

Innovative Learning Technology (ILT) in Indonesian Vocational Higher Education

Muhammad Basri^a, Andi Anto Patak^{a,1}, Andi Musdariah^b, Amirullah Abduh^a

^a Universitas Negeri Makassar, Makassar, Indonesia
E-mail: ¹andiantopatak@unm.ac.id

^b Business Administration, Politeknik Negeri Ujung Pandang, Makassar, Indonesia

Abstract—This paper aimed to find out the students' perspective on Innovative Learning Technology (ILT) usage in Indonesian Vocational Higher Education. The researchers administered an online questionnaire to thirty-eight students of Business English class. Data were analyzed descriptively. The results of this study showed that students perceived the ILT integration, ILT skill, and ILT usefulness. This study also found the ILT type preferred by the lecturers and devices (mobile hotspots or campus Wi-Fi hotspot) used mostly by the students to access the ILT. This study recommends the vocational higher education to improve ILT facilities for enhancing the quality of learning. The utilization of innovative learning technology for education, mainly learning English, has become a necessity to implement. Various innovative learning technology applications properly utilized optimally for educational purposes. The use of innovative learning technology for education can be carried out in multiple forms accordingly to its function. Although innovative learning technology is essential, the value of interpersonal relationships in the learning process of English is at the center of that experience. However, face-to-face sessions are precious. Learning methods that integrate independent and student-centered learning while being supervised by teachers have proven to help support and motivate students in achieving their goals in learning English.

Keywords—innovative learning technology; ILT; vocational higher education; learning technology.

I. INTRODUCTION

The 21st century requires mastery of English as the leading international communication language. English has been for years and continues to overgrow significantly, along with the development of Internet technology. Eaton pointed out that in 2000 there were around one billion English language students who had doubled until 2010 [1]. This data shows a surge in learning English. The rapid development of science and technology has emerged the innovative learning technology, and its application displays video and animation effect makes exciting English learning. The development of innovative learning technology has established a promising stand for reformation and exploration of English learning.

Innovative Learning Technology (ILT) plays an active part in conveying education in the current setting [2]. Now, we live in the widespread use of computers and individual rising demands, including teachers, students, and people in business to become technologically literate. At the beginning of the 21st century, the technology available to access language learning and teaching resources are very diverse. How to use these technology applications can be located in classrooms around the world. Teaching English students

using computer technology and technology as a learning medium helps maximize the process of learning and teaching English. Classes should be equipped with technology to promote learning innovation and student autonomy in education. Digital technology and applications are widely available, including in the classroom. Still, they become ineffective or risky if they are split up in a wise and meaningful way of the learning process.

Innovative learning technology plays an active role in encouraging activities and initiating students of vocational higher education in English learning in the classroom [3]. Dockstader [4] stated that technological innovation is developing rapidly and changing students' attitudes in line with the growth of ease of internet access. The growing internet has facilitated the ever-increasing English and makes computer use as non-exclusive media. The technological developments allow other devices such as smartphones to enable students to access the information needed quickly, along with the development of innovative technology. The circumstance led to the birth of a significant explosion of literature, especially in the use of English learning technology [5].

Innovative technology is welcomed as an essential part of learning and tends to emphasize the learning process on the

expected role of technology in the pedagogical perspective [6]. Finally, a strong assumption is built that if it ignores the development of technology, the quality of learning is increasingly left behind regardless of any discipline or branch of science being studied. Therefore, English language teachers need to understand and master innovative technology and have comprehensive knowledge about what is available in Innovative Learning Technology. Lecturers can use Innovative Learning Technology to present engaging, interactive, and dynamic lectures. Many techniques can be applied to various levels of English learning situations. Some methods are useful for long-distance learning [7], and some other techniques help in teaching English language skills [8], [9].

However, the principle of teaching must respect new technology and function as a provider and never let the machine take over the role of the teacher [10]. Innovative learning technology is present by not limiting the function of conventional teaching, the presence of technology maximizes traditional teaching. There are many reasons why all learners and instructors of English together must understand how to utilize modern technology. New learning technology develops and spreads so quickly that its use can no longer be avoided [11], including the teaching and learning process. English language teaching has traditionally hampered students' ability to understand specific language competencies and technological skills and made students passive recipients of knowledge. With instructor instruction that directs the right mindset and motivates students, innovative learning technology is expected to help integrate traditional teaching with modern learning and give students more significant opportunities.

Innovative learning technology can offer sufficient information to students [12]. Students can get far more information than is traditionally obtained from textbooks and help them to present a cultural background. Besides, students can also access rich content and language material that is truly lively and far more natural. Students cannot only improve their language skills but also learn culture from the various channels available free of charge. Teaching based on innovative learning technology enriches the teaching content and utilizes the limited time in class as well as possible and breaks the teaching patterns that are centered on the instructor to improve classroom efficiency. The traditional teaching model emphasizes instructors' instruction, and the information provided is limited, especially if it is a large class.

