Cypriot Journal of Educational Sciences

Volume 17, Issue 12, (2022) 4759-4775

www.cjes.eu

Effectiveness of integration of teaching reading and writing skills based on critical thinking skills in improving argumentation essay writing ability

Ari Prayogi[1], Universitas Pendidikan Indonesia, Indonesian Language Education Department, Bandung, Indonesia, https://orcid.org/0000-0001-5123-477X

Yeti Mulyati, Universitas Pendidikan Indonesia, Indonesian Language Education Department, Bandung, Indonesia. https://orcid.org/0000-0001-5088-6899

Andoyo Sastromiharjo, Universitas Pendidikan Indonesia, Indonesian Language Education Department, Bandung, Indonesia. https://orcid.org/0000-0002-2711-0328

Vismaia S. Damaianti, Universitas Pendidikan Indonesia, Indonesian Language Education Department, Bandung, Indonesia. https://orcid.org/0000-0002-2660-5628

Suggested Citation:

Prayogi, A., Mulyati, Y., Sastromiharjo, A., & Damaianti, V. S. (2022). Effectiveness of integration of teaching reading and writing skills based on critical thinking skills in improving argumentation essay writing ability. *Cypriot Journal of Educational Science*. *17*(12), 4759-4775 https://doi.org/10.18844/cjes.v17i12.8227

Received from August 21, 2022; revised from September 26, 2022; accepted from December 28, 2022

Abstract

This study aims to study the effectiveness of the integration of teaching reading and writing based on critical thinking skills (ITRWCT) in improving the ability to write argumentative essays. The method used is a quasi-experimental method by dividing participants into experimental and control groups. This study involved 260 high school-level students divided into experimental and control groups of 130 students each. The research findings show first that ITRWCT can improve argumentation writing skills. The improvement is seen in the depth, logical organisation and criticality, cohesion, coherence, and use of language used in writing argumentative essays. Second, ITRWCT is able to significantly improve students' critical thinking skills. The improvement of students' critical thinking skills can be seen in the ability to analyse and evaluate the logic used in argumentative essays. And third, students' attitudes towards the design of this instruction generally provide a positive response, they like and are interested in the activities in the learning process. So, this ITRWCT learning instruction is able to improve the ability to write argumentative essays, students' critical thinking skills and student attitudes. Recommendations for further research include a wider sample, involving gender variables, requiring longer interventions to obtain a more optimal intervention effect and needing to be strengthened by qualitative analysis.

Keywords: Critical thinking-based instruction, integration of reading and writing teaching, writing ability, argumentative essay.

[1] *ADDRESS OF CORRESPONDENCE, **Ari Prayogi**, Indonesian Language Education Department, Universitas Pendidikan Indonesia, Bandung, Indonesia
Email address: ariprayogi@upi.edu

1. Introduction

Critical thinking skills and problem-solving skills are abilities that have become an important foundation for students in obtaining and constructing new knowledge in the learning process. Students can evaluate their understanding through critical thinking skills so that students' understanding of the material is optimal (Awada et al., 2020; Hadianto et al., 2022; Nussbaum, 2021). At this time, we are faced with a variety of massive information and do not know the truth. To deal with these conditions, critical thinking skills are very important to be possessed by individuals. This critical thinking ability is also currently getting the attention of researchers and stakeholders so every learning process always involves students' critical thinking skills in its implementation (Fan & Chen, 2021; Latifi et al., 2020). In addition, critical thinking skills and problem-solving skills are also part of the current learning evaluation. Critical thinking skills that are integrated in the learning process have recently become the attention of researchers. One of them is the ability to think critically in language learning, for example learning to write and speak. In language learning, teachers must pay attention to aspects of critical thinking skills in it, in addition to focusing on students' linguistic abilities so that students' language skills are also equipped with the ability to receive, manage, filter and evaluate the information they receive (Chen et al., 2020; Noroozi et al., 2020). Skills that help students to be more optimal in language learning are critical thinking and problem-solving skills (Prata et al., 2019; Villarroel et al., 2019).

Research in the field of language that integrates reading skills, writing skills and critical thinking skills is very important because the integration of these skills is not only able to improve language skills but can also improve students' thinking skills (Doubet & Southall, 2018; Paulson & Van Overschelde, 2021). The combination of competencies in the learning process is currently being carried out more and more because in essence, the learning objectives will not be able to be achieved by single learning. Currently, the process of learning a language, be it reading or writing, often uses a single instruction or learning method. This instruction makes students only focus on concrete demands, but forgets the essence of the learning process. For example, students' reading comprehension skills are carried out using certain methods, students only focus on how to understand the contents of the reading, but forget how to assess the appropriateness of the text they read (Koutsoftas & Srivastava, 2020; Noor, 2021). Therefore, the need for critical thinking skills must be included in every learning process. Through critical thinking skills, students are not only taught how to achieve learning goals but are given the opportunity to acquire thinking skills in assessing, evaluating ways of thinking, objects to be learned and how to solve problems (Huang & Jun Zhang, 2020; Villarroel et al., 2019). Therefore, the integration of reading, writing and critical thinking skills is very important because through this research, teachers will know how to achieve learning objectives while training other competencies needed by students.

In addition, critical thinking skills are also rarely involved in learning to read and write. Learning to write always focuses on how to compose words, sentences and paragraphs. Teachers often don't convey how to organise thoughts through writing, so the writing that is made is not only good from the linguistic aspect but also good from the aspect of the pattern of thinking (Mateos et al., 2018; McKinley, 2015). Several experts have argued for the need to place critical thinking skills in writing instructional design. In addition, even in learning to read, it is always focused on how students can understand the writing they read, but they rarely invite students to judge the correctness of the reading (Akinoglu & Baykin, 2015; Hadianto et al., 2021b; Leeke, 2020). It is this condition that encourages researchers to design language learning instructions by integrating reading, writing and critical thinking abilities with the main objective being to improve students' ability to write scientific argumentation essays. Through this research, the researcher aims to investigate the effectiveness of the integration of reading, writing and critical thinking abilities (ITRWCT) in improving students' argumentative essay writing skills and critical thinking skills. In addition, this study also seeks to reveal how students' attitudes and responses to activities or instructions of this integration model in

the learning process. The ability to write argumentative essays requires the skills of writing, reading and organising critical thinking.

