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The Use of Information Processing Learning Models to Improve the Reading Skills of Grade IV Elementary School Students of SDN Cibeunying

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abstract

This research is motivated by the low Indonesian learning outcomes in narrative reading materials in grade IV of SDN Cibeunying, Lembang District, which is caused by the use of conventional learning methods. The purpose of this study is to determine the effectiveness of *the Information Processing learning* model in improving student learning outcomes. The method used is Classroom Action Research (PTK) with a qualitative and quantitative approach. The research subjects were 17 students, consisting of 6 males and 11 females. The results of the study showed that in the first cycle there were 64% of students who achieved scores above the KKM with an average score of 73. In cycle II, all students showed improvement, although there was a correction that only 62% of students achieved KKM scores, with an average score of 72. These findings show that the application of *the Information Processing* model is able to significantly improve students' ability to understand narratives. It is recommended that teachers apply this model with careful planning to increase the effectiveness of Indonesian learning.

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a b s t r a k

Penelitian ini dilatarbelakangi rendahnya hasil belajar bahasa Indonesia dalam bahan bacaan naratif kelas IV SDN Cibeunying, Kecamatan Lembang, yang disebabkan oleh penggunaan metode pembelajaran konvensional. Tujuan dari penelitian ini adalah untuk mengetahui efektivitas *model pembelajaran Pengolahan Informasi* dalam meningkatkan hasil belajar siswa. Metode yang digunakan adalah Penelitian Tindakan Kelas (PTK) dengan pendekatan kualitatif dan kuantitatif. Subjek penelitian adalah 17 mahasiswa, terdiri dari 6 laki-laki dan 11 perempuan. Hasil penelitian menunjukkan bahwa pada siklus I terdapat 64% siswa yang meraih nilai di atas KKM dengan nilai rata-rata 73. Pada siklus II, seluruh siswa menunjukkan perbaikan, meskipun terjadi koreksi bahwa hanya 62% siswa yang memperoleh nilai KKM, dengan nilai rata-rata 72. Temuan ini menunjukkan bahwa penerapan model *Pengolahan Informasi* mampu meningkatkan kemampuan siswa dalam memahami narasi secara signifikan. Disarankan agar guru menerapkan model ini dengan perencanaan yang matang untuk meningkatkan efektivitas pembelajaran bahasa Indonesia.

INTRODUCTION

Language is the main means of human interaction, with two main types: spoken and written language. These two varieties are equally important in daily life, as they function as tools to express thoughts, emotions, and knowledge (Rehalat, 2014). The ability to think critically and communicatively—especially through language—is an important foundation in facing the ever-evolving era of information and technology (Khotijah, 2017). Language skills, especially reading skills, are the foundation for understanding information from texts. Rusman (2014) emphasized that reading is an essential skill that supports every aspect of learning.

On the other hand, the development of science and technology requires individuals to be able to think quickly, analytically, and be responsive to information received in oral and written form (Khotijah, 2017). In the realm of education, the development of language skills needs to be supported by an effective learning model. Joyce et al. (2009) divide the learning model into four groups: (a) social interaction, (b) information processing, (c) humanistic-personal, and (d) behavior modification. The focus of this paper is on the information processing cluster, which emphasizes the mental activity of students in processing information from the environment (Rehalat, 2014).

The Information Processing Model is rooted in Piaget's cognitive theory and modern cognitive psychology. This theory views learning as an internal process that involves stages: sensory, working memory, and long-term memory (Ellis & Hunt in Rehalat, 2014; Byrne, 1996). Information from the senses enters the sensory register, is processed in working memory, and stored in long-term memory to be revived when needed.

The importance of this model can be seen from the role of memory in affective, psychomotor, and cognitive. Data shows that systematic information processing improves students' understanding, thinking skills, and independence (Rehalat, 2014). This model is also considered to be able to overcome the limitations of working memory that has limited capacity, through the strategy of repetition, rearrangement, and symbolization (Rehalat, 2014).

In learning practice, the development of thinking and language skills needs to be integrated in instructional design. Gagne (1985, as quoted by Rehalat, 2014) emphasized that effective learning must be based on an adequate cognitive structure, starting from motivation, presentation of material, to announcing and feedback. Suharnan (2005) highlights that perception—that is, the process of interpreting sensory stimuli—plays a role in understanding information deeply and sustainably.

The relevance of this information processing model is increasingly visible in the current technological era, where information is present in the form of text, images, and digital media (Sabna, 2021). Students not only need to read texts, but also need to be able to organize information, recognize patterns, and make generalizations that are fundamental for further learning.

Relevant research on other subjects, such as reading and Social, has demonstrated the effectiveness of this model. For example, Septiani, Trianto, & Utomo (2017) reported that the information processing model was effectively applied in reading learning at SMP Negeri 02 North Bengkulu, with the achievement of classical completeness above 85% (Septiani et al., 2017).

