DISSERTATION

AN INTERACTIVE E-MODULE OF TRANSLATION SUBJECT BASED ON ONLINE AND BLENDED LEARNING IN IMPROVING LEARNERS' AUTONOMY AND ACHIEVEMENT OF HIGHER EDUCATION STUDENTS

Prepared and submitted by

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DOCTORAL PROGRAM IN ENGLISH LANGUAGE STUDIES

FACULTY OF CULTURAL SCIENCE

HASANUDDIN UNIVERSITY

MAKASSAR

2024

DISERTASI

E-MODUL INTERAKTIF MATAKULIAH PENERJEMAHAN BERBASIS PEMBELAJARAN ONLINE DAN BLENDED UNTUK MENINGKATKAN BELAJAR MANDIRI DAN PRESTASI BELAJAR MAHASISWA

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FAKULTAS ILMU BUDAYA (FIB)

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Pengajuan Disertasi

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Disertasi

sebagai salah satu syarat untuk mencapai gelar doktor

Program Studi S3 Bahasa Inggris

Disusun dan diajukan oleh

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PROGRAM STUDI S3 BAHASA INGGRIS
FAKULTAS ILMU BUDAYA (FIB)
UNIVERSITAS HASANUDDIN
MAKASSAR, INDONESIA
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Dissertation

as one of the requirements for achieving a doctoral degree

Doctoral Study Program in English Language Studies

Prepared and submitted by

Sujarwo
Student ID F023201003

to

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FACULTY OF CULTURAL SCIENCE
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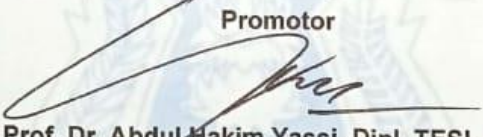
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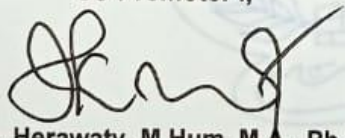
SUJARWO

Register Number: F023201003

has been defended in front of the disertation examination committee which was formed in order to complete the study of the Doctoral Program in English Language Studies Faculty of Cultural Sciences Hasanuddin University on August, 26th 2024 and is declared to have met the graduation requirements.
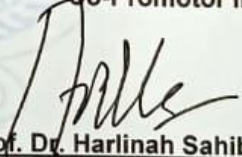
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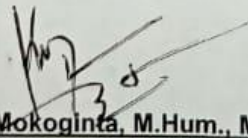**Prof. Dr. Abdul Hakim Yassi, Dipl. TESL., M.A.**
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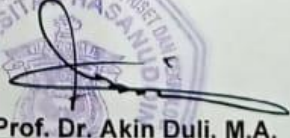**Dra. Herawaty, M.Hum. M.A., Ph.D.**
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PERNYATAAN KEASLIAN DISERTASI DAN PELIMPAHAN HAK CIPTA

Dengan ini saya menyatakan bahwa, disertasi berjudul "Interactive E-Module of Translation Subject Based on Online and Blended Learning in Improving Learners' Autonomy and Achievement of Higher University Students" adalah benar karya saya dengan arahan dari tim pembimbing (Prof. Dr. Abdul Hakim Yassi, Dipl., TESL., M.A (Promotor), Dra. Herawaty Abbas, M.A., M. Hum., Ph. D (Co-Promotor I), Prof. Dr. Hj. Harlinah Sahib, M. Hum (Co-Promotor II).

Karya ilmiah ini belum diajukan dan tidak sedang diajukan dalam bentuk apa pun kepada perguruan tinggi mana pun. Sumber informasi yang berasal atau dikutip dari karya yang diterbitkan maupun tidak diterbitkan dari penulis lain telah disebutkan dalam teks dan dicantumkan dalam Daftar Pustaka disertasi ini. Sebagian dari isi disertasi ini telah dipublikasikan di Jurnal (Seybold Report Journal (SRJ), Volume 19, Nomor 06 Halaman 193-206, dan DOI: 10.5281/zenodo.11547317) sebagai artikel dengan judul "An Interactive-Based E-Module of Translation of Blended and Online Learning to Improve Autonomous Learning" dan di English Language and Literature International Conference (ELLiC) Proceedings, Volume 6 dengan judul artikel "Improving University Students' Learning Achievement Using an Interactive-Based E-Module of Translation Through Online and Blended Learning". Apabila di kemudian hari terbukti atau dapat dibuktikan bahwa sebagian atau keseluruhan disertasi ini adalah karya orang lain, maka saya bersedia menerima sanksi atas perbuatan tersebut berdasarkan aturan yang berlaku.

Dengan ini saya melimpahkan hak cipta (hak ekonomis) dari karya tulis saya berupa disertasi ini kepada Universitas Hasanuddin.

Makassar, 30-08-2024

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ACKNOWLEDGMENT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

The writer would like to express his deepest gratitude to Almighty God for the amazing grace and countless blessings; he has finally completed this study. The researcher extends his great gratitude to his promoter, Prof.Dr. Abdul Hakim Yassi, Dipl. TESL., M.A., for his support and patience in guiding the writer from the beginning to the completion of this study. His profound thanks also go to his co-promotors, Dra. Herawaty Abbas, M. Hum., M.A., Ph. D., and Prof. Dr. Hj. Harlinah Sahib., M. Hum, who gave corrections and suggestions during this researcher's research. It would not have been possible without their guidance and help in this study.

Furthermore, the researcher would like to express his gratitude to the honorable for Prof. Prof. Dr. Ir. Jamaluddin Jompa, MSc, as the Rector of Hasanuddin University. Prof. Dr. Akin Duli, MA, as a Dean of the Faculty of Cultural Science at Hasanuddin University. Dr. Karmila Mokoginta, S.S., M. Hum., M. Arts as the Head of Doctoral Program in English Language Studies, Faculty of Cultural Science of Hasanuddin University. Prof. Dr. Muhammad Basri Wello, M. A. as external examiner. Prof. Dr. Fathu Rahman, M. Hum; Prof. Dra. Nasmilah, Dipl., TESL., M. Hum., P.h. D; and Dr. Ayub Khan, M. Si as internal examiners.

Dr. H. Alimuddin, S.H., M.H., M. Kn as board of Mega Rezky Islamic Foundation of Makassar. Hj. Suryani, S.H., M.H as the head Mega Rezky Islamic Foundation of Makassar. Prof. Dr. Anwar Ramli, S.E., M. Si, as the Rector of Megarezky University. Dr. Abdul Malik Iskandar, S.Ag., M.Si., as the Dean of the Faculty of Teacher Training and Education of Megarezky University. Dr. Muliaty Ibrahim, S.S., M. Pd as the head of the English Education Department of Megarezky University. All lecturers and staff of the Faculty of Teacher Training and Education of Megarezky University.

Dr. Ummi Khaerati Syam, M. Pd as the head of the English Education Department of Muhammadiyah University of Makassar. For all the Lecturers at the English Education Department and all lecturers and staff of Universitas Megarezky who have supported and helped to complete this study.

The researcher would like to thank his father, H. Ibrahim (almarhum), and his mother, Hj. Hamilah for her prayer, support, and extraordinary courage. For my beloved wife, Sukmawati, S. S., M. Pd, my daughter, Azkayra Nafeeza, and my son, Abqary Farzan. For all my brothers (Irman, S. Pd, Muhajirin, Amirul Anas, S.T), my sisters (Hj. Maasita, S. Ag, and Juraidah), and my beloved nephews and nieces. For my beloved father-in-law, Prof. Drs. H. Marzuki Dilla,

M. Pd (almarhum), mother-in-law Hj. Bunaija; my brother-in-law Edy Masykur, S.T, Akram, S. Pd, Fuardin S.E., M. Si (almarhum); my sister-in-law, Salmah A. Md, St. Maryam, and Nurannisah. And for all parties who have not yet mentioned it, one by one.

The researcher realizes that this research is far from perfect. It is a pleasure for her to receive constructive criticism and suggestions for helpful improvement from anyone who reads it.

Makassar, 30 Agustus 2024

Sujarwo

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ABSTRAK

SUJARWO. **E-Modul interaktif penerjemahan berbasis pembelajaran *online* dan *blended* untuk meningkatkan belajar mandiri dan prestasi belajar mahasiswa** (dibimbing oleh Abdul Hakim Yassi, Herawaty Abbas, dan Harlinah Sahib).

Latar belakang. Pembelajaran *online* dan *blended* semakin diminati karena fleksibilitas dan kemampuannya dalam menyampaikan materi secara lebih interaktif. E-modul interaktif mendukung model ini dengan menyediakan konten yang dapat diakses kapan saja dan di mana saja. **Tujuan.** Penelitian ini bertujuan menginfestigasi pengaruh E-modul interaktif penerjemahan berbasis pembelajaran *online* dan *blended* untuk meningkatkan belajar mandiri dan prestasi belajar mahasiswa. **Metode.** Penelitian ini menggunakan metode kuasi eksperimen. Analisis data menggunakan PLS-SEM dan SPSS. Jumlah populasi sebanyak 135 mahasiswa dan jumlah sampel 45 mahasiswa prodi pendidikan bahasa Inggris Universitas Muhammadiyah Makassar dan Universitas Megarezky. **Hasil.** Hasil analisis menggunakan PLS-SEM menunjukkan bahwa 1) ada pengaruh yang signifikan pada E-modul interaktif terhadap pembelajaran *online*. Adaptif merupakan indikator yang paling efektif dalam meningkatkan pembelajaran *online*, 2) terdapat pengaruh yang signifikan pada E-modul interaktif terhadap pembelajaran *blended*. Adaptif merupakan indikator dari E-modul interaktif yang paling efektif dalam meningkatkan pembelajaran *blended*, 3) ada pengaruh yang signifikan pada pembelajaran *blended* terhadap kemandirian belajar. Kolaboratif merupakan indikator dari *blended learning* paling efektif dalam meningkatkan kemandirian belajar, 4) tidak ada pengaruh yang signifikan pada pembelajaran *online* terhadap kemandirian belajar. Sikap terhadap penggunaan E-modul interaktif merupakan indikator dari pembelajaran *online* yang paling tidak efektif dalam meningkatkan kemandirian belajar, 5) adaptif memberikan kontribusi yang paling efektif dalam meningkatkan kemandirian belajar melalui pembelajaran *blended*. Namun, pembelajaran melalui *online* tidak memberikan pengaruh yang efektif terhadap kemandirian belajar, dan 6) hasil SPSS menunjukkan bahwa terdapat pengaruh yang signifikan terhadap hasil belajar terjemahan mahasiswa melalui pembelajaran *blended* dengan nilai signifikan $\alpha < 0.05$. **Kesimpulan.** E-modul interaktif pada mata kuliah penerjemahan tidak berpengaruh signifikan pada belajar mandiri dan prestasi melalui pembelajaran *online*, tetapi berpengaruh signifikan terhadap pembelajaran *blended* pada pembelajaran penerjemahan melalui indikator adaptif, kolaboratif, dan kemandirian belajar. Dengan demikian, hasil penelitian ini merekomendasikan model *Integrated E-Learning Media Acceptance* (IELMA).

Kata kunci: e-modul interaktif; kemandirian belajar; model IELMA; pembelajaran *blended*; pembelajaran *online*; penerjemahan; hasil belajar

ABSTRACT

SUJARWO. **An Interactive E-Module of Translation Subject Based on Online and Blended Learning in Improving Learners' Autonomy and Achievement of Higher Education Students**. (Supervised by Abdul Hakim Yassi, Herawaty Abbas, and Harlinah Sahib).

Background. Online and blended learning are increasingly in demand because of their flexibility and ability to deliver material more interactively. Interactive e-modules support this model by providing content that can be accessed anytime and anywhere. **Aim**: To investigate the effect of interactive E-modules of translation based on online and blended learning in improving learners' autonomy and learning achievement. **Method**. This study used a quasi-experimental method. Data analysis used PLS-SEM and SPSS. The population was 135 students, and the sample size was 45 students from the English education study program at Muhammadiyah University of Makassar and Megarezky University. **Results**. The analysis results used PLS-SEM show that 1) interactive E-modules of translation significantly affect online learning. Adaptive indicates the most effective interactive E-module in improving online learning. 2) interactive E-model had a significant effect on blended learning. Adaptive indicates the most effective interactive E-module in improving blended learning. 3) Blended learning had a significant effect on autonomous learning. Collaborative learning indicates the most effective way to improve students' autonomy. 4) There was no significant effect of online learning on autonomous learning. Attitude indicates the least effective online learning in improving students' autonomy through interactive E-Module. 5) Adaptive contributes the most effectively in improving students' autonomy through blended learning. However, online learning did not provide an effective influence on autonomous learning. 6) The SPSS results significantly affect students' translation learning achievement through blended learning, with a significant value of $\alpha < 0.05$. **Conclusion**. Interactive E-module of translation based on online and blended learning significantly affects the students' autonomy. Online learning does not affect autonomous learning; blended learning significantly affects students' autonomy and achievement through collaborative, adaptive, self-regulated learning. Furthermore, this study proposes a new model which is called the Integrated E-Learning Media Acceptance (IELMA) Model.

Keywords: Achievement, Autonomous Learning, Blended Learning, IELMA Model, Interactive E-Module, Online Learning, Translation

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CHAPTER 1
INTRODUCTION

1.1 Background

The Industry Revolution 4.0 era is a section coined in Germany in 2011; 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). Currently, the globe is experiencing the fourth industrial revolution, also referred to as 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 (Hardinata et al., 2021).

Instead, these activities now depend on the use of equipment such as laptops and cell phones for online instruction and the submission of assignments through technology (Nurhikmah et al., 2023). In this globalization era, possessing advanced technological skills is considered prestigious and serves as a measure of a country's level of development. Countries are considered advanced when they possess high technological proficiency, sometimes called high technology. Conversely, countries that struggle to keep up with technological advancements are often labeled as failed nations.

These changes occur exponentially and impact the economy, industry, government, and politics. Likewise, in its development, humans are intelligent creatures who constantly improve their abilities to facilitate everyday activities. All tools are tried and used to achieve the efficiency and effectiveness of every action, to produce a large amount of efficiency with the least amount of energy possible (Zinnurain, 2021).

Moreover, 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 their encounter. 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 to the students' misconceptions (Alizadeh & Ebrahimi, 2019).

Technology development is rapid in this modern era (Kazu 2021; Apanasovich et al., 2017). Currently, technology offers numerous advantages in different domains. Some advantages of information technology in education

include computerized data processing, e-learning, and IT-driven task assignments. Development is not solely determined by time, whether years, months, or days. Instead, the measurement of time in hours, minutes, or seconds is mainly associated with information and communication technology (ICT), which relies on electronic technology (Nurhikmah et al., 2021). This growth has diverse consequences on society, nation, and state. Everyone is keen to utilize and benefit from these advancements (Patience 2016). Likewise, the development of Information and Computer Technology (ICT) has penetrated rapidly and significantly into the learning process.

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. The Internet and its associated Information Technologies (IT) have the potential to disrupt conventional communication patterns. The objective is to determine the optimal use of ICT to enhance the standard of education, facilitate the exchange of knowledge and information (Hafifah 2020), and provide a greater level of adaptability to 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).

Utilizing ICT in the teaching-learning process is crucial at present. The instructor must incorporate classic and modern/innovative methods in teaching and learning. The instructor must be prepared to effectively utilize information and communication technology (ICT). In the 21st century, technology possesses significant communicative and interactive capabilities, but its use in the language classroom is limited. When attempting to introduce an innovation in the sphere of education, it is important to consider the widespread use of audio-visual aids in delivering instruction (Thite, 2022).

The use of technology is a compulsion in life by humans in helping to complete work (Sabag, Z., & Cohen, 2022). Developments must also follow the development of this technology in Human Resources (HR). The technological development in HR may be traced back to the Industrial Revolution. However, these developments have primarily changed either physical or mental services (Vrontis et al. 2022). Technology also provides many conveniences for humans and a new way of doing human activities. Humans have also enjoyed many benefits that have been brought by technological innovation and creativity that have also been produced in the last decade (Thite, 2022).

Humans, as users of technology, must be able to take advantage of current technology (Rahman, P, and Tammasse 2019), as well as further technological developments (Sujarwo et al. 2020). Human adaptation to new technologies has developed and must be done through education. This is done

so the next generation is not left behind regarding new technology. That way, technology, and education can develop together with the new generation as the successor to the old generation.

The impact of technology is even more felt during a pandemic like now. Because teaching and learning activities cannot be carried out directly for a while, these activities now rely on devices such as laptops and smartphones for online teaching to collect assignments through technology. In the current era of globalization, mastery of technology is a prestigious indicator of a country's progress (Hanafiah et al. 2022; Nurhikmah et al., 2023). Countries are said to be advanced if they have high technological mastery (high technology). In contrast, countries that cannot adapt to technological advances are often called failed countries.

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, and have used the internet for activities and 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 provide guidelines for learning activities that can be carried out using various online learning platforms or with various social media that allow learning activities to occur.

Moreover, the application of Information and Communication Technology (ICT) can be seen in the 2013 curriculum. Curriculum 2013 emphasizes the scientific approach and the use of technology that has become an obstacle to schools in rural areas (Hermawan, Deswila, and Yunita, 2018). Basic Competencies also indicate information and communication technology in education in the curriculum that applies technology to learning activities. Along with changes in the educational paradigm to deal with changing times and technological advances, it is required to continue increasing the widest possible access to learning resources that are no longer limited by space and time. These developments have been used in various countries, institutions, and experts for various purposes, including education or learning.

In addition, ICT has become part of a radical change in the delivery modes of educational information (Arman, Yassi, and Jubhari, 2022; Yaumi, Rahman, and Sahib 2023). ICT can play a critical role in constructing knowledge by enabling the creation, management, and sharing of knowledge (Erna, Anwar, and Mazidah 2021; Aswad et al. 2022). Improving the quality of learning in higher education must be in line with the development of communication and information technology that is being widely developed in society (Klimova and Rondeau 2017).

Numerous learning theories were created before and after the 20th

century. To fully understand the theoretical framework, this research primarily concentrates on the prominent learning theories that guide educators and institutions in the learning process. Theories of learning are defined and categorized within the three frameworks of behaviorism, cognitivism, and constructivism (Bada & Olusegun, 2015). The origins of these learning theories can be traced back to the philosophical ideas of Skinner and Watson. The school formulated the notion that conduct could be anticipated and regulated.

