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THE EFL LEARNERS' ATTITUDES TOWARDS USING MOODLE AS AN LMS FOR LEARNING ENGLISH LANGUAGE

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Abstract

The present study is empirical which attempts to examine the EFL tertiary learners' attitudes towards using Moodle as an LMS in an English course of conversational listening and speaking skills. The research design is a quantitative approach to collecting and analysing the research data. Owing to the current prevalence of the pandemic Coronavirus (COVID-19), most of the Iraqi Kurdistan universities have attempted to find a way to keep the social distance and teach learners in an alternative way using different methods including E-learning, Blended Learning, and even online learning. Furthermore, due to existing large classes, the university instructors have also been attempting to increase the learners' motivation, interaction, exposure and practice through implementing Moodle as an LMS, at least at the public universities of the Iraqi Kurdistan Region. The study aims to find out the tertiary learners' attitudes towards using Moodle in English language learning before and after the experiment in second-year at English Department/ College of Basic Education/ Salahaddin University-Erbil for the academic year 2019-2020. For this reason, the researchers taught a group of 20 learners a 13-week conversation

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	course via using Moodle as an LMS and Blended Learning. The study findings revealed that there was a remarkable increasing level of agreement and satisfaction in their attitudes from the pre- to post-treatment estimated by a pair-samples <i>t-test</i> in SPSS. It was concluded that their increasing motivation and satisfaction in their learning process while using Moodle as an LMS eventually pave the way to a more student-centred instruction.
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موقف طلاب اللغة الانكليزية كلغة اجنبية حول استخدام نظام المودل لتعلم اللغة الانكليزية

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<u>الكلمات الدالة:-</u>	<u>الخلاصة:</u>
مودل التعلم بطريقة الخلط الطالب الجامعي الموقف اللغة الانكليزية كلغة اجنبية كورس المحادثة	هذا البحث عبارة عن دراسة تجريبية، تحاول دراسة موقف طلاب الجامعة حول استخدام نظام المودل لتعلم اللغة الانكليزية في كورس دراسي يتناول مهارات الاستماع والتحدث؛ اسلوب الدراسة يعتمد على جمع المعلومات الكمية وتحليلها. نظراً لانتشار مرض الكورونا (COVID-19) حاول الكثير من جامعات كردستان العراق ايجاد طريقة يلتزمون فيها بالتعليمات الصحية التي منها التباعد الاجتماعي، وفي الوقت نفسه تعليم الطلاب بديل أو بطريقة اخرى، من ذلك نظام أو طريقة التعليم الالكتروني باسلوب الخلط، أو حتى باسلوب التعليم المباشر (اونلاين). وعلاوة على ذلك ونظراً لكثرة عدد الطلاب داخل القاعات الدراسية حاول اساتذة الجامعات تشجيع الطلبة باستمرار للتفاعل مع الاسلوب الجديد عن طريق استخدام برنامج المودل على الاقل على مستوى الجامعات الحكومية في اقليم كردستان العراق. هدف هذه الدراسة هو عرض رأي الطلبة حول استخدام نظام المودل لتعلم اللغة الانكليزية في بداية كورس تعليمي ونهايته، لطلاب المرحلة الثانية في قسم اللغة الانكليزية بكلية التربية الاساس في جامعة صلاح الدين بأربيل للسنة الاكاديمية 2019-
<u>معلومات البحث</u> <u>تاريخ البحث:</u> الاستلام: 2020-10-22 القبول: 2020-11-1 التوفر على النت	

2020. ولهذا الغرض قام الباحث بتدريس مجموعة من الطلبة مكونة من 20 طالبا وطالبة في كورس اكايمي استمر لمدة 13 اسبوعاً ، استخدم فيه نظام المودل والتعليم بطريقة الخلط بين الطرق. نتائج هذه الدراسة اظهرت ان نسبة رضى الطلبة كانت في ازدياد مستمر من بداية الكورس الى نهايته، وقد تم التوصل الى هذه النتيجة عن طريق استخدام (Paired-Samples T-Test) في برنامج (SPSS).

