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The Effect of CIRC on Learners' Writing Performance across Cognitive Learning Styles

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Abstract:
This research is intended to scrutinize the effect of CIRC on learners' writing performance across cognitive learning styles. Quasi-experimental research with a factorial design was implemented in this study. A total of forty subjects participated in this research. They were ELT learners in the third semester at the University of Khairun. Teaching writing to the learners in the two groups lasted 13 meetings. The learners in the experimental group were treated with CIRC, and the learners in the control group were taught with conventional techniques. The two-way ANOVA with interaction was carried out to test the research hypotheses. The research results showed that (1) the learners taught using the CIRC technique had better performance in writing than those taught the conventional technique, (2) the learners with field independence had not better performance in writing than those who had field dependence, (3) CIRC technique was more effective regardless of cognitive learning styles. CIRC is suggested to be applied as writing technique for increasing learners' writing performance, but the cognitive learning styles e.g., field dependence and field independence in the CIRC implementation are not necessarily worried by teachers.

Keywords: cooperative integrated reading and composition, cognitive learning styles, writing performance.

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中国保监会对不同认知学习方式的学习者写作表现的影响

摘要 ：
本研究旨在探讨中国保监会对不同认知学习风格的学习者写作表现的影响。本研究采用析因设计进行准实验研究。共有四十名受试者参与了这项研究。他们是凯伦大学第三学期的英语学习者。两组学生的写作教学持续了13次会议。实验组的学习者采用中国保监会教学，对照组的学习者采用常规技术教学。进行交互双向方差分析来检验研究假设。研究结果表明：（1）使用中国保监会技术教学的学习者比使用传统技术教学的学习者的写作表现更好，（2）具有场独立性的学习者的写作表现并不比具有场依赖的学习者更好，（3)无论认知学习方式如何，中国保监会技术都更有效。建议将中国保监会作为写作技巧来提高学习者的写作成绩，但中国保监会实施中的认知学习方式，例如场依赖和场独立性并不一定引起教师的担忧。

关键词：合作综合阅读和作文、认知学习方式、写作表现。

1. Introduction

Reading and writing have been widely used integratedly for learning. The integrated reading and writing activity occurs when learners in the academic field read printed and unprinted texts and write a research article to share information with other academicians. This activity that is often implemented in the area can boost their knowledge (Graham & Perin, 2007; Plakans et al., 2018). In other implementations, reading and writing skills are not taught separately but integrated to increase learners' writing performance. In the activity, learners are directed to read a text and write a composition in the form of a summary or essay. This technique is highly recommended for teaching writing since many empirical studies reveal the effectiveness of integrated reading and writing on learners' writing performance (Neal, 2017; Abrams, 2019).

Social interdependence theory (SIT) proposed by Gestalt psychologists emphasizes positive interdependence in the interconnection between the accomplishment of individuals and others' actions (Koffka, 1935; Lewin, 1948; Deutsch, 1949). This theory had a great impact on the application of integrated reading and writing in cooperative learning. CIRC is an integrated reading and writing technique developed by Slavin et al. (1985), providing a learning condition for learners to work together to achieve learning goals from other individuals. The learners need to actively and cooperatively participate in the activity as a cohesive group as its success depends on the learners' involvement (Jensen et al., 2002). They also must be responsible for finishing the task for their own learning and their group success by working and learning jointly.

CIRC comprises some benefits and drawbacks. Pertinent to the benefits, it promotes learners' problem-solving abilities because learners will collaborate in their teams to discuss their experience and insight in getting the result of comprehension (Slavin, 2005). Slavin (1996) also adds that learners taught using CIRC have high motivation to finish the task since working in a heterogeneous group affects their self-confidence in learning. Conversely, CIRC is cooperative learning that really needs teacher-controlled instruction (Brown, 2007). This can be a drawback since teachers in the classroom must ensure whether learners participate in the activity. Much of what is learned relies on the learners' contribution to the interaction (Webb & Farivar, 1999; Brown, 2007).

