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Improving University Students' Learning Achievement Using an Interactive-Based E-Module of Translation Technology Through Online and Blended Learning

Sujarwo[1]
Abdul Hakim Yassi[2]
Herawaty Abbas[3]
Harlinah Sahib[4]

[1]Doctoral Program Student in English Language Studies of Hasanuddin University Makassar, Indonesia
[2]Doctoral Program in English Language Studies of Hasanuddin University Makassar, Indonesia
[3,4] English Language Studies of Hasanuddin University Makassar, Indonesia
Corresponding author: jarwo.ibrahim@unimerz.ac.id

ABSTRACT

The rapid development of information technology has fundamentally changed the process of teaching English through the integration of network information technology into the curriculum, which has had a substantial impact on students' academic achievement. This study aims to investigate the effect of an interactive - based E-module of translation technology towards learning achievement through online and blended learning in two private universities in Makassar. This research used quasi-experimental method. Data analysis used Structural Equation Models – Partial Least Square (SEM - PLS) and SPSS 26 version with population was 135 and sample was 45 EFL students. Findings show that there was significant value is 0.888, which is higher than 0.05, which shows that there is no effect of providing interactive-based e-module of translation technology on students' translation achievement through online learning. And based on the results of the paired sample t-test, the Sig. of 0.000 or smaller than 0.05 which indicates there is a significant difference between the pre-test and post-test results. It can be concluded that there is no significant effect of an interactive based e-module of translation technology toward learning achievement through online learning by using e-module and no using E-module of translation technology. Meanwhile, there is significant effect of an interactive based e-module of translation technology on learning achievement through blended learning.

Keywords: Blended Learning, Interactive E-Module, Learning Achievement, Online Learning, Translation Technology

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INTRODUCTION

Currently, the globe is experiencing Industrial Revolution 4.0. The era of the fourth industrial revolution is characterized by the convergence of artificial intelligence, intelligent networking, supercomputers, genetic engineering, nanotechnology (nanotech), autonomous vehicles, and innovation (Lastariwati et al., 2021). These changes occur at an exponential speed which will have an impact on the economy, industry, government, and politics (Chun et al., 2016).

Likewise, its development, humans are intelligent creatures who always improve their abilities to facilitate their every activity. All tools are tried and used to achieve the efficiency and effectiveness of every action, in order to produce a large amount of efficiency with the least amount of energy possible. Since the beginning of Industry 4.0, a phrase coined in 2011 inside Germany, various sectors of society have undergone necessary adjustments to incorporate an increased reliance on digital technologies. This adaptation has been crucial in ensuring the continuity of their operations while also promoting sustainability (Moraes et al., 2022).

Humans utilize technology due to their rationality and desire to alleviate difficulties, enhance their quality of life, and ensure their safety. Technological advancement arises from the cognitive capacity of individuals to address and resolve the challenges they encounter (Nurhikmah et al., 2021). Technological advancement is inevitable as it aligns with scientific progress (Liu, 2022). Every innovation is created to provide positive benefits for human life. Utilization of technology can be done anywhere and anytime. The advantage of technology is that it provides immediate feedback and allows quick changes the students' misconceptions (Alizadeh & Ebrahimi, 2019).

The development of technology is very rapid in this modern era (Kazu, 2021; Apanasovich et al., 2017), Currently, technology offers numerous advantages in different domains (Sukmawati et al., 2022). Some advantages of information technology in education include computerized data processing, e-learning, and IT-driven task assignments. Development is not solely determined by the passage of time, whether it be years, months, or days. Instead, the measurement of time in hours, minutes, or seconds is mostly associated with information and communication technology (ICT), which relies on electronic technology (Sujarwo, Sukmawati, Asdar, et al., 2020). This growth has diverse consequences on society, nation, and state. Every individual is keen on utilizing and benefiting from each of these advancements (Patience, 2016).

