Conceptualising an Integration of Web 2.0 (SNS) in teaching English in Malaysian Secondary Schools

Sangeekta Subramaniam, Hanita Hanim Ismail

Sekolah Kebangsaan Setiawangsa, 54200 Kuala Lumpur, Malaysia Faculty of Education, Universiti Kebangsaan Malaysia, Bangi 43600, Malaysia
Corresponding Authors Email: hanitaismail@ukm.edu.my

Abstract

The integration of Web 2.0 technologies, particularly Social Networking Sites (SNS), in Malaysian secondary classrooms has gained significant attention in recent years as it is expected to exert a substantial impact on both teaching and learning. With its emphasis on independent learning, active involvement, and connectivity among learners, Web 2.0 realigns traditional teaching methods. The use of Web 2.0 tools in ESL classrooms has been the subject of numerous research. Thus, inquiring about the benefits of Web 2.0 in teaching English in Malaysian Secondary Schools is necessary. This research proposal details the research methodology, instruments, analysis procedures, and expected outcomes. The methodology involves a quantitative approach encompassing surveys as the primary data collection method. Surveys will be administered to students to gather quantitative data, which will be analyzed using descriptive statistics. The expected outcomes include a clear understanding of the benefits and challenges of Web 2.0 integration in Malaysian secondary school ELT from a quantitative perspective, the development of a practical framework for educators based on quantitative findings, and the recommendation of pedagogical strategies tailored to the Malaysian ESL classroom environment grounded in quantitative data. The research questions are grounded in two fundamental variables: exploring the benefits of Web 2.0 tools in language learning and examining how pedagogical approaches can effectively integrate Web 2.0 into ESL classrooms, considering the varying proficiency levels of learners. Ultimately, this research aims to contribute valuable quantitative insights for educators, policymakers, and

stakeholders in the field, facilitating the effective utilization of Web 2.0 technologies to enhance the quality of English language instruction in Malaysian secondary schools.

Keywords: English, Malaysian Secondary Classroom, Integration of Technology in Teaching and Learning, Web 2.0

Introduction

Technology has undergone remarkable advancements worldwide over the years, and its pervasive presence has profoundly impacted the education system, bringing about revolutionary changes.The integration of technology into educational systems has become a global trend, enhancing existing curricula, teaching methods, and programs. This move towards technology-integrated education is aimed at modernizing educational systems worldwide, ensuring greater efficiency and improved education standards. Technology has transformed the way teaching and learning activities are conducted, offering diverse tools to blend and enrich the learning process. In line with the Malaysia Education Blueprint 2013 - 2025, technology is set to be pervasive in schools, bridging rural-urban divides, and equipping teachers and students with the necessary skills for effective and meaningful technology use. This highlights the pivotal role of technology in improving the education system.

Within education, English language instruction holds significant importance, given English's status as a global lingua franca. In Malaysia, English is recognized as a second language and receives substantial attention in the education system. To ensure effective language acquisition, integrating Information and Communication Technology (ICT) into ESL classrooms has emerged as a highly effective method. ICT tools offer a plethora of digital resources and platforms that enhance language learning experiences for students. The impact of technology on learners' lives, both within and outside the classroom, is substantial, with learners increasingly leveraging technology to enrich their learning experiences and processes. Among the technological tools gaining prominence, Web 2.0 stands out, particularly within the national education system. Web 2.0 technologies, including Social Networking Sites (SNS) such as Facebook, Twitter, and Instagram, offer substantial potential to enhance educational experiences for both educators and students. These platforms prioritize user engagement, cooperation, and content creation, aligning with the acquisition of 21st-century skills such as collaboration, information accessibility, and online learning proficiency. Web 2.0 has transformed the online landscape by empowering users to actively participate, exchange, and engage with digital content. This shift from passive consumption to active participation is well-suited for fostering engagement, creativity, and collaborative learning experiences, especially in ESL classrooms.

