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THE IMPACT OF THE IMPLEMENTATION OF THE 5E LEARNING CYCLE MODEL ON ARABIC LANGUAGE LEARNING OUTCOMES AT MTS HASYIM ASY'ARI, BATU

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ABSTRACT
This study aims to analyze the effectiveness of the implementation of the 5E Learning Cycle model in improving students' Arabic language learning outcomes at MTs Hasym Asy'ari, Batu. The research employed a quantitative approach with a pre-experimental one-group pretest-posttest design involving 30 respondents selected through purposive sampling. The pedagogical intervention, comprising the constructivist learning cycle phases (Engagement, Exploration, Explanation, Elaboration, and Evaluation), was implemented over an effective period of eight weeks. Descriptive statistical analysis showed an increase in the mean score from 63.87 to 80.17, with a gain score of 16.30. The Shapiro-Wilk normality test confirmed the data followed a normal distribution ($p > 0.05$), validating the use of parametric statistics. Inferential analysis using a paired samples t-test yielded $t(29) = 6.004$, $p < 0.05$, indicating a statistically significant difference between pre and post intervention conditions.

I. INTRODUCTION

In today's global educational landscape, academic institutions are increasingly challenged to prepare students for a complex and rapidly evolving world. Education is no longer regarded merely as a means of knowledge transmission but as a holistic system that nurtures learners' intellectual, emotional, and spiritual capabilities [[1]. Within this context, multilingual competence including proficiency in Arabic is essential for cross-cultural communication and access to a rich body of a scholarly heritage [2].

The constructivist paradigm in education, rooted in Piaget's cognitive development theory, emphasizes that optimal learning occurs when learners actively construct knowledge through interaction with their learning environment [3]. In the context of second language acquisition, this paradigm underscores the importance of designing learning environments that promote active exploration and meaningful interaction in the target language [4]. Teachers act as facilitators who stimulate learners' cognitive engagement through reflective questioning and authentic learning activities.

Arabic language instruction in Indonesia has long been a fundamental component of Islamic religious education. However, its effectiveness remains limited [5]. A longitudinal study identified persistent challenges in Arabic instruction in Indonesia, including linguistic, psychological, and pedagogical barriers [6]. The complexity of Arabic morphosyntatic structure, the limited exposure to authentic usage contexts, and the dominance of non-innovative teaching methods are key factors hindering comprehensive language proficiency [7].

In recent years, foreign language education has witnessed a paradigmatic shift from teacher-centered to student-centered approaches [8]. Meta-analytical findings demonstrated that active learning approaches, which engage students in the construction of knowledge yield significantly higher effect sized on learning outcomes compared to traditional teaching methods [9]. This shift underscores the necessity of implementing instructional models that promote active learner participation, especially in Arabic language classrooms.

Empirical observations suggest that low Arabic language achievement is a prevalent issue across Indonesian

educational institutions. Poor learning outcomes are significantly correlated with the widespread use of conventional teaching methods that do not provide adequate opportunities for holistic language development [10] Furthermore, monotonous and decontextualized teaching approaches have been identified as key factors contributing to low intrinsic motivation among Arabic learners [11].

A diagnostic study at MTs Hasyim Asy'ari, Batu City, revealed a misalignment between instructional strategies and learners' needs. Observation indicated passive student participation, limited foundational Arabic skills, and frequent classroom distractions. Performance data showed that many students had not achieved minimum competency standards. Interviews pointed to two primary challenges: a lack of awareness regarding the relevance of Arabic in academic and religious contexts, and limited literacy in Arabic script, with most learners still at the Iqra' reading level.

Furthermore, classroom observation showed that instruction was predominantly lecture-based and teacher-centered. Such approaches tend to foster monotonous learning environments and limit students' creative engagement [12]. These issues further exacerbate the challenges in Arabic language instruction, especially in relation to pedagogical innovation and learner interest.

To overcome these challenges, the development and implementation of innovative instructional models is urgently needed. Effective models must cater to diverse learner needs and support the development of 21-st century competencies [13]. These models should enhance not only cognitive but also metacognitive and self-regulated learning.

One constructivist-based model with strong potential for Arabic language instruction is the 5E Learning Cycle. Originally developed for science education, it has demonstrated efficacy across disciplines, including language education [14]. The model consists of five sequential phases: Engagement, Exploration, Explanation, Elaboration, and Evaluation.

Empirical studies have demonstrated the effectivenesss of the 5E Learning Cycle model in enhancing learning outcomes. As for example, Ucar and Trundle [15] showed that implementing 5E model led to significant improvements in student achievement and long-term knowledge retention when compared to traditional learning approaches. It is similar as Romli et al. [16] across 42 independent studies confirmed the effectiveness of 5E learning cycle in enhancing the conceptual understanding, higher-order thinking, and learner motivation.