ITRWCT is language teaching by combining language teaching and writing based on critical thinking with the main objective of improving scientific argumentation skills. Scientific argumentation skills are writing skills that do not only rely on writing skills but also require reading skills as input and the ability to organise critical thinking. Reading and writing skills are capital that can improve critical thinking skills (McKinley, 2015; Ulrich, 2012; Wass et al., 2011). Therefore, the main goal of language learning is not only to acquire language skills, but also students are able to think critically by using the language. This teaching design was adopted by Paul and Elder (2006). Another study explored the effectiveness of the process approach to improving students' critical thinking and argumentative writing skills. The results of this study indicate that students who get the intervention can improve their critical thinking skills and write arguments. A process-based approach designed by the teacher at each stage that encourages critical thinking thought organisation, independent learning is able to improve write arguments and critical thinking skills. The arguments generated by the students after the intervention became more critical in raising a problem in their writing based on the student's perspective (Campbell & Filimon, 2018; Ebadi & Rahimi, 2018). Some of these studies indicate that if the instructional design of the learning process is well designed, it will be more optimal in achieving the objectives of the learning process. Most of the previous studies have only tested the effectiveness of one modified method. There are still few instructional designs that combine various teaching or methods to improve one language competency. This research is limited to a series of activities that combine learning to read and write and focuses on critical thinking skills and the ability to write argumentative essays. Determining participants in this study used research ethics by asking for prior approval from schools and students. Therefore, through this study the authors designed instructional instruction by integrating critical thinking-based reading and writing teaching (ITRWCT) to improve students' argumentation skills. Researchers formulate research questions as follows.

1) How does ITRWCT affect critical thinking skills?
2) How does the ITRWCT instruction design affect the ability to write arguments?
3) How are students' attitudes towards the ITRWCT instruction design?

2. Literature Review

2.1. Integration of critical thinking skills with language skills

Some experts have put forward the notion of critical thinking ability. Critical thinking skills are the individual's ability to use their own thinking skills to improve their understanding. Individuals with good critical thinking skills are individuals who are able to use their thinking critically to evaluate their thinking using standards or criteria that have been developed (Fan & Chen, 2021; García et al., 2020). Through critical thinking skills, students are able to evaluate reading or the results of their understanding of material regarding its truth. This process makes students' understanding abilities more optimal. The ability to think critically has three aspects, namely the aspect of thinking (carelessly), standards and evaluation criteria and intellectual aspects (Latifi et al., 2021; Leeke, 2020). Every individual needs to have basic thinking skills, namely components of thinking and standards or criteria. Students in the learning process must identify the organisational components of their logic and evaluate these components of the mind by using intellectual standards or criteria. These standards or criteria must be developed by the teacher so that each student has high standards. High standards can encourage optimal student thinking. Through a quality learning process, students' intellectual standards will develop gradually.

Some research that raises critical thinking skills includes the integration of critical thinking skills in second language learning (Koffman et al., 2017; Paulson et al., 2021). This study investigates the integration of critical thinking skills in learning English as a second language. Students are encouraged to criticise readings about social phenomena. Through this research, students were able to improve

their English language skills in various aspects, especially in speaking and writing. Student writing becomes more organised and more critical in raising certain topics. In addition, other studies have looked at the effect of critical thinking on the ability to write arguments. This research proves that learning instruction that trains students' critical thinking skills can improve the ability to write arguments. The improvement is seen in the organisation of thought, the students' perspective on problems becomes more critical and the use of good language (Kang'ethe, 2015; Lu & Xie, 2019). In addition, other studies investigated the effect of thinking ability-based metacognitive strategies on reading comprehension skills. The research findings show that metacognitive strategies based on critical thinking skills can improve reading comprehension skills. Metacognitive abilities based on critical thinking skills can improve students' ability to map the contents of the reading very critically which will be able to improve their reading comprehension skills to increase significantly (Latifi et al., 2020; Nussbaum, 2021).

2.2. Teaching critical thinking

Teaching that encourages critical thinking skills in every activity is a way for students to have critical thinking skills. Several previous studies have proven that teaching can improve critical thinking skills through various methods, models or interactive approaches. Meta-analysis of 120 studies on critical thinking proves that critical thinking skills can be instilled through various learning methods that encourage the active participation of students to be actively involved in every activity in the learning process (Ebadi & Rahimi, 2018). This interactive method is believed can train students' critical thinking habits. Other research also proves that the training of students' critical thinking skills in language education is to invite students to discuss certain problems and apply them to various language skills such as reading, listening, writing and speaking. In addition, research in the field of language proves that critical thinking skills are optimally increased when students receive interventions by integrating various methods and techniques in the learning process. Interactive teaching methods can encourage students to think and engage continuously during the learning process (Kuhn et al., 2016). This is the main factor in significantly increasing critical thinking skills.

Interactive teaching methods can also be applied to language learning. Previous research that used cognition-based interactive teaching methods in learning to read proved effective in improving reading comprehension and critical thinking skills. In addition, other studies also prove that interactive teaching methods and a combination of various learning methods can improve students' writing skills (Afshar et al., 2017; Mateos et al., 2018). This critical thinking ability that can be instilled through language learning will make students not only able to improve their language skills, but also practice critical thinking skills and the ability to solve problems. Language learning that integrates various skills in it is considered more effective in improving language skills more optimally. Therefore, through this research, researchers designed instructional instruction by integrating reading and writing learning based on critical thinking skills to improve students' scientific argumentation skills.

2.3. Integration of teaching reading and writing based on critical thinking skills (ITRWCT)

ITRWCT is language teaching by combining language teaching and writing based on critical thinking with the main objective of improving scientific argumentation skills. Scientific argumentation skills are writing skills that do not only rely on writing skills but also require reading skills as input and the ability to organise critical thinking. Reading and writing skills are capital that can improve critical thinking skills (McKinley, 2015; Ulrich, 2012; Wass et al., 2011). Therefore, the main goal of language learning is not only to acquire language skills, but also students are able to think critically by using the language. This teaching design was adopted from Paul and Elder (2006). ITRWCT consists of five aspects of skills that train reading and writing skills, including paraphrasing, explaining, analysing, evaluating and role playing. In addition, through this teaching design, students are encouraged to get used to critical thinking by teaching components of thinking and good intellectual standards in evaluating reading and producing quality arguments. This teaching design contains a set of instructions that provide opportunities for students on regular basis to practice students' critical

thinking skills. Through this research, researchers designed teaching instructions that combine reading and writing skills based on critical thinking skills. This teaching design is used to improve students' scientific argumentation skills.

