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Action Research: The Use of PCMRI2 in Analysing Journal Articles

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Abstract

This study focused on the use of PCMRI2 in analysing journal articles for semester 1 students of the Institute of Teacher Education Ilmu Khas Campus. The primary objective was to improve students' skills in analysing journal articles. Six students from PKUK3013E Course were selected as participants in this intervention. The Scaffolding approach was employed for the two-week intervention. The findings revealed an improvement in assessment scores compared to prior to the intervention. Participants in the study demonstrated that PCMRI2 could facilitate them in effective article analysis as well as academic writing. This study suggested that the study of PCMRI2 could be enhanced to include more study samples to achieve high validity and reliability.

Keywords: Action Research, Journal Article, Analyse, Scaffolding Approach, IPG Students.

Introduction

Undergraduate enrolment is increasing around the world in the 21st century. As future scholars, undergraduates face various challenges in higher learning institutions. One of the difficulties encountered is the skill to read journal articles (Caplan & Stevens, 2017; Brosowsky et al., 2020). Prior to postgraduates, undergraduates are the first group exposed to the research world. The majority of undergraduate programmes at higher institutions require students to complete coursework utilising scholarly sources of information, such as journal articles. This is crucial for undergraduates to comprehend and evaluate journal-published studies (Coil et al., 2010). Therefore, they should acquire the skills to read and understand research findings successfully.

Caplan and Stevens (2017); Huisman et al (2018); Kershaw et al (2018) revealed that undergraduates frequently struggle to comprehend and analyse journal articles. Inexperience in carrying out research has also become one of the reasons why they face difficulty understanding the elements of empirical studies (Newell et al., 2011; Van Lacum et al., 2014). These occurrences are reflected in the Institute of Teacher Education (IPG) Ilmu Khas Campus.

The study discovered that students in the Bachelor's Degree of Teaching Programme (PISMP) have difficulty understanding journal articles and mastering journal article components such as introduction, literature review, methodology, research findings, etc.

Based on the journal articles they cited, the tutorial and coursework tasks demonstrated that they could not write competent academic writing.

According to the researcher's experience, Semester 1 PISMP courses frequently have substantial difficulties analysing journal articles, particularly those assigned tutorial tasks or coursework that need students to create scientific references such as journal articles. According to the academic writing coursework results, certain Semester 1 PISMP students in the PKUK3013E Language and Communication course for Children with Special Needs Course are having difficulty analysing journal articles successfully. Based on the academic writing tasks, most students are incapable of making critical assessments. Furthermore, the researchers received comments from students indicating that they were less proficient in grasping the structure of journal articles. Therefore, this study aims to increase the skills of analysing journal articles using the Scaffolding-PCMRI2 approach.

Literature Review

Scaffolding Approach

The Scaffolding approach is based on the idea of teachers guiding students through the teaching and learning process. According to Wood et al. (1976), the teacher serves as an "activator" by assisting and guiding students in mastering a topic. This means that teachers direct students' efforts to complete assignments. According to Belland (2014), the scaffolding technique is intended to provide students with temporary assistance. Vygotsky (1978) proposed the Scaffolding Approach through his Constructivisme Theory. A practical scaffolding approach, according to Vygotsky's (1978) theoretical paradigm, can assist pupils in transitioning from the Zone of Current Development (ZCD) to the Zone of Proximal Development (ZPD) (Harland, 2003). According to Vygotsky (1978), the Zone of Proximal Development (ZPD) idea is the difference between the actual degree of development determined by problem-solving capacity, the level of potential growth, and guidance or collaboration with a more capable partner. The Scaffolding approach is given as a guide to help students accomplish ZPD, and support is provided to attain learning goals (Bruner, 1975; Davis & Miyake, 2004)

Not only is the Scaffolding approach effective in the school environment (Smit et al., 2018; Angeli & Valanides, 2020), but it is also relevant in higher education (Coulson & Harvey, 2013; Zhou & Lam, 2019; Jones, 2019; Kim & Lim, 2019). The research conducted by Kim and Lim (2019) revealed that scaffolding reflections were more influential on performance problem solving and learning outcomes in South Korean institutions. In addition, Belland et al. (2017) discovered, through an examination of 144 experimental research on the influence of computer-based scaffolding on the cognitive learning of STEM students, that the effect was substantial despite its small to moderate size. Brosowsky et al (2020) discovered that the scaffolding approach is beneficial in teaching tertiary-level students to read empirical articles using the QALMRI approach.