Conversely, innovative learning technology extends beyond space and time to create a more lively environment [13]. A visualization that presents authentic conditions in learning English can stimulate student initiative [14] and save students time in accessing various information in class. Teaching based on innovative learning technology emphasizes the students' role and interaction between lecturers and students. Using innovative learning technology in creating contexts creates an excellent platform for teachers and students' communication. The main feature of teaching based on innovative learning technology aims at increasing students' communicative competence, where the teacher's role as a facilitator must be very prominent. Besides, teachers must also actively participate in creating a

conducive environment for learning English. Thus, teachers no longer necessarily convey information in a class that seems to force students to accept it passively. Teaching based on innovative learning technology creates an inspiring English teaching context.

This method is, of course, expected to make the class livelier and more attractive, as well as to optimize class organization. Innovative learning technology has visibility and activeness features. The teaching of English is strived to be able to integrate sound and images to enhance initiative, both on the part of the teacher and students. The teacher can also use drawing media to enrich the material when using the software. With the help of innovative learning technology in the classroom, students can understand the subject matter. An interactive learning and teaching process that uses innovative learning technology to learn English effectively can stimulate students to be interested in learning English [15]. Besides, teachers are also increasingly enthusiastic and flexible in implementing English teaching. Innovative learning technology allows the learning context to take place outside the classroom. Teaching English by utilizing innovative learning technology can also create a learning environment that focuses on teacher guidance and is student-centered [16]. The teacher can guide students to deal with the problems that students face when learning in class. In such circumstances, students should be allowed to contact the teacher and receive feedback via email and other digital communication tools.

A global shift in the educational approach motivated the emergence of several new settings in the process of teaching and learning [17]. Teachers are witnesses of the transition from a face-to-face approach to distance learning using video conferencing technology that demands student creativity. This new approach places the focus on students and is intended to adapt to modern needs through the boundaries of space and distance. Digital media, as one of the innovative learning technology, plays an essential role in learning [18] and has an indispensable contribution to uniting students' views and expectations about its use in the learning process.

Innovative learning technology is based on the use of computer chip systems, digital applications, and networks. Innovative learning technology includes all electronic devices such as DVD players, Liquid Crystal displays (LCD) projectors, interactive whiteboards, mobile devices, and other applications or devices. It is undeniable that Innovative Learning Technology has become the center of attention in language learning and learning. Innovative learning facilities such as computers, the internet, and broadcast technology can be used to communicate, create, disseminate, store, and manage information.

Innovative learning technology has been used thoroughly in all aspects of life, including education. The use of innovative learning technology in the field of Education, especially in language learning, has developed significantly. The effectiveness of the integration of innovative learning technology in the classroom requires appropriate pedagogy that can not only improve the quality of learning but can also change the learning approach. The integration process works effectively if innovative learning technology provides tools and environments that support active learning. Besides, the

integration process should also encourage all parties to think and work creatively and create new knowledge. The method of integrating innovative learning technology also emphasizes the importance of self-reflection, feedback, interpersonal communication, collaboration, and interactive both in the classroom and in the community [19].

English for Specific Purposes (ESP), especially in Business English, has a long history and is increasingly popular since the 1960s. The integration between students' needs and learning approaches is critical. Many language teachers have integrated innovative technology into classrooms that students can use when they enter the workforce. In English language teaching and learning, ESP also has used technology in its various forms of high-tech digital technology such as interactive whiteboards [20]–[23], Web 2.0 [24]–[26], mobile technologies [27]–[35], virtual environment [36]–[39], and Skype/online conferencing [40], [41].

The role of innovative learning technology in language learning and teaching is critical, especially for presenting the quality of native speakers as authentic learning on English communication. Reading online news or watching the news in the target language requires access to technology. In the process of learning and teaching, teachers can bring the outside world context into the classroom. Teachers can present authentic natural settings of English usage. Teachers can expose students to various English accents and train students to listen to English pronunciation from native speakers [42].

Apart from the positive impact of technology, technology may conflict with many educational goals. Disproportionate use of learning technology can result in deterioration of student literacy competencies, neglected educational environments, social interactions between teachers and students being ignored, and students becoming more individual when using technology [43].

The complexity of technology integration in teaching attracts several researchers to investigate the impact of using innovative learning technology in teaching and learning. However, the use of innovative learning technology is considered to increase the academic achievement that is relatively more significant than conventional technology. Integrating innovative learning technology into higher education is to improve the quality of the learning process, to encourage students to 'think about their thinking' during learning, and to prepare students for a world of work in which knowledge-sharing [44].