Several previous studies have integrated two language skills, namely reading and writing skills, including research integrating reading and writing learning to improve reading comprehension skills. The instruction designs used in this research are reading-writing, and synthesis. The results of the research show that understanding the results of reading activities that are written down and synthesised in reading content can make students' understanding of reading increase significantly (Mohseni et al., 2020; Tong et al., 2014). In addition, other research, research on language courses, language courses that integrate reading classes and writing classes can master students' language skills more quickly compared to students who only take a single class reading only or writing only (Noor, 2021). In addition to the integration of two language skills. Integration of methods is also very commonly used in the learning process, for example, research that integrates learning to read with peer evaluation and this discussion is carried out to improve scientific writing skills. The research findings show that the integration of learning to read, peer evaluation, and discussion is able to improve scientific writing skills. Improvements can be seen in the deeper quality of writing, a rational, coherent mindset and the use of good language (Deng et al., 2019; Ma & Luo, 2020).

2.4. Improve critical thinking skills through teaching writing

The main objective of this research is to test the effectiveness of the instructional design that integrates teaching reading and writing based on critical thinking skills on students' argumentation skills. Several previous studies that train writing skills as well as improve critical thinking skills. The stages of writing and feedback are used as methods to enhance critical thinking skills. The design of instructions in each stage of writing and teacher feedback during the learning process proved to be effective in enhancing students' critical thinking skills. Through this method, students understand each stage, are better able to organise thoughts and are more critical in writing a text. Data collection after the intervention was carried out through assignments, tests and journal writing, observations, questionnaires and interviews. From the previous study, can be interpreted that the feedback component in the form of correcting logical errors, sentence errors and paragraphs can reduce students' concerns and can improve students' critical thinking skills (Hadianto et al., 2021a; Voss & Van Dyke, 2001; Wass et al., 2011).

The instructional design of the learning process to improve critical thinking skills through learning to write is mostly done by teachers by adjusting the characteristics and conditions of students. The design of this instruction usually adopts various methods by making modifications to the stages of the instruction. There are other studies, namely improving students' critical thinking skills through learning to write. The results of this study indicate that students' abilities are better in writing argumentative essays. In this study, the researcher used the pattern of writing on the claims of argumentation, data/facts and arguments as an intervention. The intervention of learning to write while improving critical thinking skills has a significant impact on students (Chen et al., 2020; Davies, 2013). Another study that tested the debate method to improve critical thinking and writing skills. The experimental group used a debate intervention while the control group used a conventional intervention. The data were collected through written proficiency tests, surveys and interviews. The findings of this study are the debate method is able to optimally encourage students' critical thinking skills compared to students who receive conventional methods. In addition, students' attitudes towards the intervention generally gave a positive response.

Another study explored the effectiveness of the process approach to improving students' critical thinking and argumentative writing skills. The results of this study indicate that students who get the intervention can improve their critical thinking skills and write arguments. A process-based approach designed by the teacher at each stage that encourages critical thinking thought organisation, independent learning is able to improve critical thinking skills and write arguments. The

arguments generated by the students after the intervention became more critical in raising a problem in their writing based on the student's perspective (Campbell & Filimon, 2018; Ebadi & Rahimi, 2018). Some of these studies indicate that if the instructional design of the learning process is well designed, it will be more optimal in achieving the objectives of the learning process. Most of the previous studies have only tested the effectiveness of one modified method. There are still few instructional designs that combine various teaching or methods to improve one language competency. Therefore, through this study, the authors designed instructional instruction by integrating critical thinking-based reading and writing teaching (ITRWCT) to improve students' argumentation skills.

3. Method and Materials

3.1. Participants

The research method used in this study is a quasi-experimental method involving 260 students from 5 high school-level classes. 120 male students and 140 female students. The participants were divided into 2 groups with a composition of 130 students in the experimental and 130 students in the control. The age of the participants was in the range of 18–20 years. Prior to the intervention, all participants had received argumentative writing material in each class. This research has obtained permission from the school stakeholders involved and students involved in this research by filling out the consent form to participate in the research.

3.2. Interventions for teaching writing, reading and critical thinking skills

This research was conducted to improve students' argumentative writing competence. Several competencies are expected to be obtained by students, namely gaining in-depth knowledge about writing argumentative essays, being able to write quite long argumentative essays, and increasing students' critical thinking skills. The topics of argumentative essays chosen in this study are social issues, economic recession and ecosystems. Each intervention session took 100 minutes for each session. The intervention was carried out for 5 months, each month students received four sessions of intervention. The material introduced in this intervention is critical thinking skills and their relationship to reading and writing skills, as well as how to develop these language skills. After receiving the material for writing argumentative essays, students are given examples of argumentative essays on various topics. Broadly speaking, during the intervention process, students were given the opportunity to read critically and highlight each part of the essay. Furthermore, each student is asked for his opinion on the essay he has read and other students share their perceptions with each other if there are different opinions on their thoughts. After the reading session and critical discussion, students receive material on how to organise thoughts in an argumentative essay and apply it. Drawing conclusions on the results of the research was carried out based on the first criterion, drawing conclusions from the effect of ITRWCT on critical thinking skills seen from the aspect of paraphrasing, explaining again, analysing the components of argumentative essays and evaluating the components of argumentative essays in the three selected essays. The criteria for drawing conclusions about the impact of ITRWCT on writing skills are seen from the suitability of the theme with the content, organisation and development of thoughts, cohesion and coherence of writing and use of grammar. As well as the criteria for determining student attitudes or responses seen from the results of the questionnaire using the Likert scale and open questions.

3.3. Instruction design in the experimental group

Instructions for intervention in the experimental group were designed with the aim of improving the ability to write argumentative essays as well as improving critical thinking skills. This instruction is designed by integrating the teaching of reading and writing in a learning process which in the process is oriented towards critical thinking skills. A set of tasks contained in this instructional design include paraphrasing sentences, re-explaining the thesis on the text read, presenting the logic of the text, assessing the logic of the text. These instructions are designed in the following order. 1) The first step is for students to be grouped and instructed to paraphrase some difficult sentences on

the examples of argumentative essays that have been read in their groups. Each section in the text is divided into sections to be paraphrased in groups. 2) Next, students are asked to find and re-explain the thesis on the essay they have read using their own sentences. The explanation of this thesis is accompanied by a description of the reasons for determining the thesis and using analogies to show the ideas. 3) Students explain the logic of the text as a whole. The benchmarks for the logic of the text used are the main idea, reinforcing arguments and conclusions. The teacher instructs to show certain components or replace them by using their own sentences. 4) Students are given the opportunity to write argumentative essays based on the elements they have learned, 5) students evaluate each other's writings. The evaluation is carried out by the elements of the mind, and the logic of the text by using the agreed intellectual standards. Evaluation is carried out by colleagues to get feedback in order to improve the quality of writing so that it can improve students' argumentative essay writing skills.

