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CLASSROOM ACTION RESEARCH AS AN EFFORT TO IMPROVE THE QUALITY OF LEARNING

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Abstract

Classroom Action Research (CAR) is a reflective and systematic approach undertaken by teachers to improve the quality of learning in their own classrooms. This article comprehensively discusses all stages of CAR, from the introduction to the concept, history and development, characteristics and basic principles, problem identification, action planning, implementation and observation, reflection and data analysis, report preparation, and the implications and challenges of its implementation. CAR positions teachers as active researchers capable of designing solutions based on classroom context and learning theory. Through a literature review from various sources, such as Arikunto (2010), Purwanto (2023), Sinaga (2024), and Usman et al. (2019), this article emphasizes that CAR is not merely an administrative obligation, but rather a professional process that empowers teachers and students. In-depth reflection and valid data analysis are at the heart of the CAR cycle, enabling continuous improvement. The implications of CAR include improving teacher competency, active student participation, strengthening a research-based school culture, and contributing to educational policy. This article also identifies various challenges in implementing CAR, such as time constraints, methodological understanding, and structural support. Recommendations include ongoing training, institutional support, and the integration of CAR into teacher professional development systems. With the right approach, CAR can be a catalyst for sustainable and meaningful educational transformation.

Keywords: ***Classroom Action Research, Reflection, Data Analysis, Teacher Competence, Challenges, Development***.

INTRODUCTION

In education, the quality of learning is a key factor that significantly determines the success of the educational process and the achievement of student learning outcomes. As society's need for competent human resources grows, the education system must be able to adapt and continuously improve its quality. One effective approach to achieving this goal is through classroom action research (CAR). Classroom action research is a research approach carried out by teachers actively and reflectively in their own classroom environment with the aim of improving and enhancing the learning process and outcomes. This method is based on participatory and collaborative principles, where teachers, as researchers and primary actors, are responsible for planning, acting, observing, and reflecting repeatedly to find solutions to various learning problems encountered. The phenomenon occurring in the field shows that many learning processes are still suboptimal, both in terms of methods, media, and classroom management. This condition impacts low student learning outcomes and a lack of motivation and participation in the teaching and learning process. Therefore, innovation and continuous improvement efforts are needed from teachers as agents of change in the classroom. Classroom action research is one strategic solution to address these challenges. Through CAR, teachers can specifically identify deficiencies and problems encountered in learning, then design and implement innovative and contextual learning strategies. Furthermore, the systematic reflection process allows teachers to evaluate each step taken, thus optimizing the methods and approaches used to meet students' needs. The success of improving the quality of learning through CAR is not only limited to improving learning outcomes, but also can improve teacher professionalism, motivate teachers to continue learning and developing, and create a more enjoyable and conducive classroom atmosphere for learning. Thus, CAR is one of the pedagogical innovations capable of

bringing about real change in efforts to improve the quality of education in today's modern era. Overall, classroom action research as an effort to improve the quality of learning is a strategic and effective step, capable of integrating theory and practice, and oriented towards successful learning and the development of student competencies on an ongoing basis. Therefore, the understanding and application of this method needs to be further strengthened among educators to create a learning process that is of higher quality and relevant to the demands of the times.

METHOD

1. **Research Approaches and Types**
   This research uses a qualitative approach with classroom action research (CAR). CAR is conducted repeatedly through cycles consisting of planning, action, observation, and reflection to improve the learning process.

2. **Research Subjects**
   The subjects of this research were teachers as the main actors and class X IPS students at SMA Negeri 1 Jakarta who were the objects of the research.

3. **Place and Time of Research**
   The research was conducted in class X IPS for two months, starting from May to June 2025. The research took place in the classroom during the learning process.

4. **Data collection technique**
   Data collection is carried out through several techniques, including:
   - Observation of learning activities and student participation during the action process.
   - Interviews with teachers and students to obtain views and experiences related to the learning process.
   - Documentation, in the form of photos, videos, and activity notes during the implementation of PTK.
   - Test and evaluate student learning outcomes before and after the action is carried out to determine improvements in learning outcomes.

5. **Data Analysis Techniques**
   The data obtained were analyzed qualitatively using descriptive methods and increased iteratively according to the stages of the CAR cycle. Data from observations and interviews were analyzed using data reduction, data presentation, and conclusion drawing techniques to determine the success of the actions and subsequent improvements.

6. **Research Procedures**
   This research goes through the following cycle stages:
   - **Planning**: Develop an action plan based on problem identification.
   - **Action**: Implement learning strategies according to plan.
   - **Observation**: Conduct observations and documentation of the learning process and results.
   - **Reflection**: Conduct an evaluation of the successes and obstacles of the actions that have been carried out, as a basis for the next cycle.