There has been growing interest in the role of CIRC in teaching and researching writing. A number of experimental and classroom action research designs based on the data collected in the classroom have investigated the contribution and applicability of CIRC in boosting learners' writing performance. Many research results have revealed that CIRC significantly impacts learners' writing performance (Durukan, 2011; Parmawati, 2015; Ibriza, 2017; Kartika & Morelent, 2018; Pionera et al., 2020), but the studies did not find similar research results (Yudha et al., 2014; Arditya & Syamsi, 2019). Based on these findings, the studies also did not examine the effectiveness of CIRC for learners' writing performance, which focuses on the overall writing score consisting of content, organization, vocabulary, grammar, and mechanics. In addition, few studies have examined the effect of CIRC on learners' writing L2 argumentative texts.

With reference to individual differences in SLA, cognitive learning styles, FD and FI, can determine successful and unsuccessful ESL/EFL language learners in writing performance because the FI learners can attain some benefits compared with the FD learners in all language measures, especially writing performance (Chapelle & Roberts, 1986). Several studies have examined the influence of FD and FI on writing performance for teaching and learning ESL/EFL language learners, but it is still uncertain whether FD or FI is the best cognitive learning style when writing a composition (Nilforoosan & Afghari, 2007; Maghsoudi & Saeedi, 2013).

Notwithstanding, there is a debatable finding

between the FD and the FI research in writing performance, it is still claimed that the implementation of writing technique may be influenced by cognitive learning style (Nilforoosan & Afghari, 2007). Based on the theory of Witkin's cognitive learning style, FD learners become involved in a global organization and view parts of the field, whereas FI learners perceive parts of the field that are disparate from the organized background (Wooldridge & Haimes-Bartolf, 2006). Regarding the ESL/EFL classroom, Yao (2006) mentions that FI learners were superior to FD learners in reading and writing activities. They used analytical and logical ways to critically analyze important information in the process of reading and writing. Dulay et al. (1982) inform that FI learners consciously learn metalinguistic skills, while FD learners incline to subconscious learning in communication. However, Rassaei (2015) posits that FD learners disregard accuracy. Conversely, FI learners can easily identify errors from corrective feedback. Richardson and Turner (2000) contend that FI learners can recall background knowledge, solve difficult problems, and select appropriate information quickly and precisely better than FD learners. It is also claimed that FI learners take meaning from text better than FD learners because they use hemisphere specialization, cognitive restructuring skills, and working memory maximally (Davis, 1987; Daniels, 1996). Nilforoosan and Afghari (2007) found that FI learners use various strategies, linguistic features, and rhetorical knowledge in the writing process unlike FD learners. Consequently, the CIRC assists the learning environment for FI learners because the technique strongly relies on reading and writing activities.

Studies that focus on examining the interaction effect caused by CIRC and other related variables toward writing performance could provide indispensable contributions to the field of cooperative writing research. Several variables are examined for learners' ability to interact with CIRC affecting writing performance: learners' creativity (Parmawati, 2015), motivation (Kartika & Morelent, 2018), self-efficacy (Setyawati et al., 2019), and self-regulated learning (Pionera et al., 2020). However, studies on cognitive learning styles in writing techniques, especially CIRC, are still scarce. This study is needed since the research results become a guideline for teachers to match the technique for their learners' preferred learning styles. Thus, ESL/EFL language learners can learn language optimally in the classroom.

With reference to the background, the previous discussion has raised a problem is the core concern of this research. The problem is focused on the effect of CIRC on learners' writing performance across cognitive learning styles. Hence, the research problems of the study are described as follows:

1. Do learners taught using CIRC have better performance in writing an argumentative text than those who are taught using the conventional technique?
2. Do learners with FI have better performance in writing an argumentative text than those with FD?
3. Is there any interaction between CIRC and learners' cognitive learning styles?