In the 21st century, technology-based learning has emerged as the preferred approach to English language acquisition, surpassing traditional classroom methods. The digital era has introduced a myriad of technological resources and internet-based platforms that offer unique and engaging learning opportunities, particularly for English learners. Government officials, including Education Minister Dr. Maszlee Malik and Prime Minister Tun Dr. Mahathir Mohamad, have underscored the importance of technology in addressing the issue of insufficient English language proficiency among teachers and students. This emphasis on

technology as a teaching tool acknowledges its potential to enhance the teaching and learning process. Technology integration in English language instruction can deliver interactive and personalized learning experiences, immediate feedback, and additional language resources, bridging the gaps in language learning beyond traditional classrooms. In light of the limited research on the impact of Web 2.0 tools, particularly Social Networking Sites (SNS), on ESL students' language proficiency, especially in secondary schools, this study seeks to investigate their benefits and effective pedagogical approaches. The research poses two key questions:

1. What benefits do Web 2.0 tools, specifically SNS, offer in language learning?
2. How can a pedagogical approach facilitate the successful integration of Web 2.0 (SNS) in ESL classrooms, considering learners' varying proficiency levels?

These questions aim to uncover the advantages and optimal teaching strategies related to Web 2.0 integration in language learning contexts, offering valuable insights for educators to enhance their teaching methods.

Literature Review Web 2.0 in Education and its Benefits to Language Learning

The term Web 2.0 refers to a significant shift in our perception and utilization of the Internet. It signifies a transition from viewing the web solely as a platform for accessing information and entertainment, where users passively consume content (Halim & Harwati, 2019; Nakamaru, 2011). According to Arabaci and Akilli (2021), Web 2.0 coined by Tim O'Reilly in 2004 encompasses a range of interactive applications and tools that foster participation, marking the evolution of the World Wide Web into a collaborative and versatile platform. Web 2.0 tools encompass various platforms, including Social Networking Sites (SNSs) like Facebook, WhatsApp, Twitter, Skype, blogs, and wikis. These platforms facilitate discussions, content sharing, and educational collaboration. Additionally, openly accessible synchronized tools like Google Apps and Dropbox are part of the Web 2.0 landscape (Hassan et al., 2021; Al-Samarraie & Saeed, 2018; Wang, Chen, & Khan, 2014). The browser is the universal configuration to a range of new generation Web tools and media storing applications as people access the web resources for educational, personal, entertainment, employment and also for other purposes. Web 2.0 applications, especially social media, blogs and wikis have received enormous and growing educational interest from primary and secondary education, vocational training and also teachers' professional development. Due to the rapid development of Web 2.0 technologies such as blogging, Edublogs and social networking sites, the volume of knowledge and learning opportunities have increased for the educational users, thus it stimulates the rapid increase of virtual communities (Kennedy et al., 2007). The most visited Social Networking Sites on the internet among current generations are Facebook, Youtube, Twitter and MySpace.

The majority of learners today are born into the digital age, making them proficient with social networking tools that exemplify Web 2.0 technology. These tools engage learners through familiar content delivery, aligning with 21st-century education goals. Web 2.0 promotes collaborative, student-centered learning, offering benefits like shared content, independent study, group collaboration, accessible learning, and lifelong education (Clark et al., 2009). Web 2.0 technology enhances second language learning, improving pedagogy, curriculum design, and research (Sturm et al., 2009). It boosts students' analytical skills, reflective capacity, and social learning. Almekhalfy and Alzubi (2016) suggest its benefits for EFL learners, fostering language exposure and communication. Web 2.0 tools create effective personalized learning

environments and blend formal and informal learning. They promote learner autonomy and participation in social networks (Siemens, 2005). Cutting-edge Web 2.0 tech can enhance learning outcomes and processes (Waycott & Kennedy, 2009). Technologyintegrated learning via websites offers support, reducing organizational time and improving efficiency (Shih, 2010). Web 2.0 also connects various learning environments, expanding students' physical and virtual learning spaces (Jimoyiannis, 2010).