7. **Success Indicators**
   The success of the research is determined by increased student activity, learning motivation, and significant learning outcomes according to the indicators that have been formulated.

RESULTS AND DISCUSSION

1. History and Development of Classroom Action Research

Classroom Action Research (CAR) has a long and interdisciplinary history. The concept originally came from social psychology, specifically from the thinking of Kurt Lewin in 1946. Lewin introduced the term "action research" as an approach to solving social problems through a cycle of action and reflection. In the educational context, this approach was later adapted to improve learning practices directly by educators themselves—teachers. Lewin stated that effective social change must involve the active participation of individuals experiencing the problem. In education, this means that teachers must be the primary subjects in the change process, not merely the objects of policy. This approach forms the philosophical basis of CAR: that teachers are researchers in their own classrooms.

In the 1970s, CAR began to develop in England through the "teacher as researcher" movement pioneered by Lawrence Stenhouse and John Elliott. They emphasized the importance of teachers conducting research to understand and improve teaching practices. CAR became a tool to empower teachers and reject top-down approaches to education reform. In the United States, CAR has evolved through a more pragmatic and results-oriented approach. Stephen Corey of Teachers College, Columbia University, was one of the early advocates for teachers to conduct research as part of their professional development. CAR in the US places greater emphasis on improving learning effectiveness and student achievement. In the Asian context, CAR began to gain widespread recognition in the late 1980s and 1990s, particularly in Japan and Hong Kong. In Japan, CAR developed through the practice of "lesson study," which involves collaboration between teachers in designing, observing, and reflecting on learning. While not identical, lesson study shares principles with CAR, namely collective reflection and continuous improvement.

In Indonesia, CAR began to be systematically introduced in the early 2000s, in line with government policies encouraging teachers to conduct research as part of certification and promotion. The book Classroom Action Research by Suharsimi Arikunto (Bumi Aksara, 2010, pp. 1–15) has become one of the main references used by teachers and education students throughout Indonesia. Arikunto emphasized that CAR must be conducted by teachers themselves, not external researchers. This is crucial to maintaining the relevance and sustainability of the actions taken. Teachers who conduct CAR will better understand their classroom context and be able to design appropriate solutions. The development of CAR in Indonesia has also been influenced by educational policies such as the Competency-Based Curriculum (KBK), the 2013 Curriculum, and Independent Learning. These three approaches emphasize active, reflective, and student-centered learning—values that align with CAR principles.

Furthermore, advances in digital technology have also driven the evolution of CAR. Teachers can now use applications like Google Forms, Padlet, and Learning Management Systems (LMS) to collect data, analyze results, and disseminate their findings. CAR has become more accessible and collaborative. However, despite the rapid development of CAR, challenges remain. Many teachers lack a strong methodological understanding or feel overwhelmed by administrative demands. Therefore, training and mentoring are key to developing high-quality CAR practices. In the book "Classroom Action Research Textbook" by Dameria Sinaga (UKI Press, 2024, pp. 11–25), it is explained that CAR is not only a tool for improving learning but also a means of building learning communities in schools. Teachers who consistently implement CAR will foster a reflective and innovative culture in their workplace. Epistemologically, CAR sits between the positivist and interpretive paradigms. CAR combines quantitative and qualitative approaches and emphasizes contextual understanding and practical action. This makes CAR a flexible and relevant approach for a variety of educational contexts. In other words, CAR is not only a research method, but also an educational philosophy. It positions teachers as thinkers, learners, and leaders in their classrooms. CAR is a concrete manifestation of education oriented toward change and empowerment.

2. Characteristics and Basic Principles of Classroom Action Research

Classroom Action Research (CAR) has unique characteristics that distinguish it from other research approaches in education. CAR is not simply about collecting data and drawing conclusions, but rather about the teacher's active involvement in the ongoing process of learning change. These characteristics make CAR a highly relevant and applicable approach in formal educational contexts. One of the main characteristics of CAR is its participatory nature. Teachers are not merely observers but also key actors in the research process. They design actions, implement them, and reflect on the results. In this sense, CAR positions teachers as research subjects, not objects. This differs from traditional research, which is often conducted by external researchers who are not directly involved in the learning process. The second characteristic is reflection. CAR requires teachers to continuously reflect on their learning practices. This reflection is not merely an evaluation, but also a process of in-depth critical thinking about what worked, what didn't, and why. Reflection is at the heart of CAR because it is where ideas for improvement emerge.

