Correlation Patterns among Online Reading, Offline Reading, Metacognitive Reading Strategy Awareness, and General English Proficiency

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ABSTRACT

Online reading has developed into a primary method of obtaining information in the digital era. Nevertheless, research that identifies factors contributing to EFL university students' online reading comprehension success is limited. The study aimed to understand the relationship among three factors related to online reading comprehension, i.e., metacognitive reading strategy awareness, offline reading ability, and general English proficiency. A correlational study was employed involving twenty-nine English department students from various proficiency levels. Data were gathered using an online survey of reading strategies (OSORS) and an English proficiency test. Regression analyses, performed on the three factors and online reading comprehension, revealed that the correlation between general English proficiency test results and online reading comprehension was significantly positive with a medium degree. However, the other two related factors, i.e., metacognitive reading strategy awareness and offline reading ability, showed no significant correlation with online reading comprehension. The result may be due to the lack of metacognitive reading strategy awareness and the different nature of offline and online reading. Thus, language teaching and learning practice is urgently needed to address these issues more explicitly.

Keywords: General English Proficiency, Offline Reading Ability, Online Reading, Metacognitive Reading Strategy Awareness

1. INTRODUCTION

Technology is now transforming our reading and learning in the 21st century tremendously. In addition to the need for reading comprehension, the widespread use of laptops, mobile phones, and the internet has broadened the role of reading literacy. This phenomenon may encompass new strategies for reading digital texts such as identifying, interpreting, synthesizing, and reviewing content which are deemed crucial for reading in a digital world [1], [2]. In the light of new reading environments and reading tasks, it is indispensable for online readers to become conscious of these diverse strategy preferences. Readers change their reading habits and perform effective strategies in sophisticated reading contexts. It can be interpreted that in online reading environments, readers use complex strategies to make their reading more profound.

Second-language readers are believed to use the various reading strategies to offset online reading challenges, and that scholars called some of these coping strategies as metacognitive reading strategies. Metacognitive reading strategies allow readers to solve misunderstandings and mitigate the lack of language skills. According to Anderson [3], reading a text necessitates readers to employ metacognitive reading strategies, such as tracking and controlling. Repeated findings of prior research demonstrate that metacognitive reading strategies are associated with readers' reading abilities [4]–[7].

Furthermore, a large growing body of research indicates a positive relationship between reading strategy use and general English proficiency levels [8]–[10]. Students with high proficiency follow a range of different reading strategies, such as thinking about the material, arranging their reading targets, heading backward and forward, evaluating their understanding, and organizing when they read [11]–[13]. The critical feature of reading strategies and monitoring good comprehension is promoted in an observational study that compares successful and less successful readers’ distinctions. Anderson [14] asserted that in order to attain strategic
reading, a reader must have both pieces of knowledge of strategies and the ability to use strategies successfully, which is also one of the distinguishing characteristics that differentiate proficient readers from less proficient readers.

Besides evaluating the contribution of metacognitive reading strategies and general English proficiency to online reading comprehension, another study also illustrated the contribution of offline reading ability to the attainment of reading on the internet [15]. Recent findings have been motivated to explore the best way to interpret reading and figure out ways in order to bring theory into practice about the significance of offline reading ability in online reading [9], [16]–[18]. According to previous analyses [19], [20], the reading proficiency and metacognitive reading strategy are expected to facilitate readers in understanding paper-based texts are linked with a critical and more complicated abilities series and strategies required to read effectively for comprehending on the internet. Typical conceptualizations of comprehension of offline reading might be inadequate in digital reading settings. For instance, many adolescents who are adept at offline reading are incapable of dealing with the additional comprehension challenges of accessing web pages and evaluating the information [21].