In ESL classrooms, integrating Web 2.0 tools such as social networking sites (SNS) offers valuable opportunities for language acquisition, engagement, and intercultural interaction. Facebook, a prominent platform in Teaching and Learning (T&L), facilitates peer interactions and discussions on course materials, primarily through "Facebook Groups," enhancing student enthusiasm and fostering active online discussions (Alan, 2017; Fearnley, 2020). This utilization of Facebook encourages collaboration between teachers and students.

Furthermore, Twitter, when employed in education, has demonstrated the potential to enhance learners' rational and critical thinking skills, as highlighted by (Mukherjee, 2019; Sukadari and Huda, 2021). Integrating Twitter into educational contexts positively influences students' abilities to think critically and logically. It has also proven effective in improving English speaking, grammar, and writing skills, contributing to higher-order thinking skills and language proficiency (Chang and Wu, 2018). Overall, the incorporation of Web 2.0 applications creates an optimal learning environment that supports intellectual, social, emotional, and physical development. This approach enables teachers and students to engage effectively in mixed learning methods, enriching the students' learning journey (Leh et al., 2021).

Pedagogical approach in integrating Web 2.0 (SNS) in ESL classrooms

Task-Based Language Learning (TBLL) is one of the pedagogical approaches that can be employed to facilitate the successful integration of Web 2.0 in teaching English for secondary school learners. It has emerged as one of the leading pedagogical approaches and has received increasing attention from practitioners and educators (Annamalai, 2019; Ziegler, 2016). Task based learning is a student-centred approach where students need to use authentic target language in order to complete the task assigned to them. This approach can be incorporated, where language learning tasks require students to use SNS tools to complete real-life assignments or projects. Thus, this promotes meaningful language use and motivates learners to actively learn the English language. According to Annamalai, 2019, in task-based learning, learners engage in tasks without limitations on how they use language. Once students choose to apply the language, they can quickly and effectively operate in realtime situations. Moreover, online collaboration can also be fostered through task-based learning in SNS platforms, allowing students to participate in group discussions, peer editing, or project-based learning. This is supported by a few researchers using one of the SNS tools, Facebook. Facebook does not only improve learners' writing but facilitates interaction and collaboration to construct knowledge

(Annamalai, 2019; Maranto & Barton, 2010; Shih, 2011). The Facebook application is extensively utilized in teaching and learning as a conducive platform for learning, facilitating interactions among peers and discussions related to course materials (Alan, 2017). The potential advantages of this practice are exemplified using "Facebook Groups," which can boost students' enthusiasm for learning and foster active online discussions (Fearnley, 2020). English learners acquire skills in questioning, meaning negotiation, interaction, and collaboration through group work. Engaging in collaborative tasks enables them to observe

diverse problem-solving approaches and gain insights into others' thought processes and decision-making strategies (Gonzalez-Lloret & Nielson, 2015). This not only enhances their language skills but also cultivates important 21st-century skills such as collaboration and digital literacy. Furthermore, it is crucial to individualize learning experiences by tailoring the use of SNS tools to meet learners' varying proficiency levels. Activities can be designed, catering to the specific language goals and proficiency level of each student. Providing personalized feedback and guidance through Web 2.0 platforms can also support learners in their language development journey.

