# Using Moodle as a Digital Educational Tool to Improve Undergraduate students' English Language Cognitive Performance and Proficiency

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**Abstract:** The current global educational predicament is under challenging circumstances due to the impact of COVID-19 that drastically affected the academic performances of all those involved in handling and sharing knowledge. To mitigate the pandemic's negative impact, stakeholders at educational institutions are looking for ways to use digital tools to reduce learning loss. The researcher conducted a quasi-experimental study to investigate the impact of Moodle interactive language learning activities on learners' language skills and cognitive performance. The study included sixty-six undergraduate students. An independent t-test is used to determine whether there were statistically significant differences in undergraduate learners' language skill development and cognitive performances between the empirical class and control class in the pre and post-experiment. The analysis revealed considerable discrepancies in the empirical class's language skill development and cognitive performance. The results demonstrated statistically considerable differences in learners' performances in post-test between the empirical and control class in favor of the empirical. Based on the findings of the study, the researcher recommends the employment of mixed approach of teaching. Instructors are required to use digital tools side by side with the conventional pedagogies of handling English language classes.

**Keywords**: Cognitive competencies; Language skills; learning activities; Moodle; undergraduates.

## Introduction

The advancement of information and communication technology (ICT) has been rapid, particularly in the context of language education (Sari and Oktaviani, 2021; Wahyudin & Sari, 2018). Because of the world's dire situation, all academic institutions were forced to consider using technological tools to handle educational situations (Mandasari and Wahyudin, 2021; Putri & Sari, 2020). Hence, the persistence requirement is to eradicate the traditional classroom environment model and use digital tools to present and share knowledge (Sari& Nayır, 2020). In the context of Palestine, the Ministry of Higher Education (MOHE) introduced many innovations in the use of ICT in education through professional development programs but teachers expressed dissatisfaction applying ICT tools in dealing with such technical innovations (Affouneh et al., 2021; Shraim & Crompton, 2020; Hamad, 2021; Pokhrel & Chhetri, 2021; Subaih & Al-Duais, 2021). Pondering on the use of online learning activities in the Palestinian context, the instructor is the only one who speaks and sometimes provides answers to language activities, whereas learners remain silent, passively listen to the instructor's presentations, and jot down notes to underline the basic ideas occurred in the core books without even posing any questions or seeking clarifications for ambiguous points (Affouneh et al., 2021). The above teacher-centered educational mode may have several negative implications on students' EFL classes (Keiler, 2018; Yasmin & Masso, 2019; Radwan et al., 2020). Controlled education strategies are unlikely to offer students the opportunity to participate in everyday learning circumstances; therefore, in the real world, educators rarely use the target language to participate in EFL courses (Chang & Lin, 2019).

In the context of Palestinian universities, investigations on the appropriateness of using Learning Management Systems (LMS) to boost

educators' performances in English Learning and evaluate its implications on changing learners' cognitions toward practicing languages are still scarce (Subaih & Al-Duais, 2021). It is vital to pay more attention to interactive pedagogical input material during the COVID-19 health crisis (Zhang et al., 2020; Fauzi et al., 2020).

There are no surveys on using Moodle and digital language learning tools in a Palestinian context. Consequently, the present research purports to probe the implications of an LMS (Moodle) use as a community educational site on the Palestinian students' language accomplishments. It also undertook to demonstrate the influence of using learning management systems on educators' cognition of English language skills.

## 1. Literature Review

The emerging advancement in technologies for communication and networks of social interconnection has created a unique opportunity for academic development. Today's free access to massive information necessitates innovative pedagogical practices that enable learners to acquire knowledge independently and maneuver through digital content. (Jæger & Blaabæk, 2020; Chatterjee & Chakraborty, 2020). The use of educational technologies could assist learners and educators in acknowledging learning challenges encountered by particular places and times. Students can access their lectures anywhere and anytime (Mishra et al., 2020; Terry & Doolittle, 2006). Information and Communication Technology (ICT) is now an integral part of any educational process (Carroll & Conboy, 2020; Tarun, 2019). The new web-based learning challenges learners and educators in the virtual learning environment (Bojovic et al., 2020; Sari & Oktaviani, 2021). Digital educational websites enhance the educators` methods of illustrating the content, such as learning English online.

