COLLABORATIVE STRATEGIC READING EFFECT ON READING COMPREHENSION BY CONSIDERING LEARNERS' COGNITIVE STYLES

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Abstract: The use of collaborative tactics based on Moodle is quite effective in assisting students in improving their reading comprehension. Moodle is an online education platform that creates a unique learning environment for students to learn in. Students are split into two groups based on their attitudes toward information from outside sources: field-independent learners and field-dependent learners. The Independent Learner has a self-sufficient mentality and is not depending on others. The dependent learner, on the other hand, is a student who is completely reliant on the people or her immediate surroundings. The goal of this research is to see how collaborative techniques based on Moodle and Cognitive Styles affect students' reading comprehension. It divides the participants into two groups at random: an experimental group that received CSR through Moodle, and a control group that received CSR without Moodle. The GEFT (Group Embedded Figures Test) is used to see if the participants' cognitive styles are field-independent or field-dependent. Furthermore, a two-way ANOVA and descriptive test are used to analyze the data. The results of ANOVA test revealed that the learners' reading comprehension was influenced by CSR and cognitive styles. This study suggests that English teachers use Moodle for CSR with cognitive types to help students improve their reading comprehension. Finally, the descriptive test's average differences revealed that CSR with Moodle is better for learners with independent cognitive styles than for those with dependent ones. CSR without Moodle, on the other hand, is best for dependent learners.

Keywords: *collaborative reading strategy: online learning; Moodle; face-to-face learning; cognitive style; field-independent/dependent.*

INTRODUCTION

Students need reading comprehension when they read scientific literature. Students' understanding of the text is a must. Students who can understand the text automatically can add insight into developing science. Besides, the student can also contribute thoughts based on the text they have read. The initial problem specifically for Indonesian students is the low level of literacy with neighboring countries, such as Malaysia, as quoted in the 2018 PISA, ("Compare your country by OECD," n.d.) data shows that Indonesia's reading ability is still below Malaysia's. Therefore, steps to improve the reading literacy performance of Indonesian students must be continuously pursued, by being open and ready to be criticized by observers of education anywhere. The state in the Information age today no longer has boundaries for national borders. Therefore, the failure of a country in any field can no longer cover itself from existing failures, even though thousands of miles away can be immediately known at this very moment. On the contrary, with this very fast information, Indonesia can make

comparisons by looking at countries that have succeeded in reading literacy levels quickly.

Learners experienced some problems in reading comprehension especially at: 1) Literal Comprehension (with activities such as: understand the meaning of the word, determine the topic of the reading, find the main idea of the reading, and determine the express statement). 2) Interpretative Comprehension, (with activities such as: organizing reading information and the relationship between reading content, understanding the details implied in the reading, making reading inferences, and concluding the content of the reading). 3) Critical Understanding. (with activities such as: assessing an event based on the rules of certain norms, comparing the information in the text with the reader's background) (Aritonang, Lasmana, & Kurnia, 2019; Levine, 2019; Nadirah, Asrifan, Vargheese, & Haedar, 2020; Octavia & Jufri, 2020).

Next, the ways of collaborative strategic reading (CSR), such as: 1) Preview so that students can activate their previous knowledge. 2) Shows a sensory image to feel the context situation that exists in the text. 3) Asking students to build an understanding of the context in the text. 4) Ask students to predict conclusions in a text. 5) Determine the main idea. 6) Fix-up option, when students do not understand the text, the teacher builds understanding in several stages, such as: rereading, reading on until they understand, or finding out words that are not understood. 7) Synthesize the concepts in the content text (Gani, Yusuf, & Susiani, 2016; Yon A.E., Rafli, & Nuruddin, 2022).

Moreover, Online learning Moodle have features (Aldiab, Chowdhury, Kootsookos, Alam, & Allhibi, 2018; Deepak, 2017) which support what the students read (e-mail, e-documents, e-white paper), view (e-courses with visuals, online self- study guides, online power point) presentation), listen and watch (e-courses with audio and video, recorded live e-learning sessions), say and write (interactive live e-classes or e-seminar, interactive e-courses, e-mentoring or e-coaching). Besides, Moodle also supports LMS (Lwande, Muchemi, & Oboko, 2021) which includes Virtual Learning Environment (Zacarias, de Almeida, Prettz, da Costa, de Freitas, Canedo, & de Sousa, 2016), Learning Management System (Aldiab et al., 2018) and Course Management System (Kolekar, Pai, & Manohara Pai, 2018; Witte, 2018).

Face-to-face mode is how learning activities are carried out in the classroom with physical contact between students and teachers. The teacher's role in this activity involves physical contact with students during the learning process. The teacher plays an active role in monitoring student activities and provides immediate feedback when students seem to have difficulties. Furthermore, from the student's point of view, the face-to-face mode is very helpful in providing personal motivation for students. The influence when guided directly by eye contact by the teacher will have an emotional impact on his personal motivation. The impact of direct teacher supervision will direct students to stay focused on completing their assignments (Donkin, Hatje, & Reinke, 2022; El-Soussi, 2022; Jonker, März, & Voogt, 2018; Lee, Chui, & Fung, 2022; Mali & Lim, 2021).

