



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT



## The Effectiveness of the Use of Technology in a Primary ESL Classroom: A Systematic Literature Review

Priyadharishini Ponnaiah, Azlina Abdul Aziz

To Link this Article: <http://dx.doi.org/10.6007/IJARPED/v11-i2/12275>

DOI:10.6007/IJARPED/v11-i2/12275

**Received:** 26 April 2022, **Revised:** 29 May 2022, **Accepted:** 15 June 2022

**Published Online:** 30 June 2022

**In-Text Citation:** (Ponnaiah & Abdul Aziz, 2022)

**To Cite this Article:** Ponnaiah, P., & Abdul Aziz, A. (2022). The Effectiveness of the Use of Technology in a Primary ESL Classroom: A Systematic Literature Review. *International Journal of Academic Research in Progressive Education and Development*. 11(2), 1812 - 1835.

**Copyright:** © 2022 The Author(s)

**Published by** Human Resource Management Academic Research Society ([www.hrmars.com](http://www.hrmars.com))

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licences/by/4.0/legalcode>

**Vol. 11(2) 2022, Pg. 1812 - 1835**

<http://hrmars.com/index.php/pages/detail/IJARPED>

**JOURNAL HOMEPAGE**

Full Terms & Conditions of access and use can be found at  
<http://hrmars.com/index.php/pages/detail/publication-ethics>



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT



[www.hrmars.com](http://www.hrmars.com)

ISSN: 2226-6348

## The Effectiveness of the Use of Technology in a Primary ESL Classroom: A Systematic Literature Review

Priyadharishini Ponnaiah, Azlina Abdul Aziz

Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Selangor

### Abstract

This paper presents a systematic literature review of relevant past studies that are related to the effectiveness of the use of technology in a primary ESL classroom. The studies analysed are from 2014 to 2020 with a total number of sixteen past studies. The focus of this paper is to learn the effectiveness of the use of technology in primary ESL classrooms. This paper also includes sub-focused aims which are the types and methods of technology that can be implemented in an ESL classroom and the challenges encountered before, during or after the implementation. Through the analysed articles many relevant information were gathered for this study. The study mostly resulted the engagement and motivation attained by the learners while using technology as a learning tool in an ESL classroom.

**Keywords:** Technology, Effectiveness of Technology, The Use of Technology, Primary ESL Classroom, Types of Technology

### Introduction

Language is fundamentally a means of communication among people around the world. Language is a medium utilized in where an individual receives or conveys a particular message or information orally. The non-existence of language in a community would have made life a battle to understand one another's' opinion at any circumstances. Languages are multiple in this world where different community, ethnics or religion uses different language to communicate. Looking back and forth, to the most preferred and chosen language by most of the people in the world is definitely the English language.

In the process of globalization, English language became the most dominant international language and addressed as the second language (ESL) or global language. It is also believed to be the most used language across the world for communication purpose in various fields.

Therefore, the importance of learning English can never be denied. The English language has many purposes to acquire. As stated by Graddol (2006) English acts as literacy, numeracy, information technology, a basic skill and a foreign language that is one of the primary curriculum component. Therefore, it is vital for the primary learners to gain exposure, learn and acquire English language. Learning a language from the early ages itself is better as fresh young minds will be able to learn a language faster compared to adults due to their active and connective learning ability. There is various importance for primary learners in learning English language. The importance includes language awareness, language aptitude, time, to acquire better pronunciation which leads to confidence and prepares learners to face the world with utmost inner strength (Primadina & Suwarsih, 2019).

In Malaysia, English language is introduced to a child as early as 2 years old if they have a primary family background who uses English to communicate or at the age of 5 in pre-school. The start then continues from the age of 7-12 in primary schools and proceeded from the age 13-17 in secondary school. Significantly, an individual in Malaysia learns approximately 11-12 years of English at their school life phase itself before facing the world independently. One of the main importance for Malaysian learners to learn and acquire English as it serves as a common language and common content syllabus for all schools in accordance with The National Education Policy which prepares them to undergo the process of enculturation. English language is also a pillar to the Malaysian learners when they outgrow their phase of life further. However, the primary and secondary learners are still unaware of the importance of learning English due to their level of maturity and exposure. They hesitate to step out of their comfort zones and pursue to communicate in their mother tongues or the Malaysian official language Bahasa Malaysia. Encouragement and motivation are needed for Malaysian learners to step out of their comfort zones, learn the importance of learning and acquiring English in their lives. Relatively, educators or teachers plays a vital role in arousing learners' interest to learn English from scratch, in school itself, by applying suitable learning strategies in classrooms. Applying technology as a learning strategy could be handful for teachers to propel learners to learn English is an undeniable fact.

Technology, a word that owns multiple definitions or meanings for one to understand its' concepts and importance for global purposes. Various researchers and authors have presented various meanings of technology from different perspectives for the society to understand. Most of the researchers have stated that defining technology is crucial but spreading its importance to the world was not a tough job as people and world inhaled its existence and validity when the globalization persisted especially during the 21<sup>st</sup> century. As stated by Brey (2009) although it is crucial to define technology in one word or a verse, the society is aware of what it is and can differentiate man-made and natural phenomena without doubting. Touching on the brief history of the initial existence of the word *technology*; which actually appeared in the second edition of Thomas Blount's *Glossographia*, a dictionary which

was found in the year 1661 (Nye, 2006). Later, a mild washout occurred on the word on and off along the years and the word commonly existed in the half of 20<sup>th</sup> century where it was reaching towards the 21<sup>st</sup> century when technology became a necessity in daily lives. Again Nye (2006) stated that technology means as a systematic study of an art. Similarly, Volti (2009) stated that the word *Techne* means skill and art.

Technology is encountered as a vital teaching component as it could assist the teachers to make teaching interesting, catchy and productive. As stated previously, technology plays a crucial role in our society especially in terms education. As stated by Ahmad & Naser (2015) the Information and Communication in Technology (ICT) enforcement in language education has been under the limelight among people throughout the world. Halfway through of the 21<sup>st</sup> century, the use of ICT in education has become the most significant process. Technology provides room for a smooth language learning process to take place. Therefore, it is significantly a great platform for teachers to apply them in teaching and learning especially in an ESL classroom. English is a world-known language that is not really given the first place in most of the countries despite of the importance of learning it. Technology provides space for social and linguistic acquisition. Teacher should bare that point in mind and ensure that the strategies implemented in a language learning classroom should encourage the learners to attain it productively.

Technology implementation in ESL classroom brought a major positive change among the Malaysian learners especially to those who started from primary schools. Teachers teaching styles changed, learners' learning styles in acquiring English as a Second Language and both ushered positive impacts to the education field. This verse validates the statement given by Mansor & Rahim (2017) where they stated technology has changed the education field, which brought a consequence on the field of English as a Second Language (ESL) teaching. Therefore, it's clearly proven that technology brought vast changes to the world which includes Malaysia. In Malaysia, technology was implemented in ESL classroom by using tools such as laptops, netbooks, speakers, microphones, LCD projectors and internet services. Implementing technology in classroom actually defines the use of technology-based tools, softwares and applications. Bax (2012) stated that computer-assisted language learning (CALL) has become a commercialized culture in education and it's terms. Technology has become a common component in English language teaching and learning process due to its enrichment in engaging learners. Daniels & Pethel (2005) stated that technology has totally shifted the view of learners' in learning especially among Malaysian learners. Technology have transfered learners view to be more interested, encouraged, active and engaged towards learning ESL, especially in the current pandemic.