1. INTRODUCTION

There is no doubt left for practicality of The Web, but it may still pose some challenges for formal education as learners usually have abundant access to high quality content on the Web where they can seek out and communicate with experts, practitioners and other students in any discipline. Thus, independent, non-formal education between learners using the Web is occurring almost everywhere across the globe. So, the question is no longer ‘does E-learning work?’, but, rather how can educators and stakeholders, in the formal, guided process of tertiary education, use the power and potential of recent electronic media to enable the students to learn better, from instructors, from each other and independently? In other words, ‘is it easy to formalize the process of Web usage at university? And how? (Brenton, 2003). Dib believes that each institution should have its own E-learning strategies and policies so that the students can abide by its rules and regulations (1987).

The implementation of Moodle as an LMS is recently very common at the Iraqi Kurdistan Region universities due to many factors, including: digitalizing the university education to meet the learner’ needs; encouraging them to have more opportunities for practice, participation, and interaction in education system which is oriented towards using a more learner-centred instruction; and keeping the required social distance temporarily so that no one will be infected with the pandemic COVID-19.

2. BLENDED LEARNING CONCEPT AND NEED AT UNIVERSITIES

Blended learning (BL) is a teaching method that combines the advantages of cyber education and traditional face-to-face education to maximize the learning effects through using the new paradigm of a remote educational system (Chen, 2009). BL or hybrid learning describes a learning environment that either combines teaching methods, delivery methods, media formats or a mixture of all these. It also refers to the integration of learning activities, for instance a mixture of online and face-to-face learning (Mantyla, 2001; Chen, 2009). In other words, BL is a mixture of E-learning and traditional types of learning. In general, BL combines online delivery of educational content with the best features of classroom interaction including personalizing learning, allowing thoughtful reflection, and providing learner autonomy (Chen, 2009; Liu, 2012).

3. LEARNING MANAGEMENT SYSTEMS (LMSs)

Learning Management System (LMS) is a software that manages an organization's learning which gives access to a series of educational resources. LMS is a software that can help faculty members and learners in the process of e-learning. Fallon and Brown define LMS as a web-based software that allows managing and doing necessary training in order to monitor the use of educational content and its results (2004). According to Black, et al (2007, p. 36), "The majority of LMSs are web-based to facilitate anytime, anywhere access to learning content and administration".

4. THE RATIONALE BEHIND USING LMS IN LANGUAGE TEACHING

Many scholars and educators have adopted LMSs in their language teaching in order to improve the level of foreign language and optimize teaching hours. Consequently, they have achieved many language learning goals (Rymanova, et al., 2015). Besides, Ahn (2017, p. 1) thinks that the implementation of LMS at university has become popular and more practical for both teachers and learners in foreign and second language education because of its effective methodology for course delivery and socialization opportunities with technology-enhanced learning activities in both online and offline environments. Furthermore, the effectiveness and benefits of LMS in language learning for students' achievement and autonomous learning have been investigated (Ahn, 2017).

Williams (2016) believes that E-Learning systems (or LMSs) play an irreplaceable role in English language teaching: Technology has become vital to the processes of English language learning and teaching. Thus, a person can certainly learn English without technology, but there's no promise that the process will be as effective and seamless as it could be if technology were utilized, even on a small scale. Thus, an LMS for Foreign language is very likely to be the perfect partner to teach and learn a new language, easier, faster and more dynamic.

5. MOODLE AS AN LMS IN ENGLISH LANGUAGE TEACHING

Due to globalization, the necessity of English Language for every non-native English community is the real demand of change in their education system towards advancement. On the other hand, people nowadays live in a so-called digital era. So, being computer literate is a prerequisite. Thus, modern web-based technologies are increasingly being used in education to meet the educational demands, especially in teaching English as a foreign language (Boskovic, et al., 2014).

Moodle (Modular Object-Oriented Dynamic Learning Environment) is one of the most popular and free software packages of LMS in universities in Europe and America (Beatty & Ulasewicz, 2006). Moodle is a free learning management system (Feizabadi, et al., 2016; Boskovic, et al., 2014). It is a software solution for creation and organization of online courses through internet. Moodle is flexible and fast open-source tool. Its great popularity comes from very simple and fast installation, modest demands as a technology resource, simple integration in the existing systems, and logical interface for both teachers and students (Feizabadi, et al., 2016).