Learners need preparation to pick up the ideas through the instructor's illustration and other reliable sites. The instructor's role in presenting the lesson is critical in conducting virtual classes online as efficaciously as the traditional classes (Zhu & Liu, 2020; Pustika, 2020).

With the vast advancements of modern technology, educational institutions of primary and higher levels of learning use technical tools and educational websites like Moodle and Edmodo to acquire knowledge, including teaching and learning the English subject (Nash, 2020; Wahyudin, 2021). These activities cover all topics that students learn at school or university. During the crucial era of the health crisis, all educators worldwide seek refuge in digital education not to leave students at their homes without caring about building knowledge and being left in a stray (Mishra et al., 2020; Handayani & Aminatun, 2020). The excessive use of technology characterizes the twentieth century. As a result, people refer to it as the age of technology and advancement, which affects every aspect of human life, particularly in the teaching and learning domain (Chatterjee & Chakraborty, 2020; Ayu, 2020). Educators around the globe are being encouraged to use technological tools in learning situations that affect students' achievement. Therefore, educators must endorse and incorporate technology into their teaching practices (Chakraborty & Chakraverty, 2018; Wahyudin et al., 2020).

Notably, the globalization era encourages people to use technology. Therefore, educators must integrate and incorporate it into their classroom instruction. (Oktaviani & Mandasari, 2020; Handayani & Aminatun, 2020; Wahyudin et al., 2020). This also happens during this pandemic era. As a result, technology incorporation is one of the supporting pedagogies of teaching and learning materials that help students increase learners' achievement and encouragement to learn English through online platforms (Ayu, 2020). As an

international language, English is the main requirement in academic institutions as a foreign language in Palestine, whether it is difficult for students to learn this subject in fully online learning or through interactive online platforms (Affouneh et al., 2020). The other side of learning English was essential for students because they could acquire new languages (Yasmin & Masso, 2019). Furthermore, English proficiency has been a global demand because English manifests itself as an international communication language globally. Also, the influence of learning English can foster relationships between people from various backgrounds nationalities, since more than 70 countries and over 400 million people use English as a communication tool. The majority of stored global information uses English in the world of computers (Subaih & Al-Duais, 2021).

Learners often favor online courses because they can be accomplished at any time and therefore require less time and effort than face-to-face learning situations. After all, they can be accomplished at any time and therefore require less time and effort than face-to-face learning situations. Social networking platforms have rapidly altered the way individuals and nations of any community converse and share knowledge (Ghounane, 2020). They have scattered across the globe and have erased the world`s dividing lines, thus permitting all nations to both to reveal their thoughts and know about other people's notions (Mandasari, 2020; Yunkul & Cankaya, 2017). Teachers and students can communicate outside the lecture hall using the web application, regardless of the date or location. They can assist in obtaining and establishing contact with learning materials (Carroll & Conboy, 2020; Nash, 2020). Because social networking is so widely used, such website can be merged with a smartboard to provide both students and educators with promising applications

for integrating, engaging, negotiating, and sharing data in a secure, exciting, and safe environment (Terry & Doolittle, 2006; Al Bataineh et al., 2019).

The dispersal of Covid-19 had a ravaging effect on the academic activities, including the teaching and learning activities. As a result, the Palestinian Ministry of Higher Education declared in September 2019 that educational programs must be carried out digitally (Affouneh et al., 2020). A vast number of academic instructors, along with those from Palestine, are with the idea that online learning through digital sites can be accessed easily by learners and instructors without any need for face-to-face interaction (Okmawati, 2020). As a result, the home study is encouraged to maintain learners` active education in the current digital world. Students and professors must be prepared to deal with the current situation (Chatterjee & Chakraborty, 2020; Zhu & Liu, 2020). Learners are required to pursue knowledge online using modern technology without having direct contact with instructors (Yunus & Suliman, 2014; Sari, 2020). Web-based mediums, software packages, and even digital sites are current examples of learning advanced technologies (Zhu & Liu, 2020; Mishra et al., 2020). The learning management system (LMS) is an internet-based digital program application, which assists educators in providing interactive sessions in specific educational frameworks that provide learning content (Yunus & Suliman, 2014). By improving various facets of the learning process, educators can achieve this target with the help of LMS. It is striking to discover that the performance of digital classrooms delivered via an internet site influences learners' language acquisition and attitudes (Aminatun & Oktaviani 2019; Ayu, 2020; Alturki & Aldraiweesh, 2021; Sari and Oktaviani, 2021). Although face-to-face classes employed chalkboards to consolidate the teaching-learning process, LMS is helpful to universities and colleges, particularly in response to this pandemic situation (Gulbinskienė & Šliogerienė,