Constructivists believe that the mind plays a significant influence on individuals' behavior during the process of learning (O. et al. 2013). Moreover, this perspective cannot be directly correlated with a software application that functions to execute separate procedures to obtain and evaluate data. Constructivism, particularly in its "social" forms, posits that the student assumes a significantly active role in partnering with the teacher and classmates to generate and comprehend meaning (Bada, 2016). In short, constructivism is an educational paradigm that believes learning occurs via mental construction. Students acquire knowledge by integrating new information with their existing understanding.

An expanding number of schools and universities are seeking methods to distribute course information through online platforms. Online technology, such as email, learning management systems, discussion boards, video conferencing, and social media, provides practical and easy methods for online education students to accomplish their learning objectives (Jiang et al. 2021). Examining the present circumstances and challenges of online learning in higher education is essential to understanding how the student experience might be enhanced. Online learning possesses several attributes that might influence the implementation of teachers and the success of a course (Dumford and Miller 2018).

Online education incorporates diverse educational ideas that share the common feature of prioritizing students as the central focus throughout the learning process (Jiang et al. 2021). Hence, it is imperative to meticulously prepare for online education in terms of selecting and presenting educational materials and managing and supporting students (Hardiyanti, Pammu, and Nasmilah 2022). In addition, online education strongly emphasizes students' autonomy and independence. Students must possess a robust sense of accountability and self-discipline in their academic pursuits, particularly in establishing learning objectives, strategies, and assessment techniques (Chen, 2020).

Blended learning is a system that can facilitate student learning with more flexibility, variety, and high understanding. Students can study anywhere and anytime through this system without being limited by distance, space, and time. Lectures become more varied in verbal form and more varied displays such as

visual, audio, and movement. Additionally, blended learning combines web-based technology to achieve learning goals; face-to-face learning with learning using technology; various pedagogical approaches, output with or without technology teaching; and a combination of technology teaching with assignments (Mariani, 2020).

Besides, blended learning integrates the benefits of conventional learning approaches with online learning. It acknowledges teachers' primary function in guiding, enlightening, and monitoring the teaching process and effectively harnesses students' initiative, enthusiasm, and creativity as the central participants in the learning process. The optimal learning outcome can be achieved when the two factors mutually enhance each other (Sui and Yang, 2023). Blended learning is a method that connects traditional and modern approaches, influencing policy and strategic objectives in higher education at all levels (Moskal, Dziuban, and Hartman, 2013).

Various strategies can be applied; one alternative is developing teaching materials. A lecturer develops teaching materials to solve learning problems by paying attention to the targets or students and adjusting to the competencies that must be achieved. One way to realize this is by integrating teaching materials with technology to create teaching materials that are easily accessible and meet these criteria (Linda et al. 2018). One form of teaching material that can be developed is a digital-based module known as an interactive E-module.

According to the Association of Educational Communication and Technology (AECT), it is as follows: (1) a learning module is (directly) a collection of learning experiences (usually in the form of self-study) designed or assembled to achieve a group of specific, interrelated objectives; usually consists of several hours or several weeks. This module is called small teaching material if the unit of credit is determined (Heinich, 2002, p. 53). The electronic module (e-module) is the development of a print module in digital form, which adapts a lot from the print module and can be accessed through devices (Sugihartini, N., & Jayanta 2017).

E-modules with multimedia approaches can help students understand learning materials (Hermansyah et al. 2023). In addition to being supported, online modules effectively improve the learning process (Osman & Hamzah, 2021). The critical advantage of the e-module is that it can follow the demands of the 21st century, integrate 21st-century skills, and familiarize students with ICT media. An e-module is a module with an electronic format run by a computer. It can display text, images, animations, and videos through electronic devices such as computers.

The use of conventional methods in teaching translation during the translation-learning process is unenjoyable, uncreative, and demotivating for students in this era. This causes students to be bored. Traditional methods refer

to teaching methods that only use or implement a module or textbook-based system. Therefore, this teaching and learning method seems monotonous. Because the material given to students must be read so that students are not enthusiastic, they assume only read textbooks/modules. They have difficulty carrying them anywhere, especially if they are not attractive to students.

Traditional and modern education have their merits and can be beneficial depending on the individual's learning goals and needs. Traditional education is better suited for instilling discipline and preserving cultural heritage, while modern education is more effective for developing critical thinking, problem-solving, and practical skills. A balanced approach combining the best can provide a well-rounded education. Modern education is a more dynamic and technology-driven approach focusing on critical thinking, problem-solving, and practical skills. It incorporates innovative teaching methods and integrates technology to make learning more engaging and interactive (Wang, 2022).

Moreover, this research is also motivated by the fact that lecturers have designed no interactive electronic translation module based on online and blended learning. Hence, the researcher is interested in designing an interactive E-module of translation as the teaching material to improve learners' autonomous learning and achievement. The existence of the COVID-19 pandemic condition became the basis for the idea of adapting or adjusting learning methods to online and blended learning. Preparing interactive E-modules for translation courses for even semester (VI) students of the English Education Study Program of Megarezky University and Muhammadiyah University of Makassar in the Academic Year 2022/2023 becomes an alternative to online learning, blended learning. It supports EFL students of autonomous learning so that they can guarantee that the learning process can be carried out efficiently and effectively.

An interactive e-module is used through an application that can be accessed online and offline. The advantages of an interactive e-module are that it will be straightforward to use in making learning media and can create test or evaluation materials. An interactive e-module can be used to prepare teaching materials for students. Even teachers who are not proficient at operating computers will find it easy to use this application. An interactive e-module can be created online and offline.

Learners can learn independently with the media in learning. The evaluation contained in an interactive e-module can display feedback that shows correct or incorrect answers and scores that can be known directly. This makes it easier for teachers to make assessments because they automatically appear as scores or values. Using this application/software to create E-modules can produce more innovative and fun learning media. E-modules can be combined with Innovative learning models that can improve learning outcomes (Winatha,

2018).

Electronic modules (e-modules) can be an interactive source of information because they present information dynamically with the support of multimedia such as images, videos, and simulations (Busyairi et al. 2021). Using multimedia in electronic modules can facilitate a learning process that is easier to understand, effective, and enjoyable. The supporting multimedia can provide a more precise visualization of learning materials to help students understand easy, practical e-module characters.

Implementing an interactive e-module can make students independent or autonomous learners. The concept of autonomous learning refers to the responsibility of learners to control their learning. The result is better than non-autonomous learning because students become more autonomous and can manage their learning without waiting for instructions from the teacher. In short, autonomous learning leads to better learning outcomes. In the autonomous learning approach, the roles of students and teachers/lecturers are different from the conventional approach or teacher-centered learning (Wang & Xu, 2021). While teachers control all aspects of teaching and learning, the former emphasizes that learners control the learning process by choosing what and how to learn.

Hence, autonomous learning is an approach that views students as having a more active and participatory role in the learning and teaching process than in the traditional approach (Ou, 2020). In addition, this approach requires different class activities, the structure of which is determined by the students themselves, so that more students are involved in class activities. Teachers tend not to dominate the class. As a result, teachers and students will collaborate on curriculum development, allowing students to decide on content selection, methodology, and evaluation.

To anticipate boring and monotonous learning and improve translation mastery, the researcher tries to conduct and deliver translation teaching through an interactive e-module to support autonomous learning and achievement. This is done to motivate students, familiarize them with using technology, avoid monotonous teaching techniques, and improve students' linguistic competence and EFL learning achievement in translation.

Furthermore, Kpolovie et al, (2014) proposed that academic achievement is a measurable index that describes students' cognitive, affective, and psychomotor domains in an educational environment. Exams or ongoing assessments usually measure academic performance, but there is no general agreement on how best to test 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 and Mujiyati, 2017).

The need for analysis of autonomous learning has increased significantly due to the shift towards online and blended learning environments. Interactive e-modules can be crucial in enhancing students' ability to learn independently. This needs analysis aims to identify the specific requirements and features an interactive e-module should possess to support autonomous learning effectively. Furthermore, this study proposes or recommends a model that can help clarify the structure and implementation of the interactive e-module. Here is a proposed model for an interactive e-module based on online and blended learning to improve autonomous learning. The proposed model provides a comprehensive framework for developing and implementing an interactive e-module to enhance autonomous learning. The interactive e-module can significantly improve student engagement and learning outcomes in online and blended learning environments by incorporating interactivity, personalization, support systems, and robust assessment mechanisms.

It is necessary to study aspects that can support increased learning achievement and the quality of education in Indonesia. However, learning achievement in education results from measuring students, including cognitive, affective, and psychomotor factors after following the learning process, which is measured using test instruments or relevant instruments. Students are one of the core factors that must be present in the learning process, and the attitudes, behavior, and ethics students possess greatly influence their learning achievement. Disciplined, diligent, and ethical students greatly influence teachers' comfort in transferring material and the acceptance of material by students. Student interaction with students is one of the factors that influences student learning achievement. Good interaction can motivate students to achieve.

Based on the explanation above, the researcher is interested in conducting research entitled "An Interactive E-module of Translation based on Online and Blended Learning to Improve Autonomous Learning and Achievement of the English Education Department of Megarezky University and the Muhammadiyah University of Makassar."

1.2 Identification of the Research Problems

Based on the explanation of the background, it can be concluded that translation learning has not been effective because:

1. There are no interactive E-modules of translation designed by lecturers, especially in translation courses.
2. Information technology and the Internet (e-learning) have not been utilized in translation learning on student autonomous learning.
3. There is not yet an interactive E-module of translation designed in translation for students' autonomous learning.

4. No interactive e-module of translation has been developed to support autonomous learning, which refers to the responsibility of learners/students to control their learning.

To prevent the boredom and monotony sometimes related to learning and improving translation skills, a researcher is experimenting with an interactive e-module to facilitate autonomous learning in translation courses. This is done to inspire and educate students with technology while avoiding monotonous instructional methods and enhancing students' linguistic proficiency.

1.3   Problem Statement

An interactive e-module is accessible online and offline and contains various multimedia elements such as text, audio, video, and pictures. Its benefits include its user-friendly interface for creating learning materials and its ability to generate test or evaluation materials. A useful e-module can be employed to develop instructional resources for students. Even teachers with limited computer skills will find this application easy to use. An interactive e-module can be presented both online and offline.

To realize more effective learning, it is necessary to use an interactive e-module of translation courses that can be accepted by academic community, among lecturers, students and institutional leaders, and by the demands of the graduate user community and the times so that this can support autonomous learning in English Education Department Faculty of Teacher Training and Education (FKIP) Megarezky University, and students of the English Education Department Faculty of Teacher Training and Education (FKIP) Muhammadiyah University of Makassar.

1. Does an interactive-based E-module of translation affect online learning?
2. Does an interactive-based E-module of translation affect blended learning?
3. What is the extent of the effect of blended learning on autonomous learning?
4. What is the effect of online learning on autonomous learning?
5. How does an interactive e-module affect autonomous learning through online and blended learning?
6. Which is more effective of an interactive e-module based on online learning and blended learning to improve learning achievement in both the English Education Department of Megarezky University and the Muhammadiyah University of Makassar?

1.4   Objectives of the Research

1. To analyze the effect of an interactive-based E-module of translation based on online learning of the English education department.

2. To analyze the effect of the interactive E-module of translation based on blended learning in the English education department.
3. To investigate the effect of blended learning on autonomous learning of the English education department students.
4. To investigate the effect of online learning on autonomous learning of the English education department.
5. To examine the effect of an interactive e-module of translation on autonomous learning through online and blended learning of the English Education Department.
6. To examine the effect of an interactive e-module of translation on students' learning achievement through online and blended learning of the English Education Department.

1.5   Significance of the Research

This research is carried out to realize more effective digital translation learning. Using interactive e-modules of translation through online learning and blended learning can improve learners' autonomous learning in translation courses. This is done to motivate EFL students and familiarize them with using technology, avoid monotonous teaching techniques, and improve students' autonomous learning and learning achievement.

1.6   Limitation of the Research

There are so many problems faced by English lectures, especially the translation course, both students of the English Education department of Megarezky University and Muhammadiyah University of Makassar. Regarding management, curriculum, lecture implementation, monitoring implementation, as well as facilities and others, but this study focuses on examining the effect of an interactive-based E-module of translation toward students' autonomous learning in translation through online learning and blended learning.

This interactive e-module of translation contributes to overcoming other problems because the use of an interactive e-module will anticipate tedious and monotonous translation learning and to improve translation linguistic mastery, the researcher tries to carry out and deliver translation teaching through an interactive-based E-Module of translation to support autonomous learning and improve EFL students learning achievement in translation courses.

To inspire and engage students with technology, reduce redundant teaching methods, enhance students' performance, and encourage learners to learn independently, both students of the English Education Department of Megarezky University and Muhammadiyah University of Makassar.

1.7   Novelty of the Research

This study used quasi-experiment research to investigate the effect of an interactive E-module of translation based on online and blended learning on improving the learners' autonomous learning in universities in Makassar. This study provides a useful theoretical and practical contribution to the teaching field. Theoretically, it will encourage English teachers to apply this approach to language learning to help students improve their English skills. The model is expected to be useful for teachers and researchers in measuring the acceptance of electronic learning media in online and blended learning.

This research resulted in three primary findings. First, online learning has a significant effect on autonomous learning. Five indicators, including adaptive, user-friendly, self-contained, stand-alone, and self-instructional, are used to measure the effect of the five indicators; the adaptive indicator has the most contribution to developing autonomous learning. Second, blended learning has a significant effect on autonomous learning. The variable of blended learning consists of four indicators: collaboration, live events, self-paced learning, performance support materials, and more flexible assessment.

The result of the PLS-SEM analysis indicated that the collaboration indicator has the most contribution to developing the students' autonomous learning. Third, autonomous learning is significantly affected by online learning and blended learning. There are seven indicators measured including self-regulated learning, self-esteem, use of reference materials, broader autonomous learning, learner awareness, motivation, and the use of technology in learning. The results of the PLS analysis indicated that self-regulated learning indicators were developed most from any other indicators. The findings of this research are described in the following figure.

Figure 1.Indicators of the most contribution to develop the students' autonomous learning
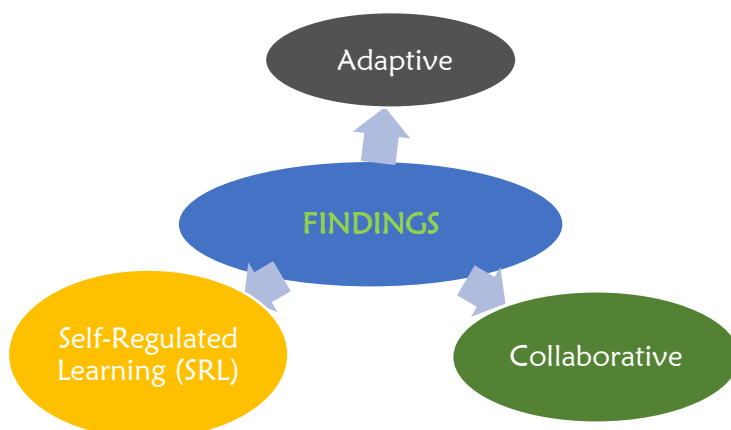
The researcher applied the Technology Acceptance Model (TAM) as a measurement model to investigate the students' acceptance of an interactive e-module of translation. Each indicator consists of several constructs which are presented in the previous section. The researcher applied TAM as a basic theory. TAM theory can be seen in the figure 17 as follows:

Figure 2.Technology Acceptance Mode (TAM)
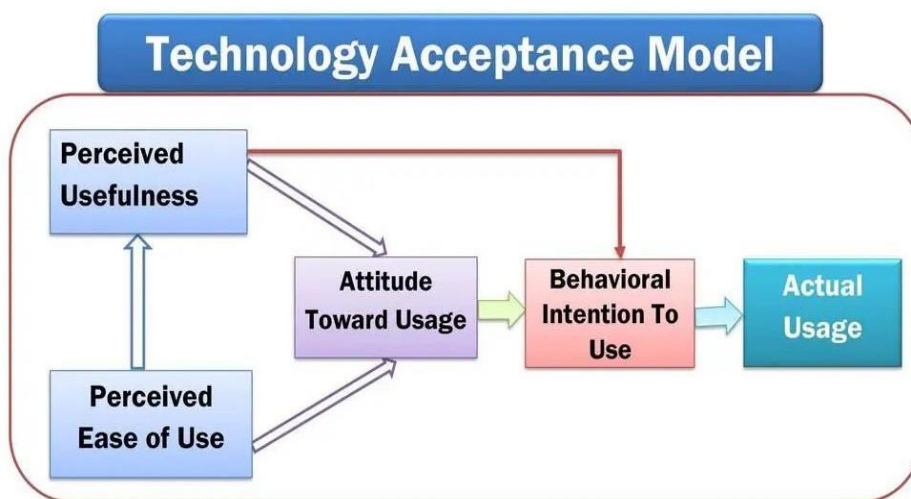
This model is adapted from TAM which has five indicators to measure the level of acceptance of technology use. These indicators are 1) Perceived Usefulness, 2) Perceived Ease of Use, 3) Attitude Toward Using, 4) Behavioural Intention to Use, and 5) Actual system usage (Davis, 1989). In this study, the researcher added three indicators based on the findings of the study. The additional indicators in the findings are Adaptive, Collaborative, and Self-Regulated Learning (SRL).

The findings of this study were then used to modify the technology acceptance model by Davis (1989). In this proposed model, the researcher added three indicators to obtain a more comprehensive measurement, especially in measuring the acceptance of electronic learning media teachers use in teaching both online and blended learning. The three additional indicators include adaptive, collaborative, and self-regulated learning. Each additional indicator consists of achievement, engagement, real-time feedback, and adaptive. Additional indicators consist of interaction, satisfaction, participation, problem-solving, and social activity in learning. Collaboration. Indicators consist of learning independently, self-efficacy, reflection, improvement, and judgment in SRL constructs. More specifically, this study proposes a new color which is called the Integrated E-Learning Media Acceptance (IELMA) Model. The proposed model is presented in the following figure 18.

