college classification, no. course being taught by Moodle, no. of training sessions has been offered. There are differences in attitudes toward the efficiency of the communications process due to the no. of training sessions had been attended at PTUK. These results indicate that the faculty members at PTUK using Moodle have sufficient understandings of the importance of virtual learning platforms and using ICT in teaching; which represents a very encouraging situation in the e-learning field at PTUK.

These results are similar with Badia et al. (2018) that showed factors like educational ICT training and Internet access are important keys in teacher's perceptions of digital technology. Also, more than three -quarter percent of the lectures had positive attitudes toward Moodle tools like links, videos, audio files.

Breen & Paul (2018) also recommended Virtual learning environments for teachers and described it as "this had been transformed to a vehicle for learning that was still largely driven by the teachers" p. 143.

## 6. Recommendations and Proposals

Based on the results of this study, the researcher proposes to PTUK the followings: -

- Holding training courses for faculty members in PTUK, so that they are trained in how to use moodle and put more emphasis on how to implement e- learning.
- Offer Internet access and increase bandwidth for faculty members and students.
- Training students on learning skills, computer skills and how to use the Internet in learning and searching to reinforce self-learning process.
- Enrichment of faculty training programs in Palestinians universities with courses related to e-learning, computer use and the Internet in teaching.

## 7. Suggested Research

Researcher suggests future research with emphasis on Moodle efficiency in improving teaching methods and student learning skills. Also, student attitudes toward Moodle at different universities.

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