6. PREVIOUS RESEARCH

In relation to learners' attitudes towards using Moodle as a Content Management System (CMS) or Learning Management System (LMS) in Blended Learning (BL), the researchers have reviewed a number of previously conducted studies as a basis for the present one in this regard:

Many studies have focused on using Moodle as a CMS or LMS. Some of them have paid enough attention to introducing Moodle (Melton, 2008; Dinero, 2011). Besides, some have indicated the learners' and teachers' satisfaction for preferring Moodle to other CMSs and consequently shifting to Moodle (Beatty & Ulasewicz, 2006; Kavaliauskiene, 2011; Lawler, 2011). Furthermore, learner autonomy has been enhanced through using Moodle as a CMS (Sanprasert, 2010).

In a study by Berg & Lu (2014) entitled 'Student attitudes towards using Moodle as a Course Management System' aiming to evaluate Taiwanese students' attitudes towards adopting Moodle as a CMS and to discover **benefits** and **drawbacks** the learners perceive in using it through a self-report survey in order to answer the research question, "What are the students' attitudes towards using Moodle as a Course Management System?". The study population were 86 learners studying English language in the Department of Applied Foreign Languages in an undergraduate program at a private university in Taiwan. The questionnaire was comprised of three parts: the demographic information, students' satisfaction with Moodle and judging the functionality of Moodle, students' habits when using Moodle. The overall results were positive in using Moodle as a CMS.

In his study, 'The attitudes of EFL learners towards using UHDEL Moodle site', Ghafor (2015) investigated the English Department students' attitudes towards using Moodle at University of Halabja in terms of using Moodle for downloading the department instructors' course materials and resources only. The population of the study were 156 learners from all the stages of English Department at University of Halabja at the academic year (2014-2015). The researchers used a questionnaire to collect data. The major findings of the study indicated that students are satisfied in using Moodle because they can use it easily to get the class materials and resources from their instructors.

Another study entitled 'Implementation of the Moodle System into EFL Classes' conducted by Gunduz & Ozcan (2017) aiming to examine students' perception on using the Moodle system in an EFL secondary school in Turkey through using a structured survey and an unstructured interview. The sample of the study were 333 learners and 12 English language teachers. The overall results showed that the students' attitudes towards the system were positive and the teachers thought that the system was contemporary even their students had faced many technical issues in using Moodle as a System.

In a quasi-experimental research by Fadel, et al. (2018) entitled 'Undergraduate nursing students' and lecturers' attitudes towards Modular Object Oriented Dynamic Learning Environment: A quasi experimental study', the researchers aimed at investigating the effect of using Moodle on changing undergraduate nursing students' and lecturers' attitudes. The sample was 286 students and 30 nursing lecturers at Faculty of Nursing, Mansouras University. The research used pre-test and post-test

method. The overall findings of the study in two questionnaires were that both students and lecturers had higher positive attitudes towards Moodle after implementation than before with statistically significant difference.

In another research entitled 'The Use of Moodle for Teaching and Learning English at Tertiary Level in Thailand' by Suppasetserree & Dennis (2010) where 18 instructors who used Moodle and 213 students were investigated to find out the facts affecting teachers in blending Moodle into their English language teaching; and also the opinions of learners who used the system. The study revealed that the majority of the instructors used the uploading and sharing documents feature in order to provide their learners with assignments and motivate them to download the teaching materials outside the class to practice their language skills. Besides, the learners showed positive opinions towards learning English via Moodle. However, the learners faced some technical problems in using the system including internet connection failure, and large file uploading struggles.

There are clear cut differences between the aforementioned studies and the current one: One of the differences is that the recent study is quasi-experimental in nature; and another main distinction is that the present study mainly aims to investigate both conversational speaking and listening sub-skills through multimedia usage which have not been dealt with together in any of the previously recorded studies; another difference is the different context where the present study has been conducted as compared to nearly all other studies, except for Ghafor's (2015) non-experimental study, which are carried out in well-developed countries where internet and technology are accessed by all university students for free; and the context differences with regard to duration of time, size of sample, and the implementation of Moodle in multimedia usage too.

6.1. METHODOLOGY

6.1.1. PARTICIPANTS

The study sample was 20 university students in this experimental group who were from English Department, College of Basic Education at Salahaddin University-Erbil placed in Kurdistan Region of Iraq in the academic year 2019-2020. The participants' age roughly ranged from 19 to 22 years old.