PCMRI2

PCMRI2 is a well-known guide for assessing journal papers for empirical studies. PCMRI2 is generated from a combination of elements that must be emphasised in the analysis of the article: purpose, idea or theory, technique, research findings, factor, and implication. PCMRI2 is the result of the researcher's adaptation of the QALMRI approach (Brosowsky & Parshina,

2017) for Semester 1 PISMP students. The objective of PCMRI2 is to enhance students' skills in analysing journal articles effectively. PCMRI2 is characterised as follows:

Table 1

PCMRI2

P	Purpose	What is the purpose of the research study?
C	Concep	What concepts or theories are relevant in the study?
M	Methodology	What methodologies have been applied in the study?
R	Result	What are the findings of the study?
I	Inference	Factors influencing the findings
I	Implication	Implications obtained from the study

Research Focus

This study aims to improve the ability of Semester 1 PISMP students to assess journal articles for the PKUK3013E Language and Communication Course for Children with Special Needs Course. Improving journal article analysis skills can help students overcome critical and practical writing issues, particularly in tutorial and coursework assignments. As a result, the researchers used PCMRI2 to assist students in improving their journal article analysis skills. PCMRI2 is an intervention that not only enhances analytical skills but also assists students in making more critical reviews.

Research Objective

General Objective

To enhance the Semester 1 PISMP students' (PKUK3013E Language and Communication of Children with Special Needs Course) skills in analysing journal articles using PCMRI2.

Specific Objectives

This study aims

1. To enable students to analyse journal articles by using PCMRI2.
2. To enable students to write reviews based on the results of PCMRI2 analysis.

Research Questions

This study addresses the following research questions:

1. Can students analyse journal articles by using PCMRI2?
2. Can students write reviews based on the results of PCMRI2 analysis?

Target Group

The target group comprises six students (five females and one male) enrolled in the PKUK3013E Language and Communication of Children with Special Needs Course (Semester 1 PISMP June/2021 Intake). This target group was selected based on preliminary data collection, which included coursework assignment marks, document analysis, and open-ended questions. The coursework task, i.e., academic writing, is worth less than 20 points. Six students showed deficiencies in the skills of assessing journal articles and also contributed shortcomings in journal article reviews based on the findings of academic writing. The assignment was worth 30 points in total. Furthermore, the outcomes of coursework

assignments were examined to identify students who required practical help. Moreover, the researchers gathered input from six students via an open-ended questionnaire, indicating they understood and needed guidance to improve their journal article analysis skills.

Action Implementation

This study employed Kemmis and McTaggart action research model (1988). This methodology stresses four cycle-based processes of action research: reflecting, planning, acting, and observing. The entire action research implementation is the First Loop (Cycle 1). If the issue has not been fixed, the researcher can begin a re-implementation known as the Second Loop (Cycle 2). Generally, this study increased students' skills in analysing journal articles on the Second Loop (Cycle 2).

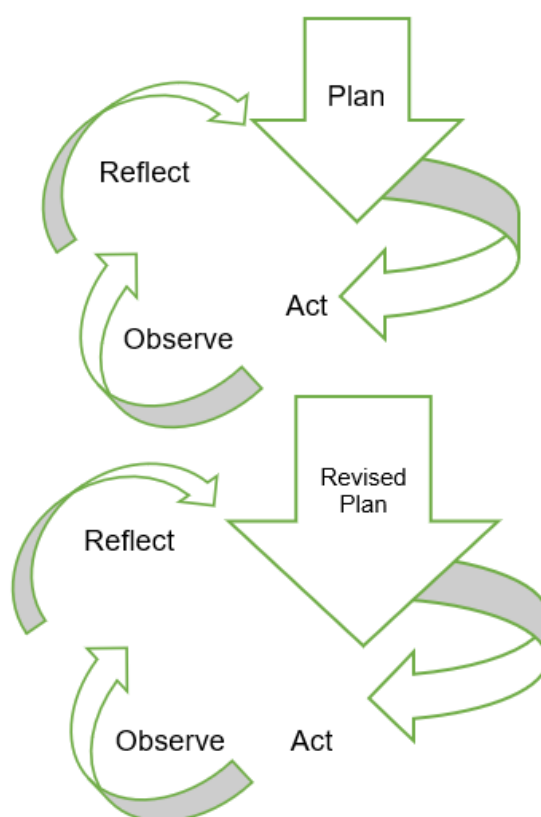


Figure 1: Action Plan Loop (Kemmis & McTaggart, 1988)

Data Collection

Action research begins with the assumption that a problem or issue that has been identified is the root cause of the problem (Overby, 2021). This study has identified research problems through document analysis, course grade evaluations, and open-ended questionnaires. The purpose of the three data collections was to determine the difficulties encountered in PKUK3013E course.