Pandemic, a term used to describe the disease outbreaks that occurs from human-to-human. Honigsbaum (2009) stated that pandemic is commonly used to refer to a widespread epidemic of contagious disease worldwide or region at the same time. Relatively, the world

has witnessed the emergence of several disease outbreaks over the years such as bird flu, H1NI, SARS and many other infectious diseases (World Health Organization). However, the public health system has been having a great change after the existence of the latest addition among the list of infectious disease which is the Covid-19 which predominantly appeared in year 2020 unwelcomingly. Millions of people were infected and drastic restrictions were given by the government to the society to stay safe. People had to get permitted from the police to travel and permits were given upon emergency or vital purposes and medical was first in line. Nevertheless, people were allowed to travel between 10 kilometres radius without permits, to purchase important household items yet with a complete protection and required distance. The Covid-19 pandemic is a dreadful global impact and caused unprecedented crisis in many corners and education is one of them. Dhawan (2020) mentioned that education sector has greatly been affected by the pandemic and yet this is expected to extend globally across the education sector. Schools, colleges or any other education related institutes and programs were forced to be discontinued. Schooling children are effective in spreading the disease and so closing schools around were vital as the first intervention to avoid outgrowing the disease. It was a great challenge for the education ministry, school administrators and teachers to carry out lessons and maintain the educational continuity as face-to-face interaction was suspended. Then came the rescue in the name of E-learning.

Technology in education was important from the beginning in the teaching and learning process, especially to meet the needs of the 21<sup>st</sup> century learning as per the Ministry of Educations' expectance. However, its help was needed and the benefit was appreciated in whole after the existence of the deadliest disease and pandemic. Almost all countries worldwide are implementing E-learning for the educational continuum. According to Siemens (2015) E-learning is also known as online learning is a form of distance education that involves using technology as the mediator of the learning process, and that teaching is entirely delivered through the internet. In short, E-learning is enabling teachers to provide education and learners to learn through technological devices and gadgets from far. E-learning has become a saviour for teachers, learners and parents at the current moment. E-learning is the platform where the teachers and educators play a vital role in organizing, implementing and adopting syllabus in accordance to the learners' interest, level and availability. Unfortunately, this period of time is greatly challenging for teachers and educators to provide quality education. However, Carey (2020) stated that embracing E-learning in a significant way is even more vital. Out of fortune, the world is still being equipped to against the beast.

This study aims to explore the effectiveness of using technology in primary ESL classrooms. This study also aims to discuss the type of technologies implemented and the experiences faced by both teachers and learners during pandemic.

### 1.1 Research Objectives

- To explore the effectiveness of using technology in primary ESL classrooms

- To discuss the type of technologies implemented in primary ESL classrooms
- To explore the experiences of implementing technology in primary ESL classrooms during pandemic

### **Research Questions**

1. What type of technology-based tools and methods have been used in a primary ESL classroom to encourage primary learners to learn English language?
2. How effective can teaching and learning be by using technology in primary ESL classrooms?
3. What are the challenges encountered in implementing the use of technology in primary ESL classrooms?

### **Literature Review**

In this section, an overview of the effectiveness of the use of technology in primary ESL classrooms will be reviewed from various past studies. This is to figure out and discuss the meaning of educational technology and to identify various type of tools and their implementation. Followed by the effectiveness, values, reasons and challenges of the use of technology in primary ESL classrooms from various perspectives and images through teachers and learners. The use of technology has increased vastly during the pandemic which is the current situation worldwide since 2020 and it will be one of the element added in this paper. Overall focus will be on ESL classrooms yet, Malaysian ESL classrooms will be still under the limelight for a purpose.

### **The definition of Educational Technology**

Education and technology are two different words which upholds different meanings. Generally, education means a knowledge that an individual learns, receives or acquires from something or someone, systematically or pattern less. Technology, the word that foreshoots computers and gadgets which leads to the definition of developed machines by applying scientific knowledge. The combination of both 'education' and 'technology' exhibits the knowledge an individual gathers on scientific knowledge based-developed equipment and this is in par to a general definition. A vast number of educationists, researchers and individuals have expounded 'educational technology' over a period of time. First, technology, logically technology is crucial to define. However, the society may understand the concept of technology through daily experiences. Supportively, Brey (2009) stated that although it is difficult to develop a particular definition for 'technology', people do understand the meaning of it and can differentiate between man-made things and natural occurrence. As stated by Fardanesh (2015), it is a Greek word that defines as an art of career systematically. Technology is a systematic explanation. Similarly, Soloman (2000) defines technology as the

systematic application of all sources of organized knowledge that relates to art, craft and science. In a text entitled "Society and Technological Change", technology is stated as a system created by humans that uses knowledge and organization to produce objects and techniques for the attainment of specific goals (Volti, 2009). Predominantly, the words systematic, explanation, organization, art and techniques are being mentioned back to back in the effort of defining 'technology' proclaims the explanation for humans to relate better on the understanding. Second, education, a word that claims knowledge independently. Education is a process of interaction between the learners and the resources cast-off for learning. Education is also diverged and conceptualized into two, which is the teaching and learning process. Pakpur (2011) mentions that these are the nature of education. Education most of the times acts in two direction, two-directional education is known as the most active form of education. 'Technology' and 'Education' are merged and called as educational technology. Despite the words, the meanings are also merged and purpose are also merged. Educational Technology is described as the application of mechanical and material tools that may assists to educational problems. Intensively, educational technology is stated to be the systematically process for intellectual growth (Lakhana, 2014). Song & Kidd (2010) defines educational technology as the combination of analysis, design, production, evaluation, implementation and management of educational systems and various learning environment which leads to learning and evaluation of mind, body and spirit (Ahmadigol, 2016). Educational technology is always expected to facile the learners learning process in accordance to the current educational systems. In another context, educational technology is stated as the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources (Januszewski & Molenda, 2013). Finn (1962) explicated educational technology as a thought process or behaviour in notifying a particular issue. The National Council for Educational Technology (1967) stated that it is a combination of development, application, an outgrowing system, technique and assistance to nurture humans' learning process. These two subsequent definitions relate to the objectives of implementing technology in education for learning purposes. Educational technology allows the learning methods to be modernized in accordance with the current education system. Despite, the help technology can lay for teachers and learners, it also favours in commuting desirable behaviours among teachers and learners positively. In a study carried out by Ghavifekr & Rosdy (2015) on the effectiveness of ICT integration in schools resulted that technology-based teaching and learning is more effective in compared to traditional classroom as ICT tools develop an active learning environment which benefits both teachers and learners. The study indicated that ICT could stimulate learners' participation which boost their learning (Ghavifekr & Rosdy, 2015).