6.1.2. THE AIM

The present study aims to find out the learners' attitudes towards using Moodle in English language learning before and after the experiment. Besides, it endeavours to determine the increasing tendency of agreement from pre- to post-treatment attitudes in the tertiary students' results of each questionnaire item after implementing Moodle as an LMS.

6.1.3. STUDY QUESTION

The researchers want to seek answers to the following research questions:

1. Is there any significant difference between the means of the learners' pre-treatment and post-treatment attitudes towards using Moodle in English Language learning?
2. Is there an increasing tendency of agreement from pre- to post-treatment attitudes in the learners' results of each item of the questionnaire after implementing Moodle?

6.1.4. STUDY INSTRUMENT

In order to investigate and then respond to the aforementioned research questions, the researchers used students' questionnaire including 27 closed-ended items to reveal the learners' attitudes in using Moodle for learning English language before and after the treatment.

6.1.5. PROCEDURES

The current research focuses on pre- and post-treatment attitude questionnaires to indicate the learners' attitudes towards using Moodle before, and after practically using it in a 13-week course of conversation.

The researchers administered the pre-treatment attitude questionnaire to the experimental group prior to the experiment. Then, they taught the sample a conversation course of 13 weeks via using Moodle as an LMS in the Blended Learning way. Finally, they distributed the post-treatment attitude questionnaire. The Paired-Samples T-Test in the SPSS was adopted for estimating the data of the questionnaire in both pre- and post-treatment results.

7. RESULTS AND FINDINGS

To answer the first research question, (Is there any significant difference between the means of the learners' pre-treatment and post-treatment attitudes towards using Moodle in English Language learning?), the paired-samples *t-test* was run to compare the mean scores of the learners' pre- and post-treatment questionnaire, and then to estimate the mean difference (see Table 1).

Table 1; The Learners' Means of the Pre- and Post-treatment Attitudes towards Using Moodle in a Conversation Course

Experimental Group-2 (EG2)	Type of Treatment	Mean	SD	Mean difference	t-test	Correlation	p-value
The EG2 Learners' Questionnaire	Pre-treatment	69.00	8.41688	-39.600	-20.967	.279	.00
	Post-treatment	108.60	7.91028				

N = 27

Dependent on the results of the paired-samples *t-test* presented in Table 1, the pre-treatment mean score of the questionnaire is (M = 69.00 with SD = 8.41688), and its post-treatment mean score is (M = 108.60 with SD = 7.91028); $t = -20.967$, $\rho = 0.00$). Accordingly, it can be concluded that the difference between the pre-treatment and post-treatment means is statistically significant because the value of the ρ is much smaller than the intended alpha (i.e., 0.05). Besides, the mean difference is (-39.600) indicating that the learners' post-treatment mean scores are much higher than their pre-treatment ones which can be considered as a direct response to the first study question.

In order to find an answer to the second research question, (Is there an increasing tendency of agreement from pre- to post-treatment attitudes in the learners' results of each item of the questionnaire after implementing Moodle?), a paired-samples *t-test* was processed to compare the learners' mean scores of each item from both pre- and post-treatment attitude questionnaires (see Appendix A for the learners' results of each item in both pre- and post-questionnaires). Thus, the findings of the paired-samples *t-test* revealed the tendency direction of each item based on the statistically significant level of the specified alpha (i.e., 0.05) and on the increasing/ decreasing level of its mean or median¹. Table 2 shows the *t-test* findings for each item in the students' mean scores for the pre- and post-treatment attitude questionnaires:

Table 2: Paired-samples t-test Results for Each Item in the Learners' Pre- and Post-treatment Attitude Questionnaires

Items	Type of Questionnaire	Mean	Median	Mean Difference	SD	P-value
Moodle						
1. enables students to gain more continuous learning compared to traditional classroom teaching.	Pre-treatment	2.10	2.00	-1.450	1.572	.001
	Post-treatment	3.55	4.00			
2. increases students' enjoyment in the lecture.	Pre-treatment	2.00	2.00	-1.350	1.348	.000
	Post-treatment	3.35	4.00			
3. increases students' chances for success in English language.	Pre-treatment	2.10	2.00	-1.750	.851	.000
	Post-treatment	3.85	4.00			
4. increases students' interest in submitting assignments related to speaking skills.	Pre-treatment	2.30	2.50	-1.750	1.410	.000
	Post-treatment	4.05	4.00			
5. increases students' interest in taking quizzes in listening comprehension skills.	Pre-treatment	2.45	3.00	-1.700	.657	.000
	Post-treatment	4.15	4.00			
	Pre-treatment	3.15	3.00	-.950	1.317	.004

