

I-ROLE 2023**International Conference of Research on Language Education****FROM WEB SEARCH TO TEXT COMPREHENSION:
MALAYSIAN UNDERGRADUATES' ONLINE READING
STRATEGIES**

Noridah Sain (a)*, Suhaili Mohd Yusof (b), Sofwah Md. Nawi (c),
Puteri Nur Hidayah Kamaludin (d), Haryati Ahmad (e)

*Corresponding author

(a) Academy of Language Studies, Universiti Teknologi MARA Cawangan Johor, Malaysia, noridahs@uitm.edu.my

(b) Academy of Language Studies, Universiti Teknologi MARA Cawangan Johor, Malaysia,
suhailiyusof@uitm.edu.my

(c) Academy of Language Studies, Universiti Teknologi MARA Cawangan Johor, Malaysia, sofwah@uitm.edu.my

(d) Academy of Language Studies, Universiti Teknologi MARA Cawangan Johor, Malaysia,
puteri523@uitm.edu.my

(e) Academy of Language Studies, Universiti Teknologi MARA Cawangan Johor, Malaysia, harya395@uitm.edu.my

Abstract

The use of Google and other search engines has become second nature, especially for tertiary students, to find reference materials for their academic activities. Access to unlimited information eases their information-seeking process as much as it can easily lead them into using unverified resources. To become effective and critical users of online resources in the digital environment, students need to skillfully navigate the Internet and evaluate the information they read. This case study, therefore, aims to examine how students incorporate internet-based digital technology to perform online research and comprehension activities. 24 students of an English-major Diploma course in a Malaysian public university responded to an open-ended questionnaire, where they were asked to share their pre, while, and post-online research activities, detailing the strategies and the digital tools used to supplement their practices. The qualitative data analysis revealed several key strategies employed to identify, locate, evaluate, and synthesize online information. The findings could be used to inform pedagogical practices in developing university students' competency for digital information literacy.

2672-815X © 2023 Published by European Publisher.

Keywords: Digital literacy, critical reading skills, online reading, online research and comprehension strategies

1. Introduction

The advancement of technology has hugely impacted many aspects of our life including the educational sector. One impact it has on education could be witnessed in the current trend and practice of blended learning where the content and instructions of an educational program are presented through a combination of conventional face-to-face and technology-mediated delivery. This trend that began in the late 1990s (Nuruzzaman, 2016) accelerated during the COVID-19 pandemic making what was a choice prior to the pandemic a necessity during the challenging times (Devi et al., 2021). With blended learning comes digital technologies as the latter facilitates the execution and effectiveness of the former (Anthonysamy et al., 2020). Some examples of digital technologies include the Internet, computers, tablets, mobile phones, social media, and embedded devices (Kumar et al., 2022). Students use these technologies for numerous purposes such as for “communication, collaboration, [and] accessing multiple sources of information for solutions” (Anthonysamy et al., 2020). For the last purpose, digital literacy skills are absolutely important as they are necessary for determining, among others, the usefulness and credibility of online materials (Alakrash & Abdul Razak, 2021).

As the current students are dubbed as digital natives, the aims of this case study are to investigate how some English-major students at a Malaysian public university integrate online texts obtained during their online research to complete their assignments, to explore their existing practices when engaging with online materials, as well as to ascertain whether they require additional support in conducting and managing online inquiry for academic purposes, since L2 learners rely on online information as one of their main references (Hewagodage, 2020; Nawaila et al., 2020).

1.1. An Overview of Relevant Literature

1.1.1. The Internet as Digital Technology in Learning English as a Second Language

As technology advances significantly in all fields, its use in the education field is very much expected. The incorporation of digital technology in ESL classrooms would elevate the process of teaching and learning. There are a number of advantages to both educators and learners when digital technology is used in ESL classrooms which include the ability to access materials at any time and place, and the potential to speed up the process of learning. Kumar et al. (2022) added that digital technology such as the Internet, computers, and tablets would increase learners' participation in the classrooms, create interesting lessons and increase learners' motivation as well as performance in class.