2017). It is stated that (LMS) is an outcome of post-secondary education destined to interact with students via multiple communication pedagogical approaches (Misbah et al., 2017; Octaberlina & Muslimin, 2020). Moodle has become the most prevalent LMS used to handle the teaching-learning process, particularly for English courses (Sabharwal, 2018).

Ruang Guru, Kahoot, Google Classroom, and (LMS) such as Modular Object-Oriented Dynamic Learning Environment (Moodle) and Socrative are the most popular digital education tools in web-based learning (Wahyudin, 2018). Moodle is a digital educational online platform that helps students develop their understanding and skills through purposeful tasks that encourage interaction, cooperation, ingenuity, and problem-solving skills in English subjects (Gulbinskienė & Šliogerienė, 2017). Instructors can provide immediate feedback when using Moodle as a digital learning tool (Gulbinskienė & Šliogerienė, 2017; Wahyudin, 2018). Based on the most recent Moodle official statistics, more than 60% of colleges and universities have used Moodle as a web application for teaching methods, whether online or offline (Moodle, 2019). Moodle is of great value in the process of education; both educators and learners work cooperatively to improve the learning environment (Yılmaz, & Keser, 2017). Furthermore, learners' use of the Moodle learning platform aids in the development of a method for learners to construct knowledge relevant to their levels from various educational sources (Alameri et al., 2020). Another benefit of Moodle is that it has a massive effect on today's interactive learning environment (Sinaga & Pustika, 2021). LMS can improve students` engagement by encouraging students` independence and enabling them to be more adaptable in learning, particularly when learning the English language (Almekhlafi, 2006). English language teaching target for the vocational stream is to help students master the English course that will help them succeed in future careers.

Furthermore, English language instruction focuses on four English language skills (Prasetya, 2021). Using an interactive Moodle efficiently and successfully expedites a smooth interactive learning pace in the classrooms (Prasetya, 2021). This enables learners to handle topics of English digitally. Because of rapid technological advancement, LMS may be an appropriate means of delivering and accessing web-based learning material (Putri & Sari, 2020; Prasetya, 2021). Researchers demonstrate the feasibility of LMS in developing autonomous-efficacy and autonomous-regulated learning based on participants' achievement in English-specific core subjects such as English courses via Moodle (Mishra et al., 2020; Chatterjee & Chakraborty, 2020). Because of the pandemic, most academic institutions use Moodle for teaching and learning English. Instructors of English can provide teaching aids to students such as video, material content, recorded materials, and web pages through Moodle.

As one of the many virtual learning tools, the designers of Moodle had a wish to integrate it into educational practices. Virtual tools have the capacity to improve the higher education environment (Shahzad et al., 2020). Therefore, the use of Edmodo has become an essential requirement for educators who aspire to formulate vivid educational targets related to performance and relevance (Chakraborty & Chakraverty, 2018; Shahzad et al., 2020). In addition to being an educational model, educators can also utilize Moodle as a measurement tool (Mishra et al., 2020; Chatterjee & Chakraborty, 2020). The demand for performing digital educative situations is now widespread. In this era, which can be called the Internet age, educators like to convert almost all of their traditional ways of lecturing into total orders based on technology (Sari and Oktaviani, 2021). This is usually called a web lecture.

Students favor the variables presented in this study. They revealed that students acknowledge English is a vital subject on which they should

concentrate to get better grades or pass the final exams. Moreover, almost all students stated that learning English influences their future careers and academic goals. To achieve better results, they must address these issues by increasing their motivation, self-efficiency in contingency planning, outcome expectations, and consciousness. The concept of attitude is a significant aspect anticipated to stimulate students' motivation and productivity in online courses through Moodle. Through the questionnaire and interview sessions, the students hold a favorable response. During the Covid-19 breakout, participants indicated that e-learning was the best way to maintain teaching and learning activities, including learning the English language.

