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Type Your Title Here Using Title Case, Capitalizing the First Letter of Each Major Word Except for Conjunctions

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Abstract

The abstract must be written in a single paragraph, using Times New Roman, font size 10, single spacing, and justified alignment, with a maximum length of 250–300 words. It should be written in English and provide a concise, self-contained summary of the study. The abstract must include: (1) the background or problem identification that establishes the rationale for the study, (2) the research purpose or objectives, (3) the methods, including research design, participants or sample, instruments, and data analysis techniques, (4) the main results, reported in past tense and without interpretation, and (5) the principal conclusions and implications for science education research or practice. The writing should use formal academic English with consistent spelling (American or British), past tense for methods and results, and present tense for conclusions and implications. References, abbreviations, tables, figures, footnotes, and unnecessary definitions are not permitted. Authors must be precise and avoid vague or overly general statements, ending the abstract with a clear statement of the contribution or significance of the study. Immediately after the abstract, provide three to six keywords in lowercase, separated by commas, arranged alphabetically, and avoiding repetition of words already used in the title.

Keywords: Provide 3–5 keywords, separated by commas, that are specific, relevant, and searchable in academic databases.

Introduction

The introduction must be written in Times New Roman, 11-point font size, 1.5 spacing. The first paragraph should begin with normal indentation, while subsequent paragraphs should use hanging indentation with single spacing between them. Manuscripts may be written in English (preferred for international visibility) or Indonesian, but consistency in spelling (British or American English) must be maintained throughout the manuscript.

The purpose of the introduction is to present the research problem, justify its importance, and position the study within the existing body of knowledge. A strong introduction should:

1. Provide a clear background and context for the study.
2. Summarize relevant literature and highlight the research gap.
3. State the rationale for the study and explain its contribution.
4. Present the research objectives and questions or hypotheses.

Authors should avoid overly broad or general statements (e.g., “*Education is very important for human life*”) and instead provide precise, evidence-based claims supported with recent and relevant references (preferably within the last 10 years, with priority given to peer-reviewed journal articles). The narrative should logically lead readers from the background and literature review to the research purpose, demonstrating both the novelty and significance of the study.

The recommended length of the introduction is approximately 1,000–1,500 words, depending on the scope and complexity of the research.

Methodology

The methodology section must be written in Times New Roman, 11-point font size, 1.5 spacing, and should provide sufficient detail to allow replication. All descriptions must be in the past tense. Authors should organize the section using subheadings (e.g., Research Design, Participants, Instruments, Procedure, Data Analysis), adapted to the nature of the study. A comprehensive Method section typically includes the following components:

Research Design

Clearly state the research design (e.g., qualitative case study, quasi-experimental, mixed-methods, survey, classroom action research). Justify why this design was chosen and how it aligns with the research objectives.

Participants / Sample

Describe the target population and sample, including sampling techniques, sample size, and relevant demographic information (e.g., age, gender, education level). Mention any inclusion/exclusion criteria. Ethical considerations—such as informed consent, confidentiality, and ethics committee approval (if applicable)—must also be reported.

Instruments / Materials

Specify the instruments used for data collection (e.g., tests, questionnaires, interview protocols, observation checklists, digital platforms). For quantitative research, report on validity (content, construct, criterion-related) and reliability (e.g., Cronbach’s alpha). For qualitative research, discuss trustworthiness (credibility, transferability, dependability, confirmability).

Procedure

Provide a clear, step-by-step description of how the study was carried out. For intervention studies, describe the instructional treatment or program in detail. For qualitative research, explain data collection steps such as interviews, observations, or document analysis.

Data Analysis

Explain the analytical techniques used.

- Quantitative studies should report descriptive and inferential statistics, including effect sizes and confidence intervals when relevant. Statistical software (e.g., SPSS, R, AMOS, Mplus) should be mentioned.
- Qualitative studies should describe how data were organized, coded, and analyzed (e.g., thematic analysis, grounded theory coding, narrative analysis). Techniques to ensure rigor (e.g., triangulation, member checking) should also be included.
- Mixed-methods studies should explain how quantitative and qualitative data were integrated (e.g., sequential explanatory design, convergent design).

Formatting and Style Guidelines:

- Use past tense consistently (e.g., “*Data were collected using...*”).
- Be specific enough for replication, but avoid unnecessary procedural detail.
- Figures or tables (e.g., a research framework, flowchart of procedures, or instrument summary) may be included where helpful.
- For studies involving human participants, clearly describe ethical procedures.