Furthermore, cognitive style is the behavior or attitude in reacting receipt of information from outside oneself. The impact of accepting this information is altogether different from every person. The distinction in accepting information from every individual is brought about by an individual's experience, both from the family environment and community. Contrasts in cognitive styles are arranged by Field Independent and Field Dependent. In different cases, language knowledge can likewise be impacted by cognitive style factors (Kusumawati & Widiati, 2017; Par, 2018; Ramli, Boeriswati, & Emzir, 2019a; Slavin, 2018).

Additionally, field independent is a character style in responding to a task completion characterized by a focus on details, likes innovation, achievement-oriented. Then, in socializing the FI style likes formality. Its communication styles are clear and sparing in using words, likes to finish assignments without the help of the teacher, and does not like to be rewarded for his work (Council, 2019; Philip C. Mefoh, Nwoke, Chukwuorji, & Chijioke, 2017; Par, 2018).

On the contrary, the cognitive style of field dependent is a characteristic of individual students who have a learning style that sees only unspecified unity. In socializing, FD tends to be too dependent on people around them in completing a task. Then FD has the characteristic that it tends to attract general thinking skills, does not see in detail the problem and is unable to think longer without the help of the teacher (Onyekuru, 2015; Ramli, Boeriswati, & Emzir, 2019b; Slavin, 2018; Witkin,

Moore, Oltman, Goodenough, Friedman, Owen, & Raskin, 1977).

Based on the things above, this study implemented Collaborative Reading Strategies (CSR) by considering the learners' field-independent/dependent cognitive styles. Thus, this present study aims at these research questions: (1) Do CSR and Cognitive Styles significantly affect the students' reading comprehension? (2) Which type of cognitive styles has an impact on CSR with Online Moodle and without Moodle?

METHOD
This study took two classes consisting of 39 students as participants. The experimental group has 20 students. The control one has 19 students. Both classes were chosen by using a purposive sampling method. Prior to the treatment, the Group Embedded Figures Test (GEFT) instrument (Andheska, Suparno, Dawud, & Suyitno, 2020; Par, 2018; Slavin, 2018) was managed to the respondents targeting distinguishing students' psychological style types.

This quantitative research executed an experimental method by a 2 x 2 factorial design. It expected to analyze the impact of the CSR educated to two classes. One received an online learning as the experimental group and one received a face-to-face learning as the control group. Each group consisted of field-independent and field-dependent students. After completing the experiment, a fifty-reading comprehension multiple choice test was administered with the students.

This research used two instruments, the GEFT and Multiple Choice of reading tests. The former is aimed to observe cognitive styles, whether or not they have been field-independent learners or field-dependent learners. The examination challenged the learners to acknowledge an easy graph embedded within the advanced figure. It consists of 3 sections in 30 minutes.

Section one consisted of ten queries supposed for adapting the respondents to the check Section 2 and 3 every consisted of ten queries. One score for the proper answer and 0 for the false answer. Thus, the participants will gain score starting from 0-100. The upper the score, the additional possible the students known as FI learners. On the contrary, the lower the score, the additional possible the students recognized as FD learners. The latter is employed to

raise the respondents to answer a fifty-reading comprehension in ninety minutes.

RESULTS AND DISCUSSION
Results
Table 1 shows descriptive statistics for the reading group's score when using CSR in the learning process. One received an online learning as the experimental group and one received a face-to-face learning as the control group. Each group consisted of field-independent and field-dependent students as follows.

Table 1. *Descriptive statistics, dependent variable: reading scores*

Strategies		Mean	Std. Deviation	N
CSR Moodle	Field independent	87.90	4.795	10
	Field dependent	63.00	6.749	10
Total		75.45	13.987	20

Table 1 figures there are numbers of 20 respondents which consist of 20 FI and FD students. FI mean score is 87.90 with SD 4.795, and FD is 63. According to Mean score shows FI students performed better in reading comprehension than FD ones. The hypothesis of normality and homogeneity were tested for the requirements of ANOVA analysis which the data must be normal and homogeny.
Normality testing

Table 2. *Test of normality*

	Shapiro-Wilk		
	Statistic	df	Sig.
Standardized residual for Y	0.961	39	0.2
a. Lilliefors Significance Correction			

Normality testing was analyzed by Shapiro-Wilk Statistics using SPSS Ver.22 for Windows. The output in Table 2 confirmed that the significance values (Sig) reading scores (0.199) which was higher $\alpha = 0.05$. Therefore, it can be concluded that the study data are normally distributed. This means that it is possible to perform parametric statistical analyzes.

Homogeneity testing
Test of homogeneity was conducted for using the Levene's test. The requirement is the data variance is homogeny if the value is based on mean

significance > 0.05, but if it is lower than 0.05, the data variance is not homogeny. Table 3 shows the significance value 0.153 was higher than 0.05. Thus, it can be concluded that the variance of the data is homogeny.

The presumption testing of normality and homogeneity of the information proposed that the data were normal and homogeneous. Thusly, the hypothesis testing utilizing ANOVA can be directed.

