ESL learners' online research and comprehension strategies

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Abstract. In order to enhance second language (L2) acquisition, English as a Second Language (ESL) students are encouraged to exploit the abundant information and opportunities for authentic language use afforded by the Internet. This study investigated the online research and comprehension strategies employed by ESL learners in a public university in Malaysia. The study was descriptive and the data was collected via the Qualtrics survey system. Data analysis demonstrated the most and least frequently used online research and comprehension strategies of 74 ESL undergraduates and uncovered an overview of the ESL undergraduates' existing online research and comprehension strategies. The findings suggest that explicit training in the area of online research and comprehension processes is worth pursuing in the development of online study skills. This study also presents validation of a survey instrument used within the study to assess ESL learners' online research and comprehension strategies.

Keywords: online research strategies, digital literacies, ESL learners, Asia.

1. Introduction

The Internet has become an important, if not indispensable, tool for communication, information retrieval, transaction processing, and problem solving in all aspects of our lives. In classroom contexts, learners today rely heavily on the Internet as a source of information, rendering the ability to comprehend what is read during online research and learning even more crucial to knowledge-based societies (Goldman et al., 2012). "The plethora of information available online, coupled

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with heavy reliance on the Internet by information seekers raise issues of the credibility or quality of information found online" (Metzger, 2007).

To make effective use of new technologies in their academic and future endeavors, Malaysian undergraduates need to be aware of the skills required to autonomously use the Internet for academic purposes. Located within the ESL context in a public university in Malaysia, this study aimed to explore the use of the Internet when undergraduates conduct online research and comprehension activities in order to provide practitioners with data about the use of the Internet to better assist their students.

2. Method

Seventy-four undergraduates (21 male and 53 female) from a public university in Malaysia were identified using convenience sampling to participate in this study. They were around the age of 19 to 21 years old. These 74 students were second and third semester ESL students from various courses.

The instrument developed for this study is the Online Research And Comprehension Strategies (ORACS) survey. The ORACS survey consisted of 37 items. Sixteen items were based on the five processes involved in online research and comprehension activities suggested by the new literacies of online research and comprehension perspectives (Kingsley & Tancock, 2014) while the other 21 items were taken from the Online Survey of Online Reading Strategies (OSORS) by Anderson (2003). OSORS made use of a five point Likert scale and each item in the ORACS survey used a similar scaling option. To date, OSORS (Anderson, 2003) has been widely used to assess students' strategies when reading online and comprehending online information.

However, this popular survey instrument lacks the navigational aspect, which is important in assessing online research and comprehension strategies. The ORACS survey instrument included the navigational aspect, which was missing in OSORS. The Cronbach's alpha for the ORACS was found to be .97. The survey was administered in a computer laboratory during a formal weekly meeting.

The ORACS survey link was uploaded to the e-learning platform used by the academic staff and students of the chosen public university. Prior to filling out the ORACS survey, participants were first led to the online informed consent on which they were required to indicate their willingness to participate in the study.

3. Results

Table 1 summarizes the top five online research and comprehension strategies among the total 37 items in the ORACS survey.

Table 1. Five online research and comprehension strategies most frequently used by ESL undergraduates

Online Research and Comprehension Strategies	Never	Rarely	Sometimes	Often	Always	Mean*	Std. Deviation
I read the article closely after I have identified specific information within webpages when conducting online research.	0	6 (8.1%)	17 (23.0%)	40 (54.1%)	11 (14.9%)	3.76	.808
I re-read online text to increase my understanding when online text becomes difficult.	1 (1.4%)	4 (5.4%)	20 (27%)	33 (44.6%)	16 (21.6%)	3.80	.891
Online Research and Comprehension Strategies	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**	**Mean***	**Std. Deviation**
I use reference material (e.g. an online dictionary) to help me understand what I read online.	1 (1.4%)	2 (2.7%)	23 (31.1%)	23 (31.1%)	25 (33.8%)	3.93	.941
I use keyword search and phrase searching strategies when conducting online research.	0	3 (4.1%)	24 (32.4%)	35 (47.3%)	12 (16.2%)	3.76	.773
I click on links or hyperlinks that are useful for my task within webpages that I find when conducting online research.	0	5 (6.8%)	23 (31.1%)	35 (47.3%)	11 (14.9%)	3.70	.806

*Never=1, Rarely=2, Sometimes=3, Often =4, Always=5

Table 2 lists the five online research and comprehension strategies that the ESL undergraduates would use the least when conducting online research based on the ORACS survey.

Table 2. Five least frequently used online research and comprehension strategies by ESL undergraduates

Online Research and Comprehension Strategies	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**	**Mean***	**Std. Deviation**
I differentiate the author's tone and purpose in the sources that I find on the Internet when conducting online research.	0	8 (10.8%)	41 (55.4%)	19 (25.7%)	6 (8.1%)	3.31	.775
I use Google Scholar when conducting online research.	8 (10.8%)	18 (24.3%)	22 (29.7%)	17 (23.0%)	9 (12.2%)	3.01	1.19
I use Google Advanced Search or Yahoo! Advanced Web Search to narrow down my search results when conducting online research.	3 (4.1%)	18 (24.3%)	26 (35.1%)	14 (18.9%)	13 (17.6%)	3.22	1.13
I print out a hard copy of the online text then underline or circle the information to help me remember it.	1 (1.4%)	21 (28.4%)	21 (28.4%)	21 (28.4%)	10 (13.5%)	3.24	1.06
Online Research and Comprehension Strategies	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**	**Mean***	**Std. Deviation**
I read aloud to help me understand what I read when online text becomes difficult.	4 (5.4%)	16 (21.6%)	23 (31.1%)	21 (28.4%)	10 (13.5%)	3.23	1.11

*Never=1, Rarely=2, Sometimes=3, Often =4, Always=5

4. Discussion

The results from this study revealed that the ESL undergraduates would often or always use strategies that help them understand the online information when conducting online research. They do this by reading carefully, re-reading, and using online tools such as an online dictionary when trying to comprehend the online information. They would also often or always use keyword and phrase searching strategies followed by clicking on links or hyperlinks that they perceived to be useful for their task within the webpages that they found when conducting online research. These strategies are related to one of the five processing practices that occur during online research and comprehension activity: locating online information. The other four processing practices are defining important questions, evaluating online information, synthesizing online information, and communicating online information (Kingsley & Tancock, 2014). From Table 2, it is found that one of the strategies that these ESL undergraduates would rarely or never use is connected to the practice of evaluating online information (differentiating the author's tone and purpose in online sources). Such low frequencies of the practice of critically evaluating online information imply that the participants lack awareness with regard to the issue of reliability and credibility of online information. Other less frequently used strategies point to the participants' insufficient exposure to several online tools (Google Scholar, Google Advanced Search, and Yahoo! Advanced Web Search) that may assist them in locating online information more effectively during online research. Overall, the findings showed that the ESL undergraduates did not use all of the strategies investigated in the ORACS survey and the way they used the strategies was centered on a particular, or presumably, limited number of strategies.

5. Conclusion

The findings from this research substantiate the growing concern among educators about the ability of current students to successfully conduct online research and critically evaluate online information sources for academic purposes (Sain, Md. Nawi, Mustafa, & Kadir, 2014). However, the small sample size obtained from a single university limits the external validity of this study. Future research should also compare the students' self-reported strategies with their actual online research and comprehension performance. Nevertheless, it is hoped that the findings from this research will further assist language practitioners and policymakers to put forward approaches to boost the online research and comprehension skills among students in Malaysia so that these students may utilize their skills and strategies for their future needs.

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