The recommended length of the Method section is 1,000–1,500 words, depending on the research complexity.

Result and Discussion

The Results and Discussion section may be written in English (preferred for international visibility) or in Bahasa Indonesia. This section must present the findings of the study clearly, logically, and systematically, followed by an interpretation of the findings in relation to existing literature.

Results

The results section reports the findings obtained from the methodology applied. Results should be presented in a logical order, using descriptive and inferential statistics for quantitative studies or themes and categories for qualitative studies. All results must be written in the past tense and presented objectively, without interpretation or personal bias.

Use tables and figures to summarize data effectively, ensuring they are numbered consecutively and cited in the text (e.g., *see Table 1*). Avoid duplicating the same information in both tables/figures and text. Report only relevant results; raw data or appendices should not be included unless specifically requested.

Discussion

The discussion interprets the results, explains their significance, and connects them with the research objectives and prior studies. Authors should critically analyze the findings, highlight consistencies or discrepancies with previous research, and explain possible reasons for the results. This section should also address the implications of the findings for theory, practice, or policy, as well as limitations of the study and recommendations for future research.

Formatting of Tables

- Numbering: Tables must be numbered consecutively (Table 1, Table 2, etc.) in the order they are mentioned in the text.
- Mention in text: Every table must be cited and described in the text before it appears (e.g., *Table 1 presents the distribution of students' pre-test scores*). After the table, the narrative should summarize or highlight key findings from the table instead of repeating all numbers.
- Title: Placed above the table, written in Times New Roman, size 10, bold, single spacing, sentence case. Example: *Table 1. Distribution of Students' Pre-test Scores*.
- Font size: Content inside the table must be in Times New Roman, size 10, single spacing.
- Borders:
 - Use horizontal borders only for the top line, header line, and bottom line of the table.
 - Do not use vertical borders.
 - Avoid unnecessary gridlines, shading, or colors.
- Alignment:
 - Numerical data should be centered or right-aligned.
 - Text should be left-aligned.
- Spacing: Tables should be placed immediately after the paragraph where they are first cited, with one line of space before and after.
- Notes: Tables must be self-contained. All abbreviations, statistical symbols, or special terms must be explained in a note below the table.

Example:

As shown in Table 1, students in the experimental group achieved higher mean scores than those in the control group.

Table 1. Distribution of Students' Pre-test Scores

Group	N	Mean	SD	<i>p</i>
Experimental	45	78.3	6.5	0.02*
Control	44	71.2	7.1	

N = sample size; SD = standard deviation.

* $p < 0.05$

The results indicate that students taught with inquiry-based learning outperformed those taught with traditional methods.

Formatting of Figures

- Placement in table: Figures must be inserted into a single-cell table without visible borders. The figure should be placed in the top row, and the caption directly below it in the same table, ensuring alignment and spacing remain consistent. Borders must be hidden so only the figure and caption are visible.
- Numbering: Figures must be numbered consecutively (Figure 1, Figure 2, etc.) in the order they are first mentioned in the text.

- Mention in text: Every figure must be introduced in the text before it appears (e.g., *Figure 1 illustrates the conceptual framework of the study*). After the figure, the narrative must highlight the key message rather than simply restating the caption.
- Caption: Captions should be written in Times New Roman, 10 pt, bold, single spacing, sentence case, placed directly under the figure inside the same borderless table cell. Example: *Figure 1. Conceptual framework of inquiry-based learning and scientific literacy outcomes.*
- Resolution and size: Figures must be high quality (minimum 300 dpi) and scaled appropriately to fit the page. Acceptable formats: JPEG, PNG, TIFF.
- Style:
 - Use black and white or grayscale where possible for clarity in print.
 - If color is used, ensure it conveys meaning and remains distinguishable in grayscale.
 - Avoid unnecessary 3D effects or decorative design.
- Labels: All axes, units, legends, and symbols must be clearly labeled in a consistent font (Times New Roman, minimum 9 pt).
- Spacing: Place the figure table immediately after the paragraph where it is first mentioned, with one blank line before and after.
- Self-contained: Figures must be interpretable without reference to the main text. Abbreviations or special terms should be explained in a note below the caption if necessary.