Likewise in the learning process, the development of Information and Computer Technology (ICT) has penetrated rapidly and significantly (Sujarwo et al., 2020). According to numerous economists, cultural theorists, and political scientists, the 'new world order' in the 21st century will signify a notable departure from past eras (Marczak, 2018). The Internet and its associated Information Technologies (IT) have the potential

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to disrupt conventional communication patterns (Sasabone et al., 2023). The objective is to determine the optimal use of ICT to enhance the standard of education, facilitate the exchange of knowledge and information, and provide a greater level of adaptability in accordance with social demands (Viju, 2013). Several English educators' express concerns about the potential future replacement of English teachers by machines. In the current period, computers play a significant role, and there is an increasing expectation for individuals, especially instructors, to possess technological proficiency (Gull, 2020).

Based on a survey conducted by APJJI in 2019-2020 internet user penetration in Indonesia has reached 73.7% or around 196.71 million people in Indonesia have used the internet for activities and various daily needs (APJII, 2020). Since 2020 or the COVID-19 pandemic in Indonesia, learning activities have been carried out online or what are called online learning activities. Based on the guidebooks and guidelines issued by the Ministry of Education and Culture in 2020, it provides guidelines for learning activities that can be carried out using various online learning platforms or with various social media that allow for learning activities to take place.

Another strategy is to create instructional resources as a means of addressing the issue. The lecturer engages in the creation of instructional materials to address learning difficulties, taking into consideration the objectives and abilities of the students. One way to realize this is by integrating teaching materials with technology so as to create teaching materials that are easily accessible and meet these criteria (Linda et al., 2018). One of teaching materials that can be developed a digital-based module or known as an interactive E-module.

The use of conventional method in teaching translation during the translation learning process is unenjoyable, uncreative and demotivating students in this era. This causes students to be bored. Traditional or conventional methods refer to teaching methods that use or implement a module or textbook-based system only. Therefore, this teaching and learning method seems monotonous. Because the material given to students must be read, so students are not enthusiastic. Students assume that they only read textbooks/modules, they have difficulty carrying them anywhere, especially if they are not interesting for students.

This research is also motivated by the fact that in the translation course, no an electronic-based module or an interactive module has been designed by translation lecturers, so that the researcher is interested in designing an interactive module of translation technology as the teaching material in that course. The existence of the COVID-19 pandemic condition that occurred became the basis for the idea of adapting or adjusting learning methods into online and blended-based learning. The preparation of interactive E-modules for translation courses for even semester (VI) students of English Education Study Program Faculty of Teacher Training

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and Education (FKIP) Megarezky University and semester (VI) students of English Education Department Study Program Faculty of Teacher Training and Education (FKIP) Muhammadiyah University of Makassar becomes an alternative to distance learning, blended learning and to improve EFL students of learning achievement. Moreover, the students are able to guarantee that the learning process can be carried out efficiently and effectively.

LITERATURE REVIEW

An Interactive E-Module of Translation Technology

The rapid advancement of technology promotes the substitution of print technology with computer technology in educational activities. The module, which was originally in printed format, was converted into an electronic presentation, leading to the emergence of a new term: electronic module, commonly referred to as e-module (Winatha, 2018). Electronic modules are an advancement and modification of printed modules that are utilised through information and communication technology (Sugihartini, N., & Jayanta, 2017).

Alcina, (2008) defines translation technology as the field of study concerned with the creation and modification of technological tools, resources, and techniques to facilitate research and education as well as making translation work easier. In fact, no one can deny the role of translation technology tools in the translation process. Pym, (2011) argues that in the present era, those with knowledge in the IT industry will be in higher demand for the field of translation compared to those who merely possess language proficiency. Emphasizing the importance of IT skills, it is contended that in the current era, proficiency in IT is a vital aspect of a translator's occupation (Taghizadeh & Azizi, 2017).