Nevertheless, there seems to be little statistical evidence obtained to emphasize the qualities of readers that affect the success of reading comprehension in online environments. Moreover, neither of the previous studies explored all of these factors concurrently, nor were they able to develop a credible regression model that included the factors. The research aims to fill this gap and establish a theoretical regression model on the basis of existing literature for the L2 reading process. This analysis would explore several variables related to the success of online reading among foreign language English (EFL) learners, including the general proficiency in English, offline reading ability, and their metacognitive reading strategy, whether those factors have any relationship with their online reading comprehension. Therefore, we formulate the research questions as follows:

- Is there any relationship among metacognitive reading strategy awareness, offline reading ability, general English proficiency, and online reading comprehension?

2. METHODS

2.1. Participants

Sixty-eight third-year ELT department students from one reputable state university in Indonesia were willing to join the research. However, only twenty-nine students completed all the data collection procedures (19 females and 10 males). They were majoring in the English Language Teaching department. Moreover, they were third-year students, which means that they had obtained proper EFL instruction for at least four semesters in the university. The participants’ English proficiency was of beginning to intermediate level. This was based on their TOEFL ITP scores (i.e., $M = 400, SD = 30.53$).

2.2. Instruments

To collect the data of students’ general English proficiency and reading proficiency, the authors used the documents which consist of the students’ scores of TOEFL ITP. The participants took this paper test before engaging in the research. These scores lead the authors to define the students’ English proficiency and offline reading ability. Moreover, to collect the students’ online reading ability, three online texts were taken to evaluate their comprehension.

Besides, to know the students’ overall score of metacognitive reading strategy, the authors distributed a survey, namely OSORS. Anderson formed this survey in 2003 [3]. It indicates a self-report tool that assesses how non-native speakers employ metacognitive strategies in reading scientific literature online. Then, the Survey of Reading Strategies developed by Sheorey and Mokhtary [6] was expanded by Anderson [3]. A five-point Likert scale survey was designed to evaluate online reading strategies. The OSORS has 38 items that fit into three main types of metacognitive reading strategies, as highlighted initially: (a) global strategy, (b) problem-solving strategy, and (c) support strategy.

Meanwhile, in this research, the authors adapted the survey by removing and adding some items. Thus, there were four categories of strategy use: global, problem-solving, support, and socio-affective strategy. There were 44 items in the survey. Reliability was determined by using Cronbach’s alpha to know whether the survey responses demonstrated an adequate degree of internal consistency. From the statistical analysis through SPSS, it was found that the coefficient $\alpha$ obtained was .892. This number implied that the questionnaire could be employed in our research.

2.3. Data collection procedures

The authors used a mobile messenger application, WhatsApp, to give instructions to the students. Before data were collected, the students were asked to take an English language proficiency test. The test was held by the department. It was paper-based, consisting of three language skills to be measured, i.e., listening, structure and written expression, and reading comprehension. The authors used the score of general English and offline reading ability through this test.

After the students completed the test, the authors invited them to join the research in three meetings. Three online academic texts were chosen from reliable online websites (https://www.er-central.com/reader/). Each text consists of 3 to 5 paragraphs, and it took 30 minutes to be read. The themes of the texts are “Mental Health”, “The Power of Words”, and “Getting Up, Moving Forward”. After completing the reading session, they were asked to answer 10-comprehension questions in every text for 15 minutes.

The students’ online reading comprehension was estimated by the average scores on those three quizzes.
The quizzes were conducted through the online gamification website, Socrative. Then, an Online Survey of Reading Strategies (OSORS) was distributed to the students to see their metacognitive awareness of reading strategies in the reading process. This was distributed in each session of reading.

2.4 Data Analysis

The collected data were analyzed using Pearson's product-moment in order to determine the degree of relationship between offline reading ability and dependent variable (i.e., factors are independent variables that were measured in the general English test). An examination of the extent to which the set of parameters significantly related to online reading performance, correlations and beta weights between the acceptable coefficients were examined. Those inferential statistics were performed using SPSS version 26.