II. MATERIALS AND METHODS

The study was conducted at the Business Administration Department of Politeknik Negeri Ujung Pandang (PNUP), Makassar, South Sulawesi, Indonesia. The participants of this study are thirty-eight students who attended the Business English course. An online survey using Google Form was used to collect the data from the respondents. The questionnaire was designed to find out the responses of the students on the significance of Innovative Learning Technology (ILT), including the following aspects:

- ILT integration
- ILT skill
- ILT usefulness.

This study also finds out the ILT type preferred by the lecturers and learning materials access. The data gathered were analyzed descriptively. The descriptive statistics, especially in the form of a percentage, has been employed frequently for data analysis, and the reduction technique has been employed data interpretation [45], [46].

III. RESULTS AND DISCUSSION

The findings in this research are presented based on each item in the questionnaire. The collected data are presented under the heading of three categories, namely students' responses on the significance of ILT, types of ILT preferred by the lecturers, and learning materials access. Besides, this section also presents the discussion in this research by emphasizing the impact of ILT tools perceived by students. The results and the discussion are presented in the following subsection.

A. Students' Responses on the Significance of ILT

This section provides the perspective of the students on the significance of Innovative Learning Technology (ILT) based on three issues; they are ILT integration, ILT skills, and ILT usefulness. The following Figure 1 shows the student's responses to the three aspects of Innovative Learning Technology.

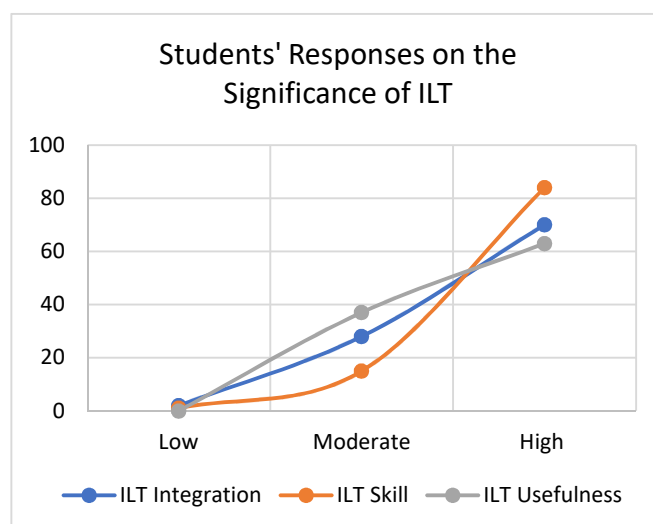


Fig. 1 Students' responses on the significance of ILT

1) *ILT integration*: This study also found that the inclusion of technology by the teacher was relatively high (70%), moderate frequency (28%), and the lowest frequency of technology integration was 2%. It shows that most teachers have integrated innovative learning technology in their teaching practice. The results indicated that by integrating technology in teaching, the teachers have shifted from traditional mode into a modern one. The development of computer network technology is not only a change in the conventional teaching model but also an impact on the conventional teaching philosophy [47]. Also, it changed teachers' and students' role and status in the traditional teaching process and is becoming a challenge for our traditional teaching methods and educational system. The shortage of teaching resources, which is a prominent issue, is caused by college enrollment. Faced with this situation,

integrating computer network technology and college English teaching effectively has become the key solution.

Today, there are many revolutionary changes in the classroom. The teaching method alone is not enough as the only element to teach English effectively. The effectiveness of teaching English requires the creation of a well-planned classroom environment. Students need a direction on how to learn well and effectively. Innovative Learning and Technology has led teachers to change the way to teach and made students change the way to learn English. At present, learning based on innovative learning technology is considered more beneficial than lecture-based learning.

Teachers need to find ways to use technology as a teaching medium [48], [49]. The innovative learning technology has significantly changed the technique of teaching English. Innovative learning technology offers many choices, such as fun and productive learning. In conventional classes, teachers generally stand in front of students and provide explanations using a blackboard. This technique needs to be slightly modified in connection with technological developments. The integration of the innovative learning technology texts in the classroom helps students become more acquainted with academic vocabulary and grammar. The integration of the use of printed texts, films, and the internet allows students to infer the information and familiarize themselves with numerous resources for interpretation. The internet presents students with various collections of English texts in multiple disciplines.

The integration of the internet in innovative learning technology can increase student motivation [50]. Besides, the use of digital media, such as film, seems to help students understanding topics and develop their knowledge. The teacher tries to encourage students to learn to use technology media but ignores the meaningful aspects of the use of technology. Students can experience meaningful learning when technology is used in the learning process using computers and the internet. Learning based on innovative learning technology helps students develop higher-level thinking skills and research competences. Hence, the right integration between innovative learning technology and teaching methodology can attract students' attention to learning English.

2) *ILT skill*: The second question on the instruments is to find out the familiarity of the student towards innovative learning technology integration. The result showed the strong familiarity of students (84%) on innovative learning technology integration, 15% were less familiar, only 1% of the students who were unfamiliar with technology integration used in teaching Business English. The students self-assessed on innovative learning technology familiarities included their skills and confidence concerning undertaking various technical tasks. The more familiar students to the innovative learning technology application in language learning, the better students' study results, particularly concerning subject mastery.