The third characteristic is contextual. CAR is conducted in a real-life classroom context, taking into account student conditions, the learning environment, school culture, and available resources. Therefore, CAR results are highly relevant and can be directly applied to everyday learning practices. The fourth characteristic is its orientation toward improvement. The primary goal of CAR is not to produce a universal theory, but rather to directly and concretely improve learning practices. This makes CAR a highly pragmatic and solution-oriented approach. In the textbook "Classroom Action Research Textbook" by Dameria Sinaga (UKI Press, 2024, pp. 11–25), it is explained that CAR has basic principles rooted in constructivist philosophy. According to this view, knowledge is constructed through experience and social interaction. Therefore, effective learning must actively and contextually engage students. The first principle of CAR is that change must come from within. As the primary actor, teachers possess the most in-depth understanding of their classrooms. Therefore, they are in the best position to design and implement change. The second principle is the iterative cycle. CAR is conducted in a cycle consisting of planning, action,

observation, and reflection. This cycle can be repeated several times until the desired results are achieved. Each cycle provides an opportunity to refine and perfect the learning strategy. The third principle is collaboration. While CAR can be conducted individually, a collaborative approach often yields richer results. Teachers can work with colleagues, principals, or even students to design and evaluate actions. The fourth principle is openness to change. CAR requires teachers to be open to criticism, feedback, and outcomes that do not meet expectations. This attitude is crucial for the reflection process to truly produce meaningful improvements.

The fifth principle is the integration of theory and practice. CAR is not only about applying theory, but also about developing new theory based on real-world practice. In this sense, CAR serves as a bridge between the academic world and the world of educational practice. In the book "A Practical Introduction to Classroom Action Research" by Jarjani Usman, M.Sc., M.S. Mawardi, M.Pd., and Husna M. Zein (AcehPo Publishing, 2019, pp. 25–40), it is explained that CAR has methodological flexibility. Teachers can use qualitative, quantitative, or mixed approaches, depending on the problem at hand and the goals they wish to achieve. This flexibility allows teachers to adapt the research design to their classroom context. For example, if the problem is behavioral, a qualitative approach such as observation and interviews may be more appropriate. Conversely, if the problem relates to learning outcomes, a quantitative approach such as tests and statistical analysis may be used.

The characteristics and basic principles of CAR also make it a tool for teacher professional development. Through CAR, teachers learn to think critically, design strategies, collect data, and conduct analysis. This process enhances pedagogical competence and teacher professionalism overall. Furthermore, CAR encourages teachers to become lifelong learners. In the ever-changing world of education, the ability to adapt and improve is crucial. CAR provides a framework that allows teachers to continuously learn from their own practice. By thoroughly understanding the characteristics and basic principles of CAR, teachers can conduct research that impacts not only students but also themselves and the wider school community. CAR is not just about teaching better, but also about becoming reflective, innovative, and transformative educators.

3. Problem Identification and Objective Formulation

The problem identification stage is the main foundation of Classroom Action Research (CAR). Without an accurate understanding of the learning issues occurring in the classroom, designed actions risk being irrelevant or even counterproductive. Therefore, teachers, as researchers, must possess sharp observation, analysis, and reflection skills to identify symptoms that hinder the teaching and learning process. Problems in CAR are not abstract or theoretical, but rather concrete and contextual. This means that problems must arise from the teacher's actual experiences in the classroom. For example, students are less active in group discussions, low learning outcomes on certain materials, or lack of student engagement in literacy activities. These problems must be observable, measurable, and actionable.

According to Suharsimi Arikunto in Classroom Action Research (Bumi Aksara, 2010, pp. 20–35), the problem identification process can be carried out in various ways, such as:

A. Direct observation of student behavior during learning.
B. Analysis of learning evaluation results.
C. Reflection on previous teaching experiences.
D. Discussion with colleagues or principal.
E. Interviews or questionnaires to students.

Teachers can also use data triangulation techniques to ensure that identified problems are truly valid. Triangulation involves using more than one data source or data collection method to confirm findings. A good problem in CAR has several criteria:

A. Specific, not too general or vague.
B. Measurable, its success can be assessed through certain indicators.
C. Actionable, allowing for corrective actions to be designed.
D. Relevant. has a direct impact on the quality of learning.