One of the digital technologies educators frequently use in ESL classrooms is the Internet. This is because the Internet allows educators to direct learners towards a successful autonomous learning. This is supported by Fujii (2007) who stated that using the Internet encourages an autonomous learning approach, and assists learners to foster lifelong learning skills and to engage in a meaningful academic development. However, without close monitoring, the Internet might be harmful to learners. When searching for and reading information on the Internet, learners need to have the strategies to distinguish between good and reliable information and distrustful information. This is because not all information or materials learners find on the Internet are useful and trustworthy. Fujii (2007), in his research, found that

a huge number of materials on the Internet have been inaccurately written and are of poor style. He also added that a large amount of information resulting from a search on the Internet can make inexperienced learners feel overwhelmed when trying to understand the information by themselves. Therefore, it is imperative for learners to know the relevant strategies required to effectively engage in online research on the Internet for their academic purposes in ESL classrooms.

1.1.2. Digital Literacy

Fieldhouse and Nicholas (2008) described digital literacy as how users search, find, and evaluate information within the digital setting. Thus, it is important for both educators and learners to sort out and select the right information. Educators are accountable to provide learners with appropriate materials and information selected from credible and valid sources. Learners need to develop digital literacy when they do online research on the Internet as they are responsible for finding the right information.

Sevara et al. (2022) stated that digital literacy instruction involves the cognitive abilities of the learners where they need to utilize critical thinking skills for their social, actions, and behavioral engagement on digital platforms. When learners do online research, they will need to apply their critical thinking skills in order for them to identify information sources that are credible and reliable. However, learners may not be equipped with knowledge on how to identify information from credible and reliable sources. Although the current generation of learners is considered digital natives, deemed to be highly proficient at navigating the digital learning environment, a study by Porat et al. (2018) revealed a significant gap between the learners' self-perceived level of competency and their actual digital literacy skills. Therefore, learners must be taught the strategies that they need to employ when they search for and read information online so that they are able to differentiate information between trustworthy sources and unreliable sources. As supported by Sevara et al. (2022), learners need to be taught lessons in responsible digital communication and ethical use of digital resources including privacy and security for their academic and professional careers.

1.1.3. Critical Reading Skills

In Malaysia, university students are required to attend English courses for Academic Purposes covering all four skills of listening, speaking, reading, and writing with a greater emphasis on literacy skills. This is because, at the tertiary level, students' linguistic skills are typically assessed in the form of writing like essays, reports, and dissertations which would require them to read a large volume of academic materials such as articles and journals. Given the academic writing conventions that they need to fulfill, students need to engage with the reading materials critically and selectively. Therefore, critical reading skills which include the ability to analyze, synthesize, and evaluate information, are crucial for tertiary students to master.

According to Anuar and Sidhu (2017), when students read about a specific subject matter, they should go beyond what is stated in the text by evaluating the relevancy, strength, and value of the claims and statements made by the authors. Such skills are challenging and difficult to develop especially among undergraduates, due to the lack of critical reading exposure in school (Kadir et al., 2014). This is evident from the findings by Zin et al. (2014) that Malaysian tertiary students lacked analytical and inference

skills, in which they were not able to process information beyond the text level. A more recent study by Safian and Jiar (2022) on Malaysian pre-university students also found their critical reading level and practices to be less than desirable. Though the pre-university students are generally much younger in age compared to the undergraduates, the findings are indicative of their potential, or lack thereof, for high-level academic reading and writing activities.

As online texts are considered the main source for students (Hewagodage, 2020; Nawaila et al., 2020), there is a greater need for critical reading skills to be emphasized to ensure that students can determine the suitability of the text they are reading and to view information with a discerning pair of eyes.

1.1.4. Online Research and Comprehension Strategies

The New Literacies theory (NL) is a dynamic and evolving framework that reflects the changing nature of literacy in the digital age. It encompasses various lowercase theories (nl) that focus on specific aspects of literacy practices mediated by technology, such as online research and comprehension (NJORAC) (Leu et al., 2013). NJORAC is a subset of nl that emphasizes the role of problem-solving and research skills in online reading, especially in academic contexts. According to Leu et al. (2013), online research and comprehension involves five key processes: locating, analyzing, synthesizing, evaluating, and communicating online information. These processes are essential for students to cope with the demands of the online reading environment. In contrast to NL, nl are fluid and adaptable theories that can respond to new contexts and variables introduced by technological innovations. NL is a more stable and overarching theory that provides a set of guiding principles for understanding literacy as a social practice that is influenced by power relations and ideologies (West, 2019).