Figure 3.Integrated E-Learning Media Acceptance (IELMA) Model is adapted by TAM Theory (Davies, 1989)

INTEGRATED E-LEARNING MEDIA ACCEPTANCE MODEL

IELMA MODEL

PERCEIVE USEFULNESS
Learning goals
Good response
Easy to do
Highly interest
Performance
New experience

PERCEIVE EASE USE
Easy to Use
Easy to access
Facilitated by instructor
Time management
Self-inquire
Opened learning
Controlling

ATTITUDE TOWARD USAGE
Help to understand
Enthusiastic
Interest
Satisfactory
Comfort in use

BEHAVIORAL INTENTION TO USE
Wishing to use
Skill development
Commitment
Planning in use

ACTUAL USAGE
Frequency in Use
Consistency in Use
Numbers in use

ADAPTIVE
Achievement
Engagement
Feedback
Real time

COLLABORATIVE
Interaction
Satisfactory
Participation
Problem Solving
Social activity in learning

SELF-REGULATED LEARNING (SRL)
Learning independently
Self-efficacy
Reflection
Improvement
Judgement

This model is adapted from TAM which has 5 indicators to measure the level of acceptance of technology use. These indicators are 1) Perceived Usefulness, 2) Perceived Ease of Use, 3) Attitude Toward Using, 4) Behavioral Intention to Use, and 5)Actual system usage. In this Integrated E-Learning Media Acceptance (IELMA) Model added 3 indicators based on findings. The additional indicators in the IELMA model are Adaptive, Collaborative, and Self-Regulated Learning (SRL).

This model was applied through online learning. According to Bao (2020), there are five standards of high-impact instructional practice for the successful implementation of large-scale online education sufficient significance, efficient distribution, adequate assistance, high-quality engagement, and contingency plan.

1.7.1 Integrated E-Learning Media Acceptance (IELMA) Model

IELMA is a measurement model that integrates TAM and adaptive learning technologies, collaborative learning methods, and self-regulated learning strategies. This model aims to measure students' acceptance of electronic learning media used by teachers and researchers in teaching both online and blended learning. Here's an exploration of how these elements work together:

1. Description of Components in IELMA model:
   1) Perceived Usefulness (PU**)**
      This is the degree to which a person believes that using a particular system would enhance their job performance. In the context of EFL students, it would be how much they believe that the pedagogical technology helps them improve their English skills.
   2) Perceived Ease of Use (PEOU)
      This is the degree to which a person believes that using a particular system would be effort-free. For EFL students, it means how easy they find the technology to use in their language learning process.
   3) Attitude Toward Using (ATU)
      This refers to the user's positive or negative feelings about using the technology. In EFL, this would be the students' overall feeling about using technological tools to learn English.
   4) Behavioral Intention to Use (BI)
      This is the degree to which a person has formulated conscious plans to use or not use the technology. In an EFL context, it measures how likely students are to use the technology in the future.
   5) Actual System Usage (ASU)
      This is the extent to which the students are using the technology. It measures the actual interaction with the technological tools in their learning activities.
   6) Adaptive

Adaptive learning adapts the educational content and experiences to individual learners' needs, adjusting the difficulty level, pace, and instructional strategies based on real-time performance and learning behaviors (White, 2020; Aleven *et al*., 2016). Adaptive learning systems facilitate the creation of personalized learning programs and enhance students' involvement, thereby maximizing their potential and achievements. They are beneficial in situations where there are diverse learners, meaning individuals with varying cognitive backgrounds and learning preferences (Capuano and Caballé, 2020; Walkington, 2013).

Meanwhile, adaptive in this finding included the students' achievement, engagement, feedback, and real-time. Based on the previous studies, the researcher did not provide feedback. Feedback in adaptive provides immediate and personalized. This feedback is based on academic achievements and considers learning styles, helping students learn from their mistakes and reinforcing correct understanding. This finding was supported by Hassan *et al.*, 2019) conveying that the smart lecturer delivered feedback customized to the students' collaborative behavior.

The role in the IELMA model is supported by self-regulation, which provides personalized feedback, identifies knowledge gaps, and recommends resources or activities that align with the learner's progress. They help to maintain learner engagement and motivation by offering appropriate challenges and supporting the learning process.

7) Collaborative Learning (CL)

CL is an instructional method where students collaborate in groups to collectively address an issue, accomplish a task, or produce an outcome. Within the CL environment, learners face social and emotional challenges as they engage with diverse opinions and are compelled to express and justify their own ideas (Laal & Laal, 2012). Collaborative learning involves learners working together to solve problems, complete tasks, or understand concepts, leveraging collective knowledge and skills (Rummel, 2008; Le, et al., 2018).

Meanwhile, collaborative learning indicators in this finding included the students' interaction, satisfaction, participation, problem-solving, and social activity in learning. Students' Interaction can take various forms, including group discussions, peer-to-peer teaching, and joint problem-solving activities. Such interactions help students develop communication skills, build relationships, and learn from one another. *Satisfactory Learning Experience*: When students work together, they can share different perspectives and approaches to a problem, leading to a deeper understanding of the subject matter. This collaborative approach can also make learning more enjoyable and engaging. *Participation*: By working in groups, students are more likely to contribute their thoughts and ideas, which helps create a diverse and inclusive learning environment. This participation also helps in developing teamwork and leadership skills. In *Problem Solving*, students work together on complex problems. They can share their knowledge and skills to find solutions. This collaborative approach helps develop critical thinking, creativity, and analytical skills. *Social Activity in Learning*: Students learn to interact with peers, develop social skills, and build relationships. This social aspect of learning is crucial for emotional intelligence, empathy, and overall well-being.

Role in the IELMA model: Collaborative is integrated with adaptive systems to facilitate group work that respects individual learning paths while promoting shared goals. Adaptive systems can group learners based on complementary skills or knowledge levels, enhancing the effectiveness of collaborative activities. Peer interaction encourages critical thinking, communication, and social learning.

8) Self-Regulated Learning (SRL)

SRL involves learners taking an active role in managing their learning, including setting goals, monitoring progress, and reflecting on outcomes (Kizilcec et al., 2017). SRL is based on the assumption that it is an active and constructive process. There is a consensus that children need to actively participate in several activities to succeed academically (Mega et al., 2014). It encompasses metacognitive and motivational aspects.

Meanwhile, SRL in this finding included the students' learning independently, self-efficacy, reflection, improvement, and judgment. Students' Learning Independently includes setting goals, planning, and executing learning strategies without direct supervision. Independent learning fosters autonomy and self-motivation, enabling students to take ownership of their educational journey. Self-Efficacy: When students believe in their capacity to achieve academic goals, they are more likely to engage in challenging tasks and persist through difficulties. High self-efficacy is a critical component of SRL, as it motivates students to take on more responsibility for their learning. Reflection involves students thinking about their learning processes, identifying what works well and what does not, and making adjustments accordingly. Reflection helps students to evaluate their performance, understand their strengths and weaknesses, and develop strategies for improvement. The improvement reflects on their learning experiences; students can identify areas that need improvement and develop strategies to address these gaps. This iterative process of learning, reflecting, and improving helps students to refine their skills and knowledge over time. Judgment includes evaluating the effectiveness of different learning strategies, assessing the quality of resources used, and making decisions about how to proceed with future learning tasks. Developing judgment skills helps students to become more discerning and effective learners.

Role in the IELMA model: Collaborative is integrated with adaptive systems to facilitate group work that respects individual learning paths while promoting shared goals. Adaptive systems can group learners based on complementary skills or knowledge levels, enhancing the effectiveness of collaborative activities. Peer interaction encourages critical thinking, communication, and social learning.

2. Benefits of IELMA model:
    1) Personalization: Tailored learning experiences address individual needs, preferences, and skill levels, helping learners progress more efficiently.
    2) Engagement and Motivation: Adaptive challenges and collaborative elements keep learners engaged and motivated by making learning relevant and interactive.
    3) Skill Development: Learners develop critical thinking, problem-solving, communication, and self-regulation skills, which are valuable in academic and real-world contexts.
    4) Inclusivity: The model accommodates diverse learners by providing multiple pathways to learning and understanding, ensuring that different learning styles and paces are supported.

The Integrated E-Learning Media Acceptance (IELMA) model represents a holistic approach to education, integrating the strengths of TAM theory with adaptive, collaborative, and self-regulated learning (SRL). This model aims to measure English teachers' and researchers' acceptance of electronic learning media in teaching both online and blended learning.

The IELMA model offers a comprehensive framework for modern education by leveraging technology and fostering collaborative and self-regulatory skills. These innovative aspects make interactive e-modules a forward-thinking approach to education, leveraging technology to create more engaging, effective, and accessible learning experiences.

Furthermore, the Integrated E-Learning Media Acceptance (IELMA) measurement model has the potential to modify or extend the Technology Acceptance Model (TAM) theory. This is evident from the study Brar et al, (2022) which used a modified TAM to evaluate the adoption of a proposed IoT-based indoor disaster management software tool by rescue workers. The IELMA model integrates various indicators such as adaptive, collaborative, and self-regulated learning, and various factors such as teacher support, social influence, and user satisfaction, where collaborative and continuous learning are essential for effective service delivery and user satisfaction.

Integrated E-Learning Media Acceptance (IELMA) measurement model and the Technology Acceptance Model (TAM) have distinct differences in their focus and scope. Here are the key differences:

1. Focus:
    1) TAM: The Technology Acceptance Model primarily focuses on the acceptance and use of technology (Lee 2014). It explores how users form attitudes and intentions towards using a technology based on their perceived ease of use and perceived usefulness. TAM is widely used to predict user behavior in various technological contexts (Brar et al. 2022).

   2) The IELMA model primarily focuses on accepting and using electronic learning modules teachers utilize in online or blended learning. This model is adapted from TAM and includes three additional indicators: adaptive, collaborative, and SRL.

2. Methodological Approach:

   1) TAM: The methodological approach for TAM typically involves structural equation modeling (SEM) to analyze the relationships between the constructs. This approach helps in understanding the causal relationships between perceived ease of use, perceived usefulness, and behavioral intention (Brar et al. 2022).

   2) The IELMA model also employs PLS-SEM but focuses on integrating multiple factors that influence technology adoption, especially in the use of electronic learning media. This approach allows for a more comprehensive understanding of the acceptance of electronic learning media, including e-books, video, learning applications, and many others.

In summary, the IELMA model improves upon the TAM model by emphasizing or proposing three indicators namely adaptive, collaborative, and self-regulated learning. Adaptive includes the students' achievement, engagement, feedback, and real-time. Then, Collaborative included the students' interaction, sati   sfaction, participation, problem-solving, and social activity in learning. And Self-Regulated Learning (SRL) is the students' learning independently, self-efficacy, reflection, improvement, and judgment.

Furthermore, TAM theory is a foundational model for understanding technology acceptance broadly, IELMA model is a more specialized model that focuses on understanding students' acceptance on electronic learning media in online and blended learning by. adaptive, collaborative, and self-regulated learning (SRL).

Besides that, the Adaptive Collaborative Learning Support (ACLS) system support the findings of this study. The ACLS system was developed by Walker et al, (2009) stating that ACLS is a field of research that focuses on using intelligent technologies to enhance student collaboration and learning. It involves assessing the current state of the interaction and providing tailored pedagogical interventions to improve collaboration and learning outcomes. ACLS differs from traditional intelligent tutoring systems because it aims to improve collaboration among multiple students rather than focusing solely on individual learning.

CHAPTER II
LITERATURE REVIEW

2.1 Previous Studies

Interactive e-modules are helpful for teachers and students because they can strengthen memory about the material presented in the module. This statement is supported by several previous studies, such as:

First, Kwant et al, (2015) found that performance on skill stations for which students had prepared by e-modules was significantly higher than on stations with text-based preparation within and between cohorts. This improvement cannot be explained by the overall differences between the two cohorts. Skills training results can be improved by introducing e-modules without increasing teacher time. Further research is needed to answer the question of whether the improved performance is due to the content of the e-modules of their obligatory character.

Second, Ambarwati, Bintartik, and Putra, (2020) States that interactive e-modules were declared valid according to experts in terms of material, very valid according to experts regarding teaching materials and users, very practical according to users and students, and very interesting according to students. Thus, interactive e-modules are very practical and attractive to users.

Third, Sujanem et al., (2020) stated that there was a significant difference in students' critical thinking skills (CTS) before and after using the Interactive Physics E-Module (IPEM). CTS students after using IPEM were better than before using IPEM during the learning process. Therefore, the Interactive Physics E-Module (IPEM in the BPBL model) effectively improves the CTS of high school students.

Fourth, Tia (2020) conveys that the results of development research in the form of text teaching material produce an interactive e-module-based procedure with links to interactive questions. This e-module is in Epub format, so the E-Pub Reader application is required. The application used to develop this product is Sigil. Interactive questions were created on the h5p.org and propprofs.com sites. The language used in the e-module is standard Indonesian, which is communicative and adapted to the level of understanding of upper secondary students, and based on the results of the product feasibility test, the teaching materials developed in this study have been proven to be suitable for use in learning.

Fifth, Chen, (2020) employs an integrated strategy that combines induction and deduction, relying upon relevant information. The aim is to analyze the consequences of blended English teaching and learning. This approach involves learners taking on the role of main participants and teachers acting as

instructors. It aims to enhance learners' independent learning and social skills development, foster their global perspective and overall English proficiency, and establish a sustainable and well-rounded educational environment.

Sixth, Rini et al, (2020) convey that utilizing metacognitive skills-based electronic modules as independent teaching material in a blended learning system greatly benefits students' learning achievements. Modules enable students to acquire knowledge autonomously, unlike those who follow traditional learning methods through direct assignments. The students responded positively to using the modules, which promote awareness of learning, problem-solving skills, critical thinking, and creativity.

Seventh, Koth et al, (2021) describe that e-modules can inspire critical thinking from basic knowledge, which CODA needs in the education and training of dental students.

Eighth, Nugroho et al, (2021) stated that online flipbooks formed the results of the development of e-modules and could be shared by sharing s.id links and barcodes. The results of the development of Javanese or Moksa script e-modules obtained a validation value of 88.70% for the material and 92.14% for the media/design, so the criteria were very good. On average, the Javanese script module's effectiveness in the three classes got 0.72 N-gain value or increased in the high category.

Ninth, I Putu Yoga Laksana et al, (2023) stated that converting the module into web-based materials is essential to enhance students' learning efficiency. Integrating e-portfolio-based digital modules in a hybrid learning setting benefits students' self-directed learning.

Tenth, Darmawan, Siregar, and Firstiandi, (2023) found that the implementation of e-module as a learning resource was carried out as planned, albeit for only one year. Regularly utilizing the e-module in daily learning has been demonstrated to effectively promote the blended learning process.

Eleventh, Andriani and Dwiningsih (2024) highlighted that designing an interactive e-module based on blended learning is practicable and successful for enhancing learners' autonomy and improving their learning outcomes.

Previous studies above stated that interactive e-modules are practical and attractive to users (Ambarwati et al., 2020). Koth et al, (2021) describe that e-modules can inspire critical thinking from basic knowledge. Kwant et al, (2015) Found that performance on skill stations for which students had prepared by e-modules was significantly higher than on stations with text-based preparation. Utilizing modules enables students to acquire knowledge autonomously (Rini et al. 2020). An e-module in daily learning has been demonstrated to promote the blended learning process effectively (Darmawan et al. 2023).

Based on previous studies described above, there are no researchers currently doing research using available e-modules that have been developed

specifically for translation courses presented in a learning environment based on interactive E-modules of translation designed by lecturers. Translation learning has not used information technology and the Internet (e-learning) to promote student autonomous learning. Currently, no interactive E-module is available for students' autonomous learning in the field of translation design. There is no existing interactive e-module for translation that explicitly helps the learners' autonomous learning, which emphasizes the learners' role in managing their learning process.

Interactive e-modules provide modern and digitally accessible learning materials that serve students' needs for more engaging and interactive teaching materials. This enhances student engagement and understanding of the learning content. The mobile interactive translation teaching model based on the Internet incorporates constructivist learning theory, which emphasizes active learning and the construction of knowledge. This approach encourages students to be more involved in learning, fostering autonomy and self-directed learning.

Moreover, the researcher is interested in researching the effect of an interactive electronic module (E-Module) of translation based on online learning and blended learning to improve autonomous learning and achievement. Hopefully, this will effectively implement the learning process in various courses taught to the English Education Department of Megarezky University students and the Muhammadiyah University of Makassar.

2.2 Theoretical Basis
2.2.1 An Interactive Electronic Module (E-Module)

Rapid technological developments encourage replacing print technology with computer technology in learning activities. The module, which was initially a printed learning media, was transformed into an electronic presentation so that it creates a new term, namely electronic module, known as e-module (Winatha 2018).

Digital modules, also known as electronic modules, are educational resources that systematically and aesthetically include content, procedures, constraints, and evaluation techniques to develop desired competencies effectively. E-books are a type of digital or electronic format used to present learning resources. An electronic book, often known as an e-book, is a digital rendition of a printed book that can be read using electronic devices and specialized software (Ruslan et al. 2021).

Electronic modules, commonly called e-modules, are autonomous teaching materials that are systematically arranged and presented in an electronic format. Electronic modules are the development and adaptation of printed modules that are presented by utilizing information and communication

technology (Sugihartini, N., & Jayanta, 2017). This is in line with the opinion of (Walida, 2019) which states that interactive e-modules are teaching materials whose publishing process is digital. These materials are not only presented in the form of text and images but can also include audio, video, and active links.

According to the Ministry of Education, (2017) States that there are several primary considerations in developing an interactive e-module teaching material, including:

1) Teaching materials must be able to foster student interest in learning
2) Written and designed for students so that they must pay attention to the use of language that must be communicative, interactive, and semi-formal
3) Explain the learning objectives
4) The pattern of preparation using "flexible learning"
5) The preparation of teaching materials tailored to the needs of students and learning objectives
6) Teaching materials should be focused on providing exercises for students
7) Accommodate students' learning difficulties
8) At the end of the material is given a summary
9) Packaged to be used in learning activities
10) The preparation of teaching materials must have an introduction, presentation, and closing section
11) Have a mechanism to collect feedback
12) Supports self-assessment, and
13) There is a mechanism for using instructions before and after using the e-module.

Also, the Ministry of Education, (2017), describes e-modules as a form of autonomous teaching material that is systematically arranged in specific learning units, and its presentation uses an electronic format. E-modules can also include images, audio, video, animation, and interactive links, which are expected to enrich the learning experience (Setiawan, Ni'mah, and Karolina 2022). Furthermore, interactive e-modules are teaching materials consisting of materials, methods, limitations, and evaluation methods that are designed attractively and systematically to achieve competencies and sub-competencies.