In the context of language instruction, Zulfikar et al. [17] found that the use of the 5E Learning Cycle in English language classrooms was positively associated with improvements in students' speaking skills and literacy. Likewise, Santoso and Purwanto [18] reported that this model significantly enhanced vocabulary acquisition and reading comprehension in Arabic among intermediate learners.

The 5E Learning Cycle promotes a student-centered learning environment, encouraging active participation in the construction of knowledge [19]. Each phase of the model is designed to facilitate the development of language proficiency through meaningful and contextualized activities. As argued by Psillos and Kariotoglou [20], the cyclical structure of the 5E model supports the consolidation of knowledge and language skills through systematic scaffolding.

Based on a comprehensive analysis of the challenges in Arabic language instruction and the pedagogical potential of the 5E Learning Cycle model, this study focuses on examining its impact on the Arabic language learning outcomes of seventh-grade students at MTs Hasyim Asy'ari, Batu City. The primary objective is to assess the model's effectiveness in supporting the acquisition of Arabic language competencies and increasing learner engagement during the instructional process. The results of this study are expected to contribute to the development of pedagogical practices in Arabic language education and offer a viable instructional alternative to address the existing challenges.

II. METHODOLOGY

This study uses the quantitative approach using pre-experimental design, specifically a one-group pretest-posttest design. The design involved a single group subjected to pretest and posttest measurements to evaluate the impact of the Learning Cycle 5E instructional model [21]. In this design, the group was first given a pretest (O_1) to assess the base condition, followed by treatment (X) involving the instruction through the Learning Cycle 5E model, and subsequently a posttest (O_2) to measure the final outcome [22].

The site was selected based on preliminary studies that identified specific challenges in Arabic language instruction at the school. The implementation of the Learning Cycle 5E model was carried out over the even semester of the 2024/2025 academic year, spanning a period of eight weeks of effective instruction.

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The population of this study consisted of all seventh-grade students at MTs Hasyim Asy'ari for the 2024/2025 academic year. The sampling technique applied was purposive sampling, selected based on the homogeneity of students' academic characteristics, with input from the Arabic language teacher [23]. The sample comprised 30 students from Class VII-C.

A. Research Stages

This research study was implemented in three main stages, such as: preparation phase, implementation phase, and final phase. The preparation phase included preliminary on the research site, development of research instruments, and consultation with the Arabic language teacher regarding the content and implementation. In implementation state, students were given a pretest, which the treatment group was then exposed to instruction using the 5E Learning Cycle model. The result or data from pretest and posttest were collected and analyzed in the final phase.

B. Data Analysis Technique

Descriptive statistics were used to provide a general overview of students' learning outcome data, including the minimum, maximum, mean, and standard deviation values. Both pretest and posttest scores were analyzed to observe changes in student achievement before and after the implementation of the 5E Learning Cycle instructional model.

Before hypothesis testing, a normality test was conducted to ensure that the data met the assumptions required for parametric statistical analysis. The Shapiro-Wilk test was utilized, as it is appropriate for sample sizes of 30 or fewer [24]. The criteria for interpreting the Shapiro-Wilk test were as follows:

- If the significance value (p) > 0.05, the data are considered normally distributed.
- If the significance value (p) ≤ 0.05, the data are not normally distributed.

To test the hypothesis, a paired sample t-test was applied. This statistical test is used to compare the pretest and posttest scores within the same group after the implementation of the 5E Learning Cycle model. The formula used for the paired sample t-test is:

$$t = \frac{\bar{d}}{(\frac{sd}{\sqrt{N}})}$$

Where t is calculated value, $\bar{d}$ is mean difference between paired scores, sd refers to standard deviation of the difference, and N is the number of samples. To interpret the results of the paired sample t-test, several components must first be determined:

- The significance level (α)
- The degrees of freedom (df), which for this test is $N - 1$
- A comparison of the calculated t-value ($t_{calculated}$) with the critical t-value from t-distribution table at the 95% confidence level.

Following the formula and determined component, there are decision criteria on this hypothesis testing:

- If $t_{calculated} > t_{table}$ at the 5% significance level, then the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.
- If $t_{calculated} \leq t_{table}$, then H_0 is accepted and H_1 is rejected.

III. RESULT AND DISCUSSION

A. Result

There as an increase in the average Arabic learning scores from 63.87 (pretest) to 80.7 (posttest). The average gain score of 16.30 indicates a positive improvement following the implementation of the 5E Learning Cycle instructional model. This result is shown in Table I below:

TABLE I
DESCRIPTIVE STATISTIC

Statistic	Pretest	Posttest	Gain Score
N	30	30	30
Mean	63.87	80.17	16.30
Minimum	43	65	6
Maximum	85	100	25
Deviation Standard	14.87		

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The Shapiro-Wilk normality test results as shown in Table II indicate that both the pretest and posttest data follow a normal distribution, with significance values of 0.6898 and 0.0599 respectively ($p > 0.05$). Therefore, the assumption of normality is met, allowing for further analysis using parametric tests, specifically the paired sample t-test.