2. Research Methods

This is a case study employing qualitative data collection, conducted at a public university in Segamat, Johor, Malaysia. 74 (14 male and 60 female) students, from the Academy of Language Studies, were invited to participate in the study. They were enrolled in English for Academic Writing subject, in their final semester (August 2022 - March 2023). The participants (from 19 to 20 years of age) were selected due to the nature of the assessment for the subject, which was to write an argumentative research paper using online articles. This task required the students to work with a partner, conduct online research as well as comprehend the materials that they have collected, and composed a paper based on their online inquiry. At the beginning of this study, the participants were briefed that their participation would not affect their grades and that they may choose not to participate in the study. Seven open-ended questions regarding online research activities were shared with the participants via Google Form. The questions investigated the participants' existing knowledge and practices regarding pre, while, and post-online research activities by asking the students to describe their strategies as well as provide examples where necessary. The results were extracted from one of the researchers' Google Drive and were thematically analyzed using NVivo. The researchers used a qualitative method of thematic analysis to explore, analyse and report patterns and themes in the data (Braun & Clarke, 2006) related to a specific phenomenon or

issue. This study followed the six-step process of thematic analysis proposed by Braun and Clarke (2006), which are: i. getting familiarised with data, ii. producing initial codes, iii. discovering themes/subthemes, iv. reevaluating themes, v. naming themes, and vi. producing a report.

3. Findings

As stated previously, upon the commencement of the study, 74 students were invited to take part in the study. Out of these 74 students, 24 of them (referred to as Respondents R1 to R24) responded to the survey. The majority of the respondents were female students (5 male and 19 female). The five male respondents were R1, R4, R5, R18, and R20, while the rest of the respondents were female. The self-reported survey revealed common practices among the 24 respondents that aligned with the four strategies/processes of the new literacies of online research and comprehension (NLORAC) proposed by Leu et al. (2013). These strategies were identifying information, locating information, evaluating information, and synthesizing information. As described in Section 3, the data were analyzed thematically using NVivo Pro 12 Pro Software, and the resulting themes were coded and listed in Table 1.

Table 1. Themes In Doing Online Research Activities

| Themes | Example |
|--------------------------|--|
| Identifying information | Using relevant words or keywords as search terms Using synonyms to modify search terms |
| Locating information | Choosing results based on the websites and/or titles Selecting sources from a database (Google Scholar) |
| Evaluating information | Checking the details of the online sources (e.g., name of author(s), date of publication) |
| Synthesizing information | Comparing and/or contrasting information found on several websites |

3.1. Identifying Information

The survey's first question inquired how the respondents identified the online information they needed for their academic writing task, before starting their online research activities. Most respondents (21 out of 24) reported that they chose the keywords to initiate online research. For example, R5 stated that he “would type in keywords that are related with the research topic...” while R17 began her online research by “searching only the important keywords and use synonyms...” The other three respondents started their online research using different search strategies and an example of this was shown by R15 who shared that she would use “a full sentence” to find out information during online research.

3.2. Locating Information

The second question that the respondents answered on the survey was about how they locate online information. 14 out of 24 respondents commented that they would locate online information based on the reliability of the websites found from the search results. To illustrate, R5 stated that during online

research, she located the information from websites that are “up-to-date and have credibility as well as reliability.” Five respondents (R2, R6, R10, R15, and R18) cited that they located online information based on the titles of the articles, while four respondents (R2, R7, R16, and R21) stated that they referred to Google Scholar when searching for information for their academic work. Two respondents (R1 and R14) commented that they would click any search results randomly.