Meanwhile, an E-module displays information in book format that is presented electronically using a hard disk, diskette, CD, or flash disk and can be read using a computer or electronic book reader. Conceptually, there is no significant difference between print-based modules and electronic modules (e-modules). All components in the print-based module are also in the electronic module, be it the formulation of objectives, instructions for use, materials, worksheets, assessments, and others. `

The development of information media is currently starting to experience a period of transition from printed media, which is gradually turning into digital

media. This matter impacts the world of education, especially in terms of media presentation learning. The presentation of learning media is limited to printed media that is already using digital media. One form of presentation is an ebook. An electronic book or e-book is an electronic version of a printed book, read using electronic devices and special opening software. The development of e-book technology encourages innovation in media development in learning activities. A module is a learning media whose presentation can be transformed into electronic form.

2.2.1.1   E-Module Characteristics

According to Susilana, & Riyana, (2018) stated that the module to be developed must consider five characteristics: self-instruction, self-contained, stand-alone, adaptive, and user-friendly.

1) Self-instructional

Self-instructional means that a student can learn independently through the module without depending on other parties. To fulfill the self-instructional character, the module must:

a) There are clearly defined goals, both final and intermediate goals.
b) Learning materials are packaged into specific units/activities to facilitate thorough learning.
c) Available examples and illustrations that support the clarity of the presentation of learning materials.
d) Practice questions, assignments, and similar activities allow training participants to respond and measure mastery.
e) Contextual, namely, the materials presented are related to the atmosphere or context of the task and the environment of students.
f) Use simple and communicative language.
g) There is a summary of learning materials.
h) There is an assessment instrument that allows students to do self-assessment.
i) Some instruments can be used to determine the level of mastery of the material and determine further learning activities.
j) Information about references/enrichments/references that support the learning materials in question is available.

2) Self Contained

Self-contained means that all learning material from one competency or sub-competency being studied is contained in one complete module. This concept allows students to study the learning material completely because it is packaged into a unified whole.

If it is necessary to divide or separate material from one sub-competency competence, it must be done carefully, and attention must be paid to the breadth of the subcompetency competence that must be mastered.

3) Stand Alone

Stand-alone means that the module developed does not depend on other teaching materials or cannot be used together with other teaching materials. By using the module, students do not need other teaching materials to study or do module assignments. If students still rely on teaching materials other than the module used, then the teaching materials are not categorized as a stand-alone module.

4) Adaptive

Modules should have a high adaptive capacity for developing science and technology. A module is said to be adaptive if it can adapt to the development of science and technology and is flexible enough to be used in various places. An adaptive module is one in which the learning materials and software content can be used for a certain period.

5. User Friendly

The module should also meet the rules of being user-friendly or friendly/familiar to the user. Every instruction and information display that appears should be helpful and friendly to the user, including the ease of the user in responding and accessing as desired. Using simple, easy-to-understand language and commonly used terms is a form of user-friendliness.

2.2.1.2   E-Module Components
E-Modules have components that are interrelated with each other. Most of the modules developed in Indonesia have the following components.
1) The teaching objective formulation contains the expected teaching objectives after studying or using the module.
2) Instructions for using the module: Explain how to use the module efficiently for both teachers and students.
3) The activity sheet contains subject matter that students must master. The subject matter is arranged step by step in an orderly and systematic manner so that students can follow it easily and quickly. Activities that students must carry out, such as observations and experiments, and books that students must study as a complement to the material are also included in this sheet.
4) Student worksheets consist of questions or problems students must answer and solve. Students are not allowed to scribble on the worksheet because

different students will use the module at another time. All work done by students is written on student worksheets.

5) The evaluation sheet, the teacher's assessment of the achievement of the objectives formulated in the module by students, is determined by the final exam results contained on the evaluation sheet (Vembrianto, 1975).

6) The navigation menu is an important component in the e-module that makes it easier for students to move from one page to another. It is displayed on every page of the e-module.

7) Interactive features. Components in e-modules generally provide interactive features such as animations or actions that can be used to go to certain pages, show/hide objects, and even create variables.

2.2.1.3 Advantages and Disadvantages of E-Module

An interactive e-module has several advantages and disadvantages. According to Kurniawan et al., (2022) The advantages of interactive e-modules are:

(1) E-modules can be accessed via smartphones, laptops, and computers,

(2) The use of interactive e-modules allows students to learn autonomously anywhere and anytime,

(3) Not easily weathered or damaged like a print module,

(4) E-modules can be presented with audio, video, and interactive questions, and

(5) Improve students' critical thinking and problem-solving skills and develop positive attitudes and self-confidence.

In addition to the advantages contained in interactive e-modules, there are also some disadvantages, including:

(1) The cost of developing teaching materials is quite high, and the time is not short,

(2) Not everyone can operate the e-module creation application,

(3) Teachers as facilitators need perseverance when monitoring student learning processes and

(4) Devices such as laptops, smartphones, and computers connected to the internet are required to be able to access interactive e-modules, and not all schools have these facilities.

According to the Ministry of Education (2017) Stated that several basics must be considered in developing an interactive e-module teaching material, including:

(1) Teaching materials must be able to foster student interest in learning,

(2) Written and designed for students so that they must pay attention to the use of language that must be communicative, interactive, and semi-formal

(3)   Explain learning objectives

(4)   Drafting pattern using "flexible learning"

(5)   Preparation of teaching materials tailored to student needs and learning objectives

(6)   Teaching materials should be focused on providing exercises for students

(7)   Accommodate student learning difficulties

(8)   At the end of the material is given a summary

(9)   Packaged to be used in learning activities

(10)   The preparation of teaching materials must have an introduction, presentation, and closing section

(11)   Have a mechanism for collecting feedback

(12)   Support self-assessment, and

(13)   There is a mechanism for using it and instructions before and after using an interactive e-module.

In addition to being more attractive to students, the digital nature of e-modules enables professors to verify whether students have completed the e-module. Before participating in the training session, students are required to complete the modules (Kwant et al. 2015). However, verifying if students had adequately prepared for their skill training sessions using text-based methods was nearly impossible. While it is mandatory to finish the e-modules, their completion is verified by electronic learning. Students must progress sequentially through the e-module and cannot skip any topics or interactive components on their initial attempt. Once the e-module is finished and registered in the electronic learning environment, it remains accessible to the student.

2.2.1.4   The difference between an Interactive E-Module and a Conventional Module

The difference between e-modules and conventional modules lies in format, delivery, interactivity, and several other aspects. The following is an explanation of these differences:

1. Format and Delivery

A. E-Module:

 1)   Digital Format: Delivered electronically via computers, tablets, or smartphones.

 2)   Access: Can be accessed online or offline, depending on the design.

 3)   Multimedia Elements: Incorporates multimedia elements such as videos, audio, animations, and graphics.

 4)   Portability: Easily portable and accessible from multiple devices

B. Conventional Module:
 1) Print Format: Delivered in a physical format such as books or printed materials.
 2) Access: Physical presence is required to access the materials.
 3) Static Content: Text, images, and static graphics are limited.
 4) Portability: Less portable; physical materials need to be carried.

2. Delivery and Accessibility
A. E-Module:
 1) Can be accessed anytime and anywhere as long as there is an electronic device and internet connection (for modules hosted online).
 2) Enables flexible self-paced learning.

B. Conventional Module:
 1) Accessibility is limited to the physical location where the module is located.
 2) Not as flexible as an e-module regarding access anytime and anywhere.

3. Interactivity
E-Module:
 1) Can include interactive elements such as videos, animations, online quizzes, and hyperlinks that lead to additional resources.
 2) Can be accompanied by tracking and analytics features to monitor student learning progress.

Conventional Module:
 1) Usually only contains text and static images.
 2) Interactivity is limited to assignments and exercises requiring manual teacher feedback.

4. Updates and Maintenance
E-Module:
 1) Easy to update and redistribute without additional printing costs.
 2) Content can be updated in real-time so that the information presented is more up-to-date.

Conventional Module:
 1) Updates require reprinting, which can be expensive and time-consuming.
 2) The information presented may become outdated before the module is reprinted.
5. Fees
E-Module:

1) Initial production costs (digital and interactive content development) can be high, but distribution and maintenance costs are lower.
2) No printing or physical distribution costs are required.

Conventional Module:
     Production costs include printing and physical distribution costs, which can be quite expensive, especially for large quantities of prints.

6. Environment
E-Module:
1) More environmentally friendly because it does not require paper and other printing materials.
2) Reducing the carbon footprint of physical distribution.

Conventional Module:
1) Requires paper and other printing materials, which impacts the environment.
2) Physical distribution adds to the carbon footprint.
3) Considering these differences, the choice between e-modules and conventional modules can be tailored to the user's needs, access capabilities, and preferences.

Hence, the main differences between an interactive e-module and a conventional module are:
1. Interactivity and Navigation: Interactive e-modules are more interactive and have wayfinding features, allowing students to find the material more easily. Conventional modules are typically static and do not offer interactive elements.
2. Presentation of Materials: Interactive e-modules present teaching materials through animations, videos, sound, and interactive elements such as quizzes and formative tests. Conventional modules typically use printed materials like books or dictations.
3. User-Friendliness: Interactive e-modules are designed to be user-friendly, with clear instructions and easy-to-understand content. Conventional modules may not be as accessible or engaging for students.
4. Feedback Mechanisms: Interactive e-modules often include real-time feedback mechanisms, such as quizzes and tests, which provide immediate feedback to students. Conventional modules do not typically offer such feedback mechanisms.
5. Technological Integration: Interactive e-modules are developed using digital technologies, such as multimedia and software applications, which enhance

the learning experience. Conventional modules rely on traditional print media.

6. Learning Independence: Interactive e-modules are designed to support independent learning, allowing students to study at their own pace without direct teacher guidance. Conventional modules often require teacher assistance for understanding and completion.

These differences make interactive e-modules a more modern and effective learning tool compared to conventional modules (Syahrial et al. 2021; Akmal, Kenedi, and Erita 2023).

2.2.3 Translation Technology

Alcina, (2008) describes translation technology as a study that designs and adapts technology strategies, tools, and resources that help translate work more accessible and facilitate research and teaching. In fact, no one can deny the role of translation technology tools in the translation process, Pym, (2011) argue that in today's era, people with expertise in the IT field will be more in demand in the world of translation than people who have only mastered the language. Emphasizing the importance of IT skills asserts that in this era, IT skills are an inseparable part of a translator's job (Taghizadeh and Azizi, 2017).

Because technology has become an essential part of translation practice, nowadays, almost all translation models involve technology as a separate competency. Translation technology represents an important new area of interdisciplinary study that lies between computer science and translation. Its development depends on its academic progress and the introduction of effective translation technologies in the translator training curriculum. Mossop's argument (2003, p. 21 in Doherty 2016) It cannot be translated with pencil and paper, but now, languages can be translated using the latest technology. For him, printed dictionaries, paper, and printing equipment were means of translation in the past, while computers and technology are means of translation practice today, so if a translation training program is intended to teach translation practices.

Translators and translation teachers/lecturers have become pioneers in using computers as a tool that is fully integrated into the work process, especially regarding professional fields related to language. Although the relationship between translation and computers began with the development of software for machine translation, translation technology began with the development of electronic dictionaries and terminology databases, the presence of the internet for research, documentation, and communication, and computer-assisted translation tools (Alcina, 2008).

Digitization of content generated at the source and the "computerization" of institutions, organizations, private businesses, professional workplaces, etc., also play an essential role. Computers have become an integrated part of the

infrastructure that translators need today. The amount of knowledge and skills related to translation technology that translators must acquire and master is growing daily, such as the translation of documentation, interfaces, and help files, which are included in computer software applications and website translation. This requires translators to have a broad and thorough knowledge of computer science that was previously only owned by experts.

The translation process is complex and consists of many subprocesses and tasks of a different nature. Help files included with computer software applications and website translations also require translators to have a broad and thorough knowledge of computer science previously reserved only for experts.

Many computer tools can be used to increase the efficiency, speed, or quality of the results. The need to combine computer processes and tools with those used for translating, together with its continuous development, has given rise to a new field of study known as translation technology, which is also called machine translation or computer translation. Machine translation is an automatic translation tool for a text from one language to another. There are several approaches to machine translation, such as an approach using rule-based machine translation rules, an approach using examples (example-based machine translation), and an approach using statistical models (statistical machine translation) (Setiawan et al. 2022).

The field of translation technology has begun to attract the attention of translation scholars in recent years due to several factors. The first factor is the changing nature of the translation profession, with more complex tasks requiring translators with greater technological competence, such as desktop publishing tools and CAT tools. The second factor is clearly new demands and practices in the field, such as post-editing MT output and web translation. As these new demands and practices have emerged, translation educators have highlighted the need to investigate their benefits and the need for these to be integrated into translator training curricula. The third factor, of course, is the changing profile of learners, which are commonly called "digital natives".

In the seminal on translation technology of Alcina, (2008) distinguishes between resources and tools in the classification of translation technology through computer applications related to translation. Resources refer to all data sets that translators can search for, such as corpora or online dictionaries. In contrast, tools are computer programs through which translators can perform certain functions and actions that can be managed and then stored by translators, such as terminology in terminology management systems, word files in word processing, and translation using translation software (Christensen, Flanagan, and Schjoldager, 2017).

Today, the translation and localization industries are technology-driven and have a strong R&D sector. Almost all language professionals use localization

and translation software in their daily work. Technologies are often interconnected and integrated, and many incorporate industry standards, addressing issues like resource quality and portability. Over the years, translation has undergone many changes, and since the surge of personal computers, rapid changes have been made. The use of technology in translation work is becoming increasingly important, and the process is becoming more efficient. A few centuries ago, the leading translation models were through ink, quill, and paper.

Most translations are done on computers, and the number of translations has increased dramatically. The translation process involves research to ensure the translation is written in the appropriate context. Books, articles, or newspapers may have to be consulted for standard translation. Before the Internet, these resources were usually accessed from libraries, and even then, there is no guarantee that the information can be found in the library. With access to the Internet, most research is no more than two or three clicks away.

This process saves translators time and improves translation quality; there is no guarantee that the information can be found in the library. With access to the internet, most research is no more than two or three clicks away. This process saves translators time and improves translation quality; even then, there is no guarantee that the information can be found in the library. With access to the internet, most research is no more than two or three clicks away. This is a process that saves translators time and improves translation quality.

Differentiating factors among the eight types of translation technologies (Garcia 2015):

1) Infrastructure.

 Tools specifically designed for translation are very important in translation environments, such as Document creation/management systems, Terminology databases, and telecommunications (intranet/Internet, e-mail, File Transfer Protocol, web browsers, etc.)

2) Term level before translation.

 The terminology database includes tools that enable detection of qualifying. It will identify words and terminological phrases as a spell checker does. Terminology research will include searching the Internet and text databases.

3) Term level during translation.

 A tool that automatically searches a term in a database and shows its equivalent in the target language set by the translator. The translator does not need to search for terms in the database manually and can insert them into the target text automatically without typing them.

4) Term level after translation.

 A tool that checks for consistent use of terminology after a translation is complete and a tool that flags terms that translators want to avoid.

5) Segment level before translation.

      A tool that allows segments in the source text to be aligned with the matching segments in the target text and indexed.

6) Segment level during translation.

      This type includes tools for searching for segments in translation memory and machine translation.

7) Segment rate after translation.

      A tool that detects missing segments (for example, if a segment of the text has not been translated), checks the translation and preserves the format of the original text.

8) Translation workflow and billing management.

      These tools do not play a direct role in the translation process itself but are essential for keeping track of the work being done, especially when tackling large-scale projects. In these cases, it is essential to have tools that help control the variables affecting the various texts being processed in a project (deadlines, text modifications, translation priority, revision dates, and so on).

      Several factors make translation technology very important in today's era, one of which is because translation technology has attracted the attention of translation scholars worldwide in recent years. The first factor is the technological capability translators need to maintain high-quality translations on short deadlines. Second, the emergence of new needs and practices in the field of translation, for example, post-editing using computer technology or machine technology (Dulul, 2021). Third, the need to combine computer tools and processes for translating is related to the continuous developments that have given rise to a new field of study known as translation technology (Alcina 2008). The fourth is a shift in the profile of students

2.2.3 Overview of Learning Theories

      Learning theories are beneficial because they offer a coherent structure for understanding the learning process and how students acquire, process, and retain knowledge and abilities. Harasim, (2017) asserts that learning theory relies on epistemology, scientific methodology, and community constructions to establish its notions and significance.

      Several learning theories have been developed both before and following the 20th century. To comprehend the theoretical framework, this area of research largely focuses on the prominent learning theories that offer guidance to educators and institutions regarding the learning process. Johnson and Christensen, (2019) argue that learning theories provide educators with valuable insights into the evolution and transformation of the area of education. Teachers possess the expertise and abilities to create and modify educational policies and

methodologies that are most suitable for teaching and learning in the 21st Century.

Theories of learning are encompassed by the three frameworks of behaviorism, cognitivism, and constructivism (Bada, & Olusegun, 2015). The origins of behaviorist learning theories can be traced back to the 19th century, to the philosophical ideas of Skinner and Watson. The school formulated the notion that conduct could be anticipated and regulated.

According to behaviorist scientists, anything that cannot be observed or quantified is considered irrelevant. Behaviorist scientists focus solely on observable phenomena and measurable factors, disregarding internal processes like feelings, ideas, motives, and emotions, which cannot be directly observed or measured (Harasim, 2017).

2.2.3.1 Theory of Constructivism
1) Constructivist Learning Theory

The next set of learning theories is constructivist learning theory. These theories emerged in response to behaviorism and cognitivism. In the 20th century, Jean Piaget and Lev Vygotsky were the major psychologists and educators associated with constructivist approaches to teaching and learning. Piaget's idea of Constructivist learning has significantly influenced learning theories and teaching methods in education and serves as a fundamental principle in several education reform initiatives.

Constructivism is founded on the principle that individuals acquire knowledge and develop new ideas and concepts by drawing from their previous experiences. Jean Piaget (1896–1980) was the pioneer in introducing epistemology to the subject of human development. Armstrong (2019) maintains that constructivism has been modified to align with the relevant aspects of human growth and knowledge comprehension. Despite its current popularity, the hypothesis is thought to have originated during the time of Socrates in 399 B.C. The authors suggest that the origins of constructivism may be traced back to Socrates, who contended that learners and instructors engage in conversations and brainstorming to develop concealed knowledge collectively (Bada & Olusegun 2015).