Technology Acceptance Model

Technology Acceptance Model (TAM) was introduced by Davis, Bagozzi, and Warshaw in 1989, which explains the acceptance of computer technology across various settings (Jarrah & Alzubi, 2021). TAM predicts users' perceptions of new technologies by examining their attitudes towards the usefulness of computer technology, their overall attitude towards computers, their motives for using technology, and the practical applications of the technology, as depicted in Figure 1. These attitudes subsequently influence their intentions, which are manifested through their behaviours. As users become more familiar with technology, their behavioural intentions become less influenced by the perceived ease of use, as they are able to form intentions more readily when utilizing technologies (Avelino & Ismail, 2021). Moreover, the utilization of a system can be assessed by evaluating users' proficiency and expertise in operating it (Teo et al., 2019). This suggests that if individuals possess strong skills and encounter few limitations in utilizing the Internet, it can serve as an effective educational medium within school settings (Bauder, 2017).
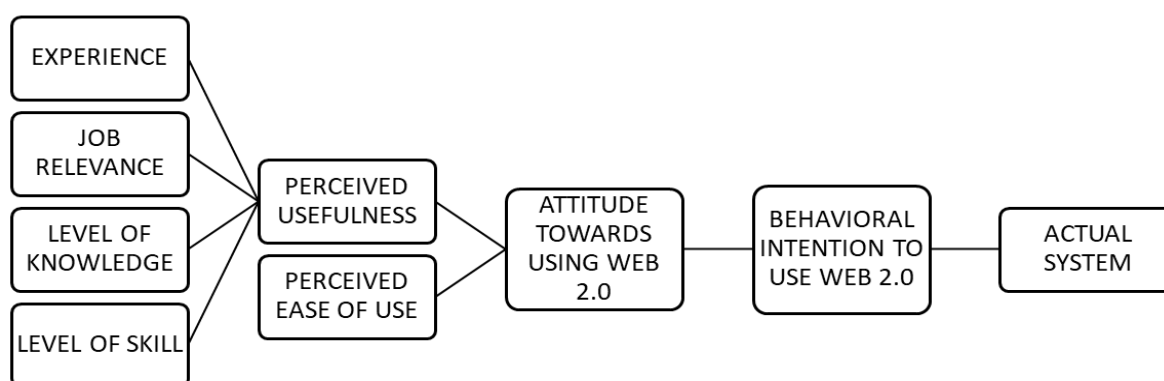

Figure 1. Conceptual Framework: (source: modified from Avelino & Ismail)

Users' perceptions of the usefulness and ease of use of Web 2.0 applications affect their attitudes towards using them, which, in turn, motivates them to use these applications more (Jarrah & Alzubi, 2021). This has implications for language learning, as individuals' proficiency in using Web 2.0 tools can impact their interest in the language learning process. Therefore,

to explore the benefits of Web 2.0 and effective pedagogical approaches to teach English by integrating Web 2.0 in teaching practices, the authors proposed the use of TAM3 model as a guideline in obtaining the data needed. A framework was designed based on TAM3 model as shown in Figure 1.

Methodology

Selecting a methodology is a crucial stage in any research, as it involves choosing a data collection method that ensures the acquisition of valid, reliable, and accurate data. Based on TAM, future studies can explore the advantages of integrating Web 2.0 technologies and effective teaching approaches for English instruction. Web 2.0 tools particularly the Facebook Room and Twitter can be used in this research to explore the benefits for English learners. These Web 2.0 tools have a few features that learners can use to read, write, talk, assign and present their work. For future research, it is suggested that quantitative methods be employed to collect data on the benefits of incorporating Web 2.0 tools in teaching practices.

The quantitative methods are highly recommended as they facilitate the examination of correlations among variables and enable the prediction and explanation of scores.

Research Design

In accordance with Creswell's (2012) research design framework, this study will follow a structured sequence of interconnected stages for sampling and data collection. In the initial phase, the research will be focused on the research population, which encompasses a broader group of Malaysian ESL learners as well as a specific target population within a particular educational level and subgroup. The subsequent stage will have a dual focus: selecting a suitable research sample that accurately represents the identified target population and securing their consent for participation. We will also rigorously determine an adequate sample size to ensure the reliability of hypothesis testing. To achieve this, we may employ probability sampling techniques, allowing us to make valid inferences about the target population and obtain precise survey measurements. In the final stage, we will identify the specific types of data required for our study and select appropriate instruments for data collection. Potential instruments include questionnaires, assessment tools, and tests. We will consider adapting existing instruments developed by Venkatesh and Bala (2008); Al-Maroof et al (2021) to assess ESL teachers' knowledge, awareness, and acceptance of technology integration in their teaching practices. By seamlessly integrating these stages, the research design aims to provide a comprehensive understanding of the subject matter.