Due to the increasing significance of technology in translation practice, nearly all translation models now incorporate technology as a distinct skill. Translation technology is a significant emerging field of research that intersects computer science with translation (Christensen et al., 2017). The growth of the translator training curriculum relies on two key factors: the academic improvement of the curriculum and the implementation of efficient translation technologies (Doherty, 2016; Dulul, 2021).

Online Learning

The evolution of online education in the United States can be categorised into four different phases. The first stage occurred in the 1990s, when the internet enabled distance education. The second stage, from 2000 to 2007, saw the increased prevalence of Learning Management Systems (LMS). The third stage, spanning from 2008 to 2012, witnessed significant growth in Massive Open Online Courses (MOOCs). Currently, we are in the fourth stage, where enrollments in online higher education are surpassing those of

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traditional higher education (Palvia et al., 2018). Online learning spreads beyond the realm of the internet. This is an educational system that utilizes electronic applications to improve the teaching and learning process through online media, computer networks, and individual PCs (Tynan et al., 2015). However, it is undeniable that internet-based learning is today one of the most popular and accepted modes of e-learning (Wang et al., 2021). The use of digital resources for educational purposes in E-learning contexts has significantly increased during the past decade.

Blended Learning

Blended learning involves the integration of online and traditional face-to-face class activities in a carefully constructed and pedagogically advantageous manner. This strategy involves replacing a part of the face-to-face class time with activities that are conducted online ((Kaur, 2013). Blended learning (BL) is a method that integrates both face-to-face and online instruction, is becoming more widely accepted in higher education. It is sometimes described as the "new traditional model" or the "new normal" for delivering courses. The educational environment is incorporating several advancements, such as the application of technology through blended learning (Dziuban et al., 2018; Kintu et al., 2017).

Learning Achievement

James Kpolovie et al., (2014) defining academic achievement is a measurable index that describes students' cognitive, affective and psychomotor domains in an educational environment. Academic achievement is usually measured by exams or ongoing assessments but there is no general agreement on how best to be tested or which aspects are most important. Student academic achievement is usually measured by teachers using teacher-made tests or standardized tests. Learning achievement is a measure of student success (Adiputra & Mujiyati, 2017), so it is necessary to study aspects that can support increased learning achievement and the quality of education in Indonesia.

Hypothesis

H_1 There is significant effect of an interactive-based E-module of translation technology toward online learning.

H_2 There is significant effect of the interactive E-module interaction of translation technology toward blended learning

H_3 There is significant effect of blended learning toward learning achievement

H_4 There is significant effect of online learning toward learning achievement

Significance of this study is by using interactive e-modules for translation technology, learning achievement in translation courses can be improved, leading to the possibility of more effective digital translation

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learning. This is done to motivate EFL students and familiarize students with using technology, avoiding monotonous teaching techniques and improving students' learning achievement.

The objectives of this study are to analyze the effect of an interactive-based e-module of translation technology towards learning achievement through online and blended learning both two English education department students of Muhammadiyah University of Makassar and Universitas Megarezky.

METHOD

Research Design

This study aims to examine an interactive e-module of translation technology on learning achievement through online and blended learning of the English Education department, Megarezky University and English education department, Muhammadiyah University of Makassar. This study used a quasi-experimental study because in this study is not possible to control all relevant variables, except for some of these variables. In this study, all groups receive treatment, namely the first group using an interactive E-module-based translation technology and the second group using a conventional learning model. The main threat to the experiment internal validity nonequivalent control group design, it is possible that the posttest group differences were pre-existing rather than the treatment effect (Creswell, 2021).

Population and Sample

The number of populations was 135 students both English education department of Muhammadiyah University of Makassar and English education department of Universitas Megarezky. Non-random sampling, sometimes called non-probability sampling is the process of selecting individuals or things from a population without utilizing random selection methods. So that, the number of sample was 45 EFL students.