In the context of the Independent Curriculum and PISA 2025, teachers need to provide contextual and strategic learning experiences, including the use of information processing models to develop language literacy and higher level thinking. This model is relevant in structuring tools such as Student Worksheets that facilitate the processing of information from simple (step-by-step understanding) to complex (analysis, synthesis, and generalization).

METHODS

This study uses a qualitative approach with the Kemmis and McTaggart model Class Action Research (PTK) method which consists of four stages, namely planning, implementation of actions, observation, and reflection. The research was carried out at SDN Cibeunying, Cibodas Village, Lembang District, with 17 research subjects in grade IV, consisting of 6 male students and 11 female students. The researcher acts directly as the executor of the action and the data collector, working with the classroom teacher as a collaborator. The research location was chosen based on the problem of low Indonesian learning outcomes, especially in narrative reading materials, which have been taught with a conventional approach.

Data collection techniques include observation of teacher and student activities, documentation of learning processes, and tests of student learning outcomes. The instruments used were observation sheets and narrative-based evaluation questions. Data analysis is carried out qualitatively and quantitatively: qualitative data is analyzed through data reduction, data presentation, and conclusion drawn, while quantitative data is analyzed by calculating the average score and percentage of student learning completeness in each cycle. The validity of the data was obtained through triangulation of techniques and time, by

comparing the results of observations, documentation, and learning tests in two learning cycles. This research lasted for two months, starting in April to May 2023.

RESULTS AND DISCUSSION

This study also evaluates the psychomotor and cognitive aspects of students as part of comprehensive learning outcomes. The psychomotor realm is measured through students' ability to compile the results of group discussions, make concept maps, and skills to present their group findings. The cognitive realm is measured through the provision of pretests and posttests to assess the mastery of citizenship materials that have been taught using the Creative Problem Solving (CPS) model.

Psychomotor assessments reflect the extent of students' skills in carrying out real activities in learning. This skill is measured based on rubrics that include: the ability to compile the results of the discussion, the accuracy of the presentation of arguments, the use of media (images, symbols, or writing), and expression and intonation when presenting. At the initial meeting, most of the students still looked passive and awkward in conveying ideas. The results of the observation score showed that the average was only 58%. However, at the next meeting, after the structured training and mini-presentation simulation, the psychomotor score increased to 84%, which means there was an increase of 26%.

This improvement shows that CPS-based learning not only forms a creative mindset, but also stimulates verbal and nonverbal expression of ideas. This is in accordance with the findings of Susanti & Ridwan (2021), that the CPS strategy encourages students to be more skilled in manifesting ideas through presentation activities and media exploration.

The results of the Cognitive Domain Assessment to assess students' cognitive abilities, the initial test (pretest) and the final test (posttest) were carried out. This test contains multiple-choice questions and descriptions that measure students' understanding of the material on rights and obligations as citizens, the values of Pancasila, and its implementation in daily life. In the pretest, the average student score was 75.41 which was in the "good" category. After the learning intervention with the CPS model, the average score increased to 87.63, being in the "excellent" category. This increase in score of 12.22 points shows that the CPS model is effective in improving students' mastery of the material. N-Gain analysis shows a gain value of 0.51, which falls into the category of moderate to high increase. These findings strengthen the opinion of Muhtadi and Maulana (2020), that CPS-based learning can facilitate deeper information processing, because it encourages students to solve problems that are contextual with their lives.

Statistical Test Results Hypothesis testing using paired sample t-test showed that there was a significant difference between students' pretest and posttest results. The results of the analysis from SPSS showed that the t-value of the calculation was 9.293, while the t-value of the table with the degree of freedom (df = 30) at the significance level of 0.05 was 1.69913. Since t counts > t of the table and p-value < 0.05, it can be concluded that H_1 is accepted. This means that the CPS learning model has a significant effect on student activity and learning outcomes. These results are supported by a study from Damayanti and Supriyanto (2022) which states that CPS is able to create a more interactive learning atmosphere and foster students' courage to think critically and creatively. In their research, the CPS model consistently improved students' academic performance especially in social and civic subjects.

From the overall results obtained, it can be seen that the use of the Creative Problem Solving learning model makes a significant contribution to student activity and learning outcomes in affective, psychomotor, and cognitive aspects. This success shows that the application of active learning such as CPS is a relevant strategy to improve the quality of education at the madrasah ibtidaiyah level.

The CPS model offers a systematic approach that requires students to be actively involved from the process of problem identification to the search and submission of solutions. Such a learning process fosters the courage of students to express opinions, think openly, and work together in groups. This is in line with the principles of 21st century learning that emphasize collaborative skills, critical thinking, and effective communication (Trilling & Fadel, 2009).