¹ There is a real dispute on using mean or median in indicating the direction of tendency and central tendency. Non-parametric tests (e.g., Wilcoxon and Mann-Whitney U) follow using median, whereas parametric tests (e.g., paired-samples *t-test* and independent-samples *t-test*) follow using mean (Greasley, 2008). The researchers have included both in this study as to vividly show tendency direction (not agreement percentage).

6. increases students' confidence when used as an application on mobile.	Post-treatment	4.10	4.00			
7. enables students to satisfy in their learning.	Pre-treatment	2.45	2.50	-1.600	.754	.000
	Post-treatment	4.05	4.00			
8. motivates students to study better inside and outside class.	Pre-treatment	2.55	3.00	-1.750	1.020	.000
	Post-treatment	4.30	4.00			
9. helps students a lot in their English language learning.	Pre-treatment	2.55	2.50	-1.250	.786	.000
	Post-treatment	3.80	4.00			
10. improves students' speaking skills in English language	Pre-treatment	2.30	2.00	-1.500	.688	.000
	Post-treatment	3.80	4.00			
11. improves students' listening skills in English language.	Pre-treatment	2.65	3.00	-1.300	.571	.000
	Post-treatment	3.95	4.00			
12. makes students' communication and interaction with the instructor easier.	Pre-treatment	2.75	3.00	-.800	.616	.000
	Post-treatment	3.55	4.00			
13. enables students to be up-to-date with the courses.	Pre-treatment	2.35	2.50	-1.950	.510	.000
	Post-treatment	4.30	4.00			
14. provides richer content to students, such as text, photos, graphics, audio, videos, and animations in one place.	Pre-treatment	2.75	3.00	-1.350	.587	.000
	Post-treatment	4.10	4.00			
15. meets students' learning styles in their studying courseware if multimedia materials are well-presented in it.	Pre-treatment	2.60	3.00	-1.400	.681	.000
	Post-treatment	4.00	4.00			
16. reduces photocopying paper-based materials.	Pre-treatment	2.70	3.00	-1.500	.688	.000
	Post-treatment	4.20	4.00			
17. makes students enjoy learning the listening skills.	Pre-treatment	2.40	2.50	-1.900	.912	.000
	Post-treatment	4.30	4.00			
18. makes students enjoy learning the speaking skills.	Pre-treatment	2.90	3.00	-1.000	.725	.000
	Post-treatment	3.90	4.00			
19. manages students' attendance more successfully than the traditional ways of taking attendance.	Pre-treatment	2.45	3.00	-2.100	.718	.000
	Post-treatment	4.55	5.00			
20. better shares web-based learning materials in students' English courses compared to the traditional ways.	Pre-treatment	3.10	3.00	-1.350	1.089	.000
	Post-treatment	4.45	4.50			
21. enables students to have access to course materials and resources online and offline through Moodle application.	Pre-treatment	2.65	3.00	-1.450	.605	.000
	Post-treatment	4.10	4.00			
	Pre-treatment	3.20	3.00	-1.050	.686	.000

22. enables students to accomplish tasks more quickly as the deadlines are always available.	Post-treatment	4.25	4.00			
23. makes it easier for students to follow and study their course materials.	Pre-treatment	2.50	2.00	-1.250	.910	.000
	Post-treatment	3.75	4.00			
24. enables instructors to track students' learning behaviors in the courses.	Pre-treatment	2.70	3.00	-1.400	.681	.000
	Post-treatment	4.10	4.00			
25. makes students' performance assessment very confidential.	Pre-treatment	2.15	2.00	-2.300	.733	.000
	Post-treatment	4.45	4.50			
26. increases effectiveness of student's collaborative learning.	Pre-treatment	2.80	3.00	-.900	.788	.000
	Post-treatment	3.70	4.00			
27. enables active learning.	Pre-treatment	2.40	2.50	-1.550	.686	.000
	Post-treatment	3.95	4.00			