TABLE II
NORMALITY TEST

Data	Significancy Score	Decision
Pretest	0.6898	Normally distributed
Posttest	0.0599	Normally distributed

The results of the paired sample t-test on Table III show that the calculated t-value = 6.004 with degrees of freedom (df) = 29. Since $t_{calculated}$ (6.004) > t_{table} (2.05) at the 5% significance level, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted. This confirms that there is a statistically significant difference between the pretest and posttest scores, indicating that the 5E Learning Cycle model had a positive and measurable impact on students' Arabic language learning outcomes.

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TABLE III
HYPOTHESIS TEST

Pretest Mean	Posttest Mean	Mean	$t_{calculated}$	t_{table}	df	Decision
63.87	80.17	16.30	6.004	2.05	29	H_0 rejected

B. Discussion

The findings of this study demonstrate the effectiveness of the 5E Learning Cycle model in improving Arabic language learning outcomes among seventh-grade students at MTs Hasyim Asy'ari, Batu. Based on the analysis, there was a statistically significant increase in learning outcomes, with the mean pretest score rising from 63.87 to 80.17 in the posttest, reflecting a gain of 16.30 points.

This improvement can be attributed to the inherent characteristics of the 5E Learning Cycle model, which promotes active knowledge construction by learners. Each phase of the model—Engagement, Exploration, Explanation, Elaboration, and Evaluation—contributes meaningfully to enhancing comprehension and mastery of Arabic language materials, particularly the topic (المرافق المدرسية) (school facilities).

In the Engagement phase, students were involved in activities designed to capture attention, activate prior knowledge, and increase motivation. This stage is crucial for stimulating curiosity and cognitively preparing students for learning [25]. In the context of Arabic instruction, it helped activate relevant vocabulary related to school facilities.

The Exploration phase provided opportunities for students to engage in inquiry-based activities and directly interact with learning content. Here, students explored the structure (المبتدأ (إشارة) + الخبر (نعت / ظرف مكان) within the context of Arabic descriptive sentences. This phase emphasized student-centered learning and promoted independent concept discovery [14].

In the Explanation phase, students articulated their understanding of the explored concepts. Teachers facilitated discussions to clarify misunderstandings and reinforce accurate comprehension. In Arabic lessons, this phase supported students in explaining sentence structure and the use of demonstrative pronouns.

The Elaboration phase enabled learners to extend their understanding and apply their knowledge in broader contexts. Students practiced using the grammatical structure المبتدأ (إشارة) + الخبر (نعت / ظرف مكان) in new situations. This stage allowed for the transfer of learning and supported deeper application [26].

The final Evaluation phase assessed students' comprehension through formative assessments conducted throughout the learning cycle. This continuous evaluation enabled teachers to monitor student progress and provide immediate feedback, which contributed to improved motivation and learning outcomes [27].

These findings are consistent with prior research confirming the effectiveness of the 5E Learning Cycle model in improving academic performance [28] and in the context of language learning, enhancing both comprehension and production skills [29].

Specifically, in Arabic language instruction, the model's structured and systematic design supports the development of linguistic competencies, including vocabulary and grammar. This aligns with research highlighting how constructivist models such as the 5E framework facilitate integrated understanding of Arabic linguistic structures [30].

IV. CONCLUSION

Based on the results and discussion presented, it can be concluded that the 5E Learning Cycle instructional model has a significant effect on improving Arabic language learning outcomes among seventh-grade students at MTs Hasyim Asy'ari, Batu City. This conclusion is supported by the results of the paired sample t-test analysis, which showed that the calculated t-value (t = 6.004) exceeded the critical t-value (t = 2.05) at the 5% significance level, indicating a statistically significant difference.

The implementation of the 5E model—consisting of Engagement, Exploration, Explanation, Elaboration, and Evaluation—proved effective in facilitating Arabic language learning, particularly for the topic المرافق المدرسية (school facilities), which involved the grammatical structure (المبتدأ (إشارة) + الخبر (نعت / ظرف مكان). The application of this model led to an increase in the average score from 63.87 (pretest) to 80.17 (posttest), with a gain score of 16.30.

The implications of this study underscore the importance of incorporating constructivist learning models such as the 5E Learning Cycle into Arabic language instruction. This approach enhances active learner engagement and supports the construction of meaningful understanding of complex linguistic concepts. It offers a viable alternative for Arabic language educators seeking to develop more effective and student-centered instructional strategies.

In light of these findings, it is recommended that Arabic language instructors consider adopting the 5E Learning Cycle model, especially for teaching topics that require conceptual understanding and application of grammatical structures. Furthermore, future research is encouraged to explore the effectiveness of this model in developing other language skills, such as speaking and writing in Arabic.

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