The skill to use various innovative learning technologies depends on the availability of technological devices [5], starting from essential things, namely computers to display images with the help of a projector, interactive board, or a TV set. The internet makes lessons easier to prepare, and

interactions are faster. The application of various innovative learning technologies that involve the use of new technology is increasingly gaining support from multiple parties, not only in educational institutions but also in public education institutions. Teachers who are equipped with innovative learning technology tools can be more skillfully using digital resources and innovative learning technology tools [51]. Students, using modern technology devices individually can revise and feel authentic material provided by teachers both during class and at home. This course aims to make students more actively involved and satisfied with the results obtained. Therefore, both students and teachers must have access to a variety of innovative learning technologies through a variety of technological devices.

3) *ILT usefulness*: In terms of usefulness, 63% of students perceived innovative learning technology as very useful, and 37% perceived it as useful in English for Business course, none of the respondents perceived it as less useful or not useful. These survey results indicate that almost all the students involved in this study had a much higher perception of the usefulness of innovative learning technology in the teaching and learning process. Availability of access to information and material on various topics on the internet, students, could easily find relevant and up-to-date content [52].

The profitability of using innovative learning technology is considered necessary, especially by young people and English teachers who recognize and strengthen ideas related to technology usage in the classroom [53]. Conversely, for older generations, not a few who criticize and underestimate the presence of learning technology. It is essential to realize that innovative learning technology exists to meet the individual needs of students in a group through a digital material approach. These activities not only stimulate students' creative thinking but also motivate them to practice language, both in and outside the classroom [54]. Besides, innovative learning technology can reveal students to practice the language in a familiar environment. This can relieve students to solve language barriers because they no longer feel isolated.

English learning material can be tailored out of the textbook [55]. Students get the chance to learn authentic language material. Students have been exposed to real-world realities related to language skills, and they tend to meet many communities. Besides, students are accustomed to gathering useful information and material, because today, most students use devices such as mobile phones and laptop at home. Moreover, students are very eager to learn and can stay focused longer in class. Various study materials available online can prevent students from feeling bored and monotonous. The learning process is growing to be more well-organized and independent. Internet access at home helps students develop language learning speed. Students can use additional learning platforms provided by teachers to master the assigned language competencies. Finally, the application of modern technology in the classroom can help students to develop the skills needed at work. Students gain practical skills, such as research and critical thinking.

B. Types of ILT Preferred by the Lecturers

The next question on the instrument required respondents to list the types of technology used by their Business English lecturers, the respondents listed as follows: LCD, computer, laptop, PowerPoint presentation, slides. The participants also put other online application such Edmodo, WebCT, Macromedia flash, Web-based learning, E-learning,

Learning Management System, Mendeley application, Online journal system, innovative learning, Spada (long-distance online learning), Moodle, Google Classroom, Emails, Video Conference and other social media such as YouTube, Facebook, WhatsApp. When the participants were asked about students' technology preferences, the results showed that they mostly preferred online applications.