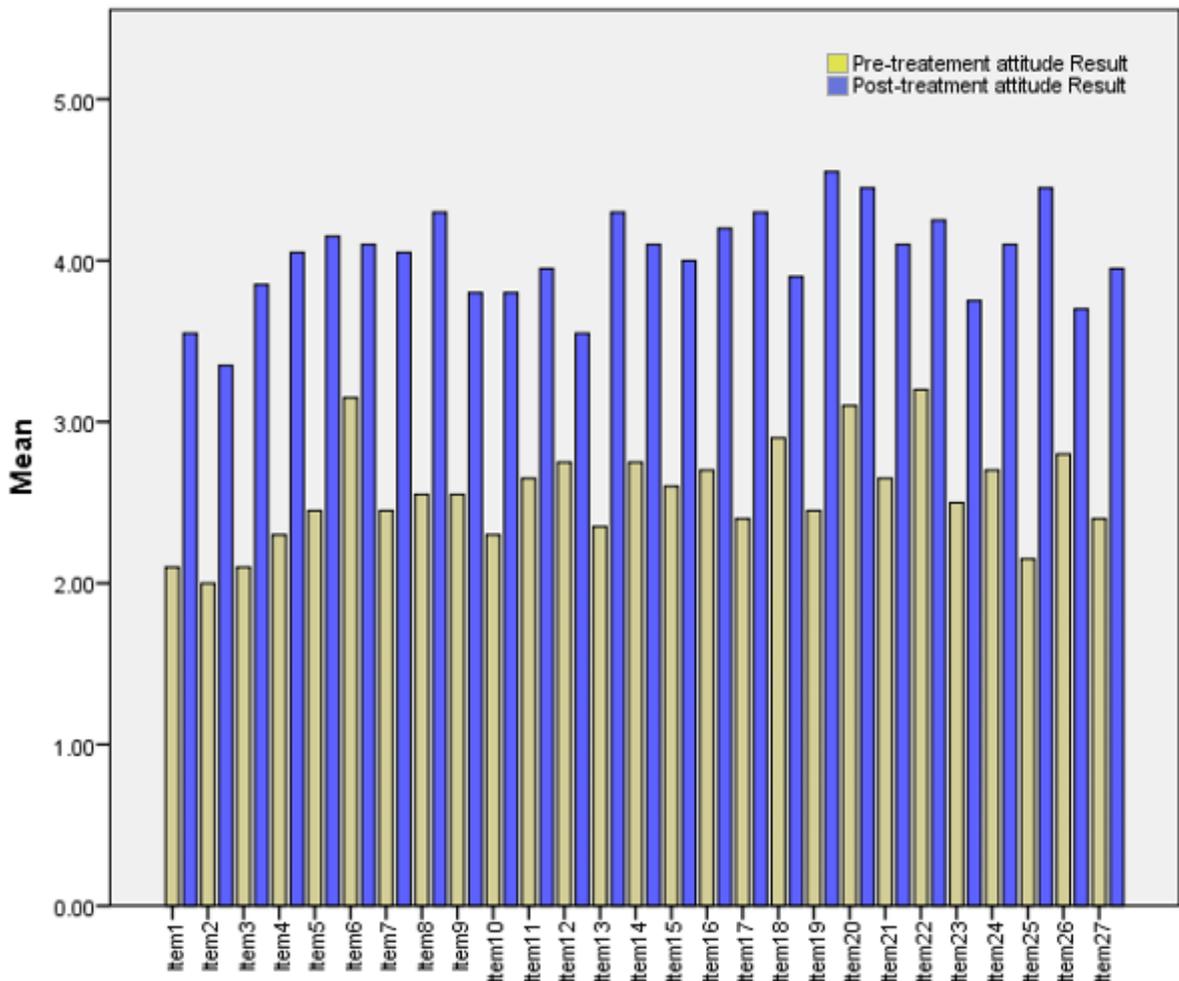


Figure 1: The Mean Comparison of the Learners' Results for each Item in the Pre- and Post-treatment Attitude Questionnaires