An example of a correct problem formulation: “Most eighth grade students are not yet able to compose expository texts systematically.” This formulation is sharper than “Students have difficulty writing,” because it indicates the type of text, the class being studied, and the problematic aspects. Once the problem is identified, the next step is to formulate research objectives. Objectives should align with the problem and describe the expected changes after the action is taken. Objectives in CAR are typically practical and oriented toward improving learning. In the Classroom Action Research Textbook by Dameria Sinaga (UKI Press, 2024, pp. 26–40), it is explained that the formulation of objectives must meet the SMART principles:

A. Specific
B. Measurable

C. Achievable (Can be achieved)
D. Relevant
E. Time-bound (Time-bound)

An example of a goal that is in accordance with the SMART principle: “To improve the ability of eighth grade students to systematically compose expository texts through the application of the mind mapping method during three learning cycles.” This goal shows:

A. Who is the subject (grade VIII students).
B. What do you want to achieve (composing expository text).
C. How to (mind mapping method).
D. Over what time period (three cycles).

The formulation of objectives must also consider success indicators. These indicators will be used to assess whether the actions taken were successful. For example, success indicators for the above objectives could be: 80% of students are able to compose expository texts with the correct structure, and the average student grade increases by at least 15 points compared to before the action. In practice, teachers often encounter more than one problem in the classroom. Therefore, it's important to prioritize. The most pressing issue with the greatest impact on learning should be the primary focus of CAR.

Teachers also need to consider the limitations of time, resources, and available support. Overly ambitious CAR risks being unsuccessful. Therefore, a clear focus and realistic goals are crucial. The processes of identifying problems and formulating goals are not separate stages, but rather interrelated and continuous. Reflecting on the problem will produce clear goals, and clear goals will guide effective action. In the book "A Practical Introduction to Classroom Action Research" by Jarjani Usman et al. (AcehPo Publishing, 2019, pp. 40–55), it is explained that teachers should document the problem identification and objective formulation process in writing. This documentation will become an important part of the CAR report and demonstrate the teacher's scientific thinking process. Overall, the problem identification and goal formulation stages are the starting points that determine the direction and success of CAR. Teachers who are able to conduct an in-depth analysis of their classroom conditions will find it easier to design appropriate actions that have a real impact.

4. Action Planning in Classroom Action Research

Action planning in Classroom Action Research (CAR) is a crucial stage because it serves as the bridge between problem identification and intervention implementation. Without thorough planning, actions run the risk of being ineffective, immeasurable, or even irrelevant to the problem being addressed. Therefore, teachers, as researchers, must develop an action plan that is systematic, contextual, and based on learning theory. Conceptually, action planning in CAR must stem from a deep understanding of the identified problem. Teachers need to examine the root causes of the problem, not just the symptoms. For example, if students are less active in discussions, teachers should determine whether the cause is monotonous learning methods, a lack of confidence in expressing opinions, or poor communication skills. In the Classroom Action Research Textbook by Dameria Sinaga (UKI Press, 2024, pp. 30–45), it is explained that action planning must include five main components:

A. Action Objectives must be specific and measurable.
B. Learning strategies, methods or approaches to be used.
C. Implementation plan, timing, duration, and frequency of actions.
D. Necessary resources, media, tools and support.
E. Evaluation techniques, ways of measuring the success of actions.

The learning strategies chosen must be appropriate to student characteristics and the classroom context. Teachers can refer to learning theories such as:

A. Constructivism (Piaget, Vygotsky), encourages active and collaborative learning.
B. Behaviorism (Skinner): suitable for the formation of certain habits or behaviors.
C. Humanism (Maslow, Rogers): emphasizes emotional comfort and intrinsic motivation of students.

For example, if a teacher wants to improve students' writing skills, they might design a course of action that incorporates constructivist-based peer review or writing workshop techniques. These strategies allow students to learn from peer feedback and build understanding gradually. Planning should also consider instructional design principles. Models such as ADDIE (Analysis, Design, Development, Implementation, Evaluation) can be used as a framework for developing structured actions. In the context of CAR, teachers can adapt this model to design interventions oriented toward learning outcomes. In addition, teachers need to develop clear indicators of success. These indicators will serve as a reference for evaluating the effectiveness of the action. Examples of indicators include: "80% of students were able to construct narrative texts with the correct structure" or "there was a 15-point increase in the average score on the final test."

In the book "A Practical Introduction to Classroom Action Research" by Jarjani Usman et al. (AcehPo Publishing, 2019, pp. 55–70), it is explained that teachers should develop an action plan in the form of a short proposal. This proposal not only serves as a guide for implementation but can also be used to gain support from the principal or curriculum development team. Teachers must also consider classroom management aspects when planning activities. Activities involving group work, the use of technology, or changes to classroom layout must be designed with social dynamics and logistics in mind. For example, if a teacher wants to implement project-based learning, they must design a system for dividing tasks, scheduling presentations, and ensuring fair assessment mechanisms. Action plans must also be flexible. Teachers need to anticipate potential obstacles such as time constraints, technical difficulties, or student resistance. Therefore, backup plans or alternative courses of action must be prepared. This flexibility is crucial for CAR to continue even under less-than-ideal conditions.