Constructivist theory involves a collection of views that arose as a response to behaviorism and cognitivism to understand learning. Constructivism originated during a time of educational restructuring in the United States and was affected by recent constructivist psychology studies and growing movements in Europe that highlighted the importance of the individual in understanding the world (Harasim 2012).

Constructivism covers both a learning theory, which provides a scientific explanation of how individuals acquire knowledge, and an epistemology of

learning, which offers a perspective on the nature of knowledge. Although they are related, they are not the same. The constructivist learning theory explains the process by which learners actively generate meaning. The constructivist epistemology is a philosophical perspective that asserts that our interactions with others, the community, and the environment form knowledge. It posits that knowledge is not an absolute entity.

The constructivist theory of learning claims that individuals acquire knowledge and understanding by actively constructing their mental representations of the world based on personal experiences and subsequent reflection (Glasersfeld 2020). We actively generate our knowledge by integrating our existing beliefs with fresh experiences and information. Through our inquiries, questioning, and assessment, we can modify our beliefs or reject new knowledge while also engaging in negotiations and discussions with others.

Constructivists believe that the mind plays a significant influence on individuals' behavior during the process of learning (O. et al. 2013). Furthermore, this role cannot be immediately matched to a software program that operates through distinct processes to acquire and analyze data. Constructivism, especially in its "social" variations, proposes that the student plays a highly active role in collaborating with the teacher and peers to create and understand meaning (Bada 2016).

Constructivism is an educational paradigm that believes that learning occurs via the process of mental construction. Put simply, students acquire knowledge by integrating new information with their existing understanding. Constructivists claim that knowledge acquisition is influenced by the specific circumstances in which a concept is presented and by the individual student's ideas and attitudes. Constructivism is a psychological learning theory that elucidates how individuals acquire knowledge and learn. Consequently, it has a direct relevance to schooling. Humans generate knowledge and derive meaning from their experiences (Rob, 2018). Constructivism does not refer to a particular teaching method.

Constructivism is a theory that draws from various disciplines, such as philosophy, psychology, sociology, and education. However, educators must not only comprehend constructivism (O'Connor 2022). But also understand the consequences this perspective on learning has for teaching and the professional growth of teachers. The core concept of constructivism states that human learning is a process of actively constructing knowledge, whereby learners build upon their existing information to acquire new knowledge (Bada 2016).

Another critical issue to consider in the Zone of Proximal Development is including learning materials, such as technology and tools. The absence of learning resources severely limits the learner's ability to progress significantly. Technology is a crucial and substantial element in 21st-century education,

providing valuable resources for teaching and learning. The TPACK framework elucidates the importance of technology in enhancing the understanding of content (knowledge and skill) and the pedagogical tools used for teaching and learning. An illustrative instance would involve the utilization of the MKO or a more knowledgeable person, employing a PowerPoint or multimedia tool to elucidate and instruct on novel information and skills (Njai 2021).

The major technological evolution was driven by social growth. Research has demonstrated that the process of acquiring knowledge and skills through social interaction among hunter-gatherer societies is crucial for gaining a thorough comprehension of cultural advancement (Hewlett et al., 2011). The confluence of social structures and technological advancements had a profound influence on successive generations and cultures.

This has led to significant socio-technological phases, progressing from oral communication to written language, then to the invention of printing, and finally to the widespread use of the Internet in modern times (Harasim 2017). Civilizations and generations influenced by human and social progress and structures included the information commons, now called academic libraries and learning spaces.

1.1 Difference between Traditional Classroom and Constructivist Classroom

In the constructivist classroom, the emphasis typically transitions from the teacher to the students. The traditional classroom no longer functions as a space where the instructor, considered the "expert," simply delivers knowledge to passive students who wait to fill like empty containers. The constructivist approach to education emphasizes the active involvement of students in their learning process. The teacher assumes the role of a facilitator who guides, mediates, prompts and assists students in cultivating and evaluating their comprehension and, consequently, their knowledge acquisition. In the constructivist classroom, the instructor and students perceive knowledge not as static pieces of information to be memorized but as a fluid and evolving understanding of our world and the capacity to expand and investigate that understanding effectively.

The chart below compares the traditional classroom to the constructivist one. Significant differences exist in basic assumptions about knowledge, students, and learning.

Table 1.The difference between a Traditional Classroom and a Constructivist Classroom (Bada 2016)

Traditional Classroom	Constructivist Classroom
The curriculum begins with the parts of the whole. Emphasizes basic skills.	The curriculum emphasizes big concepts, beginning with the whole and expanding to include the parts.
Strict adherence to a fixed curriculum is highly valued.	The pursuit of student questions and interests is valued.
Materials are primarily textbooks and workbooks.	Materials include primary sources of material and manipulative materials.
Learning is based on repetition.	Learning is interactive, building on what the student already knows.
Teachers disseminate information to students; students are recipients of knowledge.	Teachers have a dialogue with students, helping students construct their knowledge.
The teacher's role is directive, and rooted in authority.	The teacher's role is interactive, and rooted in negotiation.
Assessment is through testing and correct answers.	Assessment includes student works, observations, and points of view, as well as tests. The process is as important as the product.
Knowledge is seen as inert.	Knowledge is seen as dynamic, and ever-changing with our experiences.
Students work primarily alone.	Students work primarily in groups.

Constructionists argue that learners do not passively acquire ideas from teachers but actively generate concepts. This is achieved by engaging students in constructing tangible objects that can be examined and discussed in a collaborative learning setting. Students acquire knowledge by actively engaging in the learning process and making connections between different ideas and areas of knowledge. This is encouraged by the teacher through coaching rather than relying on lectures or providing step-by-step direction. The constructionist teacher assumes a mediational function instead of an instructional function, meaning that "teaching" is substituted with "assisting" students in achieving their objectives.

Figure 4.Learning Theories
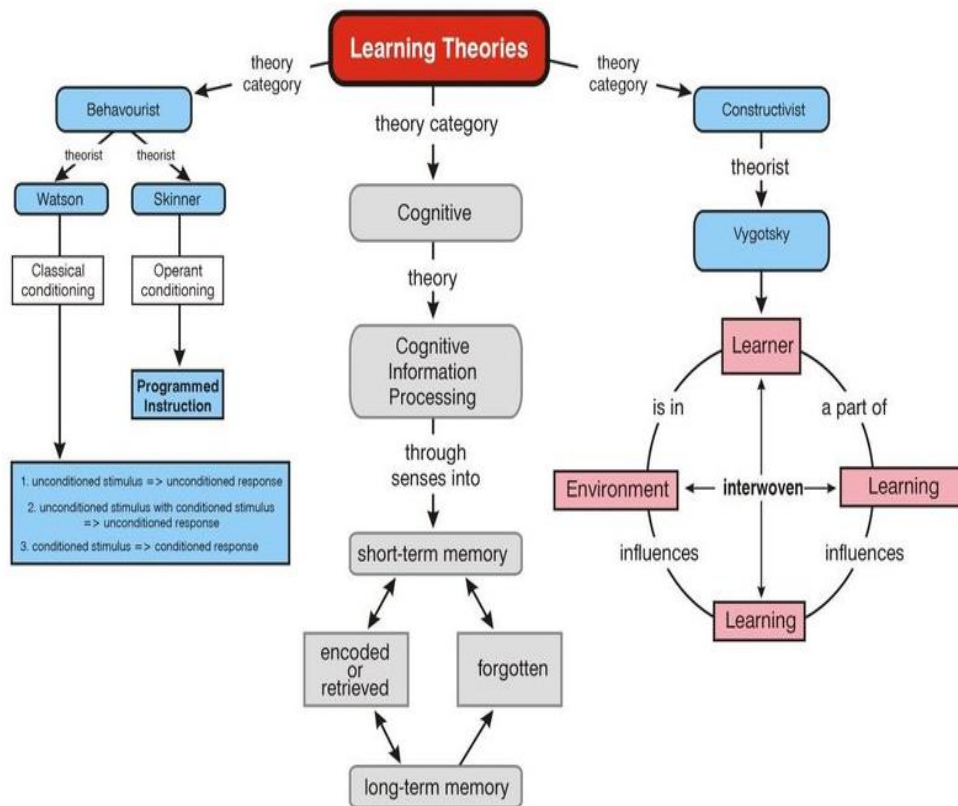
Figure 5. Traditional Learning Theories and New Theories in the Digital Age
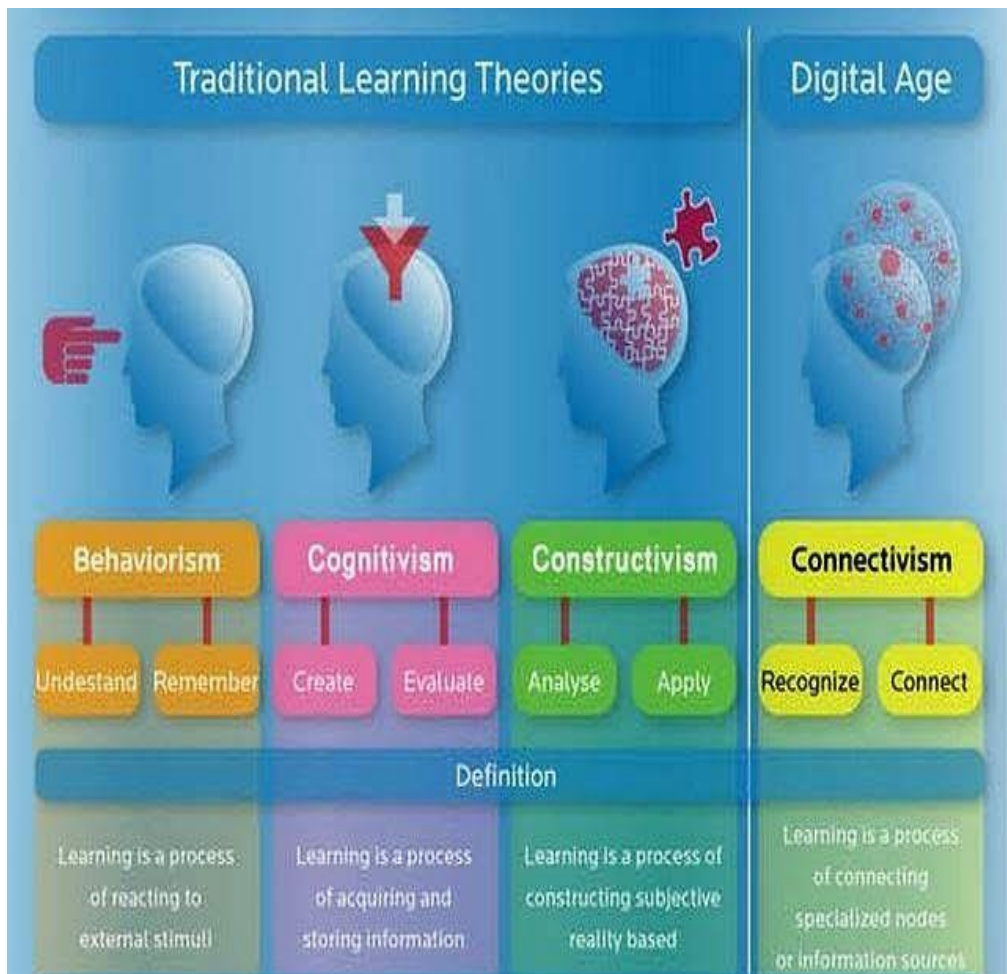
When individuals collaborate in a social or collaborative setting, they create and build upon concealed information or objects. Finally, we have the theory of online collaborative learning (connectivism), which is a very recent educational learning theory. According to Harasim (2017) connectivism learning is an educational method that emphasizes using the Internet and Internet technology for collaboration and knowledge creation. In the Internet era, the theory acknowledges significant transformations, wherein learning is no longer limited to being an internal or private endeavor. Instead, it is a collaborative process that involves interconnected systems and individuals working together to generate knowledge.

Connectivism was established based on the transition in education during the 20th century from traditional, one-way teaching methods to more interactive and cooperative learning methods in the 21st century (Harasim, 2017). The

proliferation of the internet and technological progress in the 21st Century resulted in the emergence of online collaborative learning theory. OCL (online collaborative learning) has become the dominant learning theory of the 21st Century due to its intentional development of e-learning and virtual learning environments. The author maintains that these theories offer a fundamental basis or structure to direct the comprehension and implementation of education in the knowledge era (Goldie, 2016). OCL entails more involvement and cooperation in resolving issues via internet-based technology.

2.2.3.2 Online Learning

1) Theory of Online Learning

The concept of online learning theory encompasses various pedagogical frameworks and models that guide the design and implementation of online education. These theories address how learners engage with content, interact with instructors, and collaborate with peers in digital environments.

Online learning theory is characterized by various frameworks that inform the design and implementation of educational experiences in digital environments. By integrating insights from cognitivism, connectivism, heutagogy, social learning, and transformative learning, educators can create engaging and effective online learning experiences that meet the needs of diverse learners. As online education continues to evolve, these theories will play a crucial role in shaping instructional practices and enhancing learner outcomes (Idrizi, Filiposka, and Trajkovijk, 2021).

Meanwhile, the global COVID-19 pandemic has presented unprecedented challenges for traditional or in-person education. Nations have tried to minimize large gatherings and uphold physical distancing measures to control the spread of the viral outbreak. Consequently, most countries enforced quarantine periods, resulting in the cessation of traditional education. In a similar vein, governments have transitioned from in-person to virtual education for all academic disciplines (Deli and Allo, 2020).

Amid the COVID-19 pandemic, numerous underdeveloped countries, including Saudi Arabia, lacked digital platforms, social media, and online educational resources to facilitate communication between students and teachers. In addition, they were unable to offer comprehensive online learning during the COVID-19 pandemic (Sukmawati et al. 2022).

The coronavirus disease (COVID-19) outbreak, which has hit more than 200 countries worldwide, has presented educational institutions with significant higher education challenges. To anticipate the transmission of the virus, the government has issued various policies, such as isolation, social and physical

distancing, and large-scale social restrictions. This condition requires citizens to stay home, work, worship, and study.

The COVID-19 pandemic has compelled educators and students in numerous developing nations to establish online connections for the first time to pursue academic endeavors (Sujarwo et al. 2020). Such conditions require educational institutions to innovate in the process of learning. One form of innovation is by conducting online learning (on the network). Due to the absence of an online learning management system (LMS) in many schools during the COVID-19 pandemic, utilizing social media platforms to actively involve students and encourage online learning has become essential (Alismaiel, Cifuentes-Faura, and Al-Rahmi, 2022).

The quality of education is a direct result of changes and advancements in all parts of life. The paramount need for effectively addressing the difficulties of change and development is the imperative for high-quality education. It is essential to foster the development of intelligent Indonesian individuals who can lead peaceful, transparent, and democratic lives while still being able to compete effectively in the global era (Hakim, and Kuswadi 2021). Therefore, enhancing educational performance is crucial. The primary objective of education in Indonesia is to cultivate students who can contribute to developing a strong and respected Indonesian nation while instilling a sense of national identity.

Numerous technological advancements align with the current era and are quickly developing as time progresses. These advancements significantly impact changes in human lifestyles, including the field of education. Teachers are obligated to impart knowledge and develop expertise in coaching students to improve their ability to address learning difficulties. The advancement of technology poses a difficulty in enhancing the quality of education in Indonesia, given that not all individuals can fully utilize technology.

Technology is crucial in modern education and information acquisition, regardless of whether we participate in online or traditional classes. When addressing constructivism, it is important to consider the role of technology in the future of classroom learning. Research shows students learn most effectively through hands-on experiences rather than just observing or listening (Rob 2018).

However, the term e-learning is not only limited to the Internet. This refers to the definition of e-learning based on the Glossary of e-learning Terms, which states that e-learning is an educational system that uses electronic applications to support the teaching and learning process using Internet media, computer networks, and standalone computers. However, it cannot be denied that internet-based learning is one of the most popular manifestations of e-learning today.

The usage of digital content for learning in E-learning environments has significantly increased during the past decade. The proliferation and growth of digital information require the availability of tools that assist students and

teaching staff in efficiently organizing and integrating electronic resources, as well as conducting successful searches within them to meet educational objectives (Afify 2018).

Simultaneously, online courses have consistently grown over the past decade. Due to the growth and intricacy of knowledge in different disciplines, numerous studies have indicated that students who exhibit self-organization in an E-learning setting frequently experience excessive cognitive load. In addition, individuals may experience confusion during the discovery process, particularly when studying using a resources-based learning technique.

Due to the continuous advancements in information and communication technology, online education has become increasingly practical from a technological, economic, and operational aspect. Universities are motivated to offer online programs due to financial limitations and benefits, such as reduced expenses for physical facilities like classrooms, offices, cafeterias, dormitories, and libraries. Additionally, the rise in nontraditional students who work full-time and the advanced level of technology make it convenient to implement online programs.

The progression of online education in four stages within the United States: the 1990s (when the internet facilitated distance education), 2000-2007 (when Learning Management Systems - LMS - became more prevalent), 2008-2012 (when Massive Open Online Courses - MOOCs - experienced significant growth), and the present, where online higher education enrollments are surpassing those of traditional higher education (Palvia et al. 2018).

The various benefits of e-learning encourage the use of e-learning today to become a necessity, no longer a requirement or compulsion. The use of e-learning systems in the learning process is no longer inevitable. The various benefits offered by e-learning include more flexible learning opportunities without being bound by time and space, making it easier for people to access education, enriching learning materials, enlivening the learning process, making the learning process more open, increasing the effectiveness of learning, and supporting students to learn effectively and independently (Napitupulu 2017)The development of education towards e-learning is necessary to improve educational quality standards because e-learning uses internet technology to deliver learning.

Online learning is one type of electronic-based learning. This learning must utilize sophisticated tools such as smartphones or smartphones, laptops or computers, which are supported by an adequate internet network. When students do online learning, they need to be accompanied and guided by their parents or guardians while at home (Afiani and Faradita 2021).

Learning is anything that can bring information and knowledge into the interactions that take place between educators and students. This online learning

uses various platforms such as Zoom, Google Meet, Ms. Teams, WhatsApp group, Google Classroom, etc. Online learning is understood as formal education organized by schools, where students and teachers are in different locations, so there is a need for an interactive telecommunications system as a link between the two and the various resources needed in it.