Regarding the main effect of Moodle as a teaching online education platform, a study is needed to investigate the reliability of Moodle in Palestinian educational institutions. Consequently, the study explored the disposition of undergraduate students toward the performance of Moodle as collaborative learning in enhancing language skills on the cognitive and achievement of English language undergraduates at Palestinian universities.

## 2. Methodology

### 3.1. Research Design

This research employs a quasi-experimental layout with pre-post empirical and control class designs to investigate the impact of LMS (Moodle) on learners' performance and cognition in language skills.

The researcher instructed the empirical class using an LMS (Moodle) to provide ample opportunities for interaction, involvement, communication, and prompt constructive feedback to learners. Simultaneously, the traditional lecturing model was applied to the controlled class, with the lecturer at the center of the class learning activities. The experiment lasted one semester (16 weeks)

at Al Istiqlal University during the second semester of the academic year 2021-2022.

The researcher employed various statistics in this study, including Person Correlation, Wilks' Lambda, and Sidak post hoc.

### 3.2. Study Hypotheses

In conducting the research, the researcher sets out the following hypotheses:

- There are no considerable variances in the empirical class undergraduates' competency and cognition in the skills of English language and attitudes between pre-test and post-test.

- There are no considerable variances in the control class undergraduates' competency and cognition in the skills of English language and attitudes between pre-and post-test.

- There are no notable differences in the post-test between the empirical and controlled classes of undergraduates' competency and cognition associated with English language skills.

- There are no notable differences in undergraduates' perceptions toward ESL classrooms and perceptions of English skills in post-test between empirical and control classes.

### 3.3. Participants

The researcher selected two sessions of undergraduates taking English Language courses at the university. The participants who agreed to participate in the study were 66 out of 70 students. 34 students for the experimental and 32

for the control. The age of the participants is approximately the same (240-244 months) because the university admits students of the same year of birth.

To assess the participants' internal consistency and equivalent, the researcher used the following IQ controls:

### 3.3.1. Class members' IQ

To ensure that the participants were in the same group, the researcher investigated the difference in IQ between the experience class and the control class.

### 3.3.2. Premeasuring the study variables

Before measuring the study variables, the researcher controlled the two groups to ensure they were the same. To see if there were any differences, the average of the two study groups was calculated. The total score of the performance test for each English skill was used. This was done to validate differences between experimental and control groups before the experiment's implementation.

## 3. Data Collection

### 4.1. Instruments Development

The researcher used two instruments in this study. An achievement test was designed to measure students' progress after both ways of instructions. Also, a questionnaire was developed to identify undergraduates' attitudes towards English language class lessons, language skills, and classroom environment.

### 4.1.1. Achievement Test

The researcher prepared an achievement test to examine undergraduates' development in language learning. Then, it was intended to identify if there were considerable discrepancies in undergraduates' language competency between the control and experimental groups. To do so, a language achievement test was administered. As well, the test was conducted two times one before teaching on Moodle, and one time during the teaching with the use of Moodle. To ensure the test's validity, the researcher handled it to experts then modified it following their feedback and comments. To make sure that the items of the test were not difficult or too easy for the participants, the indexing and difficulty factors were checked. He estimated the factors based on Roohollah, Hamid, & Mahdi (2018) who concluded that the ideal complexity aspect is between (50%-80%). The complexity aspect of the test ranged between (0.50- 0.83) and the discrimination factor ranged between (0, 1- 0, 8). These difficulty and discrimination factors are suitable for conducting the test in the study. To check the test reliability, the researcher applied the test-retest way.

The test consisted of 100 items of multiple-choice questions. The speaking skills scores are 15, listening skills scores 15, vocabulary 10, structural patterns 20, reading skills scores 31, and composition 9. The researcher incorporated the interactive learning layout of an LMS implementation into the experimental group's teaching. Both groups were instructed to use the teaching material included in their course for both groups. The instructions and activities related to the control group are completely traditional methods. The researcher intended to assess undergraduates' language skills competency for both experimental and control groups. Starting to design the test, the researcher followed several procedures. The language content and units taught were reviewed in *Bridge to Success English* textbook.