3.3. Evaluating Information

When it comes to evaluating online information, 21 out of 24 respondents cited that they would check certain details found on the websites when using them for their online research and only two respondents (R3 and R15) commented that they did not bother to check the reliability of the websites when researching certain topics for academic purposes. Among the details that the respondents checked on the websites were the date of publication (mentioned by R1, R4, R7, R13, and R21), name of the author (R2, R4, R11, R17, and R24), the publication details (R8, R9, R10, and R18), and whether the websites contained references in explaining their ideas or arguments (R6, R14, and R20). There was one respondent (R12) who shared that she would look at the comments section to evaluate the information presented on the website and another respondent who stated that she evaluated the online sources by conducting the “CRAAP test” to evaluate the sources. CRAAP is an acronym for currency, relevance, authority, and purpose and it is one of the methods used to evaluate information.

3.4. Synthesizing Information

To synthesize online information for academic purposes, the survey asked about the respondents' practices. Several websites were compared by nine respondents (R3, R4, R7, R9, R12, R15, R17, R21, and R24) while eight respondents (R2, R5, R10, R13, R14, R16, R19, and R20) contrasted and compared the information from various online sources during their online research. Online dictionaries were used by R3 and R23 to comprehend the information better while two respondents (R6 and R22) summarized the online information when conducting online research. With regard to synthesizing information, one respondent (R18) provided his views as shown below:

“online information is mostly credible. Hence, I usually use my logic to just understand it by reading the text thoroughly. If I don't understand the information, I will use the Google translate and if that can't help me, I will use online paraphrase bot to have a clearer understanding of the information.”
(R18)

3.5. Online Information Literacy Class

The respondents were asked to give their opinion on whether attending an online information skills class can help them acquire search strategies for online research. All of the respondents agree that it will indeed be beneficial for them. This indicates that the respondents acknowledge the importance of having a guideline for online research.

3.6. Discussion

The qualitative data analysis revealed that the respondents' reported practices corresponded to the four strategies suggested by NLORAC (Leu et al., 2019). However, the respondents' descriptions and examples indicated a lack of critical knowledge in conducting online research and comprehending online information for academic writing. Although most respondents (21 out of 23) claimed to use keywords or synonyms in their online research, only two respondents (R2 and R4) demonstrated a specific approach to identify relevant online information. For example, R2 said she used keywords that would answer “what, why, how” and other keywords depending on her research goals. This finding is consistent with previous studies such as Azmuddin et al. (2017) and Zin et al. (2014), which reported that Malaysian ESL undergraduates faced difficulties in completing their academic tasks without adequate guidance on how to manage online research and online information.

Nevertheless, the response provided for the survey showed that the students are aware of the strategies needed to search for and locate information for their academic reading and writing. Using Google Scholar as the primary search engine, identification of relevant keywords in the online text and being mindful of the credibility of the websites, suggested that the respondents are adept at finding information that meets their academic needs. This is in line with the findings from Sain et al. (2017) which stated that strategies related to locating online information are frequently utilized by students during online research tasks.

Critical evaluation of online reading materials includes being aware of any presence of bias or whether the information can be deemed as accurate and reliable (Leu et al., 2019). This evaluation skill is key to aid comprehension of online reading materials than it is for offline reading as printed books or articles which typically have been vetted by the publishers to ensure credibility (Shetzer & Warschauer, 2000). The findings of this study indicated that, on a fundamental level, the respondents practice some strategies to evaluate online content. For instance, R2 stated that she is wary of online information “written by random people”. This means that she is informed enough to know that the trustworthiness of the website is directly tied to the credibility of the writer. Two other respondents, R3 and R7, used the term “legit” (legitimate) to describe the criteria they look for in determining the reliability of the websites. These findings established the respondents' ability to evaluate online information.

Synthesizing information is a complex process that requires information integration and meaning construction (Barzilai et al., 2018). This knowledge is crucial for tertiary-level learners as effective synthesizing strategies lead to higher success in producing better quality academic writing (Kiili & Leu, 2019). Based on the responses collected from the survey, there is a lack of attempt to interact with the information obtained from online reading and research. For example, only two respondents (R6 and R22) stated that they used the summarizing strategy to “retell the information”. Although this requires a significantly higher level of text comprehension than merely comparing and contrasting information, there is no indication that information analysis and integration have occurred. The findings reiterate that the respondents only possess a rudimentary understanding of online reading and research strategies.