In practice, teachers can use various tools to prepare action plans, such as: Modified lesson plan (RPP) templates for PTK, Mind maps or action flow diagrams, Comparison matrices between the designed strategies and the problems faced. Teachers are also advised to conduct a small pilot test before fully implementing the intervention. This pilot test can help identify weaknesses in the intervention's design and provide an opportunity for adjustments. Overall, action planning in CAR is not just a technical matter, but also a philosophical one. Teachers who design actions by considering student needs, learning theory, and the classroom context demonstrate a commitment to meaningful and transformative learning. Careful planning will result in effective action, valid data, and in-depth reflection. Therefore, this stage must be carried out with full awareness, thoroughness, and creativity.

5. Implementation of Actions and Observations in PTK

The implementation phase of Classroom Action Research (CAR) is the moment when the previously formulated learning strategy design is tested in a real-life situation. This is not simply a technical implementation, but a dynamic, interactive pedagogical process that requires a high degree of flexibility from the teacher as researcher. Implementation of actions must be carried out consistently according to the established plan. This consistency is essential to maintain data validity and ensure that observed changes are truly due to the intervention, not external factors. However, in practice, implementing these measures often presents challenges. Teachers must be able to manage the classroom, implement new strategies, and simultaneously observe and record data. Therefore, many experts recommend that teachers involve colleagues as observers to assist with documentation and maintain objectivity. According to Suharsimi Arikunto in Classroom Action Research (Bumi Aksara, 2010, pp. 40–55), the implementation of actions must pay attention to several principles:

A. In accordance with the plan, the action must be in accordance with the initial design.
B. Active student involvement, strategies should encourage participation and interaction.
C. Flexibility, teachers must be ready to adjust actions if obstacles arise.
D. Systematic documentation, all processes must be recorded for analysis purposes.

Observation is an integral part of implementing interventions. Observations aim to collect data on student responses, strategy effectiveness, and classroom dynamics during the intervention. Observations can be conducted in person, through video recordings, or using instruments such as observation sheets, teacher journals, and field notes.

In the book Introduction to Practical Classroom Action Research by Jarjani Usman et al. (AcehPo Publishing, 2019, pp. 70–85), it is explained that observations in CAR must meet three main criteria:

A. Objective – not influenced by the researcher's assumptions or expectations.
B. Systematic – carried out with structured procedures and instruments.
C. Relevant – focus on aspects that are directly related to the aim of the action.

The type of observation used can be tailored to the characteristics of the action. For behavioral actions, direct observation using a rating scale is very effective. For actions involving thought processes or creativity, narrative or reflective observation is more appropriate. Teachers can also use triangulation techniques to increase the validity of observational data. Triangulation involves using more than one method or data source, for example, combining observations with student interviews and analysis of assignment results. The implementation of actions and observations must also adhere to research ethics. Students must be informed that they are part of a learning development process, and that the data collected will be used for improvement purposes, not for personal assessment.

In practice, teachers can use various tools to facilitate observation, such as:

A. Rubric-based observation sheet.
B. Digital applications for data recording (e.g. Google Forms or Padlet).
C. Camera or voice recorder for documentation of class interactions.
D. Daily reflection journal to record the dynamics and changes that occur.

Teachers are also advised to conduct a brief reflection after each action. This reflection can include notes on what went well, what needs improvement, and ideas for the next cycle. This daily reflection will be very helpful in data analysis and report preparation. Implementing actions in CAR is not a rigid process. Teachers must be able to read the classroom situation and adjust strategies as needed. For example, if students appear to be struggling to understand instructions, teachers can provide additional explanations or change approaches without altering the primary goal of the action. Furthermore, teachers need to pay attention to social dynamics in the classroom. Activities involving group work, open discussions, or presentations can create conflict or unequal participation. Therefore, teachers must design control mechanisms such as role assignments, group rotations, or collaborative assessment systems. Overall, implementing actions and observations in CAR is a complex process that demands pedagogical, managerial, and analytical skills from teachers. The success of this stage depends heavily on teacher preparedness, quality planning, and the ability to adapt to dynamic classroom situations. With careful implementation and valid observations, teachers will obtain rich and meaningful data for analysis in the subsequent reflection phase. This data will serve as the basis for assessing the effectiveness of actions and designing subsequent improvement cycles.