### **The Various Types of Technology used in Education in an ESL Classroom**

Technologies are implemented in education to provide an easy flow in teaching and learning process, especially learning. People worldwide believes that technology aids and provides effortless space in the process of learning and Malaysia is one of the subsequent countries that has been practicing this now. Embi et al (2012) stated that the Ministry of Education (MOE) for instance, has identified e-learning as one of the Critical Agenda Project in the quality development of humans and intellectual capital. Incorporating technology in education can be said as applying ICT skills, known as e-Learning. There are many basic and commonly incorporated technology applications such as Microsoft Word, Microsoft PowerPoint with the right equipment provided by schools or educational centres which are the LCD projectors, laptops and netbooks. Yet, there are also new technologies that have been found and incorporated in learning specially to assist during the current pandemic which are the 'ZOOM' meet, 'Google' meet, MOOC and Padlet which is a virtual teaching and learning platform. Apart from that, learning applications in game forms such as Kahoot, Quizizz, Word Wall and many more are being implemented in the teaching and learning surface. There can be various tools and application utilized in implementing technology in education, however, just a computer-based instruction is adequate to arouse an effective learning is what can be proposed here. This relates to a study on the Malaysian teachers' perception of applying technology in the classroom, where most of them felt that computer instructions were favourable in their teaching and they would want to implement it in their future teaching days as well (Nikian et al., 2013). In an article entitled "Tools for learning", digital resources have been used to promote active learning and engagement among learners. Digital resources encompass content and multimedia elements which are text, image, video and audio. Effective combination of words and images are believed to be a way to engage learners into learning better (Eady & Lockyer, 2013) which supported the statement by Mayer (2008) where research on multimedia has encountered more positive outcomes for learners from resources that combine text and images, rather than text alone. Analysis and simulation tools such as mind mapping tools, database software and spreadsheet software have mentioned to be supportive in learning process (Eady & Lockyer, 2013). Together with the technology tools mentioned previously, there were some other tools used in a study in Minnesota to create a constructivist learning setting and guide learners to learn on their own. The implementations helped in diagnosing how certain tools moulded learner's different types of learning styles and development in adapting technology (Solvie & Kloek, 2007). There is no limitations of tools, equipment or applications when it comes to implementing technology in education. It is only that teachers or educators should be aware of the latest technologies and the types of compatible technologies that cater towards the learners' needs.



### **The Effectiveness of Technology in an ESL Classroom**

In par to the constant evolvement of technology in an ESL classroom, it is clearly seen that the teachers, educators and the society are aware of the effectiveness of technology in education towards the learners. There are wide range of effectiveness divulged by many researchers or educationist in past studies. Pazilah et al (2019) stated technology acts as a source of motivation and interest for learners. Motivation is vital for learners to be engaged in certain behaviours to perform and achieve academically. Learners' motivation is an essential element that is necessary for quality education (Palmer, 2007). Technology also gives the opportunity to learners to experience authentic learning environment which acts as a stimulant to learners' initiative in learning (Pazilah et al., 2019). Authentic learning allows conformity with complexities and real-life problems and solutions to the learners which mould the learners to be prepared for their upcoming real-life adventures especially in higher studies and job markets globally (Lombardi, 2007). In a study carried out in an ESL classroom in Bangladesh, technology evolvement in the teaching and learning process have resulted an enjoyable classroom environment compared to non-ICT classes. The learners were attentive and curious to learn the language which led to a learner-oriented classroom and improved learners questioning skills (Parvin & Salam, 2015). Diallo (2014) conducted a study aimed at explaining the help technology usage can provide for ESL learners to be more proficient in English. Technology tools and comprehensive input through via technology provides high motivation, self-confidence and reduces anxiety among ESL learners (Diallo, 2014). Material adaptation is a great way to cultivate learners into lesson as it shades off boredom and gives a new learning-like environment which promotes to learners' increase in motivation. This study resulted those teachers who adapted learning methods via technological tools and applications broaden the motivation among ESL learners.

### **The Challenges of Implementing Technology in an ESL Classroom**

Few kinds of research have examined and discussed several challenges in implementing technology in the process of teaching and learning. Some challenges are also repetitive as they are major challenges in many of the regions in our country. Mohammed & Idris (2020) investigates the challenges of EFL learners face in learning English via E-learning. The study indicated that learners were unable to develop speaking skill and technical skill through online and individual learning respectively. Learners needed support to develop the skill wholly. Johnson, Johnson et al (2016) suggests that technology implementation challenges are greatly for teachers including external challenges, internal challenges, teacher attitudes and beliefs as well as teacher resistance to technology in classroom. The study focused on teachers' training, access, support and skills that needs to be observed and adjusted every now and then, that may lead to a successful technology implemented classroom that could deliver a quality education for learners to win. Pazilah et al (2019) argued technology implementation

in classroom restrict learner's thinking potential, possible distractions and misuse occurs. A quality learning takes place when learners can think for answers logically or knowledgeably, however, the implementation of technology provides an easy path for learners to succeed without putting much effort intellectually. Learning is a broad area, whereby, using technology can be both positive and negative in learning. Positive learning will enable learners' future to succeed against education. Whereas negative learning may lead to destruction of education and later, future. Mayes et al (2015) mentioned humans' attitudes and efforts, selecting the content and delivery system, teachers' efforts and cultural diversity as some of the challenges in technology implementation in education. Teachers and educationist should ensure that technology implementation meet the needs of 21<sup>st</sup> century learning and contributes to the development of learners. Yuliani & Mercuriani (2021) mentioned ICT infrastructure as a major effect in their study. ICT infrastructure includes computers, netbooks, LCD's, projectors and any other tools that is provided for technology-based lesson. Inadequately equipped classroom led to a great challenge for both teachers and learners to learn via technology. Other than that, placement of tools, poor internet access, funding barriers, lack of skill, lack of time and poor administrative support are also the challenges of implementing technology in education (Yuliani & Mercuriani, 2021).

E-learning was a commonly used educational methodology. However, there were still some hurdles in the process of implementing E-learning. In a study carried out by Eltahir (2019) one of the challenges that a university encountered was the adopting system. Technology obstructions, technology accessibility, self-regulated learning level, course and cultural challenges was inclusive. A number of challenges could be laid out based on the past studies by multiple educationists. Ko & Rossen (2017) stated teaching activities attain success when teachers dominate in ICT knowledge and the experience of utilizing them, inexperienced teacher may have troublesome in preparing suitable activities. Furthermore, Aliyyah et al (2020) mentioned that non-prepared teachers may fail in encouraging learners to participate and perform. Senior teachers had hurdles in material adaptation especially during the COVID-19 (Reimers et al., 2020). Eventhough, E-learning provides massive benefits in education, the challenges of implementing it was still circulating among teacher and learners. An example given was the learners' focusing level. Other online activities or gist may encourage the learners to try out something else upon what is supposed to be done or learned which leads to a less meaningful process of teaching and learning to occur (Yunus et al., 2019). Technical issues could also be a challenge of the implementation (Halim & Hashim, 2019). A real talk or realistic communication also lack through the implementation of ICT (Pazilah et al., 2019). Furthermore, it is always vital to ensure that adapting materials for learners should cater towards their level of learning and understanding which multiplies the job of an educator (Gillett-Swan, 2017). Educators who lack in technology knowledge might not be able to provide a suitably adapted material which will make issues rise in the learning

process. Teachers must ensure to plan perfect of the lesson and objectives that are being delivered to the learners. The COVID-19 pandemic also taught the educators or instructors to be more aware in planning education framework which is appropriate for learners to help them in their academic performance and knowledge.