Problem Review Analysis

The researcher discovered the difficulty based on the academic writing course assignment marks. In the PKUK3013E course, there are 53 students, with six individuals receiving less than 20 marks out of a possible 30. The study discovered that students who scored less than 20/30 in academic writing coursework had poor journal article reviews due to weak skills in assessing journal articles. Furthermore, the researchers distributed an open-ended questionnaire to six students to determine whether they had difficulty analysing journal articles.

Troubleshooting Action (intervention)

The study was carried out for two weeks, with the intervention lasting two hours per week. Students were instructed to find and download an article prior to the intervention. During the intervention session, the researcher introduced the PCMRI2 table and demonstrated how to fill it out. The researcher also explained how to use PCMRI2 to do reviews. The intervention was conducted using Google Meet and Google Classroom. The findings were evaluated based on PCMRI2 assignments and article reviews, writing evaluation scores, and questionnaires. Students who received an assessment score of more than 20 points demonstrated mastery of the skills of assessing journal articles and writing good reviews. The total score is 30. A questionnaire was also administered following the second intervention session to ensure that students effectively provided feedback on PCMRI2 mastery. Open-ended questions revealed that students sorely required help evaluating journal articles. Furthermore, students stated that assistance in studying journal articles could improve the effectiveness of understanding and critical reviewing in academic writing.

The PCMRI2 was used as an intervention in this study to solve research problems, as shown in the table below. The first action research loop was completed for two hours on Friday during the 13th week of the course. Although all students performed well on the PCMRI2, a small percentage of students still required assistance in writing reviews. Then, in the 14th week of the course, the second action research loop was conducted so each student could thoroughly learn it.

Findings

The findings of the study are derived from the research questions. The following are the findings:

Students can Analyse Journal Articles by using PCMRI2

According to the findings of this study, students were able to analyse journal articles using the outcomes of their assignments with PCMRI2. Six students were found to be able to fill out PCMRI2 accurately and correctly based on the information. Table 2 displays the PCMRI2 mastery and journal article evaluations. According to Table 2, the overall mastery of PCMRI2 was to achieve the purpose of the research question, which was that all participants in the study were able to master the use of PCMRI2 in analysing journal articles in action research loops 1 and 2. The findings were consistent with those of Brosowsky et al (2020), who focused on the QALMRI approach of journal article analysis. Although this study differed in table analysis, the results showed that students could master the use of table analysis by assisting in analysing journal articles. Furthermore, the use of this PCMRI2 can assist students in identifying essential conceptual information in journal papers (Brosowsky et al., 2020; Brosowsky & Parshina, 2017; Kosslyn & Rosenberg, 2003).

Students can make Comments based on the Results of PCMRI2 Analysis

The second research question allowed students to write reviews based on the results of PCMRI2 analysis. The findings can be expressed based on assessment scores, assignment outcomes analysis, and questionnaires distributed to study participants. According to Table 2, the first loop demonstrated that four study participants could write reviews based on the results of PCMRI2 analysis. In comparison, two participants needed assistance in reviewing journal articles. Both participants, however, had mastered using the PCMRI2 table but still needed supervision when doing PCMRI2-based reviews. As a result, a second loop was carried out to confirm that all participants could generate journal article reviews using PCMRI2. According to Table 2, the findings of the second loop research revealed that all participants could write reviews using PCMRI2. This study agreed with Brosowsky et al (2020) that students could attain a considerable rise in scores using PCMRI2 table.

Table 2

PCMRI2 mastery and journal article review

Participant	PCMRI2 Mastery		Journal Article Review	
	Loop 1	Loop 2	Loop 1	Loop 2
1	√	√	√	√
2	√	√	√	√
3	√	√	×	√
4	√	√	√	√
5	√	√	×	√
6	√	√	√	√

This study revealed that there was an improvement in assignment assessment scores. The assessment scores for the pre-, first-, and second-loop interventions are depicted in Figure 2. Before the intervention, the participants' average assessment score was less than 20 out of 30. The results of the first loop demonstrated conclusively that the implementation of PCMRI2 as an intervention led to an improvement. The improvement in assessment scores was more substantial in the second loop, indicating that mastery of PCMRI2 could assist participants in overcoming difficulties with journal article analysis and producing quality reviews.