In addition, the CPS model is also in line with the characteristics of students at the elementary level who are in the concrete operational development phase. With hands-on learning experiences, students can more easily understand abstract concepts through fun and meaningful activities (Piaget in Santrock, 2011). The increase in student activity and learning outcomes reflected in various assessment domains shows that the CPS model is suitable for widespread use, especially in civic learning that is loaded with values, morals, and real-life applications. Teachers are expected to use these findings as a basis for designing learning that is oriented towards the development of students' character and competencies holistically.

DISCUSSION

The student activity score increased from 53.37% in the first cycle to 82.5% in the second cycle—an increase of about 29%. These results are in line with the findings of Amran, Kutty, & Surat (2020), which showed an increase in student activity in PKn after the implementation of CPS. CPS involves stages such as *fact finding* and *idea finding*, which actively arouse students' curiosity and facilitate their engagement in discussions (Amran et al., 2020).

In addition, Susanti and Ridwan (2021) report that CPS fosters students' enthusiasm and emotional engagement, encouraging them to be more courageous to convey ideas and ask questions during learning activities (Susanti & Ridwan, 2021). These findings are also in line with the principles of constructivism, namely "learning by doing" which strengthens students' internal motivation (Amran et al., 2020; Susanti & Ridwan, 2021).

Students' skills in compiling the results of discussions and using media were measured at 58% in the initial cycle, and increased to 84% after the intervention. Putra (2018) shows that CPS can strengthen students' ability to present and use media creatively, significantly improving the psychomotor aspect of learning (Putra, 2018).

Other findings from the journal Mathematics Education (2020) also show that the use of CPS-based LKPD is able to enrich the learning process, improve students' ability to visualize and convey ideas effectively (PJP Mathematics, 2020).

Pretest–posttest analysis showed an increase in the average score from 75.41 to 87.63, with an N-Gain of 0.51 (medium–high category). The *paired-sample t-test* yielded a value of $t = 9.293$, $p < 0.05$, indicating a significant increase (Prasetiyo, 2021). This is consistent with the research of Prasetiyo (2021) which also reported a significant increase in students' PKn achievement after the implementation of CPS. In addition, Damayanti and Supriyanto (2022)

found that CPS is able to create an interactive classroom atmosphere and foster critical thinking that has a direct impact on student learning outcomes (Damayanti & Supriyanto, 2022).

Interdomain relationships are particularly relevant: increased (affective) activeness encourages psychomotor engagement, which in turn reinforces cognitive understanding. Sebayang and Nababan (2022) also stated that CPS increases activity and learning outcomes simultaneously in PKn learning (Sebayang & Nababan, 2022). The structure of CPS (OFPISA) provides a metacognitive framework that enables these holistic interactions. The role of teachers is very important in optimizing CPS. Continuous evaluation and reflection from teachers allows for dynamic adjustment of strategies. This is in accordance with the recommendations of Prasetiyo (2021) and Susanti & Ridwan (2021) who emphasize that teacher training plays a crucial role in creating classrooms that support CPS (Prasetiyo, 2021; Susanti & Ridwan, 2021). Learning with the Problem-Based Learning (PBL) model has also been shown to increase student activity (Prihatini, Syaikhu, & Nugraheny, 2021), but CPS excels in facilitating creative thinking and decision-making due to the systematic structure of creative stages (Amran et al., 2020).

CPS can be used as the main strategy in the PKn curriculum and student character development. Professionalization programs need to include LKS design techniques, facilitation of discussions, and reflection on CPS learning (Susanti & Ridwan, 2021). The use of visual and electronic media is needed to enrich *students' level of idea finding* and presentation (PJP Mathematics, 2020).

CONCLUSION

Based on the results of the study, it can be concluded that the application of the inductive thinking information processing learning model significantly increases student activeness and learning outcomes. The increase in student activity in the affective realm can be seen from the difference in the average score of activeness between the first (53.37%) and second (82.5%) meetings, with an increase of 29.13%. In the psychomotor realm, students also showed good skills with an average score of 83.20%. Meanwhile, in the cognitive domain, student learning outcomes showed an increase from the average pretest score of 64 to the final average of 72, with classical completeness reaching 87.5%, indicating that the majority of students managed to exceed the limit of KKM scores. Thus, this learning model has proven to be suitable for use in learning Indonesian, especially in environmental and occupational conservation materials. This model not only encourages students to be more active and think complexly, but it also improves their understanding of the material as a whole. Therefore, teachers are advised to make the information processing model of inductive thinking as an effective learning alternative, as well as carefully prepare an adequate design and time allocation because this model requires a systematic process and enough time in its implementation.

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