Table 3. *Levene's test of equality of error variances*

Dependent variable: Y			
F	df1	df2	Sig.
1.032	3	35	0.39

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design Intercept + A + B + A * B

Testing of ANOVA
The hypothesis testing was carried out by means of the usage of a two-way ANOVA for the predominant effect and persevered with the simple effect. ANOVA checking out was once used to investigate the most important and interaction outcomes between CSR and cognitive styles on studying comprehension scores. The check effects had been introduced in Table 4.

Answering question one: Do CSR and Cognitive Styles significantly affect the students' reading comprehension?

Table 4. *Tests of between-subjects effects*

Source	Type II Sum of Squares	df	Mean Square	F	Sig.
Corrected model	3738.509[a]	3	1246.170	36.795	.000
Intercept	215195.103	1	215195.103	6353.888	.000
A (CSR)	65.411	1	65.411	1.931	.173
B (Cornitive styles)	532.022	1	532.022	15.709	.000
A*B	3150.487	1	3150.487	93.022	.000
Error	1185.389	35	33.868		
Total	220119.000	39			
Corrected total	4923.897	38			

a. R Squared = .759 (Adjusted R Squared = .739)

Table 4 figures analysis of variance table. Every subject within the model, is tested for its ability to account for variation within the dependent variable.

Main effect
Fo (A) = 1.931 with p-value = 0.173 > 0.05, or Ho is accepted. This means that there is no difference in the average CSR online learning and face to face one.

Fo (B) = 15,709 with p-value = 0.000 < 0.05, or Ho is rejected. This means that there is an average difference in cognitive styles, Field Independent and Field dependent.

Interaction effect
Fo (AB) = 93.022 with p-value = 0.000 < 0.05, or Ho is rejected. This means that there is a very significant interaction effect between factor A (CSR) and factor B (Cognitive Styles). Thus, CSR and Cognitive Styles significantly affect the students' reading comprehension. It can be seen from the results of the analysis that the influence of the Collaborative Strategic Reading and Cognitive Styles variables on Reading Comprehension is 75.9%.

Hypothesis testing
Answering question two: Which type of cognitive styles has an impact on CSR with Online Moodle and Face to Face Learning?

Table 5. *Descriptive statistics, dependent variable: reading scores*

CSR		Mean	Std. deviation	N
Online (Moddle)	Field independent	87.90	4.795	10
	Field dependent	63.00	6.749	10
	Total	75.45	13.987	20
Face-to-face	Field independent	67.80	4.131	10
	Field dependent	78.89	7.201	9
	Total	73.05	7.996	19
Total	Field independent	77.85	11.193	20
	Field dependent	70.53	10.595	19
	Total	74.28	11.383	39

Based on the average reading comprehension score above, it states that students who have field independent (FI) styles get a higher average score of 87.90 than field dependent (FD) 63 who are taught online Moodle. Next, according to the average reading comprehension score above, it is stated that students who have FD styles get a higher average score of 78.89 compared to FI 67.80 who are taught with Face-to-Face Learning.

Discussion

The things above are strongly supported by the opinion of experts. The GEFT check will distinguish students FI and FD cognitive styles (Andheska et al., 2020; Goodenough & Witkin, 1977; Par, 2018). In addition, the findings stated FI students are suitable for online learning with Moodle which requires concentration independently, and is not affected by the environment.

Individuals who have the FI style can identify objects that obscured by the surrounding environment and can also observe an object as a whole with specific characteristics. In alternative words, the analytical power of the FI student is a lot of careful and sharp, even though the surrounding environment interferes with the object's view (Philip C. Mefoh et al., 2017; Philip Chukwuemeka Mefoh & Ezeh, 2016; Par, 2018; Slavin, 2018; Zhang & Tian, 2019).

On the other hand, students who have cognitive style FD tend to be happier with face-to-face learning. This is supported by FD characters such as the FD cognitive style which is a characteristic of individual students who have a learning style that sees only one unified whole is not detailed. In socializing, FD tends to be too obsessed with their friends around in finishing a task. Then, FD has characteristics that tend to draw in general thinking skills, don't see well the matter and can't think longer without assistance of the teacher (Onyekuru, 2015; Ramli et al., 2019a; Slavin, 2018).

CONCLUSION

The teaching reading skills aims to develop the students' text competence. CSR and Cognitive Styles significantly affect the students' reading comprehension. The results of the analysis that the influence of the Collaborative Strategic Reading and Cognitive Styles designs variables on Reading Comprehension is 75.9%.

Next, according to on the average reading comprehension score above, it states that students who have field independent (FI) styles get a higher average score than field dependent (FD) who are taught online Moodle. On the contrary, students who have FD styles get a higher average in reading comprehension than FI who are taught with Face-to-Face Learning.

In addition, the current study has pedagogical implications. It contributes to providing one of the effective methods in teaching reading comprehension. For teachers who teach reading comprehension, they can do their teaching online with Moodle by paying attention to the students' Field Independent. Meanwhile, with students who are FD, teachers can teach CSR face-to-face so that learning using CSR can run effectively.

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