This research focuses on secondary school students in Kuala Lumpur, Malaysia, who are enrolled in English classes. Kuala Lumpur serves as an interesting research locale due to the students' familiarity and enthusiasm for technology and digital tools, alongside their parents' predominantly educated backgrounds. This metropolitan area is characterized by its cultural and linguistic diversity, primarily consisting of Chinese, Indian, and Malay populations. This study specifically targets a diverse group of students spanning from Form 1 to Form 3, all of whom have completed a minimum of three years of English language study.   The comprehensive target population for this research extends to a total of 900 students hailing from selected schools. The study utilizes purposive sampling, selecting 150 students from two chosen public secondary schools in Kuala Lumpur (75 from each school).

To enhance language learning and engagement, the research employs Facebook Room, a Web 2.0 tool known for its user-friendly and versatile features, allowing students to read, write, speak, assign tasks, and present their work within a familiar online platform. The selection of Facebook Room is rooted in its capacity to support a comprehensive language learning environment while offering a comfortable and accessible interface. As for the data collection process, it centres on a self-developed reading comprehension test, which comprises two passages, each accompanied by 10 multiple-choice questions. These questions are thoughtfully designed to cover various aspects of reading comprehension, encompassing main idea identification, detail extraction, inference drawing, vocabulary understanding, and contextual comprehension. By employing this assessment format within the Facebook Room learning platform, the research seeks to provide a comprehensive evaluation of the impact of Web 2.0 tools on various facets of language learning within this specific educational context.

Research Procedures and Analysis

The process of research analysis involves employing logical and analytical reasoning to evaluate the collected data (Perez, 2019). Therefore, the researchers propose the use of descriptive analysis to assess the benefits of integrating Web 2.0 technologies in English language instruction and effective teaching approaches. Descriptive analysis facilitates the determination of the overall trend in the research, thus helping to address existing gaps in the literature. Perez (2019) also asserts that quantifying the collected data enables generalization to the chosen population based on the results derived from the selected sample. First, learners will be informed of the aim of the study. The learners will begin with the usage of Facebook Room where they will read the comprehension text. Then, the participants are requested to do the paper comprehension test within 30 minutes under teacher's supervision. After collecting data, all the 150 tests were coded for analysis.

Expected Outcome

The integration of Web 2.0 tools, particularly the incorporation of social networking sites (SNS), into the English language curriculum within Malaysian secondary schools carries with it a wealth of anticipated outcomes that promise to redefine the landscape of language learning. At its core, this innovative approach seeks to ignite a transformation in how students engage with and master the English language. Foremost among the expected outcomes is the belief that this integration will kindle a renewed sense of student engagement, motivation, and active involvement in the language learning process. By harnessing the interactive and intuitive nature of SNS platforms, educators have a unique opportunity to create an environment where students not only feel at ease but also genuinely excited to immerse themselves in English language content. These digital spaces offer a dynamic arena for students to explore, discuss, and create within the context of the language they are acquiring. The result is a more enthusiastic and self-driven cohort of learners who take charge of their language acquisition journey.

Beyond engagement, the integration of Web 2.0 tools sets the stage for a fundamental shift in classroom dynamics towards interactivity and learner-centeredness. Departing from conventional didactic approaches, this evolution empowers students to assume a more active role in shaping their education. SNS platforms provide a gateway to authentic communication experiences, collaborative learning opportunities, and a treasure trove of English language resources. Exposure to real-world language usage, diverse perspectives, and culturally

pertinent content is expected to substantially enrich students' language learning experiences, fostering a deeper and more nuanced grasp of English. As students engage in these interactive digital environments, they are not merely acquiring language skills but also developing critical thinking, problem-solving, and digital literacy competencies crucial for success in the 21st century.