Moreover, indicators of online learning refer to specific metrics and criteria used to evaluate the effectiveness, quality, and success of online educational programs. These indicators can help educators and institutions assess various aspects of the learning experience, ensuring that it meets the needs of students and achieves educational goals. Here are some key indicators identified in the literature (Idrizi et al. 2021; Hafeez, Naureen, and Sultan 2022):

1. Instructor Engagement

Instructors' active role is crucial. Successful online learning environments emphasize strong hiring practices, professional development, and ongoing support for teachers. This includes fostering interactions between teachers and students and among students themselves.

2. Student Support Services

Extensive support systems are essential for student success. This includes personalized assistance from professionals who understand students' academic and personal challenges, ensuring learners have the resources they need to thrive online.

3. Quality of Content

The learning materials should be well-organized, accessible, and aligned with quality standards. Content should also provide diverse opportunities for student interaction, catering to different learning styles and preferences.

4. Learner-Teacher Interaction

Regular and meaningful interactions between learners and instructors create a more engaging learning experience. Prompt teacher feedback is also critical in maintaining student motivation and understanding.

5. Technology Infrastructure

Robust technology infrastructure is necessary to support online learning. This includes reliable access to devices and internet connectivity, which are vital for ensuring that all students can participate fully in online courses.

6. Equity and Access

Ensuring that all students have equitable access to online learning opportunities is a fundamental indicator. This involves addressing the needs of special populations and providing necessary support to help all students succeed.

7. Learning Outcomes

Measuring academic performance through assessments, graduation rates, and other outcome metrics provides insight into the effectiveness of online

programs. These indicators can help gauge whether students meet learning objectives and achieve desired educational outcomes.

8. Student Characteristics and Learning Styles

Understanding the diverse characteristics of students, including their learning styles and personality traits, can inform the design of online courses and improve overall academic success. These indicators collectively help in evaluating and enhancing the quality of online learning, guiding educators and institutions in creating effective and inclusive online educational experiences (Hafeez et al. 2022).

According to Bao (2020), there are five standards of high-impact instructional practice for the successful implementation of large-scale online education:

1. Sufficient significance: The instructional material's quality, complexity, and duration must be adapted to students' electronic learning behavior.
2. Efficient distribution: The pace of teaching needs to be slower due to the low concentration of students in online learning.
3. Adequate assistance: Faculty and teaching assistants must offer rapid support, including online video tutoring and email guidance.
4. High-quality engagement: Measures must be adopted to improve the degree and depth of students' class participation.
5. Contingency plan: Preparation measures must be developed to tackle future concerns such as network traffic congestion problems, ensuring that students' anxiety is relieved and they can actively and effectively engage in online learning.

E-modules are not available in online learning for several reasons:

Lack of engagement: E-modules may not be engaging enough for learners, leading to disengagement and boredom. This can be due to the lack of dynamic elements, such as interactive activities, gamification, and real-world scenarios, which are essential for maintaining learner interest and motivation (Ananda and Usmeldi, 2023).

Insufficient Focus

E-modules may be overloaded with information, making them too heavy for learners to digest. This can lead to disengagement and a lack of focus, as learners may feel overwhelmed by the amount of content presented.

Inadequate Relevance

E-modules may not be relevant to the learners' needs or motivations. If the content is not directly applicable to their lives or work, learners may not see the value in completing the module, leading to low engagement and poor outcomes.

Technical Issues

Technical issues such as slow loading times, compatibility problems, or poor user interfaces can hinder the effectiveness of e-modules. These issues can make the learning experience frustrating and unappealing, leading to low completion rates and poor outcomes.

Lack of Feedback and Interaction

E-modules may not provide sufficient feedback or opportunities for interaction. This can make the learning process feel isolated and unresponsive, leading to a lack of motivation and engagement.

Insufficient Teacher Support

E-modules often lack teachers' direct support and guidance in a traditional classroom setting. This can be particularly challenging for learners who need more personalized instruction or support to stay engaged.

Limited Adaptability

E-modules may not be adaptable to different learning styles or preferences. This can result in a one-size-fits-all approach that does not cater to individual needs, leading to low engagement and poor outcomes.

Evaluation and Feedback

E-modules may not be evaluated or updated regularly, leading to outdated or ineffective content. Regular evaluation and feedback are essential to ensure that e-modules remain relevant and effective (Delita, Berutu, and Nofrion 2022).

2.2.3.3 Blended Learning

Blended learning is an educational approach that combines the online delivery of content with the positive aspects of classroom interaction and live instruction. This method aims to personalize learning, promote thoughtful reflection, and adapt instruction to the needs of individual students within a diverse group of learners. Watson Various viewpoints offer the following definitions of mixed learning:

1) Holistic Perspective

This refers to the approach of delivering instruction using several forms of media. This encompasses incorporating educational multimedia into a conventional classroom or remote learning environment. Additionally, it encompasses any assortment of media that facilitates instructing, irrespective of the blend of synchronous or asynchronous media (Holden & Westfall, 2006 in Kaur 2013).

2) Educational Perspective

   Blended learning refers to courses that combine online and traditional face-to-face class activities in a carefully designed and educationally beneficial way. In this approach, some of the in-person class time is substituted with online activities. The main focus is on combining two distinct paradigms: the synchronous classroom and the online environment, which is asynchronous (Laster, 2005 in Kaur 2013).

3) The pragmatic Perspective

   It refers to courses that combine in-person classroom instruction with distant learning methods and utilize various pedagogical tactics.

   - To achieve an ideal learning outcome, one can integrate many pedagogical techniques, including constructivism, behaviorism, and cognitive learning, with or without the use of instructional technology.
   - To integrate various forms of instructional technology, such as CDs, DVDs, and web-based training, with traditional face-to-face instructor-led programming.
   - To mix or combine instructional technology with actual job tasks to create a harmonious effect in terms of learning and working (Blended Learning, 2009 in (Kaur 2013).

4) From a corporate training standpoint, the utilization of several instructional media to provide a single course or curriculum, such as a sales training course that incorporates pre-reading, lectures, and role-play exercises (Wexler, 2008 in Kaur 2013).

5) The Chief Learning Officer's perspective involves implementing a learning strategy that combines many delivery methods, including synchronous and asynchronous approaches. This approach aims to produce the most effective learning solution for the intended audience (Peters, 2009 in Kaur 2013).

   Blended learning (BL), which combines in-person and online instruction, is increasingly embraced in higher education, often referred to as the "new traditional model" or the "new normal" for course delivery. Nevertheless, accurately measuring the full scope of its expansion has proven difficult due to the lack of clear definitions and the incapacity of institutions to monitor a novel behavior that has often developed naturally (Dziuban et al. 2018).

   The educational setting adopts several innovations, including integrating technology through blended learning. This new instructional approach has been swiftly adopted, although it undergoes a process. Implementing blended learning, which combines face-to-face and online teaching and learning, is considered an innovative approach. However, its adoption, particularly in developing countries,

encounters obstacles that hinder its effectiveness in the field of education (Kintu et al., 2017).

Blended learning is a system that can facilitate learning students with more flexibility, variety, and higher understanding. Students can study anywhere and anytime through this system without being limited by distance, space, and time. Lecture material becomes more varied in verbal form and more varied displays such as visual, audio, and movement. Blended learning is a combination of web-based technology to achieve learning goals, a combination of face-to-face learning with learning using technology, a combination of different pedagogical approaches and outcomes with or without technology teaching, and a combination of technology teaching with assignments. There are three definitions related to blended learning, namely the integration of a combination of traditional lectures with web-based online lectures, a combination of several pedagogical approaches, and a combination of media and tools in online learning (Mariani 2020).

Blended learning is a teaching method that overcomes obstacles related to time, location, and situation, allowing for effective interactions between teachers and students. It reflects the approach of remote education that prioritizes the flexibility of when, where, and how quickly students learn. Studies indicate that the student experience might differ significantly and lead to inconsistent learning outcomes, highlighting the necessity of defining how a mixed approach can enhance learning (Jeffrey et al. 2014a).

Integrating physical and virtual components in blended learning situations is considered crucial for higher education institutions. Since the publication of a meta-analysis of 50 studies, there has been an increased focus on the trend of online learning. The analysis revealed that online students performed slightly better than face-to-face students. However, students who combined online and face-to-face components performed significantly better than those in purely online courses. The effect size was measured at +0.35, $p < .001$ (Means et al., 2010).

Blended learning needs an investigation of the attributes of digital technology as a whole and information communication technologies (ICTs) in particular. According to Floridi, (2014), Alan Turing proposed that digital ICTs can independently digest information, similar to humans and other biological life forms. ICTs can exchange information with one another autonomously, without the need for human involvement, as they are interconnected systems created by humans. Humans have reached a stage of development when they are not constantly involved in the operation of technology but rather should be actively involved in creating and adjusting the process (Dziuban et al., 2018).

The success of blended learning is influenced by several underlying elements that present obstacles. A significant difficulty lies in facilitating users'

effective use of technology and assuring their commitment, taking into account their unique learner characteristics and experiences with technology (Hofmann 2014). Hofmann asserts that individuals facing challenges with technology may lead to the failure of the learning process and, ultimately, the failure of technological applications.

According to a report by the Group (2013) 16% of learners expressed antagonistic views towards blended learning, while 26% expressed concerns about learners not completing their studies in a mixed-learning environment. Learners play a crucial role in the learning process, and their backgrounds and traits impact their capacity to engage effectively in learning. In the context of blended learning, the choice of design tools can also influence the quality of their learning experience.

2.2.3.3.1 Characteristics of Blended Learning

Carman (2015) proposed five key characteristics of blended learning that highlight its multifaceted nature. Namely: 1) Live events (online and offline) that are carried out synchronously, 2) Independent learning anywhere and anytime with a variety of learning materials), 3) Collaboration (collaboration between students and teachers or with outside parties), 4) Assessment (more flexible assessment), and 5) Performance support materials (learning materials and technology that support learning).

These characteristics are essential for understanding how blended learning environments function and how they can effectively support student learning. Here are the five characteristics:

1. Live Events (Synchronous Learning)

    This involves both online and offline activities that occur in real time. Live events allow for immediate interaction between instructors and students, fostering engagement and facilitating discussions that enhance understanding.

2. Independent Learning (Asynchronous Learning)

    Blended learning promotes independent study, enabling students to learn anywhere and anytime. Various learning materials support this flexibility, allowing learners to explore content at their own pace and according to their preferences.

3. Collaboration

    Collaboration is fundamental to blended learning, involving interactions between students and teachers and with external parties. This collaborative environment encourages teamwork, peer feedback, and shared learning experiences, vital for developing critical thinking and social skills.

Collaboration has emerged as a prevalent phenomenon in the twenty-first century. The societal demand for collective collaboration on matters of crucial significance has escalated, shifting focus from individual endeavors to collaborative efforts and from self-reliance to communal engagement. Collaborative learning (CL) is an instructional method where learners collaborate in groups to collectively address an issue, accomplish a task, or generate a product. Within the CL environment, learners face social and emotional challenges as they actively engage with diverse opinions and are compelled to express and justify their own ideas. By doing this, the learners develop their own distinct conceptual frameworks rather than depending exclusively on the frameworks provided by experts or texts. In a collaborative learning (CL) environment, learners can converse with their peers, express and support their views, share different perspectives, challenge alternative conceptual frameworks, and actively participate in learning (Laal & Laal, 2012).

4. Assessment

Blended learning offers more flexible assessment methods. This characteristic allows for diverse evaluation strategies that can be tailored to individual learning paths, providing a more comprehensive understanding of student progress and achievement.

5. Performance Support Materials

This includes various learning materials and technologies that support the educational process. Performance support materials enhance the learning experience by providing resources students can access as needed, facilitating more profound engagement with the content. These characteristics collectively illustrate how blended learning integrates different teaching methods.

A standalone interactive e-module is designed to function independently without requiring additional resources, instructor support, or integration with other learning systems. This self-sufficiency makes it ideal for various educational settings, including self-paced, remote, and supplementary learning.

Here are some characteristics and advantages of a standalone interactive e-module: 1) Complete Content Package: The module contains all the necessary materials, instructions, and assessments needed for learners to achieve specific learning outcomes. It covers the topic comprehensively, including explanations, examples, practice exercises, and quizzes. 2) User Independence: Learners can engage with the module independently without needing constant guidance from instructors or peers. This is particularly beneficial for self-directed learning environments where learners prefer to study at their own pace and convenience. 3) Accessibility: Designed to be accessible from various devices (desktops, laptops, tablets, smartphones), a standalone e-module ensures that learners can access the content anytime and anywhere, as long as they have an internet connection or have downloaded the module for offline use. 4) Interactive

Features: To enhance engagement and facilitate learning, the module incorporates interactive elements such as quizzes, simulations, animations, videos, and other multimedia content. These features help illustrate concepts, provide practice opportunities, and maintain learner interest. 5) Immediate Feedback: The module includes features that offer immediate feedback on quizzes and activities, helping learners understand their progress and areas that need improvement. This feedback loop is crucial for self-assessment and self-directed learning. 6) No External Dependencies: A standalone e-module is designed to function without reliance on external systems or platforms. This means learners do not need additional software, accounts, or tools to access and benefit from the content. 7) Flexible Learning Paths: The module allows learners to choose their learning paths, skip familiar sections, or revisit challenging areas as needed. This flexibility caters to different learning preferences and levels of prior knowledge.

Interactive e-modules stand alone and are effective for delivering focused, high-quality education in various contexts, including corporate training, academic courses, and professional development. They provide a convenient, accessible, and engaging way for learners to acquire new knowledge and skills.

Moreover, blended learning consists of self-paced learning, collaboration, live events, performance support materials, and assessment, which is more flexible. Self-paced learning using interactive e-modules allows students to engage with educational content at their own pace, facilitating a more personalized and effective learning experience. Here are the key aspects of self-paced learning in the context of interactive e-modules based on the search results:

Benefits of Self-Paced Learning with Interactive E-Modules included: 1) increased Autonomy: Self-paced learning empowers students to take control of their educational journey. They can choose when and how to engage with the material, which fosters independence and responsibility for their learning outcomes. 2) Flexibility: Interactive e-modules are accessible anytime and anywhere, enabling students to learn according to their schedules. This flexibility is particularly beneficial for those balancing multiple commitments or learning environments. 3) Enhanced Engagement: The interactive nature of e-modules, which often includes multimedia elements like videos, quizzes, and animations, helps maintain student interest and motivation. Engaging content can lead to better retention of information and a more enjoyable learning experience. 4) Personalized Learning Experience: Self-paced interactive e-modules can adapt to individual learning styles and preferences. Students can revisit challenging concepts or skip over material they already understand, allowing for a tailored learning experience that meets their specific needs. 5) Improved Learning

Outcomes: Studies have shown that using interactive e-modules can significantly enhance student motivation and learning outcomes (Rahmiati & Saputra, 2023).

To maximize the benefits of self-paced learning with interactive e-modules, it is essential to design the modules with user-friendly interfaces, straightforward navigation, and supportive resources such as help guides or forums. Additionally, while self-paced learning offers flexibility, learners should be encouraged to set goals and manage their time effectively to stay on track and achieve their learning objectives.

Self-esteem in the context of interactive e-modules refers to how the use of these digital learning tools can impact students' self-perception and confidence in their academic abilities. Here are the key insights regarding self-esteem related to interactive e-modules based on the search results:

Impact of Interactive E-Modules on Self-Esteem through 1) enhanced self-efficacy: The use of interactive e-modules has been shown to positively influence students' self-efficacy, which is closely linked to self-esteem. For instance, studies indicate that students using e-modules independently demonstrate improved self-efficacy compared to those learning without such tools. This improvement in self-efficacy can lead to higher self-esteem as students feel more capable of mastering the material and achieving their learning goals. 2) Motivation and Learning Outcomes: Interactive e-modules have significantly increased student motivation and learning outcomes. Higher motivation often correlates with enhanced self-esteem, as students who are more engaged in their learning tend to feel better about their abilities and achievements. 3) Autonomy and Independence: Self-paced learning through interactive e-modules fosters a sense of autonomy and independence in students. When learners can control their study pace and approach, they often experience a boost in confidence, enhancing their self-esteem. The ability to navigate and succeed in self-directed learning environments reinforces students' belief in their capabilities. 4) Critical Thinking and Problem-Solving Skills: Interactive e-modules encourage the development of critical thinking and problem-solving skills. As students engage with interactive content and tackle challenges independently, they build a sense of competence. This competence can translate into improved self-esteem, as students recognize their ability to think critically and solve problems effectively (Sidiq et al., 2021). 5) Feedback and Validation: The immediate feedback provided by interactive e-modules allows students to assess their understanding and progress. Positive reinforcement from successful interactions can enhance self-esteem, as students receive validation for their efforts and achievements. This feedback loop is crucial in helping students feel competent and valued in their learning journey (Darmawan et al., 2023).

Integrating interactive e-modules in educational settings can significantly impact students' self-esteem by enhancing self-efficacy, motivation, autonomy,

critical thinking skills, and providing constructive feedback. As students engage with these tools, they will likely develop a more positive self-image and greater confidence in their academic abilities, contributing to their overall educational success.

2.2.4 Technology Acceptance Model (TAM) Theory

The Technology Acceptance Model or TAM is a model used to measure the extent of user acceptance of a technology, especially information technology. The TAM model was originally developed by Davis (1989) based on the TRA (Theory of Reasoned Action) model.