Group Treatment Comparisons in an Experiment

The researcher also compared scores for various treatments on a specific result. A group comparison refers to the procedure in which a researcher collects scores for individuals or groups on the dependent variable and then compares the means and variances within and between the groups.
To make clear description, it could be shown from figure 1 as follow:

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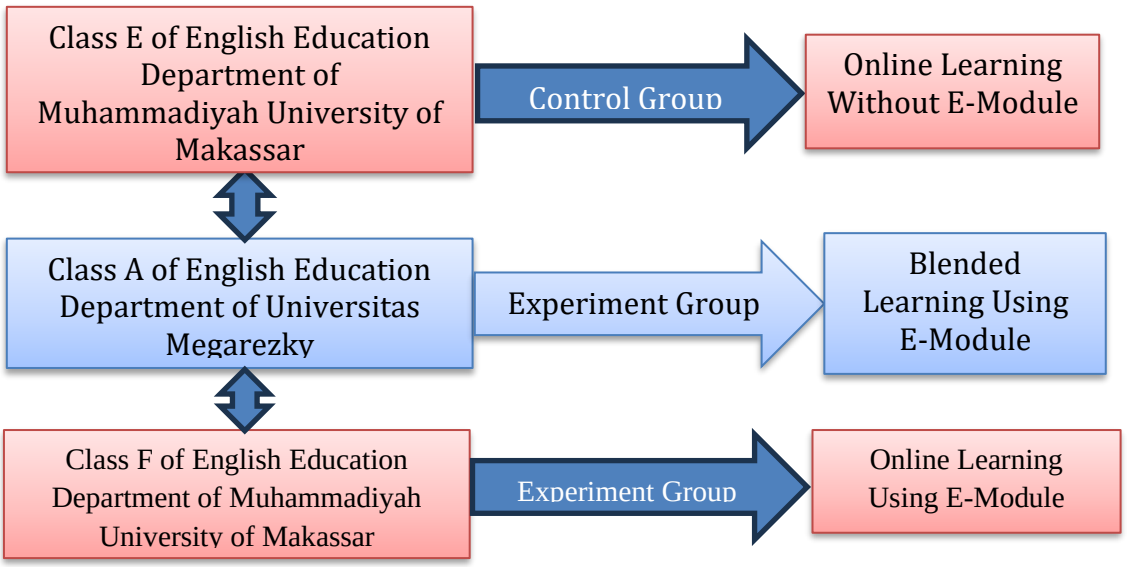

Figure 1. Group Treatment Comparisons in an experiment (Adapted from (Creswell, 2013).

Figure 1 demonstrates that the students from Class E of the English Education Department at Muhammadiyah University of Makassar received translation training online, without the use of an interactive E-module, as part of the control group. The Class F of the English Education Department at Muhammadiyah University of Makassar received online instruction in translation using an interactive E-module (experimental group), while the Class A of the English Education Department at Universitas Megarezky received instruction in translation through blended learning using an interactive E-module (experiment group). To summarized, experimental researchers manipulated or interfered with one or more conditions of treatment variables.

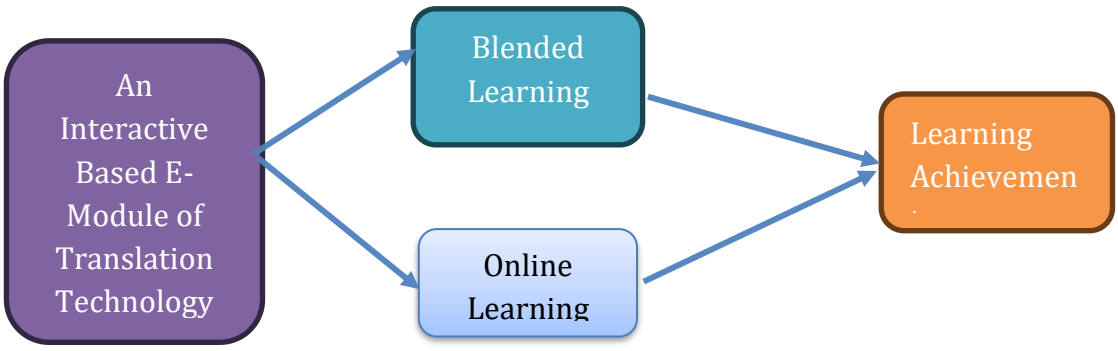

Figure 2. Conceptual Chart of Relationships between Research Variables

Based on figure 2, it can be clearly seen the relationship between research variables, both independent and dependent. Independent variable