Furthermore, the integration of Web 2.0 tools is anticipated to instill a sense of learner autonomy and nurture independent learning skills. Within these digital landscapes, students are encouraged to explore English language content independently, expanding their vocabulary and honing their abilities to navigate the digital realm. In an era where digital fluency is increasingly indispensable, these competencies prepare students to confidently traverse the modern world. Simultaneously, the anticipated outcome encompasses a marked improvement in language proficiency levels. Increased exposure to authentic language usage and interactive learning experiences is expected to translate into tangible enhancements across multiple dimensions of language skills, including grammar, vocabulary, and comprehension. Ultimately, this upskilling is likely to manifest in elevated academic performance and a heightened sense of self-assuredness when employing English for communication purposes. The integration of Web 2.0 platforms, particularly SNS, into English teaching within Malaysian secondary schools is poised to cultivate a dynamic and immersive learning environment. This integration endeavors to not only encourage active involvement but also elevate language proficiency, equipping students with vital 21st-century skills essential for thriving in an ever-evolving digital society.

Conclusion

In conclusion, the integration of Web 2.0 tools, particularly Social Networking Sites (SNS), in secondary schools holds great potential for enhancing language learning experiences among Malaysian learners. The literature review highlights the benefits of Web 2.0 integration, such as promoting authentic language practice, fostering intercultural understanding, and facilitating collaborative learning. Exploring pedagogical approaches and instructional strategies tailored to Web 2.0 tools also maximize their benefits for student engagement and language acquisition. Future research should focus on longitudinal studies to examine the long-term impact of Web 2.0 integration on language proficiency development and sustainability. Comparative studies across different ESL contexts can shed light on the influence of cultural factors, technological infrastructure, and educational policies. Additionally, investigating teacher professional development programs, learner perspectives, and ethical considerations will contribute to informed decision-making and responsible integration practices. Ultimately, by conducting further research in these areas, educators and policymakers can gain valuable insights to inform the design and implementation of effective practices in integrating Web 2.0 tools in secondary schools. With careful consideration of the challenges and a focus on leveraging the benefits, Web 2.0 integration has the potential to transform ESL learning, foster authentic language use, and prepare students for a digitally interconnected world.

References

Annamalai, N. (2019). The Use of Web 2.0 Technology Tools and beyond in Enhancing Task Based Language Learning: A Case Study. The English Teacher. 48 (1), 29-44.

Avelino, N. M., & Ismail, H. H. (2021). Assessing ESL Teachers' Knowledge and Readiness in Integrating 4IR into Teaching Practices: A Concept Paper. Creative Education, 12, 2038-2055. https://doi.org/10.4236/ce.2021.129156

Al-Maroof, R. S., Alshurideh, M. T., Salloum, S. A., AlHamad, A. Q. M., & Gaber, T. (2021). Acceptance of Google Meet during the Spread of Coronavirus by Arab University Students. Informatics, 8, 24. https://doi.org/10.3390/informatics8020024

Almekhlafy, A., & Alzubi, A. A. F. (2016). Mobile-mediated communication a tool for language exposure in EFL informal learning settings. *Arab World English Journal* 7(1): 388407.https://doi.org/10.2139/ssrn.2804018

Aminin, S., Huda, M., Ninsiana, W., Dacholfany, M.I., 2018. Sustaining civic-based moral values: insights from language learning and literature. Int. J. Civ. Eng. Technol. 9 (4), 157–174.

Arabaci, I. B., & Akilli, C. (2021). English Teachers' Views on the Use of Web 2.0 Tools in Educational Environments. *Asian Journal of Education and Training* 7(2): 115-125. https://doi.org/10.20448/journal.522.2021.72.115.125

Bauder, M. (2017). Using social media as a big data source for research: the example of ambient geospatial information (AGI) in tourism geography. In: Geographies of Digital Culture. Routledge, pp. 39–51

Chang, C. H., Wu, B. S. (2018). Teaching geography with technology—a critical commentary. In: Learning Geography Beyond the Traditional Classroom. Springer, Singapore, pp. 35–47.