Figure 6. Flow Model of Theory of Reasoned Action
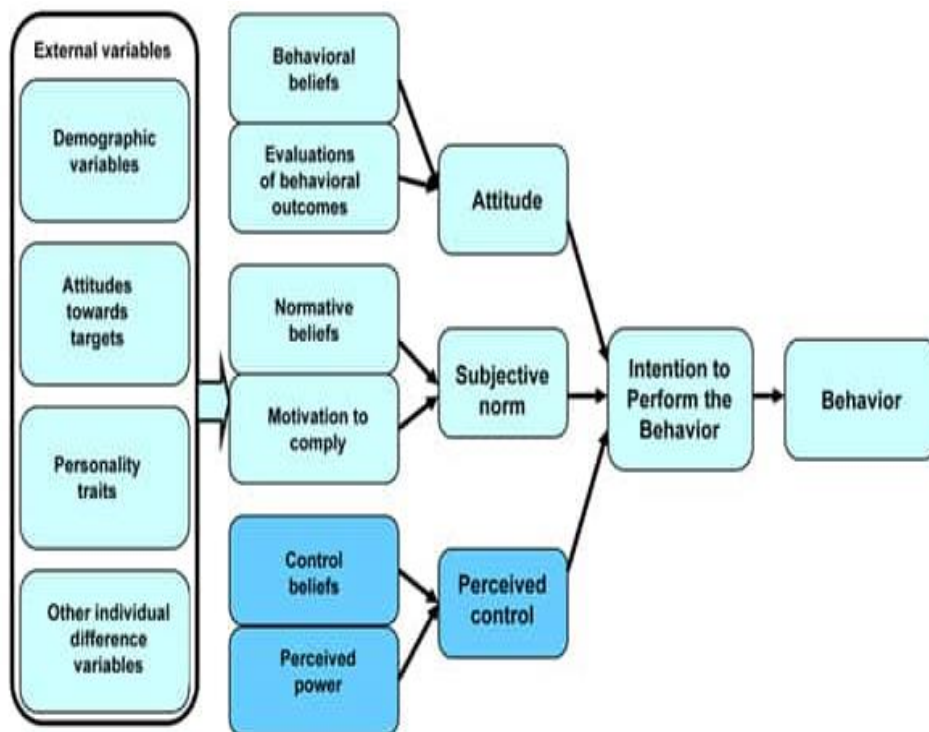
TAM was proposed by (Davis, 1989), having two core factors: perceived usefulness (PU) and perceived ease of use (PEOU) (Rafique et al. 2020). TAM theorizes that a person's intention to use a system or technology is determined by two factors, namely perceived usefulness, which is the individual's level of belief that using technology will improve his or her performance, and perceived

ease of use, which is the individual's level of belief that the use of technology makes it easier to complete work (Venkatesh, Viswanath 2000).

The TAM concept offers a theory as a basis for studying and understanding user behavior in receiving and using information systems. The concepts used are perceived usefulness, perceived ease of use, behavioral intention to use, and natural conditions of use. System (actual system usage). This model aims to explain key factors in information technology user behavior toward acceptance of information technology adoption. It is hoped that the expansion of the TAM concept will help predict a person's attitude and acceptance of technology and can provide the basic information needed regarding the factors that drive that individual's attitude (Ghani et al., 2019).

Technologies acceptance refers to an individual's voluntary decision to embrace and adopt new technologies. Users' willingness is a vital aspect of successfully deploying and utilizing technology. In recent decades, researchers have formulated multiple models to comprehend the characteristics of technology acceptability among users. These models have undergone many verifications to ascertain their efficacy for various applications in the field of information technology (Ilmi et al. 2020). The technology acceptance model (TAM) developed by Davis is currently considered the most well-established and significant framework for understanding technology acceptance.

The Technology Acceptance Model (TAM), which has its roots in the disciplines of sociology and psychology, is widely employed as the primary model in numerous research investigations. The primary objective of TAM is to predict the uptake of new technology among users and identify any design issues with the information system before it becomes widely used. The TAM model has two primary constructs: perceived utility and perceived ease of use, which are widely applied in various technological contexts (Kamal, Shafiq, and Kakria 2020).

Figure 7. Technology Acceptance Model (TAM) Davis dan Venkatesh 1996
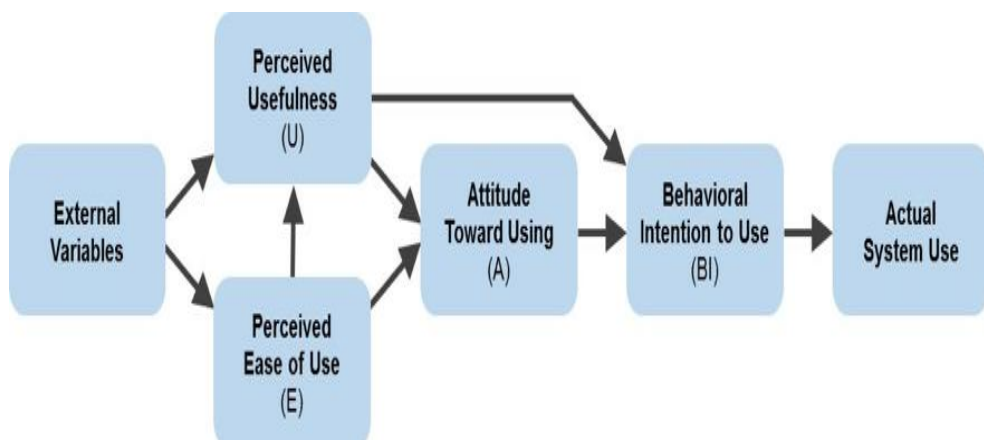
TAM is designed to predict users' acceptance or use of information systems and job benefits. The use of information technology in TAM is influenced by the desire to behave. An individual's behavioral desire is influenced by two main perceptions, namely perceived usefulness (POU) and perceived ease of use (PEOU). Perceived usefulness (POU) is defined as someone who believes that using the system can improve their work performance. Meanwhile, perceived ease of use (PEOU) is where someone believes that using the system will reduce effort (Venkatesh, Viswanath 2000).

Figure 8. Re-developed TAM
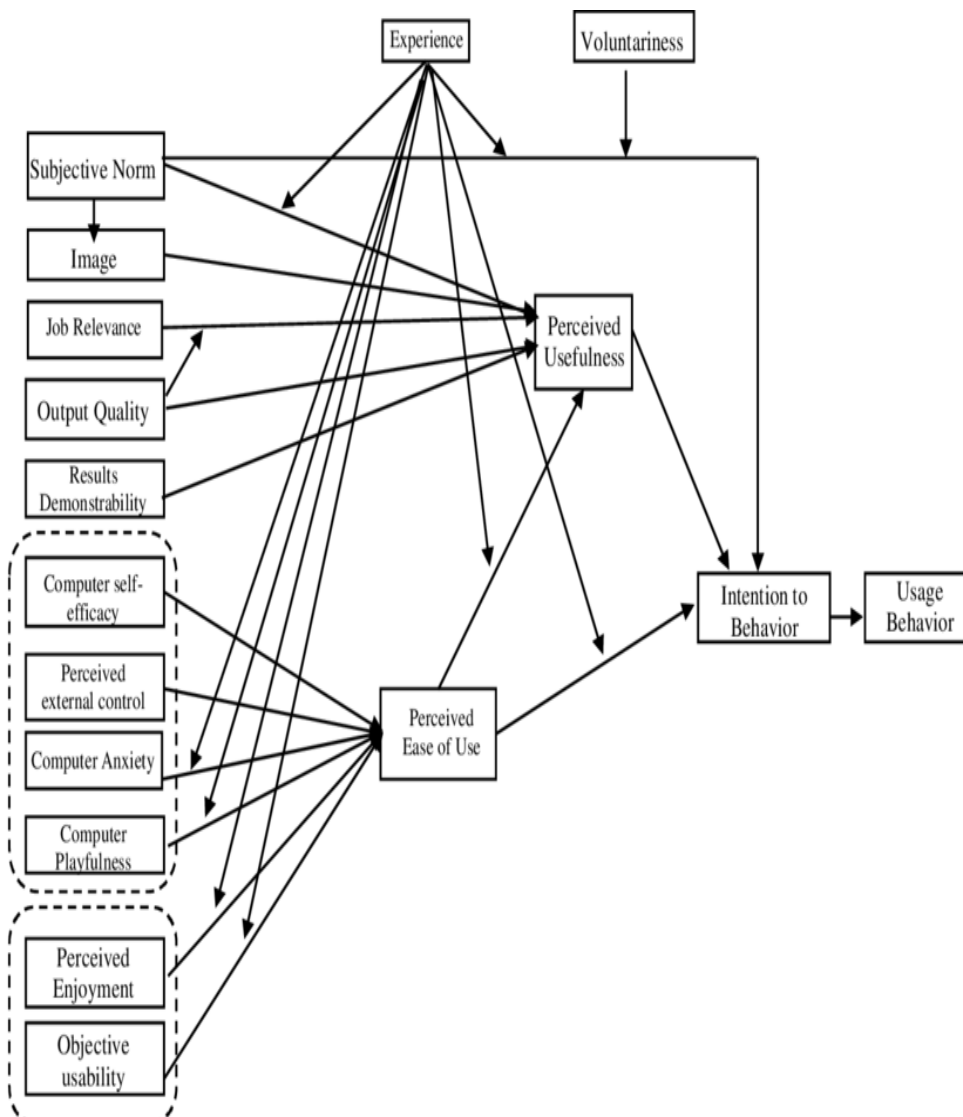
In 2008, Venkatesh and Bala re-developed TAM, which was named TAM 3 (Figure 5). TAM 3 consists of factors that influence PU and PEOU separately. PU is influenced by social process variables (subjective norms, volunteers, experience, and image) and cognitive process variables (job suitability, output quality, and demonstrable results). PEOU is influenced by anchoring variables (computer cell efficacy, perceived external control, computer anxiety, computer playfulness) and adjustment variables (perceived comfort and usability objectively).

Behavioral intention to use an interactive e-module refers to a learner's motivation or willingness to engage with and utilize the module as a learning resource. Various factors can influence this intention, which is often explored in educational technology research, particularly within frameworks like the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Davis, 1989). Key factors influencing behavioral intention include:

1. Perceived Usefulness: If learners believe that the interactive e-module will enhance their learning or help them achieve their academic goals, they are more likely to intend to use it. This perception is often based on the module's content relevance, quality, and alignment with learning objectives.
2. Perceived Ease of Use: The more straightforward and more intuitive the e-module, the more likely learners will engage with it. Factors such as user-friendly design, clear instructions, and smooth navigation play crucial roles here.
3. Attitudes Towards Technology: Learners' general attitudes towards digital tools and online learning can influence their intention to use an e-module. Positive experiences with similar technologies can foster a more favorable attitude.
4. Subjective Norms: Social influences, such as recommendations from peers, instructors, or educational institutions, can affect a learner's intention to use the module. If learners perceive that significant others value or endorse the use of the module, they may be more inclined to use it themselves.
5. Self-Efficacy: Learners' confidence in using the interactive e-module effectively affects their behavioral intention. Training, support, and previous experience with similar tools can enhance self-efficacy.
6. Facilitating Conditions: The availability of resources, such as access to devices, stable internet connections, and technical support, can influence learners' willingness and ability to use the e-module.
7. Enjoyment and Engagement: The intrinsic motivation derived from engaging and enjoyable content can drive learners to use the e-module more frequently and with tremendous enthusiasm.

Understanding these factors is crucial for educators and instructional designers when developing and implementing interactive e-modules (Rahmiati and Saputra 2023). Strategies to enhance perceived usefulness and ease of use, along with fostering motivation and engagement, can significantly influence students' behavioral intentions to utilize these learning tools effectively.

In summary, the behavioral intention to use interactive e-modules is shaped by perceptions of their usefulness and ease of use, motivation levels, and the engaging nature of the content. Addressing these factors can lead to increased adoption and effective utilization of interactive e-modules in educational settings.

2.2.4.1 The Use of Technology in Teaching English

The use of technology in language teaching has become a necessity that cannot be ignored. Console in Lev (2012: 279), in his research on two students learning a language, found that they had used more than 30 different types of technology both for learning and making contact with other people. Levy (2012: 279) defines the term technology as all objects that can be seen and touched and groups them based on five categories, namely 1) their concrete form (telephone aircraft, cell phone, computer, voice recorder, video camera, etc.) 2) learning management system (blackboard, EduKate, scholars) 3) technology tools and applications (e-mail, blog, chat, videoconferencing, word, PowerPoint, internet explorer, web design, sound editing, etc.) 4) the source (online newspaper, linguascope and website others designed for Language learning) and 5) part technology that supports the functioning of the master program such as spelling check, grammar check, and online dictionaries.

Donaldson and Haggstrom (2006) state that the emergence of technology has significantly impacted all aspects of life, including education. The rapid development of technology and its diverse types pose quite a challenge for teachers because teachers are required to change their attitude toward the educational process. Teachers must be more open, willing to learn new things, and willing to play a new role in the teaching and learning process. Technological developments have given rise to new theories about language teaching, including the relationship between teacher and student, and therefore, teachers need to be well prepared in that direction.

Dudeney and Hockly (2008:7-8) state that computers and ICT are increasingly becoming an inseparable part of language teaching for several reasons, namely:
a. There is Internet access everywhere
b. Technology is an inseparable part of young people's lives
c. English as an international language is used in a technological context,

d. The Internet offers teaching materials and authentic learning activities, including abundant ready-to-use teaching materials.
e. The Internet offers opportunities for collaboration and communication between geographically dispersed language learners.
f. Technology offers teachers abundant resources and textbooks.
g. Technology offers new ways to practice language and evaluate language learning outcomes.
h. Technology can overcome the barriers of space and time so that learning programs can be used anywhere, not necessarily in the classroom.
i. Using a variety of ICT tools enables language learners to acquire language exposure to practice the four language skills.

The emergence of computer technology in language learning does not mean eliminating the role of the teacher in the learning process but giving it a new role. Teachers are no longer the only source of information. Sources of information became more diverse, and the teacher served as a facilitator. Technology in language learning is intended so that students can learn more easily and effectively.

For technology to be used effectively in learning, three things must be considered carefully: 1) teachers' beliefs about the nature of language and language learning, namely, what aspects of language are essential and should be taught to students. This stage is the determination of learning content; 2) the pedagogical approach and methodology, namely how language should be taught, whether using CBI, TBLT, or others; and 3) the choice of technologies to support the learning tasks because every technology has its advantages and disadvantages weaknesses of each (Levy, 2006: 2). Anyone who wants to use technology in language learning must consider these three things in a balanced way by incorporating various interrelated aspects of language, needs, learning objectives, different individual preferences, resources and technologies available in a particular learning context.

The use of technology in teaching English has become increasingly prevalent and is recognized as a crucial tool for enhancing language learning. Several key points highlight its effectiveness (Alqahtani 2019):

1. Enhanced Accessibility and Engagement:
Technology provides modern and accessible learning materials that engage students more effectively. This particularly benefits English as a Second Language (ESL) students, who need more practice and confidence to develop their language skills.

2. Improved Learning Outcomes:
Technology enables teachers to adapt classroom activities, enhancing the language learning process. It supports the creation of assignments and

tasks that can be completed on computers, rather than traditional pencil and paper methods, which can improve learning outcomes.

3. Increased Student Motivation and Engagement:

Technology can make learning more exciting and productive. It provides alternatives to traditional teaching methods, such as multimedia presentations and interactive activities, which can increase student motivation and engagement.

4. Collaborative Learning Opportunities:

Technology facilitates collaborative work among students, allowing them to work together on tasks and learn from each other. This is essential to language learning, promoting social interaction and communication skills.

5. Teacher Support and Professional Development:

Technology supports teachers by providing tools for individualized feedback and scaffolding complex cognitive tasks. It also expands opportunities for teacher development and community building among educators.

6. Integration with Traditional Methods:

Technology is not meant to replace traditional teaching methods but to complement them. It can be integrated into existing curricula to enhance the learning experience and provide more effective teaching tools.

7. Globalization and Social Impact:

The use of technology in English teaching is influenced by globalization, which has changed how we live, learn, and work. It has created new opportunities and challenges, such as the need for workers to adapt to new skills and technologies (Prayudi et al. 2021).

Overall, technology in English teaching is a powerful tool that can enhance student engagement, improve learning outcomes, and support teachers in their roles.

2.2.5 Autonomous Learning

The Council of Europe produced a paper in 1979 called "Autonomy and foreign language learning" (referenced as Holec 1981). Holec's definition of learner autonomy focuses on the concepts of learner self-direction and the ability to influence the learning process. According to him, the teacher's primary responsibility was to assist students in moving from relying on others to being independent by aiding them in developing their ability to manage themselves.

This approach to learner autonomy emphasizes the role of the individual learner and their utilization of cognitive and metacognitive resources to influence the language learning process. It significantly influenced the advancement of

self-access language learning in university language centers throughout the 1980s. Holec made a distinction between learners who are not independent and independent. As a result, he viewed language learning and the growth of learner independence as two distinct processes.

Autonomous learning refers to the process of acquiring knowledge and skills without relying on external guidance or supervision. It involves being self-directed and productive and maintaining a structured approach to studying. The three fundamental qualities of autonomous learning are the acquisition of independence, self-regulation, and self-discipline. Independence is the fundamental principle of autonomous learning, while self-regulation is the core aspect.

Self-discipline ensures independent learning. These three traits demonstrate that the research subject has complete control over their learning and that the subjects themselves ultimately govern learning. Recognizing and affirming this principle, it is evident that previous attempts at education reform have employed numerous impractical teaching methods and approaches. Therefore, there is a need to investigate and develop innovative teaching methods and approaches to establish a new paradigm in education. This endeavor holds significant practical significance and serves a crucial purpose (Wang 2017).

As promoted by the English curricular standards, autonomous learning is an innovative learning approach that emphasizes students' comprehensive growth. Autonomous learning enhances students' cognitive abilities and impacts their utilization of non-intellectual elements. Each student is a unique individual, exhibiting distinct characteristics such as interests, attitudes, motivations, and more (G. Liu 2016).

Autonomous learning is a multifaceted concept that emphasizes the learner's ability to take charge of their own educational process. According to Henri Holec (1979) and further elaborated by Benson (2001), several crucial factors significantly impact the learning process and achievement in autonomous learning environments. Here are the key factors identified:

1. Self-effort (Self-Regulated Learning)

It is fundamental for learners to commit to engaging actively in their learning process. This includes taking the initiative in studying, seeking out resources, and dedicating time to learning tasks.

For student-centered, inquiry-based approaches to be practical, students must transition into their new role as active learners and cultivate self-regulated learning (SRL) skills. SRL, or self-regulated learning, is the measure of how much learners are actively engaged in their own learning process through metacognition, motivation, and behavior. Self-regulated learners possess the ability to establish objectives, devise a plan of action, choose suitable tactics,

monitor their progress, and evaluate their own learning (English and Kitsantas 2013).

2. Learner Awareness

Awareness of one's own learning preferences, strengths, and weaknesses is essential. This self-awareness enables learners to make informed decisions about their learning strategies and goals.

Learner awareness encompasses the individual's understanding of their strengths, weaknesses, and learning styles. This awareness helps learners to prioritize their efforts, recognize areas that need improvement, and adapt their learning strategies accordingly. Enhanced learner awareness can lead to better learning outcomes and more efficient use of learning resources.