### Methodology

A literature review may occur in many types of research to satisfy the possible findings of a particular study. However, a systematic literature review lifts up a case study even better for its accuracy and multiplications in findings to answer a certain question that has been proposed in the paper in depth. A systematic literature review attempts to identify, appraise and synthesize all the empirical evidence that meets pre-specified eligibility criteria to answer a given research question based on the Cochrane Systematic Literature Review (Chandler & Hopewell, 2013). A successful literature review involves three main procedures which are planning of the review, conducting review and reporting the review (Kitchenham & Charters, 2007) later followed by identification of review, specifying and developing research questions and protocol (Xiao & Watson, 2019). It is explicit and systematic approach that distinguishes systematic reviews from traditional reviews and commentaries (Khan et al.2003). For this paper, the five steps to conducting a systematic review has been applied to answer the research questions. Sixteen past studies related to the effectiveness of technology in an ESL classroom has been collected from various sources and analysed.



Figure 1

#### Step 1: Framing the research question (RQ)

First step explains the very first thing a researcher should focus and identify before carrying out any research process. It merely acts like a draft to conduct a study and narrow down the scopes to understand what the actual requirement of the study is. Researcher must be clear on what needs to be pointed out, and then collect and assess the findings. In short, the research questions is the platform to answer the objectives of the study to reach the goal. Forming structured research questions would emphasize the problems of the study in detail. The formulation of research question constitutes the starting point of the research and serves

as a foundation (Akhidime, 2017). Hence, this paper aims to answer the research questions which focuses; (1) on the type of technology-based tools and methods used to encourage learners to learn English (2) the effectiveness of using technology in teaching and learning (3) the challenges encountered in implementing the use of technology among primary ESL learners in primary ESL classrooms.

### **Step 2: Identifying the Relevant Work**

Second step is to identify the relevant work. This step is to capture the researchers motive from the research questions to the flow of past studies. The researcher should collect a wide range of studies through various related and relevant resources. The systematic review, the researcher searched related articles in Google in PDF format and Google Scholar database, from the recent year, with the gap of ten years the least. Most of the articles shortlisted were published in Google Scholar. In searching for relevant articles, the researcher used several terms such as; 'the effectiveness of technology', 'the impact of technology', 'the benefit of technology', 'the technology-guidance', 'the implementation of technology', 'the challenges of technology', 'the use of technology', 'the type of technology-based tools' added with 'ICT' and 'an ESL classroom' at almost every search to attain a more relevant past studies. In the case the researcher comes across an article that really suits the study, the researcher proceeds to click "related articles" to find articles that are relevant to the study. Researcher also made sure to find for articles that are related to the Malaysian contexts, to discuss the issues among Malaysian ESL classrooms. Hence, different information or definitions from different authors and articles have been proposed in this paper for a better view on this research.

### **Step 3: Assessing the Quality of Studies**

The third step is to assess the quality of the studies conducted by past researchers and make sure that they are relevant. The quality assessment includes the purpose, research questions, research design, participants, statistics, benefits, contributions, suggestions, limitations and how does it relevantly relate to validate the study. The researcher in this paper collected 16 different past studies that are related to technology. The studies have been assessed from different scopes that leads to the topic of this study including the effectiveness, challenges, number of participants, types of participants, types of classroom, language learning, types of technology applied and other vital elements. Each and every detail have been thoroughly gone through to ensure the validity and how can it contribute to this research as it is an intergral component for a successful systematic literature review.

### **Step 4: Summarize the Evidence**

The fourth step is the “Summary Section”. Summary in other words is to simplify and align informations of all the past studies collected in a nutshell. The summary acts as a guide to the readers and to decide what needs to be reviewed during the study selection phase (Aromataris et al., 2015). In this paper, important components from all the 16 past studies have been assessed, encapsulated and tabulated. Details such as title, author, year, number of participants, research design, aim of the study, types of technology applied and the results have been included in the table. The researchers’ findings on all the different past studies is clearly relating back to the topic proposed in this study and helps the readers to decide on what is really being answered in this paper.

### Step 5: Interpret the Findings

The final step is to explicate the findings of the study. Another crucial step in a systematic literature review, as all the collected information will be interpreted and discussed through this particular step to make the study entirely understandable. Interpreting findings generally leads to the strengths and weaknesses of a particular study and how does it conclude for betterment. Briefly, it’s a lead for the researcher to come up with limitations and an area for future research.

### Results and Discussion

A number of 16 articles were collected, analysed and tabulated. The researcher pointed out six important details from all the articles. This is for the researcher to gather information and evidences on all the articles, compare and contrast its similarity and differences that helps for the researchers’ current study. There are nine articles collected from the year range of 2016 to 2020 and the other remaining articles collected are older than 2016 but from years 2014 and 2015. This is to validate the researchers’ current study information which suits the current issues and trends as well as guiding the researcher to answer the research questions proposed in this study.

Bil	Year	Author	Title	Aim	Research Design	Number of Participants	Technology Applied	Results
1	2014	Smeda, et al	The effectiveness of digital storytelling in the classrooms: a comprehensive study	To use digital storytelling and create a constructivist learning phenomenon	1. Qualitative method used to collect data via interviews and observations 2. Quantitative method used to collect data via evaluation rubric 3. Mixed method research designs were used for data collection	Students and teachers who were engaged in a primary and secondary level Australian schools which were selected with no specifications in numbers	Digital storytelling	Suggested that digital storytelling is a powerful tool to integrate instructional messages with learning activities to create more engaging and exciting learning environment

INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION AND DEVELOPMENT

Vol. 11, No. 2, 2022, E-ISSN: 2226-6348 © 2022 HRMARS

2	2014	Andrade	Role of Technology in Supporting English Language Learners in Today's Classroom	The study was carried out to identify different teachers' methods and strategies used in the classroom to support ELL's and to identify some technological tools	1. Qualitative research study has been carried out  Data collected from an in-depth literature review and two interviews with experienced teachers from different grade levels were analysed	No number specifications, yet, intended for teachers who are interested in using technology with their ELL's	Computers, tablets and SMART boards	1. Each participant has their own ideas and experiences using technology in the classroom  2. the teachers believe that using technology increase motivation  3. They also understand using technology independence, self-confidence and improves their language skills
3	2014	Tri & Nguyen	An Exploratory Study of ICT Use in English Language Learning Among EFL University Students	This study aims:  1. To explore the frequency, general and educational purposes of ICT use among EFL students  2. To examine students' perceptions and expectations of ICT use in English language learning	Quantitative Study: Questionnaire was used to collect data	This study used a convenience sample of 149 English major students (129 female and 20 male) from five classes at Hoa Sen University.	General ICT applications on Internet for both learning and non-learning purposed	The study has resulted that:  1. Students spend more time employing ICT for general purposes than for language learning purposes  2. Students showed strong positive attitude towards the benefits of technology to English language learning and expected that ICTs should be used more frequently in English teaching and learning.
4	2015	Ghavifekr & Rosdy	Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools	Analyse teachers perceptions on effectiveness of ICT integration to support teaching and learning process in classroom	Quantitative Study: survey and questionnaire	101 teachers from public primary and secondary schools	ICT tools and equipment	1. ICT integration has great effectiveness for learners and teachers  2. Adequate ICT facilities and equipment are the main components for technology-based teaching and learning to succeed  3. professional development training program for teachers are vital in enhancing students' quality learning
5	2015	Sung et al	The Effects of Integrating Mobile Devices with Teaching and Learning on Students'	To identify the effects of integrated mobile devices in teaching and learning	Qualitative focused group study	Inclusive of kindergarden, elementary school, middle school, high school,	Mobile devices: laptops, personal digital assistants, and mobile phones	1. language arts was the most used subject  2. learning with mobile is