3.4. Instruction design in the control group

The difference in the instructions in the control group lies in the paraphrase instructions. The instructions used are traditional to improve the ability to write argumentative essays. The following are the intervention steps carried out in the control group. 1) Students are instructed to show difficult sentences and are asked to discuss and explain their meaning, 2) students are asked to make a summary of the main ideas of the argumentative essay text they read and analyse the pattern of argumentation essay development they use such as, cause and effect, or give examples, 3) students analyse the elements of the argumentative essay that he reads including claims, data/facts, supporting arguments, conclusions or rebuttals. This step is also carried out in the experimental group in order to make students understand more argumentative essays, 4) students are given the opportunity to write argumentative essays, 5) students review their friends' argumentative essays and provide feedback according to the agreed criteria. The components reviewed by students are listed in Table 1. The control group received a regular argumentative essay writing training intervention by teaching the argumentative essay components (claims, data/facts and conclusions). Instruction in the control group did not encourage critical thinking in the absence of intellectual standards, difficult sentence paraphrasing and no elaboration of each component of the argumentative essay.

3.5. Instrument

3.5.1. Instrument for assessing critical thinking skills

The tests used to measure students' critical thinking skills in this study were tests of paraphrasing ability, explaining again, analysing the argumentative essay components and evaluating the argumentative essay components. A test that combines reading and writing skills while testing critical thinking skills in different contexts. The instrument used focuses on assessing paraphrases, re-explaining, analysing the argumentative essay components and evaluating the argumentative essay components in the three selected essays. The instrument for assessing students' critical thinking skills was adopted from Latifi et al. (2021). The validity of the instrument was tested through an empirical test that was tested on other participants with an internal consistency value of 0.90. The level of instrument reliability was tested through expert judgment with doctoral qualification experts in the field of critical thinking skills. The results of the validity and reliability tests showed that the instrument met the criteria. The test was carried out on the pretest and posttest with an interval of 15 weeks so that it is impossible for students to still remember the answers.

Table 1

Teaching Instruction Design for the Experimental and Control Group

Steps	Group

	Experiment	Control
1	Paraphrasing difficult sentences	Discuss the meaning of difficult sentences
2	Explaining the assigned thesis Explain the thesis in your own words Describe the idea with more explanation Re-explaining examples of meaning in other sentences Generate a metaphor, analogy, picture or diagram from a basic thesis.	Summarise together the main ideas of the assigned sections and identify methods of debating Summarise the main ideas of each section Identify paragraph development models, such as examples, definitions, cause and effect relationships and others
3	Explain the logic of thinking argumentation Identify components of point of view, objectives, questions about the problem, information, interpretations and conclusions, concepts or theories, assumptions of the author, implications of the problem and its consequences.	Analysing the parts that make up an argumentative Analysing the components of an argumentative essay such as claims, reinforcing arguments, rebuttals and conclusions.
4	Complete individual writing assignments	Complete individual writing assignments
5	Explain and evaluate the logic of their partner's writing Identify elements of thinking in peer writing Using intellectual standards such as clarity of content, accuracy of components, conformity to the theme, significance of the problem, depth of discussion, breadth and logic of thinking	Reviewing colleague's writing Evaluation of a friend's argumentative essay on aspects of thought organisation, content, paragraph coherence and language use

3.5.2. Instrument for assessing the ability to write argument essays

In this study, the assessment of students' writing skills was carried out in two stages, namely pretest and posttest. Students are instructed to choose one of the themes given and develop it into an argumentative essay. The designed instrument focuses on assessing several aspects, namely suitability with the theme, organisation and development of thought, cohesion and coherence of writing and use of grammar. The instrument used to assess the ability to write argumentative essays

was adopted from Campbell and Filimon (2018) and Chen et al. (2020). The level of validity and reliability shows that the instrument used meets the criteria with an alpha value = 0.90 and a split-half value (Spearman–Brown) = 0.95.

3.5.3. Questionnaire to see students' responses to instructional interventions

To find out the response of students' attitudes towards the intervention that has been received, the researcher used a questionnaire to reveal it. The questionnaire consists of several parts. In the first part, the researcher uncovered students' attitudes and perceptions to designed instruction. In this section, students are asked to select statements that describe their attitudes and perceptions of the intervention. Researchers used a Likert scale to reveal the attitudes of these students with a range of 1–5 Likert scale. In addition, the researcher also gave students the opportunity to comment on the first part. In the second part of the questionnaire, students were asked to answer open-ended questions regarding their overall attitudes, input and suggestions for the interventions they had received. The questionnaire instrument was developed by the researchers themselves based on the criteria for the effectiveness of learning instructions (Mateos et al., 2018; Ulrich, 2012). The validity and reliability of the instrument was carried out empirically and expert judgment. The level of validity and reliability shows that the instrument used meets the criteria with an alpha value = 0.89 and a split-half value (Spearman–Brown) = 0.90.

3.5.4. Interview

Researchers conducted semi-structured interviews to investigate more deeply about their attitudes and perceptions towards the intervention. Only a few students were selected to be interviewed in the experimental group. Interviews were conducted after analysis of the results of the questionnaire. Through this interview method, students are given more freedom to respond to the intervention because the interview method provides additional open-ended questions. Through this interview, students were asked to share their attitudes and perceptions towards the ITRWCT intervention and were asked to explain why. Interviews were conducted on each student for 30 minutes.

3.6. Research procedure

This research begins with the provision of material on the concept of essay writing arguments and critical thinking concepts. After all groups received the lesson, all students took the pretest. After obtaining the initial ability of students in writing argumentative essays, students received an integrated intervention of teaching reading and writing based on critical thinking (ITRWCT) for 5 weeks with a description of the material previously described. Furthermore, the study was closed with a posttest to determine the effect size of the intervention he had received.

3.7. Collection and analysis data

The research data were obtained in four ways, namely the assessment of critical thinking skills, writing skills, student response questionnaires to the ITRWCT intervention and interviews. To determine the students' critical thinking ability, the researcher used a rubric with a scale of 1–5 according to the evaluation pattern. Critical thinking competences test consists of four levels (applying, analysis, evaluation, creating). The maximum score for each level is 5 and the total for all levels is 20. The test is carried out by instructing students to paraphrase, re-explain, analyse the argumentative essay components, and evaluate the argumentative essay components in the three selected essays. The writing ability test is carried out through an argumentative essay writing task instruction with assessments carried out on aspects of conformity to the theme, organisation and development of thinking, cohesion and coherence of writing and use of grammar. Each aspect has a total score of 10, so overall the total score for writing is 40. The latest data regarding student responses were taken from a converted questionnaire and interview data in the form of qualitative data. The assessment is carried out by three people with doctoral qualifications. The result of the inter-rater reliability test was 0.80. This value indicates that the assessment meets the criteria.