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is an interactive e-module of translation technology. Dependent variable is learning achievement. While online learning and blended learning are called intervening variables.

3.4 Data Analysis

When the research data was gathered, the data was analyzed using specific data analysis procedures based on the type of research. The data acquired in this study were statistically analyzed using One-way Analysis of Covariance (ANCOVA) to make inferences. Once all the necessary parametric assumptions have been satisfied, the analysis can proceed by employing Analysis of Covariance (ANCOVA) to test the research hypothesis. The null hypothesis was tested at a significance level of 5% or 0.05. The Statistical Package for Social Science (SPSS) 26.0 software was utilized for all statistical analyses on a Windows machine.

1. RESULTS AND DISCUSSION

The study consisted of three groups: one experimental group, one control group and one experiment group. The academic success of these groups was compared. The control group consisted of fifteen students who received instruction only through online method without using an interactive E-module of translation technology. The first experimental group comprised fifteen students who were taught using an interactive E-module of translation technology in online learning. The third comparison group consisted of fifteen students, they were taught using a combination of face-to-face instruction and online learning, known as blended learning.

The researcher analyzed data by using Structural Equation Model based on Partial Least Squares (SEM-PLS) of English Education department, Megarezky University and English education department, Muhammadiyah University of Makassar Makassar which is shown in figure 3.

Figure 3. Structural Model of online learning without E-Module

Figure 3 shows of the effect of translation technology on learning achievement through online learning without an interactive E-module of translation technology. Translation technology is as exogenous variable. Then, online learning without using an interactive E-module of translation technology is intervening variable. Last, learning achievement is as endogenous variable.

Analysis of Covariance (ANCOVA) test (cancelled because it did not meet several assumptions, including error residues not normally distributed and linearity test). Analysis of Covariance (ANCOVA) is a combination of regression analysis and variance analysis. Therefore,

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hypothesis testing with analysis of Covariance (ANCOVA) test requires testing the hypothesis requirements, both for regression analysis and for analysis of variance.

So, the analytical requirements tests needed in covariance analysis are normality test, homogeneity test, linearity test, heteroscedasticity test, autocorrelation test, and multicollinearity test if the covariance is more than one. Covariance analysis is carried out in the same way as variance analysis, namely by calculating F.

If it is not assumed, then the results of the Ancova test are shown in the following table 1

Table 1. Test of Between Subject Effect

Tests of Between-Subjects Effects

Dependent Variable: Posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	53.786[a]	2	26.893	2.724	.083	.163
Intercept	1059.786	1	1059.786	107.356	.000	.793
Pre-test	53.525	1	53.525	5.422	.027	.162
Class	1.925	1	1.925	.195	.662	.007
Error	276.408	28	9.872			
Total	234100.000	31				
Corrected Total	330.194	30				

a. R Squared = .163 (Adjusted R Squared = .103)

It can also be seen in the test of between subjects' effects table that the sig. in the Class row is 0.662 > 0.05 which indicates there is no difference between the control class and the experimental class in terms of translation achievement.

1) If the data meets the normality assumption, an independent sample t-test can be carried out
2) If the data does not meet the assumption of normality, then a non-parametric test can be carried out, for example Mann-Whitney U

Tabel 2. Normality Test

Tests of Normality							
	Class	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.