2. Literature Review

2.1. Cooperative Learning (CL)

Social interdependence theory (SIT) is a theoretical perspective underpinning CL. Gestalt psychologists highlight the advantage of working cooperatively instead of working competitively to reach a common goal (Koffka, 1935; Lewin, 1948; Deutsch, 1949). The result of working cooperatively in group work can be fuzed into learners' individual repertoire (Li & Lam, 2013). In other words, the result of discussion is higher-quality understanding in CL because the activity provides learners with the opportunity to discuss their misunderstanding about the material. Thus, an emphasis of effective language teaching is knowledge-building frameworks of learning rather than knowledge-transmission, which can be attained by CL (Brown, 2000). Arató and Varga (2015) argue that the implementation of knowledge-building paradigms in the classroom will impact the development of personal and interpersonal relationships outside the classroom. The implementation of CL in the classroom can change learners' behavior to work cooperatively in the real world.

Studies on CL have been conducted in language teaching. Researchers who have investigated this technique communicate much knowledge about the benefits of implementing CL techniques in the classroom. In research by Motaei (2014), the use of CL on general English courses had significant effects on dictation, reading comprehension, grammar, and vocabulary. The CL technique also can improve learners' positive attitude toward the material in the classroom (Amedu & Gudi, 2017), proficiency level (Sijali, 2017), and academic achievement (Gull & Shehzad, 2015). CL provides learners to develop communicative competence (Astuti & Barratt, 2018). The implementation of cooperative learning can be used to increase learners' academic and personal skills (Trivino, 2016). It was also found by Hasyim (2019) that CL has positive and significant effects on motivation and independent learning level.

In the substantial body of research on CL, previous studies have confirmed some findings dealing with CL implementation in teaching writing, especially on attitude, writing achievement, and creative thinking. For instance, empirical research has revealed the positive impact of CL on learners' attitudes in writing composition (Kharibi & Firooz, 2012; Yumi & Erina, 2015). CL can increase learners' writing skill in the area mechanics, grammatical accuracy, organization, and vocabulary (Yusuf et al., 2019). CL can boost learners'

writing mechanism, language, organization, content, and interpersonal skill (Sutarman et al., 2019). Further, Marcos et al. (2020) reported that cooperative learning could boost creative thinking in school-age children with reading and writing activities.

2.2. CIRC (Cooperative Integrated Reading and Composition)

CIRC is one of the cooperative learning techniques found by Slavin et al. (1985), which integrates reading and writing skills for upper elementary school. At present, teaching reading or writing at other levels is developed because this technique is efficient and effective in improving learners' reading and writing skills. Learners can work cooperatively in their group to attain the same goal (Durukan, 2011). Leaners also feel that this technique can motivate them to complete the task because they can interact socially with a more knowledgeable peer (Slavin, 1996). They can express their opinions or misconceptions to understand a concept and complete the task. Learners must actively participate in communication and interaction to obtain some benefits in learning. Slavin (1995) stated that there are three components of CIRC such as (1) story-related activities: partner reading, story grammar, story-related writing, word out loud, word meaning, story retelling, spelling, partner checking, and tests, (2) direct instruction in reading comprehension, and (3) integrated language arts and writing.

Several studies on CIRC reveal its advantages in learning. According to Calderon et al. (1992), learners will improve their achievement in learning, social interaction, and new patterns of thought, and they are able to verify their ideas and compromise. Suprijono (2011) mentions that creativity, critical thinking, and social attitude will be enhanced after using CIRC. Learners can also understand the material easily, work in their group with less teacher's control in the learning process, are encouraged to achieve the goal of learning, help the less knowledgeable peer in doing the given task, and respect peer's opinions (Halimah, 2014). In writing studies conducted in teaching English as a second/foreign language, Durukan (2011), Yudha et al. (2014), Parmawati (2015), and Ibriza (2017) assert that CIRC can also boost learners' writing performance and increase their participation in group study.

The function of reading before creating a composition in CIRC gives a good input in writing. As confirmed by Gebril (2018), reading can enhance sociocultural knowledge, rhetorical knowledge, grammatical knowledge, lexical knowledge, and background knowledge in writing a composition. In addition, Plakans and Gebril (2012) contend that learners can find ideas about the topic for writing and shape arguments dealing with the issue in reading written text. Meyer et al. (2002) add that reading increases writers' knowledge about text functions. They also contend that reading as a source will guide them in the process of discerning ideas and combining the concepts in writing (Plakans & Gebril, 2013).