Then, content analyses was carried out for the first three units and converted them into several lessons and language skills. After that, the researcher designed a table of specifications related to the number of contents distributed by skill in the textbook. Questions were constructed on each language skill as analyzed and distributed in the core book. The researcher designed questions in the version of an accomplishment test, then sent them to several Palestinian university experts to be revised. The reviewers were asked to check the suitability of the test to undergraduates' level; if the test covers all the required content; and if the test is free of language mistakes (Elliott, 2018).

### 4.1.2. Questionnaire

Previous studies have suggested that implementing LMSs such as Moodle promotes learners' positive attitudes towards learning (Al Bataineh, Banikalef & Albashtawi, 2019; Ghounane, 2020). The researcher surveyed many studies such as Psycharis, Chalatzoglidis, & Kalogiannakis, 2013; Gulbinskienė, Masoodi, & Šliogerienė, 2017; Shahzad, Hussain, Sadaf, Sarwat, Ghani & Saleem, 2020). The survey consists of four sections of 25 items to create a form of a five-point Likert questionnaire. Section one obtains demographic information. The second section measured students' attitudes towards English language classes (1, 2, 3, 4, 5, and 6). The third section measured students' attitudes towards mastering the basic language skills (7, 8, 9, 10, 11, 12, 13, and 14). The fourth section assessed students' perceptions of Moodle (15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25). To check the questionnaire validity, the researcher used internal consistency to adjust the correlation coefficient of the questionnaire items. Also, it was handled to four experts from Palestine for review. All of their suggestions were taken into consideration. For example, they suggested dividing the attitude questionnaire into domains (attitudes towards the English language and attitudes towards learning the

language skills). The researcher used Cronbach Alpha to check its reliability, and it was found to be reliable (0.81).

## 4. Findings and Discussions

Several statistical tests were used to analyze the raw data. The researcher used the repeated measures, Wilks' Lambda, to examine if are considerable variances in the empirical class learners' competency and cognition in the skills of English language and attitudes between pre-and post-test. Table 1 shows the means and table 2 shows the results of Wilks' Lambda.

Table one shows the Means and SD of learners' competency and cognition in the skills of the English language and attitudes between pre-and post-test in the empirical class.

| Competencies | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Mean | Standard Deviation | Mean | Standard Deviation |
| Communicative skill | 4.79 | 1.66 | 7.09 | 1.09 |
| Listening skill | 3.66 | 0.67 | 9.62 | 0.49 |
| Lexicon | 9.66 | 4.67 | 15.66 | 3.30 |
| Grammar | 12.55 | 3.41 | 16.62 | 3.62 |
| Reading | 15.11 | 5.04 | 18.48 | 6.58 |
| Writing | 4.18 | 1.98 | 4.92 | 2.57 |
| Total | 48.00 | 12.10 | 72.86 | 12.37 |

| Competencies | Value of Wilks' Lambda | F | Hypothesis DF | Error DF | Sig. |
|---|---|---|---|---|---|
| Communicative skill | 0.40 | 16.82 | 2.00 | 25.00 | 0.0001* |
| Listening skill | 0.01 | 54.44 | 2.00 | 25.00 | 0.0001* |
| Lexicon | 0.22 | 39.28 | 2.00 | 25.00 | 0.0001* |
| Grammar | 0.44 | 15.80 | 2.00 | 25.00 | 0.0001* |
| Reading | 0.30 | 25.37 | 2.00 | 25.00 | 0.0001* |
| Writing | 0.25 | 32.78 | 2.00 | 25.00 | 0.0001* |
| Total | 0.10 | 88.08 | 2.00 | 25.00 | 0.0001* |

*The table was designed by the researcher.*

The figures in table 1 show considerable variances in students' competencies in language skills in pre and post-tests for the experimental class participants. The post-doc test of Sidak was employed, as demonstrated in table 2, with the purpose to identify which considerable variances in language skills were achieved.