Table 1. Descriptive information of the factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Reading Comprehension</td>
<td>29</td>
<td>43.76</td>
<td>13.335</td>
<td>13</td>
<td>73</td>
</tr>
<tr>
<td>Metacognitive Reading Strategies</td>
<td>29</td>
<td>155.86</td>
<td>22.309</td>
<td>109</td>
<td>198</td>
</tr>
<tr>
<td>Offline Reading Ability</td>
<td>29</td>
<td>40.72</td>
<td>5.042</td>
<td>28</td>
<td>50</td>
</tr>
<tr>
<td>General English Proficiency</td>
<td>29</td>
<td>400.00</td>
<td>30.533</td>
<td>327</td>
<td>470</td>
</tr>
</tbody>
</table>

Table 1 summarizes the means, standard deviations, and ranges for all variables. The adjusted scores of participants for online reading comprehension ranged from 13 to 73, with a maximum score of 100. The scores for the standardized test (i.e., General English proficiency) ranged from 327 to 470, and the scores on the offline reading ability ranged from 28 to 50 out of a possible 22 to 67 points. Furthermore, the overall metacognitive reading strategy scores ranged from 109 to 198.

3. FINDINGS

The present study attempted to answer whether or not there is any relationship among metacognitive reading strategy awareness, offline reading ability, general English proficiency, and online reading comprehension. Additionally, regression analyses were also employed to discover whether these factors contribute to the students' online reading comprehension. Finally, to examine the extent to which the set of parameters significantly related to online reading performance, correlations and beta weights between the acceptable coefficients were examined. Those inferential statistics were performed using SPSS version 26.

Table 2. The relationship among the factors and online reading achievement.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Online Reading Comprehension</th>
<th>Metacognitive Reading Strategies</th>
<th>Offline Reading Ability</th>
<th>General English Proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Reading Comprehension</td>
<td>1</td>
<td>-.196</td>
<td>.329</td>
<td>.515**</td>
</tr>
<tr>
<td>Metacognitive Reading Strategies</td>
<td>1</td>
<td>1</td>
<td>-.078</td>
<td>.001</td>
</tr>
<tr>
<td>Offline Reading Ability</td>
<td></td>
<td></td>
<td>1</td>
<td>.703**</td>
</tr>
<tr>
<td>General English Proficiency</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).

A correlation was also found between general English proficiency and offline reading ability—the value of the coefficient that lies at .703. The number means that they have a strong relationship. This may occur as offline reading ability is one of the skills measured in the general English test. However, as those factors are independent variables that predict the dependent variable (i.e., online reading comprehension), this relationship between offline reading ability and general English proficiency is not discussed further.

Before the authors employed the statistical analysis, for the consistency of their distributions and the regression analysis assumptions, all scores for the three independent variables and one dependent variable were generated. The residual plots revealed that the variable distributions fulfilled the criteria of linearity, homoscedasticity, and multivariate normality [22]. Likewise, the diagnostics of collinearity of multivariate regression correlations between variables reported no indication of cointegration. Table 3 represents the findings of the regression analyses.

Table 3. Regression analyses of metacognitive reading strategy awareness, offline reading ability, and general English proficiency on online reading comprehension.

<table>
<thead>
<tr>
<th>Factors</th>
<th>R</th>
<th>R²</th>
<th>ΔR²</th>
<th>β</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive Reading Strategies</td>
<td>.196</td>
<td>.038</td>
<td>.003</td>
<td>-328</td>
<td>.309</td>
</tr>
<tr>
<td>Offline Reading Ability</td>
<td>.329</td>
<td>.108</td>
<td>.075</td>
<td>.125</td>
<td>.081</td>
</tr>
<tr>
<td>General English Proficiency</td>
<td>.515</td>
<td>.265</td>
<td>.238</td>
<td>1.179</td>
<td>.004</td>
</tr>
</tbody>
</table>
The three predictor variables in Table 3 revealed that metacognitive reading strategies and offline reading ability were not significant factors. This was illustrated by the R² score (3.8% and 10.8%, respectively). General English proficiency, as measured by the cumulative scale score on a widely standardized general English test, predicted 26.5% in online reading comprehension, which was considered relevant. The final beta for general English proficiency was 1.179, and the multiple R was .515.