Data analysis was performed using Statistical Package for the Social Sciences with the ANCOVA test. To test the effectiveness of the ITRWCT intervention on students' ability to write argumentative essays, the values obtained were analysed using ANCOVA both on individual scores and on overall scores. The results of this processing are compared in each group to find out the level of significance of the intervention. Improving ability in writing arguments is seen from the depth, logical organisation and criticality, cohesion, coherence and use of language. Tests for improving critical thinking skills are seen from the ability to analyse and evaluate the logic used in argumentative essays, and analysis of students' attitudes is carried out on students' responses to open questionnaire given by students. Researchers used ANCOVA to analyse data because this statistical test can control interfering variables and is able to comprehensively investigate the effect of interventions. The ACOVA test was conducted to see the effectiveness of the ITRWCT intervention on students' ability to write argumentative essays. Complementary data from the questionnaire regarding student responses calculated the average score on each question. Open answers, comments, suggestions and input were summarised and data coded. The researcher divides the data into small units and classifies them into various categories. These categories are analysed and entered based on their nature. The final step is the attitudes and perceptions of these students are generalised.

4. Results

Before conducting the ANCOVA test on the research data, the researchers ensured several things including the relationship between the covariate group and the linear dependent variable, the residual values in both groups were normal, the regression values in each group were the same or parallel. To test the hypothesis regarding the effectiveness of the ITRWCT intervention on critical thinking skills and essay writing skills, it is necessary to first ascertain the regression values for these two abilities during parallel pretest and posttest. The following describes the interaction of critical thinking and writing essay skills. The results show that each interaction is not very significant because there are several p values that are greater than 0.05 in table 2. This means that the data is in accordance with the ANCOVA analysis. The results of the test of the effect of the interaction between critical thinking skills and the ability to write argumentative essays listed in Table 2.

Table 2

Interability Effect Test Results

Dependent variable	Interaction instruction with other	Mean square	*F*	*p*
Postest-writing-overall	*Pretest-writing-overall	5.531	1.7001	0.215
Postest-task	*Pretest-task	0.010	0.020	0.912
Postest-organisation	*Pretest-organisation	0.040	0.053	0.820
Postest-coherence	*Pretest-coherence	0.213	0.850	0.421
Post-language	*Pretest-language	0.923	3.321	0.080
Postest-critical thinking-overall	*Pretest-critical thinking-overall	3.112	0.512	0.490
Postest-level 1	*Pretest-level 1	0.902	2.211	0.152
Postest-level 2	*Pretest-level 2	5.621	3.991	0.061
Postest-level 3	*Pretest-level 3	0.005	0.007	0.946
Postest-level 4	*Pretest-level 4	0.005	0.007	0.954

4.1. The effect of ICTRWT intervention on critical thinking ability

The results of the ANCOVA test showed that the score of students' critical thinking skills in the experiment was higher than the control. The significance of critical thinking skills is seen at every level starting from level 1–6, especially at level 3 and level 4, namely the ability to analyse the

components of thinking in argumentative essays and the ability to assess the components of thinking. Overall, the ICTRWT intervention was able to have a significant impact on students' critical thinking skills because all p values in table 3 are smaller than 0.05. Through the ICTRWT intervention, students are able to improve their ability to analyse and evaluate the logic used in argumentation essays because the designed instructions provide opportunities for students to give an assessment of their partner's argumentation essays, so that both abilities have a significant increase. Students' critical thinking skills when they receive direct instructions to evaluate the logic or components of thought in essays written by their colleagues. Instructions for paraphrasing sentences and explaining thesis reviews in essays are not very significant on critical thinking skills. This paraphrasing activity contributes more to language skills. The inability to paraphrase sentences is not related to critical thinking skills but has to do with students' vocabulary mastery. The different effects of the ICTRWT intervention on critical thinking skills for the experimental and control can be seen in Table 3.

Table 3

Critical Thinking Ability of Experimental and Control Groups After Treatment

Component	Group	Mean	SD	*F*	*p*
Overall	Experiment	24.12	2.902	12.524***	0.002
	Control	20.34	2.423		
Level 1	Experiment	7.445	0.7751	3.821	0.112
	Control	6.342	0.7671		
Level 2	Experiment	4.75	1.441	0.523	0.521
	Control	3.65	1.2450		
Level 3	Experiment	6.42	0.876	16.412***	0.002
	Control	4.82	0.821		
Level 4	Experiment	7.62	0.891	16.421***	0.002
	Control	5.82	0.786		

4.2. The effect of ICTRWT intervention on the ability to write argumentative essays

The results of the ANCOVA test showed that the students' ability to write argumentative essays in the treatment group was higher than control. Significant differences between the two groups can be seen in the components of the essay text, namely in topic selection, organisation of thought, coherence between parts of the essay and use of grammar. The findings of this study indicate that teaching writing instruction based on critical thinking skills is able to make students more proficient in writing argumentative essays. This can be seen in the p-value obtained in table 4 which shows the p-value is less than 0.05. This proves that if critical thinking skills are included in the instruction in the learning process, the results obtained will be more optimal. This happens because the instructions designed by the researcher make students think critically when compiling sections of argumentative essays, such as theses, supporting arguments and conclusions. Students are optimally encouraged so that each part of the essay they write has depth and criticality in highlighting a problem. In addition, in the intervention section evaluating their partner's writing, students received feedback both from their colleagues and from the teacher to improve the quality of their writing skills. From this process, in addition to improving his critical thinking skills, his argumentative essay writing skills also improved significantly.

Table 4

Ability to Write Argumentative Essays After Intervention in Each Group

Areas	Group	Mean	SD	*F*	*p*
Overall	Experiment	15.81	2.091	4.891*	0.035
	Control	14.85	2.756		
Task	Experiment	4.81	0.723	2.896	0.095
	Control	3.51	0.675		
Organisation	Experiment	3.96	0.768	5.789*	0.020
	Control	3.43	0.884		

Coherence	Experiment	3.63	0.621	8.523**	0.006
	Control	3.74	0.632		
Language	Experiment	3.50	0.821	0.345	0.751
	Control	3.45	0.632		

4.3. Students' attitudes and perceptions towards ICTRWT intervention design interventions

In general, students who received the intervention from the ICTRWT instructional design gave a positive response to the activities they went through. From the results of processing student responses to the ICTRWT intervention, it was found that the overall level of difficulty felt by students was quite high (*M* = 4.60). Although it was difficult, in general students responded that they liked and were interested in these activities. The level of student attractiveness to intervention activities was obtained (*M* = 4.81). They considered the activities designed to be challenging and encouraged them to think critically, especially in evaluating the logic of their friends' argumentative essays. The level of pressure felt by students from a set of designed activities is (*M* = 4.70). From the results of student responses, most students prefer to carry out activities through collaboration in groups rather than working on individual assignments. Of the three aspects, the highest average value is the average value of student interest in this intervention design. They revealed that they were very interested in the task of re-explaining the thesis and evaluating the logic of their friends' thinking with an average score of 4.87 and 4.89, respectively. In the open-ended question answering session, students gave positive comments that the design of the learning process activities was able to make students actively involved in the learning process.