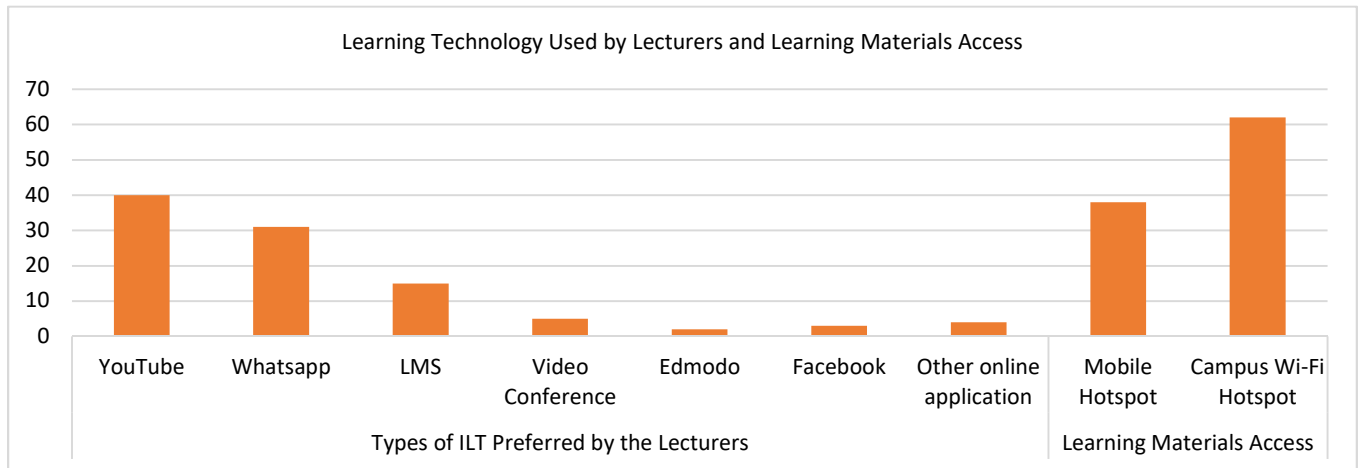


Fig. 2 ILT used by lecturers and learning materials access by the students

YouTube was the highest preferred (40%), followed by WhatsApp (31%), Learning Management System (15%), and the rest of 14% distributed respectively into other online applications like Edmodo, Video Conference, Facebook, and other online applications. This study indicates that students choose a pedagogical approach that is more diverse in the use of innovative learning technology.

The results were not surprising that students tended to choose the online application rather than other conventional learning technology tools [51]. Authentic needs and assignments of students are fundamental in Business English learning. Many language instructors have integrated this type into the learning media they use [50]. The technological and media applications that teachers use are very diverse, valued at Websites, YouTube, WhatsApp, and other sources of information in recent years.

C. Learning Materials Access

The participants accessed the online material in the class, on campus, library, at home, and in the internet café as the students feel comfortable to access. The most surprising that despite the campus provided free internet access to students, only 38% of respondents used it to access the online materials, the students mostly used their mobile hotspot, they are about 62% instead. The limited access and poor connections were the main reasons why they preferred using their data plan. To improve the quality of innovative learning technology integration, the institution should guarantee that all the equipment required is available for students. The institution also should provide institutional support and ensure the availability of Wi-fi connection to meet the Industrial Revolution 4.0 [56]. It is expected to enhance the literacy classroom [57].

The trend and demands of the mobility era are making the proliferation of laptop and smartphone devices necessitating efforts to increase the Wi-Fi Access Point. It is expected that

there will be the continued development of high-end level/enterprise Wi-Fi access points due to the complex use and increase of hit request access in the campus environment. Many campus internet devices are equipped with firewalls. Few people realize that there is indeed no immediate impact felt by users. Whereas on the network side, it is conducive to efforts to secure networks on campus for filtering content, filtering against malware/spyware, and helping to prevent users from being frustrated into links that cannot be accounted for security. Of course, this also contributes to slowing access because of all access through filtering in advance. The problem that arises that there are many requests on the campus network so that sometimes it makes the device overloaded on its resume.

D. The Impact of ILT Tools Perceived by Students

This study supports that students who viewed educational technology, especially online technology, improve English proficiency [58]. A significant feature of innovative learning technology is subject to enhance students' ability in listening and speaking as well as develop reading and academic writing skills [59]–[61]. At present, many open-source sites allow students to access various online educational activities and exercises in subject areas created by other teachers. This technological innovation enables students to facilitate their learning. Technological innovation has an extraordinary advantage in providing students with motivating means to be actively involved in learning and to get immediate feedback without requiring physical closeness with an instructor. Students also feel that educational technology can enhance advanced technology adaptation skills. By using the internet, students gain digital literacy skills in addition to learning the target language.

In addition to this, students in this research particularly valued that integrating technology gave them opportunities for collaboration skills in the form of knowledge sharing and

support using technologies. Collaboration skill encompasses the aptitude to work effectively in a group as well as to be respectful and responsible for members' value and works [19]. The research indicated that students perceived that the use of technologies in their learning developed their creativity. They had more chances to explore their creativity. Students 'creativity is related to the use of innovative learning technology in English language learning, such as self-made projects, group-made projects, task-based activity, imaging, and class project or workshop on a particular topic [62].

From Vygotsky's theoretical perspective, innovative learning technology mediates student learning that is creative and developed by developing dynamic zones [63], [64]. Using innovative learning technology shows that more teachers use innovative learning technology in the classroom so that fewer classes are teacher-centered and student-centered. Innovative Learning Technology requires the presence of classrooms that encourage innovative, independent, dynamic, and student-centered learning.

Learning English in the current era is increasingly facilitated by the presence of technological innovation [24], [25]. Students no longer rely on classes but can study anywhere and anytime, including smartphones and portable computers. The teacher's role is no longer the only source of knowledge but instead directs its students to learn interactively in various media that are familiar to them. Universities and colleges should provide support for various innovative learning technology training activities. Organizing activities based on innovative learning technology is intended to facilitate English language instructors in developing teaching methods. In current times, instructors are no longer trained to teach English in traditional ways such as writing, reading, from textbooks. Now there are mobile applications that can be utilized so that learning becomes more engaging, interactive, and dynamic.

Besides, English language teachers have a large role in helping their students achieve better educational opportunities, such as overseas scholarships. The average overseas scholarship requires participants to have good English skills. The role of English language instructors is enormous so that their students are better prepared to face challenges so that they are more likely to receive scholarships.