			Learning Performance: A Meta-Analysis and Research Synthesis			university, graduate school, teachers, adults and mixed in a large scale	Software applied: Word processors, spreadsheets and web browsers	significantly more effective than traditional teaching methods  3. mobile assisted learning instructions were not effective for groups with mixed-age students
6	2015	Vanderlinde et al	Teaching and Learning with Mobile Technology: A Qualitative Explorative Study about the Introduction of Tablet Devices in Secondary Education	To investigate the teachers' and students' perceptions concerning the impact of using tablet devices for teaching and learning purposes	Qualitative focused group study	60 participants: Six focus groups with ten participants in each group	Tablet device	1. The use of tablet devices in the classroom setting has an impact on both teaching and learning practices  2. Suggests that teachers can be divided into two categories: the innovative teachers and the instrumental teachers.  3. The results also indicates that policy makers should consider introducing technical and pedagogical support to facilitate both teachers' and students'
7	2015	Holmes et al	Moving from Flipcharts to the Flipped Classroom: Using Technology Driven Teaching Methods to Promote Active Learning in Foundation and Advanced Masters Social Work Course	1. How technologies are often used in higher education  2. The benefits and limitations of implementing such advancement	Quantitative Study: questionnaire and open-ended question	Three faculty members which consist of one field and two academics were involved in this yearlong fellowship	1. Interactive technology and technology-based peer-to-peer active learning  2. interactive classroom learning spaces  3. collaborative technology	Using google applications promoted collaborative and active learning.
8	2016	Al-Harbi & Alshumaimeri	The Flipped Classroom Impact in Grammar Class on EFL Saudi Secondary School Students' Performance and Attitudes	The aim of the study was to determine the effectiveness of flipped classroom strategy can solve the imperative issue in EFL training in Saudi Arabia: the limited opportunities students have for interaction, participation and practice of English during regular classes	Quasi experimental research design: placement test, post-test, questionnaire and semi-structured interview	43 female English as a Foreign Language learners in Riyadh, Saudi Arabia	Flipped classroom approach	Adopting the flipped classroom strategy:  1. Appears to play a role in enhancing students' grammar knowledge  2. Promotes active learning among students  3. Activated student's role to

								be more dominant 4. Improved lack of communicative language learning approach 5. Positive attitudes among students
9	2017	Francis	The Effects of Technology on Student Motivation and Engagement in Classroom-Based Learning	To identify the effects of technology in inclusionary education.	Descriptive data was collected	348 students and 65 staffs	Google Chromebook, SMART boards, proximity cards and cloud printing	The students feel motivated through the specific use of technology in the classroom, whether it be for pedagogical purposes or for accommodations as required by an Individual Education Plan (IEP) or 504 plan.
10	2017	Schindler et al	Computer-based technology and student engagement: a critical review of literature	To present a critical review of the literature related to explore on how digital applications influences learners' engagement.	Experimental or quasi-experimental designs were used in small sample size	1. Participants were not randomized 2. Participants who volunteered to use a specific technology were compared to those who chose not to use the technology	web-conferencing software, blocks, wikis, social networking sites (Facebook and Twitter), and digital games	1. Resulted those digital games provide the most far-reaching influence across different types of students 2. Suggests that computer-based technology influences student engagement
11	2017	Plump & LaRosa	Using Kahoot in the Classroom to Create Engagement and Active Learning: A Game-Based Technology Solution for E-Learning Novices	How did Kahoot application manage to engage students.	Quantitative data: survey research design.	1. six classes at a north-eastern university: five undergraduate business law classes (111 students) 2. one graduate global management class (28 students) 3. combined total of 139 students	Kahoot application	Implementation of KAHOOT: 1. Active Learners: encountered active and fun learning experience 2. Passive Learners: Focused and participated in lessons 3. Contributed positive learning environment
12	2017	Neto et al	Using Technology Driven Flipped Class to Promote Active Learning in Accounting	This study aims to investigate the performance of the students during the class and their perception of the use of the enhanced flipped classroom approach	Descriptive method: Evaluate the learning and students' view from thorough use of technology to enhance the flipped class approach.	78 students from a public university in Brazil.	Flipped classroom approach	Flipped classroom implementation resulted a vast improvement in students' behaviour and academic results.
13	2018	Bakar Noordin &	Engaging English Language Learners Through the	To examine the engagement of learners via Google Classroom activities and their responses in	Mixed method which consists of teacher's or researcher's teaching	25 Malay male students between 21 and 26 years old who are pursuing a	Blended Learning Approach	1. Google classroom implementation favoured both learners and teacher by



			Use of Google Classroom	a Communicative English course.	documents, students' responses and activities in Google Classroom, and a questionnaire	diploma in an electrical course		engaging and managing classroom respectively. 2. Google classroom provides an easy and accessible learning moments for learners.
14	2019	Sanchez et al	Impact of educational stage in the application of flipped learning: A contrasting analysis with traditional teaching	To analyse the flipped classroom approach while taking into account the characteristics inherent to students according to their educational stage	A quantitative method was used to collect data	168 students who are enrolled in a teaching cooperative in the Autonomous City of Ceuta, Spain	Flipped classroom approach	The study confirmed that applying flipped classroom is a successful educational approach as it benefits the educational field by anticipating the teaching and learning process.
15	2020	Lee et al	The Effects of Technology-Integrated Classroom Instruction on K-12 English Language Learners' Literacy Development: A Meta-Analysis	To identify the effectiveness of technology integrated literacy instruction in the classroom contexts for ELLs in Grade K-12	A meta-analysis study using comprehensive search of existing literature was conducted	4352 participants were chosen for this study	ICT tools	The study resulted that technology application in education produced a positive effect among the learners.
16	2020	Rayuwati	How educational technology innovates distance learning during pandemic crisis in remote areas in Indonesia?	The purpose of the study is to determine the effectiveness of innovating technology as a solution to student learning disorders in remote areas during the Covid-19 pandemic	Qualitative Study: Phenomenology Approach's Direction	Students from remote areas in Indonesia (number of participants and age are not specified)	Industrial Technology 4.0 and applications	Adapting and innovating all technological resources: 1. Maintains an effective quality education system and services 2. Able to control educational management well 3. Less the burden of pandemic education 4. Shows the need to develop teachers' ability to renovate technology into solving learning difficulties 5. Gives parental awareness

**Table 1**

The first study, concentrates on the effectiveness of digital storytelling aims to build a constructivist learning environment with the chosen approach among primary and secondary learners. The study suggested that digital storytelling was a powerful implementation that should be implemented to engage learners as to its provision for exciting learning environment. The qualitative study proved that most of the students enjoyed the implementation of digital storytelling (Smeda et al., 2014) Followed by another study, on the role of technology in supporting ELLs in current educational system aims to identify the different teaching methods, strategies and technology tools applied in ELL's classroom. The

perceptions of teachers were assessed in this study and mostly were positive (Andrade, 2014). Next study discussed on the ICT use in English Language learning among EFL university students focus to explore on the frequency, general and education purpose as well as student perceptions and expectations resulted students showed strong positive attitude towards the use of ICT and expects more to be applied in the classroom. However, this study also resulted a challenge where ICT was more on general use by students which could decrease the quality of using ICT in education (Tri, 2014).