Table 2 indicates Sidak's outcomes of the post-doc test for the variances in students' language skills competencies between the pre and post of the experimental class.

| Competencies | Tests | Pre-test | Post-test |
|---|---|---|---|
| Communicative skill | Pre | | -2.25* |
| | Post | | |
| Listening skills | Pre | | -5.91* |
| | Post | | |
| Lexicon | Pre | | -6.00* |
| | Post | | |
| Structural patterns | Pre | | -4.02* |
| | Post | | |
| Reading skills | Pre | | -3.32* |
| | Post | | |
| Writing skills | Pre | | -0.70 |
| | Post | | |
| Total score | Pre | | -22.84* |
| | Post | | |

*The table was designed by the researcher and two expert teachers.*

The Sidak post-doc test outcomes on total scores indicate considerable variances in students' competencies in language skills in pre and post-testing for the experimental class. This result was closely linked to the disposition of the integrated language instructional practices setting because participants are encouraged and motivated to gain knowledge since they are collaborating in a fear-free environment with their peers (Almekhlafi, 2006; Ghounane, 2020; Yılmaz & Keser, 2017). Students' engagement with the technology promotes

an environment where high levels of motivation and participation can be easily noted (Chakraborty & Chakraverty, 2018; Shahzad et al., 2020). This interactive technological environment leads to more comprehension of the content (Mishra et al., 2020; Chatterjee & Chakraborty, 2020). The findings revealed a positive correlation between the Moodle-based instructed material and students' progress (Alameri et al., 2020). In this context, it is undeniable that higher participation in educational activities results in the greater performance of the content acquired (Zhang et al., 2020; Fauzi et al., 2020). Sidak post-doc testing indicated marginally considerable variations in educators' performance in communicative skills on post-test. By interacting via Moodle, students are prompted to communicate rather than speak face to face with the teacher. Consequently, the practice of communication in English affects learners' competency (Terry & Doolittle, 2006; Al Bataineh et al., 2019). Furthermore, the findings revealed significant variation in educators' communicative competency on the post-test. The mean score in the pre-test is 4.79 while the score in the post-test is 7.09. This indicates that using the Moodle in the process of teaching has beneficial impact on developing students' communicative competencies. Likewise, the Moodle-integrated language learning tasks asserted a proactive influence on educators' educational competency once compared to traditional instructional practices (Fauzi et al., 2020). The ability to write is assessed and found to be pertinent on the post-test. The mean score of writing skill in the pre-test is 4.18 while the mean score in the post test is 4.92. This result shows that students are developing the skill of writing. When executing the educational intervention, the researcher used hands-on exercises to reinforce the writing-related competencies as well as its sub-skills, such as content, organization, and language. These measures during the research enabled the participants to quickly raise their composition

proficiency levels. This result demonstrates the efficacy of using the Moodle web application platforms in collaboration with suggestions and criticism from the academics to enhance students' writing. Some of the activities that are used to develop students' languages competencies are illustrated below.
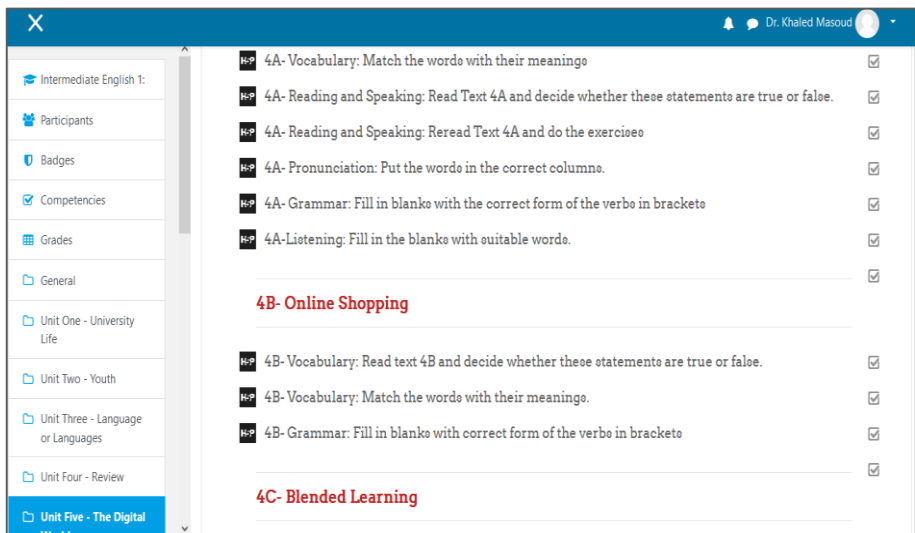
Image 1



Image 2



Image 3

To put it another way, this research helped make changes to instructional planning that improved teacher effectiveness and student learning proficiencies. The results support the role of Moodle Interactive Language Learning Activities in students' performance (Mishra et al., 2020; Handayani & Aminatun, 2020; Radwan et al., 2020).