They also responded that they really enjoyed working in groups. Through collaboration in groups, they can get more opportunities to learn more optimally and get feedback from colleagues who have superior abilities. They said that they were very enthusiastic, challenged and interested in participating in all activities of the ICTRWT intervention stage in order to improve their argumentative essay writing skills. In addition, students also think that critical thinking skills that are taught along with teaching reading and writing are very beneficial for students in the life to come. Here's an excerpt of his opinion. 'I feel happy to have the opportunity to get training in writing argumentative essays as well as get teaching reading and how to improve critical thinking skills. Through this intervention, my ability to organise thoughts and solve problems has improved. All stages of the activities that were passed were very fun and challenging'. So, in general, all students gave positive comments on the integrated design of teaching reading and writing based on critical thinking skills in order to improve the ability to write argumentative essays. Students' attitudes and perceptions which include the level of attractiveness, level of difficulty, and level of pressure from the ICTRWT instruction design are listed in Table 5.

Table 5

Students' Attitudes and Perceptions of the ICTRWT Design

		Mean	SD
Interest level	Ability to paraphrase difficult sentences	4.70	0.50
	Ability to explain thesis	4.87	0.41
	Ability to explain logic	4.89	0.30
	Ability to explain and evaluate friends' writings	4.60	0.72
	Above average ability	4.81	
Level of difficulty	Ability to paraphrase difficult sentences	4.30	0.78
	Ability to explain thesis	4.40	0.72
	Ability to explain logic	4.72	0.75
	Ability to explain and evaluate friends' writings	4.89	0.82
	Above average ability	4.60	
Levels	ofAbility to paraphrase difficult sentences	4.76	0.56

pleasure			
	Ability to explain thesis	4.92	0.45
	Ability to explain logic	4.61	0.63
	Ability to explain and evaluate friends' writings	4.60	0.89
	Above average ability	4.70	

5. Discussion

The integration of teaching reading and writing based on critical thinking skills is able to facilitate students to improve their critical thinking skills and improve their ability to write argumentative essays. Several activities that have proven to be effective in improving critical thinking skills are activities to analyse the components of arguments, activities to evaluate logic and provide feedback on the quality of your friend's argumentative essay writing. In addition, the opportunity to read examples of argumentative essay texts and explain the elements again can encourage students to think critically about the content of the text they read (Deng et al., 2019; Villarroel et al., 2019). At this stage of the activity, students are asked to explain the contents of the writing based on their perspective. This stage is one of the activities that encourage students' critical thinking. This is consistent with the theory that students' critical thinking skills will increase if students are actively involved in the learning process and are encouraged to be active in criticising learning material and trying to apply it. The findings of this study are in accordance with previous research which proves that students' critical thinking skills can improve students' argumentation abilities (De La Paz et al., 2014; Paulson & Van Overschelde, 2021).

Activities that have a significant impact on the ability to write argumentative essays are paraphrasing difficult sentences, explaining again the components of the thesis in the analysed argumentation essay text and practicing organising thoughts when compiling argumentative essay texts. This paraphrasing activity encourages students to construct new sentences. This process encourages students to use new vocabulary or use sentence patterns that they rarely use. Students who have superior language skills will help other students when working in groups. In addition, activities to re-explain each part of an argumentative essay such as analysing the thesis, facts, supporting arguments, objections and conclusions make students' ability to write argumentative essays significantly increase (Afshar et al., 2017; Nussbaum, 2021). At this stage, students are equipped with a very qualified understanding before trying to write it directly. In addition, after students are given the opportunity to write essays, students are also given the opportunity to evaluate their colleagues' writing and provide feedback. This process is very helpful in improving his ability to write argumentative essays. This is consistent with the theory that the ability to write arguments will increase if students are trained to organise their thoughts through the sentences they use. In addition, argumentation essay writing also increased because in the intervention process students were introduced and given the opportunity to analyse parts of argumentation essays (Koffman et al., 2017; Tong et al., 2014).

Teaching writing and reading based on critical thinking skills has a significant impact on students' ability to write argumentative essays. In paraphrasing activities, this stage requires a very deep understanding before paraphrasing using your own sentences. This activity encourages students to develop reading comprehension skills and the ability to organise their logic in writing (Campbell & Filimon, 2018; Chen et al., 2020). It is this stage that contributes to aspects of cohesion and coherence, and the grammar of argumentative essay writing. This finding is in accordance with the theory that a person's writing ability will increase if they understand each component of what they will write. The stages of instruction or activities designed by the researcher at each stage really take students' critical thinking skills into account. So, through this ICTRWT intervention not only did the ability to write argumentative essays increase but also students' reading skills and critical thinking skills also improved. The findings of this study are in line with previous research which proved

students' writing skills would be more optimal if integration of reading and writing skills was carried out in the process (Monte-Sano, 2011; Sandberg et al., 2015).

Students' attitudes and perceptions of the ICTRWT intervention instructional design generally showed a positive response. Most of them paid attention to three aspects, namely, interest, difficulties and pressure during the intervention activities. Of the three aspects, the highest value is the value of interest. This indicates that even though students feel under pressure and have difficulties in dealing with each stage, they still feel interested, challenged and enjoy all stages of the activity. The components of working in groups and providing feedback are highlighted by students which attract students' attention because at this stage students are required to be able to collaborate in solving problems and are required to understand their friend's writing in depth before providing feedback (Akinoglu & Baykin, 2015; Hadianto et al., 2022). In addition, students' intellectual standards must also be qualified when asked to provide feedback. So, all stages or activities designed by this researcher complement each other, in addition to improving writing and reading language skills, this activity is also able to improve students' critical thinking skills. This study has several limitations, including this research only examines the design of teaching instructions that combine teaching reading and writing based on critical thinking skills to the ability to write argumentative essays. Because writing and critical thinking skills are complex skills, further measurement in the long term is needed. In addition, this study only involved students from the high school level, not paying attention to gender as the research variable being studied.