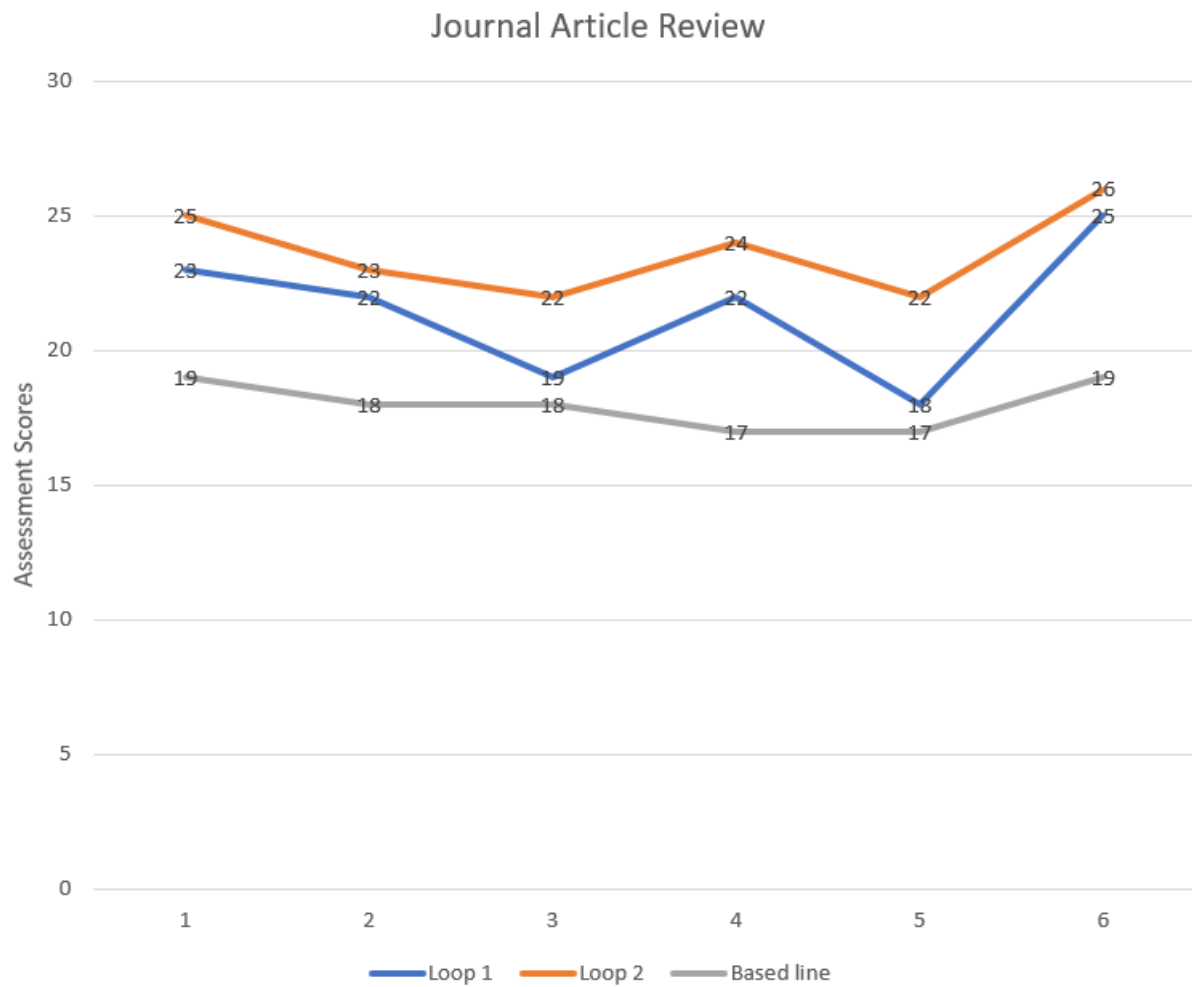


Figure 2. The assessment scores before and after the intervention (first loop and second loop)

Table 3

Depicts one of the open-ended questions distributed to participants following the second loop.

Participant	Open-Ended Questionnaire What do you think of PCMRI2?
1	Answer: In my opinion, the PCMRI2 table is very useful for helping our understanding in article writing. Therefore, we may determine the required main points.
2	Answer: Assist students to list important content from articles.
3	Answer: PCMRI2 table guided me throughout my reading of the journal articles. Then I was able to identify specific aspects of the article based on the items found in the table.
4	Answer: PCMRI2 is extremely useful in determining the relevant article or journal content to be reviewed.
5	Answer: In my opinion it is very useful and easier to discover information
6	Answer: Perfect for helping students in narrowing their search for relevant info in articles.

According to Table 3, all participants agreed that PCMRI2 might help them effectively analyse critical information and content in journal articles. Furthermore, PCMRI2 provides a guide for students to analyse journal articles. The use of PCMRI2 was similar to the research of Brosowsky et al (2020); Brosowsky and Parshina (2017); Yarden (2009), which allowed students to adapt journal articles to make them more understandable while keeping the essential information.

Conclusion

In conclusion, this study answered the research questions using two action research loops (cycles). The second loop has improved participants' utilisation of PCMRI2. There has been no improvement in assessment scores compared to those obtained before the intervention. Participants in this study stated that PCMRI2 assisted them in efficiently referencing journal articles as primary references.

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