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N-Gain times 100	Experiment	.262	16	.005	.830	16	.007
	Control	.192	15	.140	.901	15	.099
a. Lilliefors Significance Correction							

Based on the normality test table, the sig. in the post-test data for the experimental class it was 0.005 which was smaller than 0.05 (abnormal data), while in the control class the value was 0.099 which was bigger than 0.05 (normal data). So, the data was analyzed using non-parametric tests.

Table 3. Man-Whitney U Test

Test Statistics

	Post-test
Mann-Whitney U	116.500
Wilcoxon W	236.500
Z	-.141
Asymp. Sig. (2-tailed)	.888
Exact Sig. [2*(1-tailed Sig.)]	.892[b]
a. Grouping Variable: Class	
b. Not corrected for ties.	

It can be seen in the table that the significant value is 0.888 which is greater than 0.05 which indicates that there is no effect of providing interactive-based E-module of translation technology on translation achievement.

Data Analysis from English Education Department of Universitas Megarezky

The normality test results are shown in the following table

Table 3. The normality test

One-Sample Kolmogorov-Smirnov Test			
		Pretest	Post-test
N		15	15
Normal Parameters	Mean	62.20	86.53
	Std. Deviation	3.489	2.503
Most Extreme Differences	Absolute	.203	.203
	Positive	.203	.146
	Negative	-.131	-.203
Test Statistic		.203	.203
Asymp. Sig. (2-tailed)		.099[c]	.096[c]
a. Test distribution is Normal.			
b. Calculated from data.			
c. Lilliefors Significance Correction.			

Based on the normality test results, the Sig. The pre-test and post-test are respectively 0.099 and 0.096 which is greater than 0.05, so that the data is

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normally distributed as an assumption to continue with the parametric paired sample t-test.

Table 4. Paired sample t-test

The results of the paired sample t-test are shown in the following table:

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-test – Pos-test	-24.333	3.352	.866	-26.190	-22.477	-28.113	14	.000

provision of an interactive-based e-module of translation technology through blended learning. The teaching methods are sometimes different at each meeting (because the students studied translation subject through blended learning), the learning model, so that what causes the influence is the interactive-based e-module of translation technology on students' learning achievement in translation subject.

It can be concluded that there was effect of interactive E-module translation technology on learning achievement through blended learning is significant statistically. But, the effect of interactive E-module translation technology on learning achievement through online learning by using E-module is not significant statistically.

Findings show that there was significant value is 0.888, which is higher than 0.05, which shows that there is no effect of providing interactive-based e-module of translation technology on students' translation achievement through online learning. And based on the results of the paired sample t-test, the Sig. of 0.000 or smaller than 0.05 which indicates there is a significant difference between the pre-test and post-test results.

Various design factors of blended learning, such as the technological quality, online resources, and in-person support, as well as student traits like attitudes and self-regulation, were identified as predictors of student satisfaction. The results indicate that certain student characteristics and backgrounds, as well as design features, play a significant role in predicting student learning outcomes in blended learning (Kintu et al., 2017). The advancement of blended learning also results in the use of teaching resources, including electronic modules.

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Web-based learning utilises electronic models referred to as independent teaching materials or packaged teaching materials, which allow students to engage in learning achievement. In self-paced instructional resources, students are provided with activities to assess their learning progress. In blended learning, apart from electronic module teaching materials, there is a further advancement in teaching materials through the incorporation of media or technology.

An aspect of web-based learning is the incorporation of various media such as text, audio, video, and multimedia to enhance learning materials and reinforce students' understanding of a particular topic. Blended learning involves the digital packaging and web-based access of instructional materials. The independent learning phase incorporates the utilisation of text, audio, video, and multimedia. Text, audio, video, and multimedia content is stored utilising specific storage medium.