English teachers must not be antipathy to change in order always to be able to develop actual teaching methods in line with the times. In the current era, teachers are no longer more dominant in speaking. Now teachers are required to give the most extensive possible space for students to perform so that we can also measure their abilities [65]. Finally, teachers try to build student enthusiasm by facilitating them to convey the challenges and experiences they face in learning English as an evaluation of English teaching based on innovative learning technology.

IV. CONCLUSION

This study showed that students perceived the Innovative Learning Technology (ILT) integration, ILT skill, and ILT usefulness. This study also found the ILT type preferred by the lecturers and devices used mostly by the students to access the ILT. YouTube was the highest preferred,

followed by WhatsApp and Learning Management System, and the rest are distributed respectively into other online applications like Edmodo, Video Conference, Facebook, and other online applications. The results indicate that students perceived more the diverse online pedagogical approaches and access the materials using mobile hotspots than the Wi-Fi network provided by the campus.

The involvement of students in the classroom becomes the biggest problem in the world of education. Regular classrooms, it is quite difficult to make students stay focused on the material provided. This is because teachers do not know what keeps students interested in the class. When students are distracted, the instructors cannot repeat the missed material. With innovative learning technology, students can learn from anywhere if they are connected to the internet. Students can also be free to ask questions without having to feel embarrassed by classmates. The function of social networking is now not merely a matter of reconnecting with old friends or relatives far away. Students can also use social networking to enter learning communities. Students who are learning English can join English learning communities or groups on social networks. Within the community, students can share study tips or even practice right away.

REFERENCE

- [1] S. E. Eaton, "Global trends in language learning in the twenty-first century. Calgary, Canada." Onate Press. <https://files.eric.ed.gov/fulltext/ED510276.pdf>, 2010.
- [2] A. Raman, "Innovative Pedagogical methods for Imparting Management Education to Indian Students," *Int. J. Comput. Commun. Netw.*, 2013.
- [3] O. A. Almabekova, "Reflective teaching in ESP," *Журнал Сибирского федерального университета. Серия: Гуманитарные науки*, vol. 3, no. 3, pp. 462–475, 2010.
- [4] J. Dockstader, "Teachers of the 21st century know the what, why, and how of technology," *Journal*, vol. 26, no. 6, pp. 73–75, 1999.
- [5] R. Säljö, "Digital tools and challenges to institutional traditions of learning: technologies, social memory and the performative nature of learning," *J. Comput. Assist. Learn.*, vol. 26, no. 1, pp. 53–64, 2010.
- [6] J. Tondeur, J. Van Braak, P. A. Ertmer, and A. Ottenbreit-Leftwich, "Understanding the relationship between teachers' pedagogical beliefs and technology use in education: a systematic review of qualitative evidence," *Educ. Technol. Res. Dev.*, vol. 65, no. 3, pp. 555–575, 2017.
- [7] K. E. Clow, "Interactive distance learning: Impact on student course evaluations," *J. Mark. Educ.*, vol. 21, no. 2, pp. 97–105, 1999.
- [8] R. Ybarra and T. Green, "Using technology to help ESL/EFL students develop language skills," *Internet TESL J.*, vol. 9, no. 3, pp. 1–5, 2003.
- [9] T. Green, "Using technology to help English language students develop language skills: A home and school connection.," *Multicult. Educ.*, vol. 13, no. 2, pp. 56–59, 2005.
- [10] A. P. Gilakjani, "A Review of the Literature on the Integration of Technology into the Learning and Teaching of English Language Skills," *Int. J. English Linguist.*, vol. 7, no. 5, pp. 95–106, 2017.
- [11] A. W. T. Bates, *Technology, e-learning and distance education*. Routledge, 2005.
- [12] A. for C. and R. L. (ACRL) American Library Association (ALA), "Information literacy competency standards for higher education," 2000.
- [13] S. De Freitas and T. Neumann, "The use of 'exploratory learning' for supporting immersive learning in virtual environments," *Comput. Educ.*, vol. 52, no. 2, pp. 343–352, 2009.
- [14] Y. Kong, "A brief discussion on motivation and ways to motivate students in English language learning.," *Int. Educ. Stud.*, vol. 2, no. 2, pp. 145–149, 2009.
- [15] H. L. Sharma and L. Pooja, "Enhancing students' interest in English language viamultimedia presentation," *Int. J. Appl. Res.*, vol. 2, no. 1, pp. 275–281, 2016.