6. Reflection and Data Analysis in PTK

The reflection and data analysis phase of Classroom Action Research (CAR) is the core of the teacher's professional learning process. This is where teachers evaluate the effectiveness of the actions taken, interpret the collected data, and formulate improvement steps for the next cycle. Reflection is not simply a post-implementation activity, but rather a deep, critical thinking process oriented toward transforming learning practices. Reflection in CAR is both retrospective and prospective. Retrospective because the teacher reviews what happened during the action, and prospective because the results of the reflection are used to design subsequent actions. Good reflection should be honest, open, and data-based. Teachers need to avoid personal bias and strive to view the learning process from multiple perspectives.

According to Eko Sigit Purwanto in Classroom Action Research (Eureka Media Aksara, 2023, pp. 70–85), reflection in CAR must answer key questions such as:

A. Was the goal of the action achieved?
B. What are the indicators of success that have been met?
C. What worked effectively and what didn't?
D. What factors influence the outcome of an action?
E. What are the recommendations for the next cycle?

Reflection can be done individually or collaboratively. Collaborative reflection involves discussions with colleagues, supervisors, or even students. This approach broadens perspectives and helps teachers see aspects that might otherwise be overlooked.

In addition to reflection, teachers must conduct systematic data analysis. Data collected during the implementation of actions—both quantitative and qualitative—must be processed and interpreted to determine the impact of the actions on student learning processes and outcomes. Quantitative data, such as test results or observation scores, can be analyzed using descriptive statistics. Teachers can calculate averages, percentage increases, or grade distributions to identify trends in change. For example, if students' average grades increase from 65 to 80 after an intervention, this indicates a positive impact.

Qualitative data, such as field notes, reflective journals, or interview results, are analyzed using coding and categorization techniques. Teachers identify key themes, behavioral patterns, or student responses relevant to the action's objectives. For example, if students demonstrate increased confidence in discussions, this could be categorized as an affective impact of the action. In the book Introduction to Practical Classroom Action Research by Jarjani Usman et al. (AcehPo Publishing, 2019, pp. 85–100), it is explained that data analysis in CAR must fulfill the following principles:

A. Validity, the data truly reflects the phenomenon being studied.
B. Reliability, the analysis results are consistent and repeatable.
C. Relevance, data is directly related to the purpose of the action.
D. Transparency, analysis is done without manipulation or bias.

Teachers can also use triangulation techniques to increase the validity of the analysis. Triangulation involves comparing multiple data sources (e.g., observations, interviews, and test results) to ensure consistency of findings. The results of reflection and data analysis must be presented in a clear and logical narrative. The teacher explains their thought process, interpretation of the data, and conclusions drawn. This narrative will form a crucial part of the CAR report and demonstrate the teacher's depth of understanding of the learning process. In addition, teachers need to formulate recommendations based on the results of the reflection. These recommendations could include:

A. Continuing strategies that have proven effective.

B. Modifying less successful approaches.
C. Adding new components in action.
D. Designing a new cycle with a sharper focus.

Reflection can also encompass both personal and professional aspects. Teachers can evaluate how their actions impacted them as educators—whether they felt more confident, understood their students better, or were better able to manage their classrooms. This type of reflection strengthens the humanistic dimension of CAR. In practice, teachers can use various tools to support reflection and data analysis, such as:

A. Daily reflection journal template.
B. Simple data analysis software (e.g. Excel or Google Sheets).
C. Flowcharts or concept maps to visualize findings.
D. Discussion forum with colleagues to share results and insights.

Overall, the reflection and data analysis stage in PTK is a process that demands accuracy, honesty and openness. Teachers who are able to carry out in-depth reflection and valid data analysis will gain a richer understanding of learning and be able to design more effective actions in the future.

This stage is not the end of CAR, but rather a turning point to begin a new cycle. Through meaningful reflection, teachers not only refine their learning strategies but also develop themselves as reflective, adaptive, and transformative educators.