English language usage and a wider range of resources were mandatory for socially integrated students. The participants' viewpoints on learning achievement in the context of learning translation through an interactive e-module indicated that while they accept their potential. The respondents had a preference for doing so within interactive and communicative environments. This study makes the claim that combining online, offline, and in-person instruction can significantly improve students' English achievement and learning environment. The students perceive both online and offline learning as a method to foster information acquisition, enabling the students learned at their convenience.

In line with the other findings stated that the blended learning method in this study provides online students with a high degree of freedom, such as access to recorded lectures, discussion boards, and online resources (Broadbent, 2017). The students expressed pleasure with the blended learning approach, attributing it to the improvement in the learning system and the engaging and demanding computer-based assignments assigned outside of class (Banyen et al., 2016).

This study recognises that technology can be utilised to augment teaching methods for educators and facilitate knowledge acquisition for students. It is important to emphasise in this study that blended learning is not just reliant on technology, but rather emphasises the collaboration between technology and the teacher to optimise student learning. While students may have their own preferences in learning method and sources for supplementary information, it is still crucial for teachers to provide guidance in the selection of course content that can be presented both online and offline (Herlina et al., 2019).

Additionally, they can create diverse blended learning activities and implement positive motivation and reward systems to enhance students' learning achievement. In addition, teachers must provide clear instruction to students on how to create blended learning plans, establish learning

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objectives, efficiently allocate time and resources, and effectively manage both online and offline assignments (Hua et al., 2023).

The blended course enhances the translation skills of participants, including their knowledge, technological proficiency, and professional expertise (Peng et al., 2023). This will empower students to take charge of their own learning process. Teachers can also foster students' ability to prioritise and organise learning activities, evaluate their learning methods, recognise their strengths and areas for growth, and encourage regular introspection and self-evaluation of the learning process through guided questioning, writing, or conversations. Enhancing a good teaching experience of university students is crucial. Blended learning necessitates in integrating between online and offline training (Moskal et al., 2013). Therefore, the teachers must sufficiently prepare and strategize course content, learning activities, and resources to guarantee a seamless and orderly teaching procedure.

Blended learning allows teachers to utilise a range of teaching methods and resources, including lectures, case studies, group discussions, practical tasks, simulated experiments, and multimedia materials, to accommodate the diverse learning needs and styles of students. Blended learning is the integration of online and offline teaching methods, combining the advantages of both while reducing the limitations of traditional teaching approaches (Ma, 2023). By combining face-to-face and online teaching, this relatively new method aims to achieve optimal teaching outcomes. In terms of the learning environment, blended instructional models can effectively facilitate students' impartial acquisition of knowledge through mobile devices (such as cell phones and computers) (Ma et al., 2024).

The learning activities are not confined the classroom alone, but also enable students learn at their own time and location. In traditional teaching methods, learning resources typically consist of teaching materials, books, and tutorials. However, in blended teaching, the resources expand to include online materials such as audio and video resources, images, pictures, and animations. This broader range of resources offers a rich and diverse learning experience beyond just books and teaching materials. This format is better suited for promoting students' active learning and independent creation of information.

CONCLUSION

This study is to examine the impact of an interactive e-module on translation technology on learning achievement in online and blended learning settings at private universities in Makassar. The findings show that there is a significant difference between the pre-test and post-test results. The results of this research indicate that providing interactive-based e-module of translation technology has positive effect on translation achievement through blended learning. But it shows negative effect of

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online learning in control and experiment groups. However, by applying an interactive e-module of translation technology is effective on learning achievement in blended learning. An innovative approach is established by combining traditional in-person teaching with online instruction, aiming to achieve the best possible educational outcomes. Blended learning method can effectively facilitate students in acquiring knowledge in a fair manner through the use of mobile devices and an offline model (blended learning). As recommendation for further researchers to apply appropriate electronic module for all teachers should get instructional guidance during the creation and execution of online or blended courses, especially those who are teaching translation through the use of an interactive E-module. English lecturer should develop an interactive e-module that integrated with translation tools/machine translation. And utilize a larger sample to obtain different results.

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