2.3. Cognitive Learning Styles (CLS)

Kolb (1984) conceptualizes a cognitive learning style in experiential learning theory as the learners' way of perceiving and processing information in learning, which yields the uniqueness of a learning style. Wu et al. (1998) contend that individual differences can determine learners in obtaining and evolving mental models. Brown et al. (2006) define a cognitive learning style as "a psychological concept dealing with how learners process information."

One category of cognitive learning style that has been greatly examined in the second/foreign language teaching is FD and FI. It represents a value-free bipolar measurement ranging from FD at one extreme to FI at the opposite extreme (Cook, 2008). FD learners become involved in a global organization and view parts of the field, whereas FI learners perceive parts of the field that disparate from the organized background (Wooldridge & Haimes-Bartolf, 2006). The Group Embedded Figures Test (GEFT) developed by Witkin and his colleagues is commonly used in classifying FD and FI since this test is more practical than RFT. Learners who do well in the GEFT can be classified as FI learners, while those who perform poorly can be categorized as FD learners.

FD and FI have some differences in processing information and approaching tasks (Ellis, 1990). According to Wooldridge (1995), FD learners are contingent on structures, and they cue from the setting in the process of learning. FD learners also experience some difficulties in remembering for a long period and cannot concentrate fully on learning. FD learners do not like formal learning. The learners like an instructional environment that evokes their experiences and feelings and needs external stimuli. FD learners do not like to compete with other learners because they are less achievement-oriented. FD can be classified as socially-oriented in learning. Thus, the learners choose discovery or discussion activities. Cook (2008) adds that FD learners depend on other learners in learning. Wooldridge (1995) states that FI learners are independent of others in learning. The learners use an analytical approach, can solve a problem efficiently and effectively, are task-oriented, and need intrinsic motivation and internal cues. FI learners also can remember for a long period, focus on learning, choose a formal learning environment with achievement-oriented, and tend to be competitive-oriented.

3. Research Methods

3.1. Research Design

A quasi-experimental with factorial design 2x2 was a research design applied in this present research to explore the effect of CIRC on learners' writing

performance across cognitive learning styles. Two variables were included, such as dependent and independent variables. The dependent variable was writing performance, while the independent variables comprised two independent variables, such as active and attributive variables. The active independent variables were CIRC and conventional technique, and the attributive independent variables were FD and FI. The sampling technique for this present research was purposive sampling to choose the experimental and control classes. The criteria for selecting the participants in this research were English as a foreign language (EFL) learners who learned argumentative texts in writing classes. The English ability of the learners was at the upper-intermediate level. They had the same experiences in learning writing since all learners passed writing courses in the previous semester. This research was conducted in the English Department of the University of Khairun, Ternate, North Maluku, Indonesia.

3.2. Participants

The population in this research was English learners in the third semester of writing classes at the state university. Among three classes, two classes were selected: class A as the experimental class and class B as the control class. Forty learners were selected as a sample. Based on the interview with the English teacher, the learners' level, grades, and experiences in the experimental and control classes were equal among all classes. In addition, the students' writing performance scores in the experimental and control groups attained from the pre-test analyzed using independent sample t-test were equal before giving the intervention, t (38) = .34, p = .75. Since this research deals with learners' cognitive learning styles, the learners in the experimental and control groups were categorized into FD and FI by employing the Group Embedded Figures Test (GEFT).

3.3. Instruments

The data for this study were collected using two instruments: writing tests to assess the learners' writing performance in pre-test and post-test and Group Embedded Figures Test (GEFT) to classify FD and FI. The writing tests were administered to the learners with characteristics similar to those in the experimental and control groups to give evidence about the clarity of instruction, difficulty level of the task, suitability of the topics, and provision of the time and to determine the consistency of the scores from three raters. Pertinently to the validity of the writing test, content validity was used in this research. To reach the reliability of the writing test, this research implemented inter-rater reliability. The writing results given scores by three raters were calculated using SPSS 16 to determine intraclass correlation r and Cronbach's alpha.