Based on the findings of the paired-samples *t-test* shown in Table 2, the results of *p*-value in each item is much smaller than the intended alpha (i.e., 0.05) which shows that there is a statistically significant difference between the pre- and post-treatment results of each item. To estimate the direction of the learners' tendency of agreement with each item, the researchers focused on the item mean and median which obviously indicate that the students' results of each item in the post-treatment attitude questionnaire is higher than its pre-treatment counterpart (i.e., the higher the mean or median, the greater the tendency of agreement will be in the pairs). Furthermore, the considerable negative mean difference in each item is also another indicator that pre-treatment result of each item is by far smaller in its tendency of agreement than its post-treatment counterpart. So, it could be easily determined that there is an obvious increasing tendency of agreement from pre- to post-treatment attitudes in the learners' results of each item of the questionnaire after implementing Moodle as also depicted in Figure 1.

The low level of agreement in the pre-treatment questionnaire could be ascribed to their lack of familiarity and experience with using Moodle and Blended Learning. It could have been a new and interesting experience for them to have Moodle implemented in their conversation course. It can be concluded that after gaining considerable familiarity and experience with Moodle and Blended Learning, the learners have increased their tendency of agreement which is a straightforward response to the second research question.

8. CONCLUSIONS AND RECOMMENDATIONS

On the basis of the collected data and discussed findings, the researchers concluded that: After the learners' sufficient familiarity with using Moodle as an LMS and Blended Learning, they showed more considerably positive attitudes towards using Moodle in English language learning. Besides, the learners' increasing tendency of agreement with using Moodle from pre- to post-treatment is an indication of their increasing motivation and satisfaction in their learning process. Furthermore, Moodle increases the learners' independency and flexibility as they can navigate, interact, view resources, and do activities, quizzes and assignments on their own anywhere and anytime which eventually paves the way to a more student-centred instruction.

Due to the learners' positive attitudes towards using Moodle after the treatment, the Ministry of Higher Education should require that, at least, all English language teaching staffs implement Moodle in all their modules at the tertiary level.

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10. APPENDICES

APPENDIX (A)

The descriptive analysis of students' results in the pre- and post-treatment attitude questionnaires