Listening skills were also tested and found to increase in post-testing. This finding highlights the significance of using Moodle during the pandemic to teach the listening skill, which is often ignored in traditional classroom settings. Students taught using Moodle performed effectively on the post-test in terms of listening skills than their colleagues in the control class who were instructed conventionally (Prasetya, 2021). The findings reveal significant differences in lexicon performance between educators in the post-test and pre-test. Students in the experimental class practiced the lexicon on Moodle through various interactive tasks (Prasetya, 2021). Regarding English language structural patterns in post-test, there were significant differences in undergraduates' performances. This result demonstrates that undergraduates

studying English via Moodle were very engaged in the educational process and made more endeavors to access lessons.

In the case of the control class, undergraduates were examined to see if there were any considerable variations in their English language skills and performances, both between pre and post-testing. Using Wilks' Lambda as a repetitive measure, the means are demonstrated in table 3, and the scores of Wilks' Lambda are illustrated in table 4.

Table 3: Means and standard deviations of undergraduates' pre and post-testing competencies for the control class.

| Competencies | Pre-testing | | Post-testing | |
|---|---|---|---|---|
| | Means | Standard D | Means | Standard D |
| Communicative skill | 3.59 | 2.09 | 4.05 | 1.52 |
| Listening skills | 2.47 | 1.80 | 3.08 | 1.50 |
| Lexicon | 10.12 | 3.77 | 15.40 | 4.53 |
| Structural patterns | 13.91 | 4.30 | 15.30 | 4.06 |
| Reading skills | 16.05 | 3.32 | 19.48 | 5.10 |
| Writing skills | 3.88 | 1.04 | 4.03 | 2.13 |
| **Total (pre)** | **51.48** | **9.01** | **60.00** | **13.58** |

*The table was designed by the researcher.*

Table 4: Wilks' findings for variations in learners' competencies between pre and post-testing for the control class.

| Competencies | Wilks' measure | F | Assumption DF | DF Error | Sig. |
|---|---|---|---|---|---|
| Communicative skill | 0.94 | 0.40 | 2.00 | 24.00 | 0.63 |
| Listening | 0.90 | 1.01 | 2.00 | 24.00 | 0.35 |
| Lexicon | 0.38 | 1.47 | 2.00 | 24.00 | 0.0001* |
| Structures | 0.88 | 1.26 | 2.00 | 24.00 | 0.27 |
| Reading | 0.69 | 4.86 | 2.00 | 24.00 | 0.01* |
| Writing | 0.73 | 3.82 | 2.00 | 24.00 | 0.02* |
| **Overall score** | **0.62** | **6.72** | **2.00** | **24.00** | **0.0001*** |

*The table was designed by the researcher.*

There were no statistically considerable variations in undergraduates' competencies in language skills: communicative skills, listening skills, and structural patterns in pre and post-testing for the control class. Minor changes were found connected with vocabulary, reading skills, writing skills, and total scores before and after tests. To compare the pre/post scores, the Sidak post hoc test was used.

Table 5 shows the results of the Sidak post-doc test for the variation in undergraduates' language skills' competencies in pre-post testing for the control class.

| Competencies of language skills | Test | Pre-test | Post- test |
|---|---|---|---|
| Lexicon | Pre | | -5.24* |
| | Post | | |
| reading skills | Pre | | -3.40* |
| | Post | | |
| writing skills | Pre | | -0.13 |
| | Post | | |
| Overall score | Pre | | -8.67* |
| | Post | | |

*The table was designed by the researcher and two expert teachers.*

Through the Sidak post-doc test, the English skills of undergraduates in the controlled group were assessed in the pre and post-periods. There were no significant differences between those mentioned. However, post-testing revealed a slight variation in undergraduates' reading skills competencies. This is because teachers in the control group demonstrated questions and answers through translation and memorization when teaching reading skills. This shows the traditional teaching effect used by the teacher who taught the control group where the only manifestation of knowledge was the instructor. Consequently, instructor-centered environments are mainly used (Ghounane, 2020). The overall score indicates that traditional instruction aids in empowering receptive skills such as reading; however, it does not foster speaking. Conversely,

Moodle gives students enough space to communicate and train on listening skills, discussing them on the forum (Carroll & Conboy 2020).