3.4. Data Collection

Two steps were implemented in this research in collecting data to test research hypotheses. The first step is preparing the CIRC implementation for the experimental group. The implementation of conventional techniques in the control group is a writing activity usually used in teaching writing in the classroom. The learners did not work cooperatively in finishing the reading and writing activities. In the control group, writing was taught by the lecturer at the university, while the researchers taught the experimental class. Before giving thirteen meetings, the researchers prepared argumentative texts that were selected based on the text readability, length, attractiveness, recentness, and benefits, time allotment, and difficulty of the words. Also, lesson plans for the experimental group were made on the basis of the writing syllabus at the university. Subsequently, the outlining guide was provided by the researchers to help the learners develop the introduction, body, and concluding paragraphs. In addition, the instruments including the blueprint of the writing test, the writing prompt for the pre-test and post-test, expert validation form for the writing prompt, expert validation form for the writing rubric, writing rubric, and Group Embedded Figures Test (GEFT) were prepared for this study. Meanwhile, the second step was the implementation of pre-test, Group Embedded Figures Test (GEFT), treatments, and post-test in the experimental and control groups.

In the first meeting, the learners were given the first writing test to determine their homogeneity in both experimental and control groups. Subsequently, the Group Embedded Figures Test (GEFT) was administered to them to determine their cognitive learning styles. From the second to twelfth meeting, the learners in both CIRC and conventional classes were normally taught in two meetings a week. Time allotment provided both the experimental and control groups had the same duration (100 minutes) in one meeting. CIRC was given to the experimental group, whereas conventional technique was used to teach to the control group. Finally, in the last meeting, after the learners in the experimental and control groups were taught with CIRC and conventional techniques, they were given the second writing test as a post-test to determine their writing performance.

3.5. Data Analysis

After collecting the data, they were analyzed thoroughly. The writing rubric in this study used an analytical scoring rubric created by Cohen (1994) that comprises content, organization, vocabulary, grammar, and mechanics. The data collected from the learners' writing performance scores and responses to the Group Embedded Figures Test (GEFT) were analyzed using the statistical computer software SPSS Version 24. Since the data were homogenous and normally

distributed, parametric analysis, e.g., two-way ANOVA with interaction, was further used to analyze them. Before determining parametric or non-parametric analysis, pre-requisite tests were conducted to test normality and homogeneity. Descriptive statistics was also carried out to describe the data before implementing the inferential statistics.

3.6. Research Flow

Research flow is a diagram to visualize movements and activities in this research. There were two independent variables in this study, e.g., active (CIRC and conventional technique) and attributive (FD and FI) and one dependent variable (writing performance). First, CIRC was an active independent variable manipulated in this study and presumably influenced writing performance. The attributive independent variable that influenced writing performance was cognitive learning styles such as FI. Moreover, the individual difference was assumed to interact with CIRC on writing performance, whereas the dependent variable was writing performance assessed using an analytical scoring guide created by Cohen (1994). This research applied the Group Embedded Figures Test (GEFT) to categorize cognitive learning styles into FD and FI. The research design applied in this study was quasi-experimental with a factorial design to answer three research questions. Figure 1 illustrates the research flow.