Item no.	Type of Questionnaire	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		Mean	Median	SD
		Fr	%	Fr	%	Fr	%	Fr	%	Fr	%			
1.	Pre-treatment	7	35%	4	20%	9	45%	0	0%	0	0%	2.10	2.00	.912
	Post-treatment	1	5%	2	10%	6	30%	7	35%	4	20%	3.55	4.00	1.099
2.	Pre-treatment	8	40%	5	25%	6	30%	1	5%	0	0%	2.00	2.00	.973
	Post-treatment	2	10%	3	15%	4	20%	8	40%	3	15%	3.35	4.00	1.226
3.	Pre-treatment	5	25%	8	40%	7	35%	0	0%	0	0%	2.10	2.00	.788
	Post-treatment	1	5%	1	5%	4	20%	8	40%	6	30%	3.85	4.00	1.089
4.	Pre-treatment	4	20%	6	30%	10	50%	0	0%	0	0%	2.30	2.50	.801
	Post-treatment	0	0%	2	10%	2	10%	9	45%	7	35%	4.05	4.00	.945
5.	Pre-treatment	2	10%	7	35%	11	55%	0	0%	0	0%	2.45	3.00	.686
	Post-treatment	1	5%	1	5%	1	5%	8	40%	9	45%	4.15	4.00	1.089
6.	Pre-treatment	1	5%	5	25%	7	35%	4	20%	3	15%	3.15	3.00	1.137
	Post-treatment	0	0%	1	5%	3	15%	9	45%	7	35%	4.10	4.00	.852
7.	Pre-treatment	3	15%	7	35%	8	40%	2	10%	0	0%	2.45	2.50	.887
	Post-treatment	0	0%	2	10%	2	10%	9	45%	7	35%	4.05	4.00	.945
8.	Pre-treatment	4	20%	3	15%	12	60%	0	0%	1	5%	2.55	3.00	.999
	Post-treatment	0	0%	1	5%	0	0%	11	55%	8	40%	4.30	4.00	.733
9.	Pre-treatment	2	10%	8	40%	7	35%	3	15%	0	0%	2.55	2.50	.887
	Post-treatment	1	5%	2	10%	3	15%	8	40%	6	30%	3.80	4.00	1.152
10.	Pre-treatment	4	20%	7	35%	8	40%	1	5%	0	0%	2.30	2.00	.865
	Post-treatment	1	5%	1	5%	4	20%	9	45%	5	25%	3.80	4.00	1.056
11.	Pre-treatment	3	15%	5	25%	9	45%	2	10%	1	5%	2.65	3.00	1.040
	Post-treatment	0	0%	2	10%	4	20%	7	35%	7	35%	3.95	4.00	.999
12.	Pre-treatment	2	10%	4	20%	12	60%	1	5%	1	5%	2.75	3.00	.910
	Post-treatment	1	5%	3	15%	4	20%	8	40%	4	20%	3.55	4.00	1.146
13.	Pre-treatment	4	20%	6	30%	9	45%	1	5%	0	0%	2.35	2.50	.875
	Post-treatment	0	0%	1	5%	1	5%	9	45%	9	45%	4.30	4.00	.801
14.	Pre-treatment	2	10%	5	25%	10	50%	2	10%	1	5%	2.75	3.00	.967
	Post-treatment	0	0%	1	5%	2	10%	11	55%	6	30%	4.10	4.00	.788
15.	Pre-treatment	5	25%	3	15%	8	40%	3	15%	1	5%	2.60	3.00	1.188
	Post-treatment	0	0%	2	10%	3	15%	8	40%	7	35%	4.00	4.00	.973
16.	Pre-treatment	1	5%	5	25%	13	65%	1	5%	0	0%	2.70	3.00	.657
	Post-treatment	0	0%	2	10%	1	5%	8	40%	9	45%	4.20	4.00	.951
17.	Pre-treatment	4	20%	6	30%	8	40%	2	10%	0	0%	2.40	2.50	.940
	Post-treatment	0	0%	0	0%	1	5%	12	60%	7	35%	4.30	4.00	.571
18.	Pre-treatment	1	5%	4	20%	12	60%	2	10%	1	5%	2.90	3.00	.852
	Post-treatment	1	5%	2	10%	2	10%	8	40%	7	35%	3.90	4.00	1.165
19.	Pre-treatment	3	15%	6	30%	10	50%	1	5%	0	0%	2.45	3.00	.826
	Post-treatment	0	0%	0	0%	0	0%	9	45%	11	55%	4.55	5.00	.510
20.	Pre-treatment	2	10%	4	20%	7	35%	4	20%	3	15%	3.10	3.00	1.210
	Post-treatment	0	0%	0	0%	1	5%	9	45%	10	50%	4.45	4.50	.605
	Pre-treatment	2	10%	4	20%	13	65%	1	5%	0	0%	2.65	3.00	.745

2	Post-treatment	0	0%	2	10%	1	5%	10	50%	7	35%	4.10	4.00	.912
1.														
2	Pre-treatment	2	10%	3	15%	8	40%	3	15%	4	20%	3.20	3.00	1.240
2.	Post-treatment	0	0%	1	5%	2	10%	8	40%	9	45%	4.25	4.00	.851
2	Pre-treatment	2	10%	9	45%	7	35%	1	5%	1	5%	2.50	2.00	.946
3.	Post-treatment	1	5%	3	15%	2	10%	8	40%	6	30%	3.75	4.00	1.209
2	Pre-treatment	2	10%	4	20%	12	60%	2	10%	0	0%	2.70	3.00	.801
4.	Post-treatment	0	0%	1	5%	3	15%	9	45%	7	35%	4.10	4.00	.852
2	Pre-treatment	6	30%	6	30%	7	35%	1	5%	0	0%	2.15	2.00	.933
5.	Post-treatment	0	0%	0	0%	1	5%	9	45%	10	50%	4.45	4.50	.605
2	Pre-treatment	2	10%	4	20%	11	55%	2	10%	1	5%	2.80	3.00	.951
6.	Post-treatment	2	10%	2	10%	3	15%	6	30%	7	35%	3.70	4.00	1.342
2	Pre-treatment	3	15%	7	35%	9	45%	1	5%	0	0%	2.40	2.50	.821
7.	Post-treatment	0	0%	1	5%	4	20%	10	50%	5	25%	3.95	4.00	.826