Another study, aimed to analyse teachers perception on the effectiveness of ICT implementation in public primary and secondary schools where basic ICT tools and equipment were used. This study provided a positive result for both teachers and students prior to the well-equipped preparation and ICT tools (Ghavifekr et.al, 2015). Followed by another study on the effect of integrating mobile devices into teaching and learning were carried out upon mixed stage of participants from different schools and educational institutes using meta-analysis and research synthesis. The study carried out used various mobile devices and basic software applications. Implying mobile devices in learning was more effective than traditional method. However, the correct participants should be chosen for the approach to be successful (Sung et al., 2015). Another study exclaimed that implementing tablet devices in secondary education brought impact to both teachers and learners in terms of innovation, instruments and facilitation. Policy makers were suggested to provided adequate technical support to make tablet devices a great medium for teaching and learning purposes (Montrieux et al., 2015).

A flipped classroom research study focused on how flipped classroom can help solve an urgent issue encountered by the EFL secondary schools students in Saudi Arabia. The study indicated that adopting flipped classroom enhance students' grammar skills, promotes active learning, learner-centred, avoided communication issues and developed positive attitude among the students (Al-Harbi et al., 2016). This is similar to the previous paper in discussing on how often are technologies used among secondary school learners and how does it benefit them where flipcharts are replaced with Flipped Classroom method. This study resulted that using technology drive teaching and learning method promoted activeness and cooperation among learners (Holmes et al., 2015). Following study aim to identify the effectiveness of technology and the factors of students motivation in classroom-based learning. The study indicated that a specific technology-based tools motivated the students (Francis, 2017). Next, another past study aims to explore on virtual technology, Kahoot and how it helps engage students in learning. Kahoot provided both active and passive learners with positive attitude and learning styles (Plump & LaRosa, 2017). In a study, a few authors stated that using technology drive flipped class aim to explore the performances and perceptions of students during the class resulted a vast improvement among students in results and behaviour (de Oliveira Neto, 2017).

Another two authors examined the learners engagement and responses in a Communicative English course using Google Classroom proved that Google Classroom enabled students to be intensively engaged in learning and also helped teachers in classroom management (Bakar & Noordin, 2018). Another case study suggested that the application of flipped classroom in learning benefits the educational field by anticipating the teaching and learning process with success (Sanchez et al., 2019). Next study, identified the effectiveness of technology integrated literacy instruction in a K-12 ELL learning classroom resulted that technology provided a medium positive effect compared to traditional method on the students results (Lee, 2020). Last study, aimed to determine the effectiveness of innovating

technology among remote area school students during the pandemic. The study resulted adapting and innovating technology in learning maintains the quality of education, able to control educational management, less the burden of pandemic education, motivates teachers to be innovative and guides parents (Rayuwati, R., 2020).

### **Limitations**

There are a few limitations to be proposed pertaining to this systematic literature review. First, the focus of the study is on primary ESL classroom and learners especially in Malaysia but Malaysian past studies were not selected and included in the table as well as ESL learners were not opinionated much. The studies were more on other countries that English might also not be the second language. Second, the participants in the studies are more of secondary and tertiary students whereby, this study is researching on primary learners alone. Third, only two past studies on the challenges of implementing technology in teaching and learning has been assessed. Even if the other past studies mentioned a few challenges by its own, the main aim to discover various challenges of technology implementation has been least answered due to the lack of material selection.

### **Implications and Conclusion**

The study concludes that there are many information retrieved in regards to the questions raised in this study which are the effectiveness of technology, types of technology that can be utilized and challenges in implementing technology in a primary ESL classroom. However, the main study is about the effectiveness of technology in a primary ESL classroom and ways that it promotes the learners learning process to be meaningful. This is a useful study for all the countries that hold English as a Second Language, particularly Malaysia as per the researchers' focus and interest. In this study it has been also concluded that identifying and implementing the suitable technology-based tools and methods by the teachers is vital in order contribute to the educational field. Technology applications, equipment and software are actually supposed to be assessed and decided by the teacher before implementing in the classroom to ensure the suitability of the learners. Learners ESL learning should be exposed to various technological based education to foster their growth not only in language but as a knowledgeable individual in all the fields they are or they may encounter. The government and education ministry also play an impart in applying technology in education. They should supply adequate number of technological tools for the school and teachers to ensure technology is being used as a vital medium in education. DELIMA is one of the example applications that has been provided to the teachers for a better technology implementation. More appliances and programs should be fostered for teachers to be motivated and innovative. Therefore, technology is generally to benefit in education wholly if certain areas of development and approach are given importance.

### **Recommendations**

The purpose of this study is to explore the effectiveness of the use of technology in primary ESL classroom and how can it help primary ESL learners' expertise in English as a second language. Krashen's theories of second language acquisition drives this literature review which involves technology in teaching to acquire English. Input and affective filter theories played a crucial part in this study in accordance with the opinion given by Krashen himself. Krashen believes comprehensible input is a language itself which allows the learners to understand the language in depth. It fulfills the needs of learners to acquire the language

without doubting what is supposed or supposed not to be perceived. Some second language learners do not show much appreciation towards the input given as it's not favourable to their understanding. A proper input that could upgrade their level of understanding than just "chalk and talk" is vital in this case. On the other hand, Krashen's affective filter states variables such as motivation, anxiety and confidence play a major role in second language acquisition. These variables effect one's emotions in acquisition. Teachers should ensure to equip learners' emotions with positive learning filters. In this study, technology has been mentioned as the main learning filter to advocate primary ESL learners second language acquisitions regardless of the instructional tool. The findings of this study show different ways where technology has been applied as a positive affective filter to create a comprehensible learning input. The findings also show that a vast number of instructional tools, gadgets and softwares are applied in teaching and learning and some of them are very common. The findings were from different classrooms from different countries which proofs that technology is an outgrowing component that has become very vital in our daily lives including educational field. However, this paper breaks down to what instructional tools have been implemented in Malaysian ESL classrooms as well. In a study, it was stated that digital reading in Malaysian primary ESL classrooms provide better understanding for the learners to acquire English (Baharuddin & Hashim, 2020). Another study asserted that most teachers in Malaysian Secondary ESL classrooms prefers using social medias, Google docs and any provided ICT tools (Pheng et al., 2021). To sum up, technology gives greater interest for learners to acquire and teachers are very well in implementing the provided opportunities. In Malaysia, the opportunities to acquire English via technology is wide. However, it is very crucial for teachers, educators, government and the Ministry of Education (MOE) to take part and accomplish their roles in ensuring the accessibility of technology in Malaysian classrooms for teaching and learning purposes. Therefore, one of the major recommendations for future research would be the need to conduct a survey by the government and MOE on the sufficient ICT tools and gadgets provided and needed in Malaysian classrooms. Later, the particular party should work on providing the sufficient materials to the respective schools for equal technology-based education for all learners. Research the different types of technology and technology-based teaching methods can help teachers to make better decision in choosing the right methods for learners better acquisition in future especially during pandemic situations. There are also possibilities to carry out research on teacher trainees and in-service teachers and the methods they implement in Malaysian primary ESL classrooms to explore their effectiveness, validation and nature of recognition.