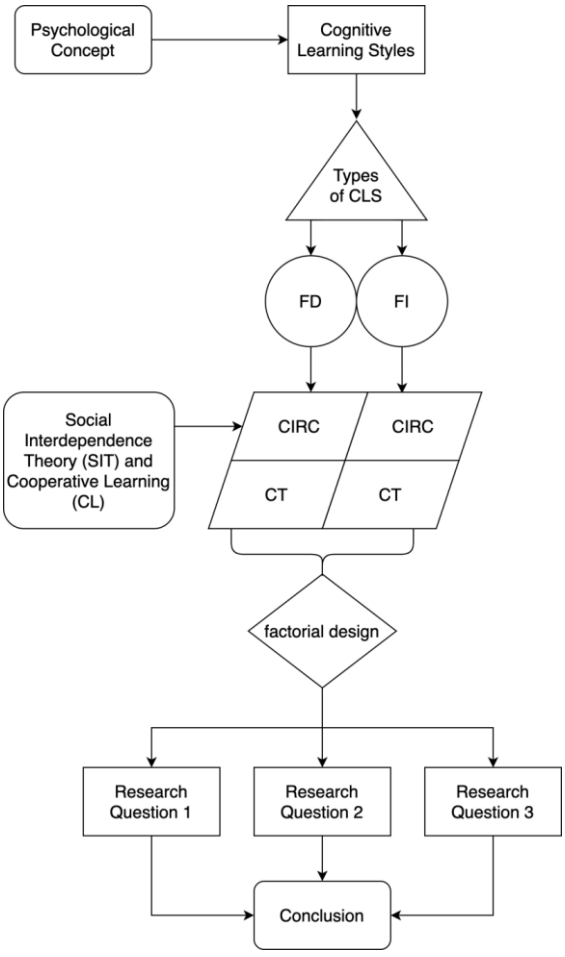

Figure 1. The research flow

4. Findings

Before the inferential analysis, the pre-requisite tests were implemented to test normality and homogeneity. Based on the result of normality, the observed significance of the normality test result was .600, and the the Shapiro-Wilk statistic was .978. It can be concluded that the data on writing tests across cognitive learning styles in the control and experimental groups were distributed normally. Meanwhile, the observed significance of the homogeneity test result was .932, and *F* in Levene's test was .145. It can be concluded that the data on the writing tests across cognitive learning styles in the control and experimental groups were equal and homogenous. Therefore, two-way ANOVA with interaction was carried out to test the hypotheses. The tests of between-subjects effects by two-way ANOVA with interaction in this study are shown in Table 1.

Table 1. Tests of between-subjects effects by two-way ANOVA with interaction

Source	Type III SS	df	MS	F	Sig.
CT	3179.462	1	3179.462	17.092	.000
CLS	112.795	1	112.795	.606	.441
CLS*CT	556.875	1	556.875	2.994	.092
Error	6696.857	36	186.024		
Corrected Total	10458.26	39			

The result of the first hypothesis presented in Table 1 revealed that the *F* statistic resulted from two-way ANOVA with interaction was 17.092, and the result of the observed significance was .000. Hence, the alternative hypothesis was accepted, and the null hypothesis was rejected. It can be summed up that writing performance in writing an argumentative text of the students taught by using the CIRC technique was different from those taught by using the conventional technique, F (1, 36) = 17.09, p =.000, MS = 3179. In other words, the learners taught using the CIRC technique had better performance in writing an argumentative text than those taught the conventional technique. In particular, the learners taught using the CIRC technique achieved higher overall writing performance mean scores in the aspects of content, organization, vocabulary, grammar, and mechanics in writing an argumentative text than those taught using the conventional technique.

The result of the second hypothesis displayed in Table 1 showed that the *F* statistics was .606, and the result of the observed significance was .441. Thus, the alternative hypothesis was not accepted, and there was no sufficient evidence to reject the null hypothesis. It can be summed up that writing performance in writing an argumentative text of the FI was consistent with the FD, F (1, 36) = .606, p = .441, MS = 112.78. In other words, the learners with the FI had not better performance in writing an argumentative essay than those with the FD in the aspects of content,

organization, vocabulary, grammar, and mechanics.

The result of the third hypothesis presented in Table 1 showed that *F* statistics was 2.994, and the observed significance was .092. Since the observed significance was higher than the level of significance (alpha = 5%), there was insufficient evidence to reject the null hypothesis. It can be concluded that there was no interaction between the CIRC and learners' cognitive learning styles, F (1, 36) = 2.994, p = .092, MS = 556.87. In other words, the CIRC technique was not influenced by the FD and FI cognitive learning styles in learning writing in the aspects of content, organization, vocabulary, grammar, and mechanics.

5. Discussion and Conclusion

This research aimed to empirically investigate the effect of CIRC on learners' writing performance across cognitive learning styles. The findings revealed a significant difference in the mean scores in writing performance in the aspects of content, organization, vocabulary, grammar, and mechanics between the learners taught using CIRC and those taught using conventional techniques. Also, the learners with FI could not gain better writing performance than the learners with FD in the aspects of content, organization, vocabulary, grammar, and mechanics. Moreover, there was no interaction between the CIRC and learners' cognitive learning styles.