According to these findings, general English proficiency resulted in a considerable proportion of unique variance in online reading comprehension scores that could not be accommodated by offline reading ability or metacognitive reading strategies within this sequence. In summary, general English proficiency scores account for 26.5 percent of the variation in online reading comprehension scores for our sample of 29 university students. This interpretation had a significant effect (.36) from a power viewpoint in the context of teaching and learning [23].

4. DISCUSSION

Pearson’s product-moment correlation results suggested that only one factor (i.e., general English proficiency) out of three factors significantly contributes to the students’ online reading comprehension. The current finding is consistent with what Habók and Magyar [8] discovered in their study. They stated that students’ reading performance is directly affected by their general English ability. Though, the measurement of reading performance was different from this current study. This current study also explored a fruitful finding of a significant relationship between them (i.e., general English proficiency and online reading comprehension).

Unlike previous studies that found metacognitive reading strategy awareness can predict students’ online reading comprehension, e.g., Cai and Kunnan [24] and McGrath et al. [9], the current research uncovered no meaningful analysis between online reading and metacognitive reading strategy. Angraini and Cahyono [25] maintained that the insignificant outcome might be due to the exposure to the metacognitive reading strategy. Some students should be acknowledged to use effective strategies to comprehend online texts. Therefore, explicit instructions on employing metacognitive reading strategies are urgently needed, especially for EFL students to comprehend online texts. [19]

Surprisingly, the findings show that offline reading skills had no effect on online reading performance. It was demonstrated by the coefficient value of the relationship between them. This outcome was in contrast with the prior research. Coiro [15] and Forzani [26] portrayed that offline reading was statistically significant but having a negligible effect on online reading ability. The explanation behind this is the difference between offline and online reading. Myrberg and Wiberg [20] authorized that the media of reading can adjust the students reading speed. Students can consume much more time in reading online texts. Additionally, offline reading provides more connections between readers and texts than online reading [27].

Furthermore, the regression analyses in this current study did not unveil that some factors (i.e., metacognitive reading strategies and offline reading ability) have any regression pattern on students’ online reading performance. Even though other reading researchers confirmed the regression power between metacognitive strategies and online reading comprehension [16], [28], and offline reading ability and online reading comprehension [29]-[31], the precise result of this study might be caused by the sample size, which also became the limitation of this study. Nevertheless, the authors have fulfilled the criteria for employing regression analysis to analyze the findings, such as the minimum sample size, which lies at more than twenty-five participants [32].

The last noteworthy result of this study clarified that only one of three predictors (i.e., general English proficiency) could be expected as the significant regression model. In the context of education, this one factor merely generated a significant effect on online reading performance. The analysis alludes that reading teachers need to consider the other language skills in provoking students to have successful online reading comprehension. Cunningsworth [33] outlined that EFL learners must integrate two or more of the four skills simultaneously or in close succession to learn a language. Prior researchers have additionally implemented this theory by involving two skills in one task, such as reading and writing [34] and reading and listening [35]. However, the current authors of the study were unable to interpret the findings further until other studies established the same regression patterns found in the present study using other online reading assignments and evaluations.

5. CONCLUSION

The objective of this report was to determine whether metacognitive reading strategy, offline reading skill, and general English proficiency had a significant and unique effect on the online reading comprehension of twenty-nine university students. This process may yield more reliable results on the strength of each factor. According to the empirical evidence, only general English competency significantly affects students’ online reading comprehension. Yet, the metacognitive reading strategy does not affect the success of online reading. The findings on the roles of those factors denote several theoretical insights for future research.

Although this study was conducted with a limited number of university students, future studies with larger samples and different types of language learners are required to investigate the extent to which each category of metacognitive reading strategy contributes to online reading performance. Viewing online reading comprehension as largely dependent on online task difficulty and circumstances, on the other hand, may alert reading teachers to the infinite and ever-expanding spectrum of activities and texts that students may encounter on the internet.
AUTHORS' CONTRIBUTION
All authors equally contributed to the development of the study. The authors read and approved the final manuscript.

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REFERENCES