6. Conclusions, implications and recommendations

This integrated design of teaching reading and writing based on critical thinking (ITRWCT) has proven to be very effective in improving the ability to write argumentative essays. The effectiveness of this intervention design is not only in the ability to write argumentative essays, but also in improving students' critical thinking skills. The improvement in the ability to write argumentative essays can be seen in the improvement in the quality of students' writing in the aspects of determining thesis, organisation of thought, cohesion, coherence and use of grammar. Thinking components and intellectual standards that are improved in students are the main keys in improving students' argumentative essay writing abilities. ITRWCT is able to improve students' critical thinking skills significantly. The improvement of students' critical thinking skills can be seen in the ability to analyse and evaluate the logic used in argumentative essays. In addition, students' attitudes and responses to interventions generally gave a positive response. They feel interested and challenged in every activity designed in the learning process. The implication of this research is that instruction to improve critical thinking skills can be integrated into language teaching to make it more optimal, teachers need to design instruction and learning environment carefully to improve students' critical thinking skills, teachers need to provide guidance and direction so that students are accustomed to and encouraged to think critically , and finally, the instructions designed in the learning process should not only be concerned with content, but must balance content and students' critical thinking. Through a balanced learning process, students can not only improve their language skills but also improve their critical thinking skills.

Based on the findings of this study, the researcher recommends that teachers should teach language skills by integrating the teaching of two or more language skills, so that language learning objectives are more optimally carried out. Teaching essay writing skills requires critical thinking skills and an understanding of the parts and organisation of argumentative essay writing, so it is necessary to integrate these abilities into the process. This study has several limitations, including this research only examines the design of teaching instructions that combine teaching reading and writing based on critical thinking skills to the ability to write argumentative essays. Because writing and critical thinking skills are complex skills, further measurement in the long term is needed. In addition, this study only involved students from the high school level, not paying attention to gender as the research variable being studied. Therefore, further research must pay attention to the sample that must be wider, for example, being tested on college-level students, the gender variable is included in

the statistical calculation variable, and a longer intervention is needed to get the effect of the intervention more optimal.

7. References

Afshar, H. S., Movassagh, H., & Arbabi, H. R. (2017). The interrelationship among critical thinking, writing an argumentative essay in an L2 and their subskills. *Language Learning Journal*, *45*(4), 419–433. https://doi.org/10.1080/09571736.2017.1320420

Akinoglu, O., & Baykin, Y. (2015). Raising critical thinkers: Critical thinking skills in secondary social studies curricula in Turkey. *Anthropologist*, *20*(3), 616–624. https://doi.org/10.1080/09720073.2015.11891765

Awada, G., Burston, J., & Ghannage, R. (2020). Effect of student team achievement division through WebQuest on EFL students' argumentative writing skills and their instructors' perceptions. *Computer Assisted Language Learning*, *33*(3), 275–300. https://doi.org/10.1080/09588221.2018.1558254

Campbell, Y. C., & Filimon, C. (2018). Supporting the Argumentative Writing of Students in Linguistically Diverse Classrooms: An Action Research Study. *RMLE Online*, *41*(1), 1–10. https://doi.org/10.1080/19404476.2017.1402408

Chen, Y. C., Aguirre-Mendez, C., & Terada, T. (2020). Argumentative writing as a tool to develop conceptual and epistemic knowledge in a college chemistry course designed for non-science majors. *International Journal of Science Education*, *0*(0), 1–34. https://doi.org/10.1080/09500693.2020.1837990

Davies, M. (2013). Critical thinking and the disciplines reconsidered. *Higher Education Research and Development*, *32*(4), 529–544. https://doi.org/10.1080/07294360.2012.697878

De La Paz, S., Felton, M., Monte-Sano, C., Croninger, R., Jackson, C., Deogracias, J. S., & Hoffman, B. P. (2014). Developing historical reading and writing with adolescent readers: Effects on student learning. *Theory and Research in Social Education*, *42*(2), 228–274. https://doi.org/10.1080/00933104.2014.908754

Deng, Y., Kelly, G. J., & Deng, S. (2019). The influences of integrating reading, peer evaluation, and discussion on undergraduate students' scientific writing. *International Journal of Science Education*, *41*(10), 1408–1433. https://doi.org/10.1080/09500693.2019.1610811

Doubet, K. J., & Southall, G. (2018). Integrating Reading and Writing Instruction in Middle and High School: The Role of Professional Development in Shaping Teacher Perceptions and Practices. *Literacy Research and Instruction*, *57*(1), 59–79. https://doi.org/10.1080/19388071.2017.1366607

Ebadi, S., & Rahimi, M. (2018). An exploration into the impact of WebQuest-based classroom on EFL learners' critical thinking and academic writing skills: a mixed-methods study. *Computer Assisted Language Learning*, *31*(5–6), 617–651. https://doi.org/10.1080/09588221.2018.1449757

Fan, C. Y., & Chen, G. D. (2021). A scaffolding tool to assist learners in argumentative writing. *Computer Assisted Language Learning*, *34*(1–2), 159–183. https://doi.org/10.1080/09588221.2019.1660685

García, L., Calle, M., De Castro, A., Soto, J. D., Torres, L., Candelo-Becerra, J. E., & Schettini, N. (2020). The case of a short intervention study of argumentative writing in engineering at two Colombian universities: less is more*. *European Journal of Engineering Education*, *45*(2), 273–291. https://doi.org/10.1080/03043797.2019.1636211

Hadianto, D., Damaianti, V. S., Mulyati, Y., & Sastromiharjo, A. (2021a). Enhancing scientific

argumentation skill through partnership comprehensive literacy. *Journal of Physics: Conference Series*, *2098*(1). https://doi.org/10.1088/1742-6596/2098/1/012015

Hadianto, D., Damaianti, V. S., Mulyati, Y., & Sastromiharjo, A. (2021b). The role of multimodal text to develop literacy and change social behaviour foreign learner. *International Journal of Instruction*, *14*(4), 85–102. https://doi.org/10.29333/iji.2021.1446a

Hadianto, D., S. Damaianti, V., Mulyati, Y., & Sastromiharjo, A. (2022). Effectiveness of Literacy Teaching Design Integrating Local Culture Discourse and Activities to Enhance Reading Skills. *Cogent Education*, *9*(1), 0–13. https://doi.org/10.1080/2331186X.2021.2016040

Huang, Y., & Jun Zhang, L. (2020). Does a Process-Genre Approach Help Improve Students' Argumentative Writing in English as a Foreign Language? Findings From an Intervention Study. *Reading and Writing Quarterly*, *36*(4), 339–364. https://doi.org/10.1080/10573569.2019.1649223