## References

- Acosta, S., Garza, T., Hsu, H. Y., & Goodson, P. (2020). Assessing Quality in Systematic Literature Reviews: A Study of Novice Rater Training. *SAGE Open*, 10(3), 2158244020939530. <https://doi.org/10.1177/2158244020939530>
- Ahmed, K., & Nasser, O. (2015). Incorporating iPad Technology: Creating More Effective Language Classrooms. *TESOL Journal*, 6(4), 751-765. <https://doi.org/10.1002/tesj.192>
- Ahmadi, D. M. R. (2018). The Use of Technology in English Language Learning: A Literature Review. *International Journal of Research in English Education*, 3(2), 115-125. <https://doi.org/10.29252/ijree.3.2.115>
- Ahmadigol, J. (2016). New definition of educational technology. *thannual*, 1.

- Akhidime, A. E. (2017). The importance and development of research problem: a didactic discuss. *International Journal of Economics, Commerce and Management*, 5(8), 631-640.
- Al-Harbi, S. S., & Alshumaimeri, Y. A. (2016). The Flipped Classroom Impact in Grammar Class on EFL Saudi Secondary School Students' Performances and Attitudes. *English Language Teaching*, 9(10), 60. <https://doi.org/10.5539/elt.v9n10p60>
- Aliyyah, R. R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nurtanto, M., & Tambunan, A. R. S. (2020). The perceptions of primary school teachers of online learning during the COVID-19 pandemic period: A case study in Indonesia. *Online Submission*, 7(2), 90-109.
- Andrade, M. D. L. (2014). Role of technology in supporting English language learners in Today's Classrooms.
- Aromataris, E., Fernandez, R., Godfrey, C. M., Holly, C., Khalil, H., & Tungpunkom, P. (2015). Summarizing systematic reviews: methodological development, conduct and reporting of an umbrella review approach. *JBI Evidence Implementation*, 13(3), 132-140.
- Baharuddin, N. Q., & Hashim, H. (2020). Using digital reading in ESL Malaysian primary classrooms: the strengths and the shortcomings from the learners' perspectives. *Journal of Educational and Learning Studies*, 3(1), 7-13.
- Bakar, N. I. A., & Noordin, N. (2018). Engaging English Language Learners Through the Use of Google Classroom. In *Proceedings of the 12th Malaysia international conference on English language teaching (MICELT 2018)-Shaping new understandings in ELT*.
- Basri, H., Hashim, H., & Yunus, M. M. (2019). Using Google Apps as learning strategy to enhance ESL Writing. *Creative Education*, 10(12), 2649-2657.
- Bax, S. (2012). How Does Technology Become Fully Effective in Language Education? The social and psychological dimensions of educational normalization. In *Keynote Address of the Jaltcall 2012 Conference. Nishinomiya: Konan Cube, Konan University*.
- Brey, P. (2009). Philosophy of technology meets social constructivism: A Shopper's guide. *Readings in the Philosophy of Technology*, 98. British Council. (2013). *The English Effect* (No. 24). <https://www.britishcouncil.org/sites/default/files/english-effect-report-v2.pdf>
- Cahyati, P., & Madya, S. (2019, June). Teaching English in primary schools: Benefits and challenges. In *3rd International Conference on Current Issues in Education (ICCIE 2018)* (pp. 395-400). Atlantis Press.
- Carey, K. (2020). Everybody ready for the big migration to online college? Actually, no. *The New York Times*, 13.
- Chandler, J., & Hopewell, S. (2013). Cochrane methods-twenty years experience in developing systematic review methods. *Systematic reviews*, 2(1), 1-6.
- Chun, T. W., & Sathappan, R. (2018). The effectiveness of using Flipped Classroom Approach to teach adjectives to Malaysian Year 4 Chinese ESL learners. *English Teacher*, 47(2).
- de Oliveira Neto, J. D., de Sousa Gomes, G., & Titton, L. A. (2017). Using technology driven flipped class to promote active learning in accounting. *Revista Universo Contábil*, 13(1), 49-64.
- Daniels, T., & Pethel, M. (2005). Computer mediated communications. *Emerging perspectives on learning, teaching, and technology*. Retrieved from <http://epltt.coe.uga.edu>.
- Dhawan, S. (2020). Online learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 49(1), 5-22.

- Diallo, A. (2014). Technology enhances ESL students' learning experience. *Retrieved on February, 1, 2018.* <https://doi.org/10.1177/0047239520934018>.
- Diallo, A. (2014). The Use of Technology to Enhance The Learning Experience of ESL Students. *Online Submission*.
- Eady, M. J., & Lockyer, L. (2013). Tools for learning: technology and teaching strategies, Queensland University of Technology. *Research Online: Australia*, 71.
- Eltahir, M. E. (2019). E-Learning in Developing Countries: Is it a Panacea? A case study of Sudan. *IEEE Access*, 7, 97784–97792. doi:10.1109/ACCESS.2019.2930411
- Fardanesh, H. (2003). Theoretical foundations of educational technology. *Tehran: samt*.
- Finn, J. D. (1962). A John Dewey society paper: A walk on the altered side. *The Phi Delta Kappan*, 44(1), 29–34.
- Francis, J. (2017). The effects of technology on student motivation and engagement in classroom-based learning.
- Gillett-Swan, J. (2017). The Challenges of Online Learning: Supporting and Engaging the Isolated Learner. *Journal of Learning Design*, 10(1), 20. <https://doi.org/10.5204/jld.v9i3.293>
- Ghavifekr, S., & Rosdy, W.A.W. (2015). Teaching and learning with Technology: Effectiveness of ICT Integration in Schools. *International Journal of Research in Education and Science*, 1(2), 175. <https://doi.org/10.21890/ijres.23596>
- Graddol, D. (2006). *English next*. British Council. Retrieved August 22, 2021, from [https://www.teachingenglish.org.uk/sites/teacheng/files/pub\\_english\\_next.pdf](https://www.teachingenglish.org.uk/sites/teacheng/files/pub_english_next.pdf)
- Halim, M. S. A. A., & Hashim, H. (2019). Integrating web 2.0 technology in ESL classroom: A review on the benefits and barriers. *Journal of Counseling and Educational Technology*, 2(2), 57. <https://doi.org/10.32698/0421>
- Holmes, M. R., Tracy, E. M., Painter, L. L., Oestreich, T., & Park, H. (2015). Moving from Flipcharts to the Flipped Classroom: Using Technology Driven Teaching Methods to Promote Active Learning in Foundation and Advanced Masters Social Work Courses. *Clinical Social Work Journal*, 43(2), 215-224. <https://doi.org/10.1007/s10615-015-0521-x>
- Honigsbaum, M. (2009). Pandemic. *The Lancet*, 373(9679). 1939. [https://doi.org/10.1016/s0140-6736\(09\)61053-9](https://doi.org/10.1016/s0140-6736(09)61053-9)
- Januszewski, A., & Molenda, M. (Eds.). (2013). *Educational technology: A definition with commentary*. Routledge.
- Johnson, A. M., Jacovina, M. E., Russell, D. E., & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In *Adaptive educational technologies for literacy instruction* (pp. 13-30). Routledge.
- Khan, K. S., Kunz, R., Kleijnen, J., & Antes, G. (2003). Five Steps to Conducting a Systematic Review. *Journal of the Royal Society of Medicine*, 96(3), 118-121. <https://doi.org/10.1177/014107680309600304>
- Ko, S., & Rossen, S. (2017). *Teaching online: A practical guide*. Routledge.
- Lakhana, A. (2014). What is Educational Technology? An Inquiry into the Meaning, Use, and Reciprocity of Technology / Qu'est-ce que la technologie pédagogique ? Un examen de la signification, de l'utilisation et de la réciprocité de la technologie. *Canadian Journal of Learning and Technology / La Revue Canadienne de l'apprentissage et de La Technologie*, 40(3). <https://doi.org/10.21432/t2h59s>