In terms of providing additional support to conduct online research for academic purposes, most of the respondents agree that having a set of guidelines will further strengthen their critical reading skills. For example, classes focusing on online research skills should be conducted as part of the support system

for students. In fact, such classes are already available at some higher learning institutions and are typically conducted by the librarians. These information literacy classes not only provide training for students to utilize online databases and electronic sources provided by the universities, but also introduce them to reference management tools such as EndNote and Mendeley. Information on publication ethics is also provided, to ensure awareness of the reliability, validity and credibility of academic sources. Another measure that can be put in place to expose students to online research skills is to teach online comprehension strategies in academic reading and writing classrooms. For example, the Online Research and Comprehension Strategies Intervention Lessons (ORACSIL) is a collection of eight lessons designed to equip students with the necessary skills needed for effective online research (Sain, 2022). Implementing these lessons can help students be aware of the suitable methods they should use when conducting online research.

However, merely being given access to these skills does not guarantee that students will use them when conducting online research. One respondent, R3, acknowledged this issue. According to him, despite having attended classes on online research skills, “most people will just scan the website or read everything” without applying the skills they have learned. The statement echoes the findings from a previous study by Zin et al. (2014) which stated that ESL undergraduates are reluctant to practice critical thinking and reading skills. This is an urgent issue as these skills are the gateway to developing higher-order thinking skills among Malaysian undergraduates.

4. Conclusion

The study set out to examine the strategies used by students when performing online research and comprehension activities. The result of the study revealed that while the current generation of students is deemed digital natives, they have not fully made use of online tools and technology to develop their digital literacy. Despite the respondents describing their use of several online research and reading strategies (i.e. using keywords, comparing and contrasting various information sources, and evaluating the credibility of online information), they lack higher-order critical reading skills that are necessary for academic research at the tertiary level. Skills such as evaluating and synthesizing information are often required to comprehend as well as integrate the vast amount of online information. Without proper guidance, Malaysian ESL undergraduates will lose out on being able to fully harness technology to enhance their learning experience.

Online reading, research and comprehension skills are essential for the reading and writing class. Some higher learning institutions offer such classes, but students do not use these skills effectively in the online learning environment. In addition, as these lessons are not part of the mandated curriculum structure, lecturers may also not be aware of its availability. Thus, better promotion and awareness strategies should be carried out to highlight the importance of online literacy classes. Administrators of higher learning institutions should also consider making online literacy classes part of the orientation week programme. This can help new students be better prepared in navigating their academic life, particularly for completing assessments that require extensive research. However, merely having this support system in place is inadequate. There must also be a concerted effort by the institutions to provide

encouragement and opportunities for students to apply the skills that they have learned to ensure the efficacy of these online research strategies.