Kang'ethe, S. M. (2015). Integrating Reading and Writing as a Strategy to Increase Students' Literacies in One of the Formerly Disadvantaged Universities in South Africa. *International Journal of Educational Sciences*, *10*(2), 318–324. https://doi.org/10.1080/09751122.2015.11917663

Koffman, B. G., Kreutz, K. J., & Trenbath, K. (2017). Integrating scientific argumentation to improve undergraduate writing and learning in a global environmental change course. *Journal of Geoscience Education*, *65*(3), 231–239. https://doi.org/10.5408/16-232.1

Koutsoftas, A. D., & Srivastava, P. (2020). Oral Language Contributions to Reading and Writing in Students with and without Language-Learning Disabilities. *Exceptionality*, *28*(5), 380–392. https://doi.org/10.1080/09362835.2020.1801435

Kuhn, D., Hemberger, L., & Khait, V. (2016). Dialogic argumentation as a bridge to argumentative thinking and writing / La argumentación dialógica como puente para el pensamiento y la escritura argumentativa. *Infancia y Aprendizaje*, *39*(1), 25–48. https://doi.org/10.1080/02103702.2015.1111608

Latifi, S., Noroozi, O., Hatami, J., & Biemans, H. J. A. (2021). How does online peer feedback improve argumentative essay writing and learning? *Innovations in Education and Teaching International*, *58*(2), 195–206. https://doi.org/10.1080/14703297.2019.1687005

Latifi, S., Noroozi, O., & Talaee, E. (2020). Worked example or scripting? Fostering students' online argumentative peer feedback, essay writing and learning. *Interactive Learning Environments*, *0*(0), 1–15. https://doi.org/10.1080/10494820.2020.1799032

Leeke, P. A. (2020). Fake narratives and critical thought: how creative writing can facilitate critical thinking in an age of fake news and false accounting. *New Writing*, *17*(2), 199–207. https://doi.org/10.1080/14790726.2019.1586954

Lu, D., & Xie, Y. (2019). The effects of a critical thinking oriented instructional pattern in a tertiary EFL argumentative writing course. *Higher Education Research and Development*, *38*(5), 969–984. https://doi.org/10.1080/07294360.2019.1607830

Ma, L., & Luo, H. (2020). Chinese pre-service teachers ' cognitions about cultivating critical thinking in teaching English as a foreign language. *Asia Pacific Journal of Education*, *00*(00), 1–15. https://doi.org/10.1080/02188791.2020.1793733

Mateos, M., Martín, E., Cuevas, I., Villalón, R., Martínez, I., & González-Lamas, J. (2018). Improving Written Argumentative Synthesis by Teaching the Integration of Conflicting Information from Multiple Sources. *Cognition and Instruction*, *36*(2), 119–138. https://doi.org/10.1080/07370008.2018.1425300

McKinley, J. (2015). Critical Argument and Writer Identity: Social Constructivism as a Theoretical

Framework for EFL Academic Writing. *Critical Inquiry in Language Studies*, *12*(3), 184–207. https://doi.org/10.1080/15427587.2015.1060558

Mohseni, F., Seifoori, Z., & Ahangari, S. (2020). The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension. *Cogent Education*, *7*(1). https://doi.org/10.1080/2331186X.2020.1720946

Monte-Sano, C. (2011). Beyond Reading Comprehension and Summary: Learning to Read and Write in History by Focusing on Evidence, Perspective, and Interpretation. *Curriculum Inquiry*, *41*(2), 212–249. https://doi.org/10.1111/j.1467-873X.2011.00547.x

Noor, S. (2021). Integrating reading and writing in testing reading comprehension of the Afghan EFL language learners. *Cogent Education*, *8*(1). https://doi.org/10.1080/2331186X.2021.1919039

Noroozi, O., Hatami, J., Bayat, A., van Ginkel, S., Biemans, H. J. A., & Mulder, M. (2020). Students' online argumentative peer feedback, essay writing, and content learning: does gender matter? *Interactive Learning Environments*, *28*(6), 698–712. https://doi.org/10.1080/10494820.2018.1543200

Nussbaum, E. M. (2021). Critical integrative argumentation: Toward complexity in students' thinking. *Educational Psychologist*, *56*(1), 1–17. https://doi.org/10.1080/00461520.2020.1845173

Paulson, E. J., Sarker, A. L., Reynolds, J. S., & Cotman, A. M. (2021). Instructors' Voices: Experiences with State-Mandated Accelerated Integrated Developmental Reading and Writing Coursework in Texas Community Colleges. *Journal of College Reading and Learning*, *51*(2), 110–130. https://doi.org/10.1080/10790195.2020.1867668

Paulson, E. J., & Van Overschelde, J. P. (2021). Accelerated Integrated Reading and Writing: A Statewide Natural Experiment. *Community College Journal of Research and Practice*, *45*(1), 13–30. https://doi.org/10.1080/10668926.2019.1636733

Prata, M. J., de Sousa, B., Festas, I., & Oliveira, A. L. (2019). Cooperative methods and self-regulated strategies development for argumentative writing. *Journal of Educational Research*, *112*(1), 12–27. https://doi.org/10.1080/00220671.2018.1427037

Sandberg, G., Hellblom-Thibblin, T., & Garpelin, A. (2015). Teacher's perspective on how to promote children's learning in reading and writing. *European Journal of Special Needs Education*, *30*(4), 505–517. https://doi.org/10.1080/08856257.2015.1046738

Tong, F., Irby, B. J., Lara-Alecio, R., & Koch, J. (2014). Integrating literacy and science for english language learners: From Learning-To-Read to Reading-To-Learn. *Journal of Educational Research*, *107*(5), 410–426. https://doi.org/10.1080/00220671.2013.833072

Ulrich, W. (2012). Operational research and critical systems thinking-an integrated perspectivePart 2: Or as argumentative practice. *Journal of the Operational Research Society*, *63*(9), 1307–1322. https://doi.org/10.1057/jors.2011.145

Villarroel, C., Garcia-Mila, M., Felton, M., & Miralda-Banda, A. (2019). Effect of argumentative goals in the quality of argumentative dialogue and written argumentation. *Infancia y Aprendizaje*, *42*(1), 37–86. https://doi.org/10.1080/02103702.2018.1550162

Voss, J. F., & Van Dyke, J. A. (2001). Argumentation in Psychology: Background Comments. *Discourse Processes*, *32*(2–3), 89–111. https://doi.org/10.1080/0163853x.2001.9651593

Wass, R., Harland, T., & Mercer, A. (2011). Scaffolding critical thinking in the zone of proximal development. *Higher Education Research and Development*, *30*(3), 317–328. https://doi.org/10.1080/07294360.2010.489237