This study indicates that reading materials became a pivotal input for improving writing scores. This technique directed the learners to read the written text in partner reading in the story-related activity. Seemingly, in the process of reading, the learners used knowledge, process, cognitive strategies, and roles that are needed in writing a composition (Fitzgerald & Shanahan, 2000; dela Rosa, 2018). Gebril (2018) contends that reading a written text contributes to learners' writing performance as reading can enhance rhetorical knowledge, grammatical knowledge, lexical knowledge, and background knowledge. Likewise, the success of giving reading materials before writing a composition was found by Widiati (2008), Gholami and Alinasab (2017), and Abrams (2019). Widiati (2008) found that learners realize the importance of organizing their composition. They also tend to produce cohesive and coherent writing because of their eagerness to write carefully and fulfil readers' needs. Gholami and Alinasab (2017) reported that learners could increase knowledge about the organization component and produce better thesis statements. Abrams (2019) reveals that the availability of complete and complex source texts becomes a valuable springboard for enhancing linguistics, background, and sociocultural knowledge.

Moreover, integrated language arts and writing at the CIRC stage trained the learners to deliberate cooperative decisions in the writing process. Cahyono and Widiati (2011) contend that writing is the most complex and difficult skill compared to other skills. This matter might happen because the writing process encompasses a cognitive process consisting of planning, translating, and reviewing. Flower and Hayes (1981), as the founders of the cognitive process, argue that learners in the cognitive process must determine decisions dealing with planning, translating, and reviewing. As stated by Pulungan (2016), ideas are composed, organized and concluded in planning, ideas are transformed and modified into the language (text generation) and written language (transcription) in translating, and ideas, aims and language must be reviewed thoroughly in reviewing. Unequivocally, learners in CIRC implementation were not working individually. The ideas, aims, and language in learners' minds must be explained to other team members. They must also select whether the ideas, aims, and language are proper or not improper for their composition. Slavkov (2015) claimed that dialogic feedback among them evokes knowledge construction, and the result of knowledge construction boosts learners in developing their composition.

Based on the research results, CIRC also increased the learners' motivation since they were encouraged by extrinsic motivation. Nichols and Miller (1994) asserted that external sources such as high marks and compliments from teachers and friends are extrinsic motivation factors that influence learners to learn. In this study, the learners were assessed by their friends in partner checking to indicate that they completed the activity. The learners had to be actively involved in learning because of the assessment. Also, they were motivated by the teacher to cooperate actively as they could take learning outcomes in the group for themselves and their teams. Based on the improvement of the scores of learners in the CIRC group, the learners realized that the group's success could be achieved by active contribution in the group activity. Suwarno (2014) finds that lowly and highly motivated learners become active learners in CIRC implementation. This implies that the students' engagement in group work indicates the enhancement of motivation.

The stage of peer correction in integrated language arts and writing in this study was also an indispensable contribution to the significant effect of CIRC. The activity facilitated learners to receive feedback on their composition from other learners. In the activity, their friends checked the writing draft, and the draft was returned to the draft owner. Then, the mistakes and errors in the draft were revised and edited by the learners together in their group. Specifically, in the process of revising and editing, they read again their composition that had been corrected. They needed to critically think whether the feedback from their friends was appropriate or inappropriate for their composition. The relevant feedback from their friends was revised and edited cooperatively. The learners identified areas that need to be improved in their composition. Hence, this activity positively influences not only the quality of

writing but also the writing performance. As stated by Rosdiana (2014) and Wakabayashi (2013), learners can write well-organized compositions effectively and consistently because feedback is useful in improving the quality of writing. Also, learners become aware of their mistakes and errors, so the composition consists of fewer mistakes compared to the preceding draft (Wong, 1999). Learners become critical because they should critically think whether the feedback from their friends is suitable or unsuitable for their composition (Rollinson, 2005). As reported by Harmer (1991), learners' difficulties in the writing process could be lessened in the implementation of peer correction, which impacts the improvement of writing performance.