- [16] J. KeenGwe, G. OnChwari, and J. OnChwari, "Technology and student learning: Towards a learner-centered teaching model," *Aace J.*, vol. 17, no. 1, pp. 11–22, 2009.
- [17] A. W. Bates, "The impact of technological change on open and distance learning," *Distance Educ.*, vol. 18, no. 1, pp. 93–109, 1997.
- [18] K. Moyle and G. Wijngaards, *Student Reactions to Learning with Technologies*. IGI Global, 2012.
- [19] N. Pheeraphan, "Enhancement of the 21st Century Skills for Thai Higher Education by Integration of ICT in Classroom," *Procedia - Soc. Behav. Sci.*, vol. 103, pp. 365–373, 2013.
- [20] O. S. López, "The digital learning classroom: Improving English language learners' academic success in mathematics and reading using interactive whiteboard technology," *Comput. Educ.*, vol. 54, no. 4, pp. 901–915, 2010.
- [21] V. Armstrong, S. Barnes, R. Sutherland, S. Curran, S. Mills, and I. Thompson, "Collaborative research methodology for investigating teaching and learning: the use of interactive whiteboard technology," *Educ. Rev.*, vol. 57, no. 4, pp. 457–469, 2005.
- [22] E. C. Schmid, "Potential pedagogical benefits and drawbacks of multimedia use in the English language classroom equipped with interactive whiteboard technology," *Comput. Educ.*, vol. 51, no. 4, pp. 1553–1568, 2008.
- [23] E. C. Schmid, "Investigating the use of interactive whiteboard technology in the English language classroom through the lens of a critical theory of technology," *Comput. Assist. Lang. Learn.*, vol. 19, no. 1, pp. 47–62, 2006.
- [24] G. Conole, "Facilitating new forms of discourse for learning and teaching: harnessing the power of Web 2.0 practices," *Open Learn. J. Open, Distance e-Learning*, vol. 25, no. 2, pp. 141–151, 2010.
- [25] A. Inglis and U. D. Ehlers, "Web 2.0–e-learning 2.0–quality 2.0? Quality for new learning cultures," *Qual. Assur. Educ.*, 2009.
- [26] C. McLoughlin and M. J. W. Lee, "Personalised and self regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software," *Australas. J. Educ. Technol.*, vol. 26, no. 1, 2010.
- [27] J. Attewell, "Mobile technologies and learning," *London Learn. Ski. Dev. Agency*, vol. 2, no. 4, pp. 44–75, 2005.
- [28] A. Kukulska-Hulme and J. Traxler, "Mobile learning," *Mob. Learn. A Handb. Educ. Trainers*. Oxon Routledge, pp. 1–6, 2005.
- [29] M. Sharples, "The design of personal mobile technologies for lifelong learning," *Comput. Educ.*, vol. 34, no. 3–4, pp. 177–193, 2000.
- [30] L. Naismith, M. Sharples, G. Vavoula, and P. Lonsdale, "Literature review in mobile technologies and learning," 2004.
- [31] A. Herrington, J. Herrington, and J. Mantei, "Design principles for mobile learning," 2009.
- [32] Y. E. Shih, "Setting the new standard with mobile computing in online learning," *Int. Rev. Res. Open Distrib. Learn.*, vol. 8, no. 2, 2007.
- [33] H. Sollervall and M. Milrad, "Theoretical and methodological considerations regarding the design of innovative mathematical learning activities with mobile technologies," *Int. J. Mob. Learn. Organ.*, vol. 6, no. 2, pp. 172–187, 2012.
- [34] T.-C. Liu, H.-Y. Wang, J. K. Liang, T.-W. Chan, H. W. Ko, and J.-C. Yang, "Wireless and mobile technologies to enhance teaching and learning," *J. Comput. Assist. Learn.*, vol. 19, no. 3, pp. 371–382, 2003.
- [35] J. Herrington, A. Herrington, J. Mantei, I. W. Olney, and B. Ferry, "New technologies, new pedagogies: Mobile learning in higher education," 2009.
- [36] M. Chau *et al.*, "Using 3D virtual environments to facilitate students in constructivist learning," *Decis. Support Syst.*, vol. 56, pp. 115–121, 2013.
- [37] S. Burigat and L. Chittaro, "Navigation in 3D virtual environments: Effects of user experience and location-pointing navigation aids," *Int. J. Hum. Comput. Stud.*, vol. 65, no. 11, pp. 945–958, 2007.
- [38] B. Dalgarno and M. J. W. Lee, "What are the learning affordances of 3-D virtual environments?," *Br. J. Educ. Technol.*, vol. 41, no. 1, pp. 10–32, 2010.
- [39] A. Berns, A. Gonzalez-Pardo, and D. Camacho, "Game-like language learning in 3-D virtual environments," *Comput. Educ.*, vol. 60, no. 1, pp. 210–220, 2013.
- [40] N. Austin, R. Hampel, and A. Kukulska-Hulme, "Video conferencing and multimodal expression of voice: Children's conversations using Skype for second language development in a telecollaborative setting," *System*, vol. 64, pp. 87–103, 2017.