References

- Alakrash, H. M., & Abdul Razak, N. (2021). Language Learning: Investigation of Digital Technology and Digital Literacy. *Sustainability* 2021, 13. <https://doi.org/10.3390/su132112304>
- Anthony, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies in Higher Education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-020-10201-8>
- Anuar, N., & Sidhu, G. K. (2017). Critical reading skills: A survey of postgraduate students' perspective of critical reading. *Social Sciences & Humanities*, 25(3), 163-172.
- Azmuddin, R. A., Nor, N. F. M., & Hamat, A. (2017). Metacognitive online reading and navigational strategies by science and technology university students. *GEMA Online® Journal of Language Studies*, 17(3), 18–36. <http://doi.org/10.17576/gema-2017-1703-02>
- Barzilai, S., Zohar, A. R., & Mor-Hagani, S. (2018). Promoting integration of multiple texts: A review of instructional approaches and practices. *Educational psychology review*, 30(3), 973-999. <https://doi.org/10.1007/s10648-018-9436-8>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Devi, B., Sharma, C., & Lepcha, N. (2021). Blended Learning - A Global Solution in the Age of COVID-19. *Journal of Pharmaceutical Research International*, 33(41B), 125-136.
- Fieldhouse, M., & Nicholas, D. (2008). *Digital literacy as information savvy*. Peter Lang Publishing Group.
- Fujii, Y. (2007). Making the most of search engines for Japanese to English translation: Benefits and challenges. *The Asian EFL Journal Professional Teaching Articles*, 23, 1-36.
- Hewagodage, V. (2020). Utilizing Internet resources in TESOL: The design of English language learning and formative assessment practices. In *Technology-Enhanced Formative Assessment Practices in Higher Education* (pp. 60–86). IGI Global.
- Kadir, N. A., Subki, R. N. S., Jamal, F. H. A., & Ismail, J. (2014). The importance of teaching critical reading skills in a Malaysian reading classroom. In *The 2014 WEI International Academic Conference Proceedings*. (pp. 208–219). Austria: Vienna.
- Kiili, C., & Leu, D. J. (2019). Exploring the collaborative synthesis of information during online reading. *Computers in Human Behavior*, 95, 146-157. <https://doi.org/10.1016/j.chb.2019.01.033>
- Kumar, T., Shet, J. P., & Parwez, M. A. (2022). Technology-integration experiences in ELT classrooms as an effective tool: A theoretical study. *JETT*, 13(1), 51-60.
- Leu, D. J., Kinzer, C. K., Coiro, J., Castek, J., & Henry, L. A. (2013). New Literacies: A dual-level theory of the changing nature of literacy, instruction, and assessment. In D. E. Alverman, N. J. Unrau, & R. B. Ruddell, (Eds.), *Theoretical Models and Processes of Reading* (pp. 1150-1181). International Reading Association.
- Leu, D. J., Kinzer, C. K., Coiro, J., Castek, J., & Henry, L. A. (2019). New Literacies: A dual level theory of the changing nature of literacy, instruction, and assessment. In D. E. Alvermann, N. J. Unrau, M. Sailors, & R. B. Ruddell (Eds.), *Theoretical models and processes of literacy* (7th ed., pp. 319–346). Taylor & Francis. <https://doi.org/10.4324/9781315110592>
- Nawaila, M., Kanbul, S., & Alhamroni, R. (2020). Technology and English language teaching and learning: a content analysis. *Journal of Learning and Teaching in Digital Age*, 5(1), 16–23.
- Nuruzzaman, A. (2016). The pedagogy of blended learning: A brief review. *IRA International Journal of Education and Multidisciplinary Studies*, 4(1). <http://doi.org/10.21013/jems.v4.n1.p14>
- Porat, E., Blau, I., & Barak, A. (2018). Measuring digital literacies: Junior high-school students' perceived competencies versus actual performance. *Computers & Education*, 126, 23–36. <https://doi.org/10.1016/j.compedu.2018.06.030>

- Safian, N. M., & Jiar, Y. K. (2022). Relationship between ESL Learners' Reading Self-Efficacy, Reading Strategies and Critical Reading among Pre-University Students in a Malaysia Public University. *Sains Humanika*, 14(3-2), 117–124.
- Sain, N. (2022). *Incorporating new literacies of online research and comprehension strategies instruction in English as a Second Language (ESL) undergraduate classrooms* [Unpublished doctoral dissertation]. University of Tasmania.
- Sain, N., Bown, A., Fluck, A., & Kebble, P. (2017). ESL learners' online research and comprehension strategies. In K. Borthwick, L. Bradley, & S. Thouëсны, (Eds.), *CALL in a climate of change: adapting to turbulent global conditions - short papers from EUROCALL 2017* (pp. 271-276).
- Sevara, U., Muhayyo, U., & Maftuna, A. (2022, December). The Significance of Digital Literacy in the EFL Classroom. *International Conference on New Scientific Methodologies* (pp. 41-44).
- Shetzer, H., & Warschauer, M. (2000). An electronic literacy approach to network-based language teaching. *Concepts and Practice*, 3(5), 171–185. <https://doi.org/10.1017/cbo9781139524735.010>
- West, J. A. (2019). Using new literacies theory as a lens for analyzing technology mediated literacy classrooms. *E-Learning and Digital Media*, 16(2), 151–173. <http://doi.org/10.1177/2042753019828355>
- Zin, Z. M., Eng, B. E., & Rafik-Galea, S. (2014). Critical reading ability and its relation to L2 proficiency of Malaysian ESL learners. *The Southeast Asian Journal of English Language Studies*, 20(2), 43–54. <https://doi.org/10.17576/31-2014-2002-04>