7. Preparation of Classroom Action Research Reports

Report preparation is a crucial stage in Classroom Action Research (CAR) because it serves as a means of documenting the entire research process. CAR reports serve not only as evidence of scientific activity but also as a tool for reflection, communication, and teacher professional development. A good report should comprehensively describe the research process, from problem identification to final reflection. In general, the structure of a PTK report follows a systematic scientific format. According to Suharsimi Arikunto in Classroom Action Research (Bumi Aksara, 2010, pp. 90–110), a PTK report consists of the following sections:

A. Introduction
   This section includes the problem background, problem identification, problem formulation, research objectives, research benefits, and scope. The background should logically explain the rationale for conducting CAR, based on real-world classroom conditions. The problem formulation should be specific and action-oriented.
B. Theoritical review
   This section presents the conceptual foundation supporting the designed actions. Teachers should cite relevant learning theories, pedagogical approaches, and previous research findings. Theoretical studies demonstrate that the actions taken are not merely intuitive but based on scientific knowledge.
C. Research methodology
   This section explains the research design, research subjects (students), setting (classroom and school), action procedures (cycles), data collection techniques, and instruments used. The teacher should explain in detail how the data was collected and analyzed.
D. Results and Discussion
   This section presents the data obtained during the implementation of the action, both quantitative and qualitative. Data should be presented in tables, graphs, narratives, and direct quotations where appropriate. The discussion should relate the data to the research objectives and the theory used.
E. Conclusion and Recommendations
   The conclusion summarizes the main findings of the CAR, while the recommendations provide suggestions for future learning practices or the next cycle. Teachers can also share personal reflections on the research process.
F. Bibliography
   This section lists all sources used in the report, including books, journals, and official documents. The bibliography should follow a consistent citation style, such as APA or Chicago Style.
G. Attachment
   Appendices contain supporting documents such as research instruments, observation sheets, student test results, activity photos, and reflection journals. Appendices strengthen the report's credibility and provide concrete evidence of the CAR process.

In the textbook "Classroom Action Research Textbook" by Dameria Sinaga (UKI Press, 2024, pp. 90–105), it is explained that CAR reports should be written in clear, straightforward, and concise academic language. Avoid overly informal or subjective language. Use relevant technical terms and ensure each claim is supported by data or references.

Teachers also need to pay attention to the visual aspects of the report. Presenting data in the form of graphs, diagrams, or infographics will make it easier for readers to understand the findings. Use a consistent writing format, such as margins, spacing, and fonts that comply with academic standards. CAR reports can be used for various purposes:

A. As a teacher's professional portfolio.
B. As a requirement for promotion or certification.
C. As presentation material in seminars or workshops.
D. As a reference for other teachers facing similar issues.

In the context of school development, CAR reports can also serve as a basis for decision-making by the principal or curriculum development team. Therefore, reports must be prepared with high quality and be academically accountable. Teachers are also advised to prepare an executive summary or abstract of the CAR report. This summary contains the essence of the research and can be used for publication or dissemination of results to the wider education community.

If possible, teachers can develop the CAR report into a scientific article for publication in an educational journal. This will broaden the impact of CAR and make a tangible contribution to the development of educational science. Overall, preparing a CAR report is a process that demands thoroughness, discipline, and academic communication skills. A good report not only reflects the success of the action but also demonstrates the teacher's professional maturity in carrying out their role as an educational researcher.

8. Implications and Impact of Classroom Action Research

Classroom Action Research (CAR) is not only a method for improving classroom learning but also a transformative approach that has a broad impact on various aspects of education. The implications of CAR can be felt by teachers, students, educational institutions, and even education policy at large. When carried out consistently and reflectively, CAR becomes a catalyst for sustainable change.

A. Impact on Teachers

1) Critically identifying problems.
2) Designing solutions based on theory and practice.
3) Collect and analyze data systematically.
4) Conduct in-depth reflection on teaching practice.

According to Jarjani Usman et al. in *Introduction to Practical Classroom Action Research* (AcehPo Publishing, 2019, pp. 100–115), teachers who regularly conduct CAR demonstrate improvements in pedagogical competence, self-confidence, and analytical thinking skills. They become more adaptive to curriculum changes and more responsive to student needs. CAR also strengthens teachers' professional identity as researchers. Teachers are no longer merely implementers of policy, but also creators of relevant and contextual knowledge. This fosters a sense of ownership over the learning process and increases work motivation.

A. Impact on Students

1) Improvement of learning outcomes.
2) Active involvement in the learning process.
3) Development of critical and collaborative thinking skills.
4) Increased motivation and self-confidence.

In the book Classroom Action Research by Eko Sigit Purwanto (Eureka Media Aksara, 2023, pp. 90–105), it is explained that students involved in CAR-based learning show an increase in metacognitive abilities, namely the ability to understand and regulate their own thinking processes.

CAR also provides space for students to provide feedback on the learning process. This creates a democratic and participatory classroom culture, where student voice is valued and used as a basis for improvement.

B. Impact on Schools

1) Empirical database on learning effectiveness.
2) Reflective and collaborative culture among teachers.
3) Continuous learning innovation.
4) Enhanced reputation as a research-based school.