Pertinently to the second hypothesis, the learners with FI had not better performance in writing argumentative essays than those with FD. The FI and FD learners' writing performance was the same. These insignificant differences were also investigated in the overall score in the aspects of content, organization, vocabulary, grammar, and mechanics in EFL. The result of this study confirms those by Nilforoosan and Afghari (2007) and Muyassaroh (2020). Nilforoosan and Afghari (2007) revealed that the writing performance of the FI was consistent with that of the FD learners in writing argumentative texts. Also, Muyassaroh (2020) found that FI did not outperform FD in the overall writing score.

The finding of the third hypothesis showed that there was no statistical difference in the interaction effect of CIRC and cognitive learning styles in the overall score in the aspects of writing components content, organization, vocabulary, grammar, and mechanics. This indicates that CIRC was more effective regardless of the cognitive learning styles. In other words, CIRC was not influenced by FD and FI. Hence, the teacher does not need to worry about FD and FI cognitive learning styles in CIRC implementation. The finding of this study was not in compliance with the theoretical concept underlying Witkin's theory that FI could attain some benefits in reading and writing activities in CIRC implementation, and FD could not gain benefits in the activity (Wooldridge & Haimes-Bartolf, 2006; Cook, 2008). Therefore, learners' cognitive learning styles did not support the learning environment in implementing the technique. In other words, the FI and the FD cognitive learning styles do not determine them to participate better in CIRC.

The significant difference in the mean scores in writing performance in writing an argumentative text between learners taught using CIRC and those taught using conventional techniques reveals that the learners would perform better working in the group using CIRC technique than working individually using the conventional technique. The research results of this current research authenticate social interdependence theory (SIT), which was proposed by Gestalt psychologists. The learners participate actively and cooperatively as a cohesive group in the activity. They realize that the success of the group depends on the learners' involvement, so a common goal can be reached together. Consequently, CIRC enhances learners' performance in writing argumentative in the aspects of content, organization, vocabulary, grammar, and mechanics. Thus, it is recommended to EFL lecturers and teachers to employ CIRC as an effective technique to teach argumentative essays. It is also recommended that English lecturers and teachers introduce the procedure of CIRC before its implementation to avoid confusion regarding learning with minimum teachers' explanation. In addition, teachers need to prepare lesson plans, revision checklists, editing worksheets, and written texts because this technique is distinctive from the technique that they are accustomed to in the classroom.

Furthermore, this research result also shows that FI learners had not a better performance in writing an argumentative essay than those who had FD in the aspects of content, organization, vocabulary, grammar, and mechanics, and there was no interaction between the CIRC and students' cognitive learning styles in the aspects of content, organization, vocabulary, grammar, and mechanics. Thus, the FD and FI cognitive learning styles in CIRC implementation are not necessarily worried by teachers to increase learners' writing performance because students' cognitive learning styles did not assist the learning environment in CIRC implementation. The research results do not corroborate cognitive learning style theory, which was a concept grounded in Witkin's psychology.

Furthermore, this research has some weaknesses in the process of selecting the participants. This research only included EFL learners at a state university. Future scholars are suggested to conduct the research at different education levels and contexts to determine CIRC effectiveness in fostering learners' writing performance. This research only focuses on the implementation of argumentative text. It is also recommended that future scholars examine other texts such as explanations, discussions, and review texts. Since this research only investigated learners' writing performance, it is suggested that other scholars examine other English skills. The English ability of the learners in this research was at the upper-intermediate level. It is recommended to implement the effect of CIRC on the writing performance of learners with different English abilities. Other scholars who intend to implement further studies dealing with research results in the upcoming experimental research can implement different attribute independent variables, e.g., self-regulatory capacities, diverging, assimilating, converging, and accommodating learning style, self-efficacy, working memory, aptitudes, memory, proficiency levels, metacognitive engagement, and attitudes.

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Authors' Contributions

The first author initiated ideas, conducted treatments in classrooms, and wrote this research article. The second and third authors prepared lesson plans, the blueprint of the test, and the writing test. The fourth, fifth, and sixth authors tabulated the results of the writing test and performed statistical analysis.

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