Creswell, J. W. (2012). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (4th ed.). Pearson.

Halim, A., & Harwati, 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), 1-08. http://journal.redwhitepress.com/index.php/jcet/index

Hashim, H., Yunus, M. M., Embi, M. A., & Mohamed Ozira, N. A. (2017). Mobile-assisted language learning (MALL) for ESL learners: A review of affordances and constraints. Sains Humanika, 9(1-5), 45-50. https://doi.org/10.11113/sh.v9n1-5.1175

Jarrah, M. A., & Alzubi, A. A. F. (2021). Arab Postgraduates' Readiness towards and Effectiveness of Utilizing Web 2.0 in Language Learning. International Journal of Instruction, 14(1), 673-690. https://doi.org/10.29333/iji.2021.14141a

Jimoyiannis, A. 2010. Integrating Web 2.0 in education: Towards a framework for Pedagogy 2.0. In R. Hackney & C. Evans (Eds.), Web 2.0 Conference Abstracts (p. 5). Brunel University, London

Kennedy, G., Dalgarno, B., Gray, K., Judd, T., Waycott, J., Bennett, S., et al. 2007. The net generation are not big users of Web 2.0 technologies: Preliminary findings. *In ICT: Providing choices for learners and learning*. Proceedings ascilite Singapore. (pp. 517-525). http://www.ascilite.org.au/conferences/singapore07/procs/kennedy.pdf

Leh, F.C., Anduroh, A., & Huda, M. 2021. Level of knowledge, skills and attitude of trainee teachers on Web 2.0 applications in teaching geography in Malaysia schools. https://doi.org/10.1016/j.heliyon.2021.e08568

Malaysia Education Blueprint (2013). Malaysia Education Blueprint 2013-2025. Education, 27, 1-268.

Malaymail. (2019). Maszlee: E-learning to be platform to raise English proficiency. https://www.malaymail.com/news/malaysia/2019/08/01/maszlee-e-learning-to-beplatform-to-raise-english-proficiency/1776704

Nakamaru, S. (2011). Making (and not making) connections with web 2.0 technology in the ESL composition classroom. *National Council of Teachers of English*; 38 (4): 377-390. http://www.ncte.org/library/NCTEFiles/Resources/Journals/TETYC/0384-may2011/TETYC0384Making.pdf.

Perez. E. (2019). What Is Data Analysis and Its Methods. Utree. https://www.utreee.com/what-is-data- analysis-and-its-methods%EF%BB%BF

Shih, R. C. (2010). Blended learning using video-based blogs: Public speaking for English as second language students. *Australasian Journal of Educational Technology*. 26(6), 883897. http://www.ascilite.org.au/ajet/ajet26/shih.html

Siemens, G. (2005). *Connectivism: A learning theory for the digital age*. http://www.elearnspace.org/Articles/connectivism.htm

Sturm, M., Kennell, T., McBride, R., & Kelly, M. 2009. The pedagogical implications of Web 2.0. In M. Thomas (Ed.), Handbook of research on Web 2.0 and second language learning (pp. 367-384). Hershey, PA: Information Science Reference.

Teo, T., Sang, G., Mei, B., Hoi, C.K.W., 2019. Investigating pre-service teachers' acceptance of Web 2.0 technologies in their future teaching: a Chinese perspective. Interact. Learn. Environ. 27(4), 530–546.

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. Decision Sciences, 39, 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Waycott, J. & Kennedy, G. 2009. Mobile and Web 2.0 technologies in undergraduate science: Situating learning in everyday experience. *In Same places, different spaces. Proceedings asciliteAuckland*.
http://www.ascilite.org.au/conferences/auckland09/procs/waycott.pdf