Principals can use CAR results to inform decision-making, school program development, and teacher training. CAR can also be part of a more equitable and evidence-based teacher performance evaluation.

C. Impact on Education Policy

At a macro level, CAR has the potential to influence education policy. Well-documented CAR results can provide input for policymakers in designing curricula, setting learning standards, and developing teacher training programs.

In the Indonesian context, PTK has become part of the teacher certification and promotion system. This demonstrates recognition of the importance of practice-based research as a professional development tool.

However, in order for the impact of PTK to be truly felt widely, a system is needed that supports:

1) Methodological training for teachers.
2) Specific time in the work schedule to conduct PTK.
3) Appreciation for quality PTK results.
4) Platform for publication and dissemination of PTK results.
5) Ethical and Social Implications

CAR also has ethical and social implications. Teachers conducting CAR must maintain integrity in data collection and analysis and ensure that their actions do not harm students. Research ethics must be part of teachers' professional awareness. Socially, CAR can strengthen relationships between teachers and students, between teachers and colleagues, and between schools and the community. When teachers demonstrate a commitment to improving learning, public trust in educational institutions increases. In the long term, CAR can create an educational ecosystem based on reflection, collaboration, and innovation. Teachers become lifelong learners, students become active participants in the educational process, and schools become centers for knowledge development. CAR can also foster a community of teacher researchers who share best practices, discuss challenges, and jointly design solutions. Such communities will strengthen professional solidarity and accelerate the spread of educational innovation.

8. Challenges and Recommendations in Classroom Action Research

Although Classroom Action Research (CAR) has proven to be an effective approach to improving the quality of learning, its implementation in the field is not always smooth. Teachers face various challenges, both technical, methodological, and structural. Therefore, it is important to identify these barriers and formulate recommendations that can strengthen CAR practices sustainably.

A. Technical Challenges

One of the main challenges in implementing CAR is time constraints. Teachers have a heavy workload, ranging from teaching, grading, organizing administration, and participating in school activities. Fitting research activities into this routine often feels overwhelming.

Furthermore, limited resources are also a barrier. Not all schools have the facilities to support CAR implementation, such as access to technological devices, adequate teaching materials, or professional discussion spaces. Teachers who wish to use digital media or video-based observation techniques, for example, may face technical challenges.

B. Methodological Challenges

Many teachers lack a thorough understanding of research methodology. They may struggle to design instruments, systematically collect data, or validly analyze results. This can lead to poor-quality CAR reports or misrepresentations of the actual process.

In the book "Classroom Action Research Textbook" by Dameria Sinaga (UKI Press, 2024, pp. 105–120), it is explained that ongoing methodological training is crucial to improving the quality of CAR. Teachers need to be equipped with basic research skills, such as observation techniques, data analysis, and academic writing.

C. Structural and Cultural Challenges

In some schools, a reflective and collaborative culture has not yet developed. Teachers conducting CAR may feel like they are working alone without support from colleagues or school leaders. In fact, there are cases where CAR is conducted merely as a formality to fulfill administrative requirements, rather than as a meaningful professional learning process.

Furthermore, an overly bureaucratic education system can hinder teachers' flexibility in designing and implementing interventions. When the curriculum is too rigid or assessments too centralized, room for innovation is limited.

CONCLUSION

Classroom Action Research (CAR) is a reflective, participatory, and contextual scientific approach designed to directly improve teaching practices by teachers in their own classrooms. Through an iterative cycle of planning, action, observation, and reflection, CAR positions teachers as agents of change who not only teach but also research and develop more effective learning strategies. From the in-depth discussion at each stage, it can be concluded that CAR has a strong philosophical foundation, rooted in constructivist theory and the active learning paradigm. Teachers who engage in CAR demonstrate improvements in pedagogical competence, analytical skills, and professional awareness. Meanwhile, students gain more meaningful, participatory, and tailored learning experiences.

CAR also has a positive impact on educational institutions as a whole. When teachers consistently engage in data-driven reflection and innovation, schools develop into dynamic learning communities. CAR results can inform decision-making, curriculum development, and educational quality improvement. However, implementing CAR is not without challenges. Teachers often face time constraints, inadequate methodological understanding, and minimal structural support. Therefore, systemic strategies are needed to overcome these obstacles, such as ongoing training, providing dedicated time for reflection, and recognizing high-quality CAR results. Overall, CAR is not only a research method, but also a working philosophy for teachers oriented toward continuous improvement. When CAR is implemented with awareness, rigor, and commitment, it can transform learning, empower teachers, and create a reflective, innovative, and sustainable educational ecosystem.

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