Figure 1. Journal Logo

Example:

As shown in Figure 1, the conceptual framework illustrates the relationship between inquiry-based learning strategies and the development of students' scientific literacy.

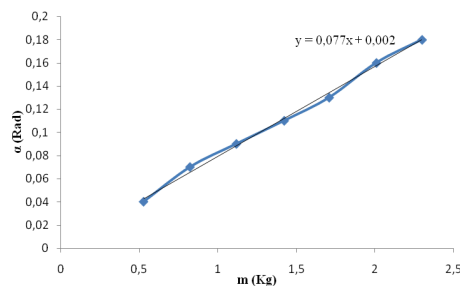


Figure 2. Trends

The framework highlights that inquiry-based learning contributes to both knowledge acquisition and higher-order thinking skills, which together support students' scientific literacy development.

Conclusion

The conclusion must be written in Times New Roman, 11-point font size, single spacing and should be concise, clear, and directly related to the research objectives. This section should not repeat the results in detail but instead summarize the key findings, highlight their significance, and provide implications for science education research, practice, or policy.

A well-written conclusion typically includes:

1. A summary of the main findings in relation to the research questions or objectives.
2. The theoretical and/or practical implications of the study.
3. The limitations of the research.
4. Recommendations for future research or practice.

Writing guidelines:

- Do not introduce new data or references in the conclusion.
- Keep the section brief (approximately 300–500 words).
- Use present tense when stating conclusions and implications (e.g., *This study demonstrates...*).
- Ensure the conclusion logically follows from the results and discussion without redundancy.

References

The reference list must include only the sources cited in the manuscript. All references should be written in full detail and formatted according to the American Psychological Association (APA) 7th Edition style. Authors are strongly encouraged to use a reference management tool (e.g., Mendeley, Zotero, EndNote) to ensure accuracy and consistency.

Requirements for references:

- A minimum of 15 references must be included.
- At least 80% of the references must be from peer-reviewed journal articles or research reports.
- At least 80% must be published within the last 10 years.
- At least three (3) references must be from ISER (Indonesian Science Education Research).
- All authors' names must be listed, and references arranged in alphabetical order by the first author's surname.
- In-text citations must follow APA 7th style:
 - o Example (two authors): (*Handayani & Yuni, 2020*).
 - o Example (three or more authors): (*Handayani et al., 2020*).

Technical notes:

- References must use Times New Roman, 11-point font size, single spacing, hanging indent (0.5 inch).
- Titles of books, reports, and journals should be in *italics*.
- DOI or URL must be provided where available.

- Do not include unpublished works unless they are dissertations/theses.

Examples of References (APA 7th style):

- Textbook

Halliday, D., Resnick, R., & Walker, J. (2013). *Fundamentals of physics* (1st ed.). John Wiley & Sons.

- Law

Republic of Indonesia. (2003). *Law of the Republic of Indonesia Number 20 of 2003 concerning the national education system*.

- Book chapter (edited book)

McCormack, B., McCance, T., & Maben, J. (2013). Outcome evaluation in the development of person-centered practice. In B. McCormack, K. Manley, & A. Titchen (Eds.), *Practice development in nursing and healthcare* (pp. 190–211). John Wiley & Sons.

- Translated book

Daniel, W. W. (1980). *Applied non-parametric statistics* (T. Kuntjoro, Trans.). Gramedia.

- Thesis/Dissertation

Suyanto, S. (2009). *School success in national exams as viewed from the perspective of learning organization* (Unpublished doctoral dissertation). Jakarta State University.

- Journal article

Apriliani, F. N., Damayanti, P., & Qadar, R. (2024). Analysis of HOTS (higher-order thinking skills) level physics questions in the summative exams of grade 10 high school students in Tarakan City. *Journal of Physics Education Literacy*, 5(1), 70–79. <https://doi.org/10.1080/00098650903505415>

- Conference proceedings

Syam, M., & Efwindi, S. (2019). Analysis of higher-order thinking skills by applying the problem-based learning (PBL) model to basic physics courses at the Faculty of Teacher Training and Education (FKIP) at Mulawarman University. In *Proceedings of the National Physics Seminar for Postgraduate Programs* (pp. 1–10). Makassar State University.

- Online resource

White, H. (2007, March 27). *Problem-based learning in introductory science across disciplines*. <http://www.udel.edu/chem/white/final-rpt.html>