- Lee, S., Kuo, L. J., Xu, Z., & Hu, X. (2020). The effects of technology-integrated classroom instruction on K-12 English language learners' literacy development: a meta-analysis. *Computer Assisted Language Learning*, 1-32.  
<https://doi.org/10.1080/09588221.2020.1774612>
- Lombardi, M. M., & Oblinger, D. G. (2007). Authentic learning for the 21st Century: An overview. *Educause learning initiative*, 1(2007), 1-12.
- Luppigini, R. (2005). A systems definition of educational technology in society. *Journal of Educational Technology & Society*, 8(3), 103-109.
- Mansor, N., & Rahim, N. A. (2017). Instagram in ESL Classroom. *Man in India*, 97(20), 107-114.
- Mat, H., Mustakim, S. S., Arshad, M. M., & Razali, F. (2022). Exploring the Implementation of Teaching and Learning Using Virtual Learning Among Elementary School Science Teachers in Malaysia.
- Mayer, R. E. (2008). Applying the science of learning: Evidence-based principles for the design of multimedia instruction. *American Psychologist*, 63(8), 760-769.  
<https://doi.org/10.1037/0003-066x.63.8.760>
- Mayes, R., Natividad, G., & Spector, J. M. (2015). Challenges for educational technologists in the 21st century. *Education Sciences*, 5(3), 221-237.
- Md Yunus, M., Salehi, H., & Chenzi, C. (2012). Integrating Social Networking Tools into ESL Writing Classroom: Strengths and Weaknesses. *English Language Teaching*, 5(8). <https://doi.org/10.5539/elt.v5n8p42>
- Mishra, S. (2009). Educational technology: A definition with commentary - By Alan Januszewski & Michael Molenda. *British Journal of Educational Technology*, 40(1), 187.  
[https://doi.org/10.1111/j.1467-8535.2008.00925\\_4.x](https://doi.org/10.1111/j.1467-8535.2008.00925_4.x)
- Mohamed, M. A. A., & Idris, S. A. M. (2012). Challenges of Pronunciation to EFL Learners in Spoken English. *Multicultural Education*, 6(5), 193-203.
- Montrieux, H., Vanderlinde, R., Schellens, T., & de Marez, L. (2015). Teaching and Learning with Mobile Technology: A Qualitative Explorative Study about the Introduction of Tablet Devices in Secondary Education. *PLOS ONE*, 10(12), e0144008.  
<https://doi.org/10.1371/journal.pone.0144008>
- Musa, N. C., Lie, K. Y., & Azman, H. (2012). Exploring English language learning and teaching in Malaysia. *GEMA Online Journal of Language Studies*, 12(1).
- Negarandeh, R., & Beykmirza, R. (2020). Quality assessment in systematic reviews: The importance of choosing the right tools. *Nursing Practice Today*.  
<https://doi.org/10.18502/npt.v7i3.3342>
- Nikian, S., Nor, F. M., & Aziz, M. A. (2013). Malaysian Teachers' Perception of Applying Technology in the Classroom. *Procedia - Social and Behavioral Sciences*, 103, 621-627.  
<https://doi.org/10.1016/j.sbspro.2013.10.380>
- Nye, D. E. (2006). Technology matters. Questions to live with (pp. 194-198).
- Pakpur, Y. (2011). Context of educational technology; perspectives, theory and action. Tehran: Didar.
- Palmer, D. (2007). What is the best way to motivate students in science?. *Teaching Science*, 53(1), 38-42.
- Parvin, R. H., & Salam, S. F. (2015). The Effectiveness of Using Technology in English Language Classrooms in Government Primary Schools in Bangladesh. In *FIRE: Forum for International Research in Education* (Vol. 2, No. 1, pp. 47-59). Lehigh University Library and Technology Services. 8A East Packer Avenue, Fairchild Martindale Library Room 514, Bethlehem, PA 18015.

- Pazilah, F. N., Hashim, H., & Yunus, M. M. (2019). Using Technology in ESL Classroom: Highlights and Challenges. *Creative Education, 10*(12), 3205-3212.  
<https://doi.org/10.4236/ce.2019.1012244>
- Plump, C. M., & LaRosa, J. (2017). Using Kahoot! in the Classroom to Create Engagement and Active Learning: A Game-Based Technology Solution for eLearning Novices. *Management Teaching Review, 2*(2), 151-158.  
<https://doi.org/10.1177/2379298116689783>
- Philip, B., Tan, K. H., & Jandar, W. (2019). Exploring teacher cognition in Malaysian ESL classrooms. *3L, Language, Linguistics, Literature, 25*(4).
- PozoSanchez, S., Belmonte, L. J., Guerrero, M. A. J., & Nunez, L. J. A. (2019). Impact of educational stage in the application of flipped learning: A contrasting analysis with traditional teaching. *Sustainability, 11*(21), 5968.  
<https://doi.org/10.3390/su11215968>.
- Rayuwati, R. (2020). How educational technology innovates distance learning during pandemic crisis in remote areas in indonesia?. *International Research Journal of Management, IT and Social Sciences, 7*(6), 161-166.  
<https://doi.org/10.21744/irjmis.v7n6.1032>
- Reimers, F., Schleicher, A., Saavedra, J., & Tuominen, S. (2020). Supporting the continuation of teaching and learning during the COVID-19 Pandemic. *Oecd, 1*(1), 1-38.
- Saettler, P. (1968). A history of instructional technology.
- Schindler, L. A., Burkholder, G. J., Morad, O. A., & Marsh, C. (2017). Computer-based technology and student engagement: a critical review of the literature. *International Journal of Educational Technology in Higher Education, 14*(1).
- Siemens, G. (2015). Preparing for the digital university: A review of the history and current state of distance, blended, and online learning.
- Smeda, N., Dakich, E., & Sharda, N. (2014). The effectiveness of digital storytelling in the classrooms: a comprehensive study. *Smart Learning Environments, 1*(1).
- Solvie, P., & Kloek, M. (2007). Using technology tools to engage students with multiple learning styles in a constructivist learning environment. *Contemporary issues in technology and teacher education, 7*(2), 7-27.
- Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education, 94*, 252-275.  
<https://doi.org/10.1016/j.compedu.2015.11.008>
- Tri, D. H., & Nguyen, N. H. T. (2014). An exploratory study of ICT use in English language learning among EFL university students. *Teaching English with Technology, 14*(4), 32-46.
- Volti, R. (2003). Reuniting History and Sociology Through Research on Technological Change. *Bulletin of Science, Technology & Society, 23*(6), 459-464.  
<https://doi.org/10.1177/0270467603259874>
- Xiao, Y., & Watson, M. (2017). Guidance on Conducting a Systematic Literature Review. *Journal of Planning Education and Research, 39*(1), 93-112.  
<https://doi.org/10.1177/0739456x17723971>
- Yuliani, N. J., & Mercuriani, I. S. (2021). Challenges Towards the Implementation of ICT in Biology Learning: A Review Study. *Journal of Physics: Conference Series, 1788*(1), 012035. <https://doi.org/10.1088/1742-6596/1788/1/012035>.