- [41] S. Ghazal, Z. Samsudin, and H. Aldowah, "Students' perception of synchronous courses using skype-based video conferencing," *Indian J. Sci. Technol.*, vol. 8, no. 30, 2015.
- [42] N. Kern and G. Motteram, *Innovations in learning technologies for English language teaching*. London: British Council, 2013.
- [43] K. Alhumaid, "Four Ways Technology Has Negatively Changed Education," *J. Educ. Soc. Res.*, vol. 9, no. 4, pp. 10–20, 2019.
- [44] J. Lichy and M. Kachour, "Understanding How Students Interact With Technology For Knowledge-Sharing," *Int. J. Technol. Hum. Interact.*, vol. 12, no. 1, pp. 83–104, 2016.
- [45] J. Saldana and M. Omasta, *Qualitative Research: Analyzing Life*. SAGE Publications Ltd, 2018.
- [46] R. J. Torraco, "Writing Integrative Literature Reviews: Using the Past and Present to Explore the Future," *Hum. Resour. Dev. Rev.*, vol. 15, no. 4, pp. 404–428, 2016.
- [47] Z. Ru-gang, "Study on the Integration of Computer Networks and College English Teaching," in *2nd International Conference on Science and Social Research (ICSSR 2013)*, 2013, pp. 355–358.
- [48] T. Teo, "Factors influencing teachers' intention to use technology: Model development and test," *Comput. Educ.*, vol. 57, no. 4, pp. 2432–2440, 2011.
- [49] F. Wang and T. C. Reeves, "Why do teachers need to use technology in their classrooms? Issues, problems, and solutions," *Comput. Sch.*, vol. 20, no. 4, pp. 49–65, 2003.
- [50] N. Garrett, "Computer-assisted language learning trends and issues revisited: Integrating innovation," *Mod. Lang. J.*, vol. 93, pp. 719–740, 2009.
- [51] S. Ghavifekr and W. A. W. Rosdy, "Teaching and learning with technology: Effectiveness of ICT integration in schools," *Int. J. Res. Educ. Sci.*, vol. 1, no. 2, pp. 175–191, 2015.
- [52] D. Laurillard, *Rethinking university teaching: A conversational framework for the effective use of learning technologies*. Routledge, 2013.
- [53] B. D. Loader, *Young citizens in the digital age: Political engagement, young people and new media*. Routledge, 2007.
- [54] T. Bentley, *Learning beyond the classroom: Education for a changing world*. Routledge, 2012.
- [55] G. Kartal, "Does language matter in multimedia learning? Personalization principle revisited.," *J. Educ. Psychol.*, vol. 102, no. 3, p. 615, 2010.
- [56] H. Syam, M. Basri, A. Abduh, and A. A. Patak, "Hybrid e-Learning in Industrial Revolution 4.0 for Indonesia Higher Education," *Int. J. Adv. Sci. Eng. Inf. Technol.*, vol. 9, no. 4, pp. 1183–1189, 2019.
- [57] J. Whittingham, S. Huffman, W. Rickman, and C. Wiedmaier, *Technological tools for the literacy classroom*. Information Science Reference, 2013.
- [58] S. M. Mahfouz and F. M. Ihmeideh, "Attitudes of Jordanian university students towards using online chat discourse with native speakers of English for improving their language proficiency," *Comput. Assist. Lang. Learn.*, vol. 22, no. 3, pp. 207–227, 2009.
- [59] A. A. Patak and M. Tahir, "Avoiding plagiarism using Mendeley in Indonesian higher education setting," *Int J Eval Res Educ. ISSN*, vol. 2252, no. 8822, p. 8822, 2019.
- [60] A. Hudriati, A. A. Patak, and M. Basri, "Assessing Indonesian University Students' Preferences on Mendeley Reference Manager for Scientific Writing," *Int. J. Adv. Sci. Eng. Inf. Technol.*, vol. 8, no. 5, pp. 2211–2218, 2018.
- [61] M. Basri and A. A. Patak, "Exploring Indonesian students' perception on Mendeley Reference Management Software in academic writing," in *2015 2nd International Conference on Information Technology, Computer, and Electrical Engineering (ICITACEE)*, 2015, pp. 8–13.
- [62] A. Musdariah, I. Anas, and N. Muchtar, "From ESA to ESCAPE: a conceptual model for teaching English in vocational higher education," *Int. J. Res. Stud. Lang. Learn.*, vol. 5, no. 4, pp. 53–65, 2016.
- [63] B. Jacobs and A. Usher, "Proximity as a Window into the Zone of Proximal Development," *Lit. Inf. Comput. Educ. J.*, vol. 9, 2018.
- [64] J. Bruner, "Vygotsky's zone of proximal development: The hidden agenda.," *New Dir. Child Dev.*, 1984.
- [65] G. B. Wright, "Student-centered learning in higher education.," *Int. J. Teach. Learn. High. Educ.*, vol. 23, no. 1, pp. 92–97, 2011.