3. Self-Esteem

A learner's confidence in their abilities can significantly influence their motivation and persistence in learning. Higher self-esteem often correlates with a greater willingness to engage in challenging tasks and take risks in their learning.

Self-esteem is the confidence and satisfaction one has in one's abilities and accomplishments. High self-esteem is associated with increased motivation, better learning outcomes, and a more positive learning environment. Students with high self-esteem tend to be more resilient and persistent in their learning endeavors.

4. Motivation

Intrinsic motivation plays a critical role in autonomous learning. Motivated learners are more likely to pursue knowledge actively and engage with materials, leading to better learning outcomes.

Motivation is the driving force behind learning. It can be intrinsic (from within, such as a desire to learn) or extrinsic (from external factors, such as grades or rewards). Motivation is critical because it determines how much effort learners put into learning and how long they persist in facing challenges.
Use of Reference Materials

5. Use of Reference Materials

Access to and effective use of various reference materials (such as books, articles, and online resources) are crucial for supporting independent learning. Learners should be able to identify and utilize these materials to enhance their understanding and knowledge.

Using reference materials, such as textbooks, online resources, and study guides, is essential for effective learning. These materials provide

additional information, examples, and explanations that can help learners understand and retain complex concepts. Access to and effective use of reference materials can significantly enhance learning outcomes.

6. Broader Autonomous Activities

Engaging in activities beyond formal education—such as self-directed projects, community involvement, or online courses—can enrich the learning experience and foster greater autonomy.

7. Use of Technology in Learning

Technology facilitates autonomous learning by providing access to information and resources. It also enables learners to connect with others, collaborate, and engage in self-paced study through various digital platforms.

These factors collectively contribute to developing autonomous learners capable of self-direction and responsible for their educational journeys. The emphasis on autonomy in learning fosters independence and prepares learners for lifelong learning in an increasingly complex and information-rich world.

Nevertheless, educators who adhere to conventional teaching methods disregard individual students' unique characteristics and needs. Consequently, students exhibit low learning efficiency. Hence, teachers had to construct their instructional approach by taking into account the unique characteristics of each student and assisting them in discovering effective learning techniques. Students' learning efficiency can be significantly enhanced by acquiring autonomous learning strategies.

One of the changes in the learning perspective is to place learner autonomy as a central thing. Students have greater autonomy to determine for themselves what they will learn and how to learn it. Autonomous learning is one of the principles of foreign language learning proposed by many experts, including Macalister 2010; Kumaravadivelu, 2003). A*utonomy* is a principle of the 20 principles of foreign language learning. They state that language learning should train learners how to learn a language and how to monitor and become aware of their learning efforts so that they become effective and autonomous learners (Nation, ISP & Macalister 2010).

Oxford, (2003) States that language learning should lead students to *automaticity*. To achieve *automaticity*, learners should be taught learning strategies. It is based on the principle that students' success in mastering a language is the fruit of their time and effort. Therefore, autonomous learning is very important in language learning. Kumaravadivelu, (2003) Places learners' autonomy as the eighth principle of the ten proposed language learning principles.

a.   Understanding Autonomous Learning

The literature refers to autonomous learning in various ways, such as learning autonomy, learner autonomy, learner independence, autonomous learning, self-regulated learning, or self-direction. It is difficult to define because it involves many dimensions and sometimes derails.

Although relatively recent, the concept of autonomy in education has been subject to varying definitions by different experts. The notion of autonomy in learning is derived from personal autonomy, so it primarily focuses on the type of learning that most effectively enables individuals to live autonomously. Autonomous life encompasses the ability to exercise personal independence in selecting goals and establishing relationships, which are crucial elements for individual well-being (Benson 2007). Autonomy pertains to the individual's freedom and human rights to exercise personal choice. The process is a lifetime rather than limited to a specific situation or course. Benson (2007) Distinguishes learner autonomy in language learning into three perspectives, namely:

1) Technical, which focuses on learning skills and strategies: metacognitive, cognitive, social, and other strategies as described by (Oxford 2003).
2) Psychological, which emphasizes attitudes and broader cognitive abilities that allow learners to be responsible for their learning.
3) Politically, it emphasizes the empowerment and emancipation of students by giving them control over the content and learning process.

Understanding learning independence can be seen from the characteristics of people with learning independence. Autonomous learners understand the purpose of their learning program, explicitly accept responsibility for their learning, share learning goals, take initiative in planning and executing learning activities, and regularly review their learning and evaluate its effectiveness (Little 2017).

Autonomous language learner understands what the learning goals are, be able to take responsibility for their learning efforts, try to achieve the learning goals that have been set, have the initiative to design and implement the design of their learning activities, and regularly *review* learning outcomes and evaluate the effectiveness of their learning efforts. Then, he considers that in the next few years, much research on autonomous students will focus on the impact of autonomous learning, especially when learning a foreign language, everyone involved – students, teachers, and the education system in general.

The teacher's role is to create and support a learning environment in which students can be autonomous (Little 2017). The development of their study skills cannot be separated entirely from the learning content, as learning how to learn a foreign language differs from studying other courses in several important ways. At the same time, scholars from various countries studied these problems, which showed autonomous learning, especially foreign language learning.

Autonomous learners are those who can be responsible for their learning activities. This independence involves at least five things, namely, 1) a situation where learners learn autonomously, 2) a set of skills that can be learned and applied in learning on their own accord, 3) the innate capacity from birth, 4) the application of responsible training for the learner, and 5) the right of the learner to determine the direction of his learning. According to him, autonomy in learning can be interpreted as a social process, remapping the portion of the learner in constructing knowledge and the learner's active role in the learning process (Thanasoulas, 2000).

Furthermore, Thanasoulas, (2000) mentions seven characteristics of autonomous learners, namely:
1) have an understanding of their learning styles and learning strategies
2) active in dealing with learning tasks,
3) willing to take risks in communicating,
4) good guesser,
5) have sufficient attention to both form and meaning in language, to *accuracy* nor *appropriation,*
6) Trying to develop target language skills and willing to revise or change his views if it turns out that the hypothesis is not true, and
7) Be tolerant and open to accepting the target language.

Seven characteristics *of autonomous learners.* This is not the end product of learning but an ongoing process. A person can only direct himself towards *an autonomous learner*. By directing himself toward an *autonomous learner.* This is someone who has a goal of learning and has a way to achieve that goal.

b. Learning Philosophy that Underlies Autonomous Learning

Autonomous learning is based on the philosophy of learning *constructivism* and *critical theory*. *Constructivism* states that students construct meaning to the world they face by relating it to their knowledge and experience. New ideas and experiences are matched with existing knowledge to give meaning and understanding to these new things. This view has changed learning *from a teacher-centered approach to a learner-centered one*. Learners have a significant role in giving meaning to new knowledge and their learning outcomes (Thanasoulas 2000).

Critical theory is a humanist approach to language learning*. It shares the view of constructivism that new knowledge is constructed, not learned or discovered. This theory also states that one's knowledge does not always reflect the actual reality but is* a form of compromise of the ideologies applied in society. Thus, learning is related to issues of power and ideology and is seen as a process of interaction within society that can bring about social change.

The form of language is closely related to social meaning, and vice versa; social meaning is closely related to the form of language. Based on this theory, *learner autonomy* is more colored by social and political nuances. When students become more aware of the social context in which they are and aware of the obstacles they face, they will gradually become autonomous, break away from the ties that bind them, and can be considered "*the author of their world*"

c. Strategies for Increasing Autonomous Learning

Even though they have studied for a long time, many students have not been able to develop autonomous study skills. According to Turner (1989), this is caused by (1) the lack of autonomous learning training by the teacher, (2) there is autonomous learning skills training, but it is given blindly, (3) the weak metacognitive abilities of students, (4) the reluctance of students to change patterns behavior. To help students towards autonomous learning, several things need to be pursued, including (1) modeling by the teacher, (2) teaching learning skills directly, (3) using learning activities that can make students learn autonomously, and (4) providing facilities for autonomous study.

Modeling is one way to direct students to achieve autonomous learning. The teacher himself must be autonomous because the teacher's independence will impact the students. Autonomous teachers will be able to make students autonomous. Teachers have a central role in directing students to achieve autonomous learning by creating situations and conditions and practicing learning strategies for students (Johnson et al., 1990, as quoted by Thanasoulas, 2000: 7).

In addition to setting an example as an autonomous learner, teachers need to know about learning activities that can encourage students to learn to be autonomous. Broad (2006), in his research, found that the learning activities that developed the most independence of students were when they did research. Those that developed the least independence were learning activities in the classroom.

Teachers must provide learning activities that require students to learn autonomously and facilities or containers that allow autonomous learning. The library is the most necessary means for the development of autonomous learning. Internet connection, e-learning programs, and a list of websites students need to access are also required.

In addition to modeling, learning activities, and available facilities, teaching-learning strategies are also needed to facilitate students in developing autonomous learning. Learning strategies, according to Oxford (1990: 8), are, first, ways that are applied by students to help language acquisition, storing, retrieving, and using information, and secondly, certain actions taken by students. So that learning becomes more manageable, faster, fun, self-directed,

effective, and easier to transfer to new situations. He says the second definition is richer and more reflective of the concept in question.

2.2.6 Learning Achievement

1) What is Learning Achievement

Learning achievement consists of two syllables, "achievement" and "Learning." In the Big Indonesian Dictionary, what is meant by learning achievement is "the results that have been achieved (done, carried out, etc.).

Kpolovie et al., (2014) define academic achievement as a measurable index that describes students' cognitive, affective, and psychomotor domains in an educational environment. Exams or ongoing assessments usually measure academic performance, but there is no general agreement on how best to test 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 and Mujiyati 2017).

Learning achievement refers to the measurable outcomes of a student's learning process, indicating the extent to which educational goals and objectives have been met. It encompasses various aspects, including knowledge acquisition, skills development, and applying learned concepts. Learning achievement is typically assessed through various means, such as exams, projects, assignments, and practical applications. So, it is necessary to study aspects that can support increased learning achievement and the quality of education in Indonesia.

However, learning achievement in the field of education is the result of measurement towards students, which includes cognitive, affective, and psychomotor factors after following the learning process, which is measured using test instruments or relevant instruments. So, learning achievement is the measurement of the result of the assessment of learning efforts, expressed in the form of symbols, letters, or sentences that tell the results that have been achieved.

2)   Key Aspects of Learning Achievement:
1. Knowledge Acquisition:
a) Understanding and retention of subject-specific content.
b) Ability to recall and explain key concepts, facts, and information.
2. Skills Development:
a) Development of cognitive skills like critical thinking, problem-solving, and analytical abilities.
b) Enhancement of practical skills pertinent to specific disciplines (e.g., laboratory skills in science, technical skills in vocational subjects).

3. Application of Knowledge:
a) Ability to apply learned concepts in real-world scenarios.
b) Demonstration of understanding through projects, case studies, and practical exercises.
4. Competency and Proficiency:
a) Mastery of specific competencies and standards set by educational institutions.
b) Proficiency in performing tasks and demonstrating skills relevant to the curriculum.
5. Performance Assessment:
a) Evaluation through standardized tests, quizzes, and exams.
b) Continuous assessment through assignments, class participation, and formative assessments.
6. Holistic Development:
a) Incorporation of social, emotional, and ethical learning alongside academic achievement.
b) Development of interpersonal skills, teamwork, and leadership abilities.

3) Factors that influence learning achievement

According to Sudjana (2010) in her book Assessment of the Results of the Teaching and Learning Process, several factors influence learning achievement, namely:

a. Internal factors

Internal factors are factors that come from within the student, which consist of:

1) Intelligence factor 2) Interest factor 3) Physical and psychological condition factor

b. External factors

External factors are factors from outside the student that affect learning achievement. There are several external factors, namely 1) Teacher factors, 2) Family environmental factors, and 3) Learning resource factors.

The psychological state is related to the student's mental state. So, this can affect learning achievement if viewed from internal factors. However, if we look at the external factors of teachers, family environment and Learning resources are factors that influence learning achievement. Teachers are tasked with guiding, training, processing, researching, developing, and organizing teaching and learning activities. Due to their negative past experiences, they received poor grades on their school assignments, leading them to have diminished expectations for their academic future (İrgin and Hüseyin 2020).

Persons with the ability to manipulate outcomes should exert greater effort to achieve higher levels of success. Furthermore, the response of internalizers and externalizers to success and defeat varies. Therefore, when the

outcome meets their expectations, internalizers experience a sense of pride. Conversely, if the outcome falls short of their expectations, they feel shame and encounter less emotional intensity. Students who attribute their success to internal sources anticipate future successes. In contrast, students who attribute failure to internal issues may anticipate future failure unless they acknowledge their capability and actively address those factors. Conversely, attributing success to external reasons would render future overcomes uncertain (Ghonsooly and Moharer 2012).

These factors are students, lecturers, learning objectives, learning materials, learning facilities, interactions between students and materials, interactions between lecturers and students, interactions between students and students, and the learning environment (Riyani 2018). An efficient teaching and learning process will greatly influence student success, which is expressed by learning achievement. Learning achievement results from an assessment of abilities, skills, and specific skills learned during the study period.

Meanwhile, the family also significantly influences the progress of learning achievement because most of the time, students are at home. Parental involvement should be considered in efforts to maintain students' learning motivation. A study on learning achievement found a strong relationship between parental involvement and learning achievement. Likewise, learning resources that can be used to help students learn. Learning will be more interesting, concrete, and easy to understand, saving time and energy, and the results will be more meaningful.

2.3   Hypothesis

Table 2. Hypothesis

H_1	There is a significant effect of an interactive-based E-module of translation toward online learning in the English education department.
H_2	There is a significant effect of the interactive E-module of translation toward blended learning in the English education department.
H_3	There is a significant effect of blended learning toward autonomous learning in the English education department.
H_4	There is a significant effect of online learning toward autonomous learning in the English education department.
H_5	There is a significant effect of interactive e-modules of translation toward autonomous learning through online and blended learning of the English Education Department.

H₆	There is a significant effect of interactive e-modules of translation towards learning achievement through online learning and blended learning of the English Education Department.

2.4 Conceptual Framework

The onset of the pandemic has compelled educational institutions at all levels to transition from in-person to online instruction. Teachers and students had to quickly transition from traditional in-person learning to an online form of teaching. The rapid alteration impacted the method of acquiring knowledge and prompted inquiries regarding the student's educational achievements, evaluation, and ability to regulate their learning. Despite being advocated for many years, online learning remains unpopular as a teaching and learning approach in numerous educational settings. Amidst the challenges posed by COVID-19, the epidemic also presents an opportunity for the improvement of teaching practices among educators and the development of self-regulated learning skills among students (Mou, 2023).

The consequences have the greatest impact during a pandemic. Coronavirus disease 2019 (COVID-19). Current circumstances temporarily allow teaching and learning activities not to be conducted in person. Moreover, tertiary-level students in many nations are studying English as a foreign language to gain proficiency in translation, which is a mandatory course at their universities. Translation studies are essential in nations where English is spoken as a foreign language. It is crucial to comprehend how individuals perceive the world, and each person bears a significant role in their learning environment (İrgin and Hüseyin 2020).

As users of technology, humans must be able to take advantage of current technology and further technological developments. Human adaptation to new technologies has developed and must be done through education. This is done so the next generation is not left behind regarding new technology. That way, technology and education can develop together, along with the new generation as the successor to the old generation.

Information and communication technology in education is indicated by Basic Competencies in the curriculum that applies technology to learning activities. Along with changes in the educational paradigm to deal with changing times and technological advances, it is required to continue to increase the widest possible access to learning resources that are no longer limited by space and time. These developments have been used in various countries, institutions, and experts for various purposes, including education or learning.

An expanding number of schools and universities are seeking methods to distribute course information through online platforms. Online technology, such as email, learning management systems, discussion boards, video conferencing, and social media, provides effective and easy methods for online education students to accomplish their learning objectives (Jiang et al. 2021).

Examining the present circumstances and challenges of online learning in higher education is essential to understanding how the student experience might be enhanced. Online learning possesses several attributes that might influence the implementation of teachers and the success of a course.

Blended learning integrates the benefits of conventional learning approaches with online learning. It acknowledges teachers' primary function in guiding, enlightening, and monitoring the teaching process and effectively harnesses students' initiative, enthusiasm, and creativity as the central participants in the learning process. The optimal learning outcome can be achieved when the two factors mutually enhance each other (Sui and Yang 2023). Blended learning is a method that connects traditional and modern approaches, influencing policy and strategic objectives in higher education at all levels (Moskal et al. 2013).

E-modules with multimedia approaches can help students to understand learning materials. In addition to being supported, online modules effectively improve the learning process. The critical advantage of the e-module is that it can follow the demands of the 21st century, integrate 21st-century skills, and familiarize students with 1CT media. E-module is a module with an electronic format that is run by a computer. E-modules can display text, images, animations, and videos through electronic devices such as computers.

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

To anticipate boring and monotonous learning and improve translation mastery, the researcher tries to conduct and deliver translation teaching through an interactive e-module to support autonomous learning in translation courses. This is done to motivate students, familiarize them with using technology, avoid monotonous teaching techniques, and improve their linguistic competence.

An interactive e-module is an application that can be accessed online and offline and contains text, audio, video, images, and so on. Its advantages are that

it is very easy to use in making learning media and can create test or evaluation materials. An interactive e-module can also be used to prepare teaching materials for students. Even teachers who are not proficient at operating computers will find it easy to use this application. An interactive e-module can be published online and offline.

Learners can learn independently with the media the learning. The evaluation contained in an interactive e-module can display feedback that shows correct or incorrect answers and scores that can be known directly. This makes it easier for teachers to make assessments because they automatically appear as scores or values. Using this application/software to create E-modules can produce more innovative and fun learning media.

Electronic modules (e-modules) can be an interactive source of information because they present information dynamically with the support of multimedia such as images, videos, and simulations. Using multimedia in electronic modules can facilitate the learning process, making it easier to understand, effective, and enjoyable because the supporting multimedia can provide more precise visualization of learning materials to help students understand easy, practical e-modules.

Thus, autonomous learning is an approach that views students as having a more active and participatory role in the learning and teaching process than in the traditional approach. In addition, this approach requires different class activities, the structure of which is determined by the students themselves, so that more students are involved in class activities. The conceptual framework is displayed in Figure 6.

Figure 9. Conceptual Framework