Undergraduates' perceptions towards English language skills on pre and post-testing for the empirical and control classes were identified using a paired t-test for the variations in undergraduates' perceptions towards learning English. Table 6 shows the variations.

Table 6: The variances in undergraduates' perceptions towards the English class and the English skills on pre and post-test for the empirical and control classes.

| Variables | Empirical class (number=34 ) | | Controlled class (number= 32 ) | | t.- test | Sig. |
|---|---|---|---|---|---|---|
| | M | SD | M | D | | |
| Perspectives toward the English class | 4.20 | 0.67 | 4.09 | .55 | 0.73 | 0.43 |
| Perspectives toward the English skills | 4.00 | 0.53 | 3.71 | .41 | 2.18 | 0.03* |
| Total score | 4.10 | 0.50 | 3.89 | 0.39 | 1.62 | 0.10 |

*The table was designed by the researcher.*

The data obtained from table six conclusively show no statistically noticeable variances in undergraduates' perceptions toward ESL classrooms and perceptions toward English skills in post-test between empirical and control classes. However, the findings show a significant difference in undergraduates' perceptions of English skills in the post-test between the experimental and controlled groups in favor of the empirical class. The results are consistent with those of Al Bataineh, Banikalef, and Albashtawi (2019), who conducted a study on Jordanian students. They discovered that learning through Moodle had a positive effect on learners' attitudes toward acquiring English skills. Students and teachers are enthusiastic about the use of Moodle in the pedagogical process. However, these attitudes differ widely among learners. The results of the study support the results of Ghounane (2020). Both studies concluded that

Moodle has an impact on learners' autonomy. The findings also show that students who use Moodle to improve their language skills have positive attitudes toward language. This result is consistent with Aminatun & Oktaviani 2019; Ayu, 2020; Alturki & Aldraiweesh, 2021; Sari and Oktaviani, 2021.

## 5. Conclusion

This study investigated the impact of Moodle application on a group of learners learning English language skills and their attitudes toward the language class. Although it only looked at these variables over a short time, there are implications for stakeholders and educational policymakers to consider. The research results confirm that integrating and supporting the implementation of Moodle in teaching students English is crucial for undergraduates, as it is likely to help them learn language skills more effectively. As a result, undergraduates can communicate, listen, read and interact effectively. This pedagogical application motivates students and allows them to think critically in Moodle forums while exchanging ideas.

In a nutshell, the study findings have indicated that implementing Moodle in teaching and learning the English language will advance the achievement in language skills. It also promotes students' engagement with the technology; high levels of motivation; reading skills; vocabulary learning; grammatical structures; debating and speaking; fluency enhancement; pronunciation, and coherent writing. The findings encourage instructors to start using Moodle, particularly during times of crisis, and motivate undergraduates to collaborate. Moodle interactive language learning activities foster a collaborative educational environment in which undergraduates have more potential to interact and alter their perceptions toward learning English by listening to transcriptions and recording themselves; asking questions on the

forum; and re-stating their points of view. The interactions tasks between students arguably increase and boost students' speaking skills. Notably, the implementation of Moodle interactive language learning activities could help shy learners overcome the challenge of communicating in a foreign language.

The results have also shown a direct relationship between the use of Moodle and students' improvement in speaking skills. The experimental group revealed higher development when compared with the controlled group. The overall results led the researcher to suggest using a blended strategy to classroom instruction. The traditional pedagogy for managing English language classes must coexist with the use of technological resources by teachers. There is a crucial role for the MHE in Palestine to support university instructors and learners in applying LMSs in carrying out educational processes at higher academic institutions. It is critical to recommend that higher education instructors envisage technological innovations to initiate norms that allow them to take more adaptive roles in areas such as: incorporating collaborative educational tasks during English lessons; boosting the use of Moodle educative tasks; using technologies to energize users to engage; and changing students' perceptions.

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