

## DECONSTRUCTING NARRATIVE STRUCTURE: A LINGUISTIC FRAMEWORK FOR CT-BASED SHORT STORY WRITING

Fransiska Marta Sari<sup>1\*</sup>, Mudhar<sup>2</sup>, Riyati<sup>3</sup>, Sri Utami<sup>4</sup>  
<sup>1, 2, 3, 4</sup> Universitas Dr. Soetomo, Surabaya

\*Corresponding Author: Fransiska Marta Sari, Email: [fransiska719@gmail.com](mailto:fransiska719@gmail.com)

### ARTICLE INFO

Received: 15-05-2025

Revised: 27-05-2025

Accepted: 14-06-2025

Published: 15-06-2025

Volume: 9

Issue: 2

DOI:

<https://doi.org/10.33019/lire.v9i2.457>

### KEYWORDS

*Computational Thinking, R&D, Short Story, Writing*

### ABSTRACT

This research addresses the persistent difficulties students face in developing story ideas, creating interesting plots, describing characters and settings, and composing well-structured sentences. Consequently, these pose learning obstacles in Indonesian short story writing. Although innovative learning methods and technology have been implemented, the fundamental challenge lies in students' abilities to organize ideas logically and structurally in the writing process. This condition is reinforced by the results of the PISA study which indicates that Indonesian students' writing literacy skills are still below the OECD average, indicating the need for a learning approach that focuses not only on linguistic aspects, but also on developing students' cognitive abilities in solving problems and thinking in a structured manner. Computational Thinking (CT) is presented as a potential solution, to be implemented in the story outlining process by breaking down the complex story ideas into smaller parts (decomposition), identifying patterns in narratives (pattern recognition), focusing on important elements (abstraction), and designing structured writing steps (algorithm). This study aims to develop CT-based short story writing skills in elementary school students, hoping to facilitate their systematic application of CT components in the writing process. The Research and Development (R&D) method used in this study comprises the following stages: problem identification, initial data collection, product design, expert validation, design revision, limited trials, product revision, classroom usage trials, final product revision, and dissemination. This study involves 5th grade students of Cita Hati Christian Elementary School. Data were collected through observation, the rubric used for assessing outlines and short stories (in Flipbook format), and student-survey responses after the learning activity. The results of the study showed that the integration of CT in learning materials and the short story writing process had a positive impact on students' ability to produce more structured and creative writing. Students demonstrated improved short story writing abilities and responded positively to the CT approach in Indonesian language learning. Thus, the development of CT-based learning materials has effectively empowered students to think logically and systematically when planning, composing, and developing their short stories.



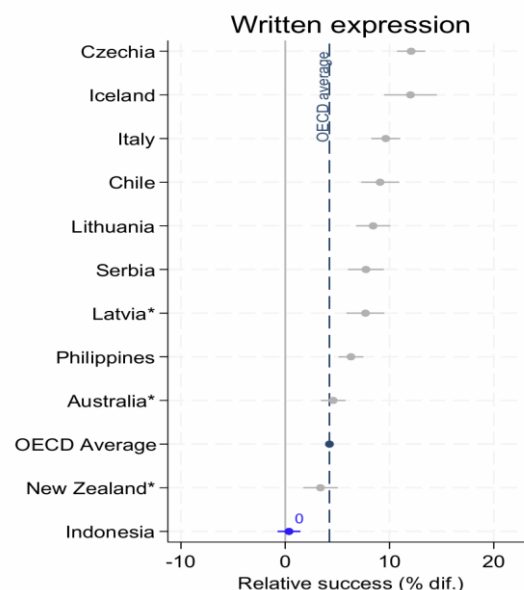
## 1. INTRODUCTION

The learning process gains meaning when students are directly involved in each stage and can directly discover relevant knowledge (Rachmadtullah, 2015). For Indonesian language learning, particularly writing skills, student involvement in every step is crucial, enabling them to express ideas, thoughts, experiences, and cultivate critical and creative thinking skills (Harziko, 2022). Nevertheless, students still struggle with developing story ideas, composing engaging plots, describing characters and settings, and even constructing effective and coherent sentences (NURGIYANTORO, 2010).

Various learning activities have been implemented to enhance the quality of short story writing, starting from the use of innovative learning models to the use of diverse platforms (Pratiwi et al., 2020). However, educators still face fundamental challenges concerning students' abilities to organize thoughts logically, identify key narrative elements, and break down the writing process into structured steps. This situation highlights the need for a learning approach that emphasizes not only linguistic aspects but also the development of students' cognitive skills in problem-solving and systematic-thinking (Putri et al., 2023).

The less structured and logical thinking skills of Indonesian students are evident in the results of the 2022 PISA (Programme for International Student Assessment) regarding their writing literacy (PISA, 2023). These results indicate that Indonesian students' writing literacy skills remain below the average set by the OECD (The Organization for Economic Cooperation and Development) (OECD, 2024), a finding that the Minister of Education and Culture, Nadiem Makarim, has stated he used as evaluation material for the quality of Indonesian education.

**Figure 1: PISA Study Results: Writing Literacy Skills (OECD, 2024)**

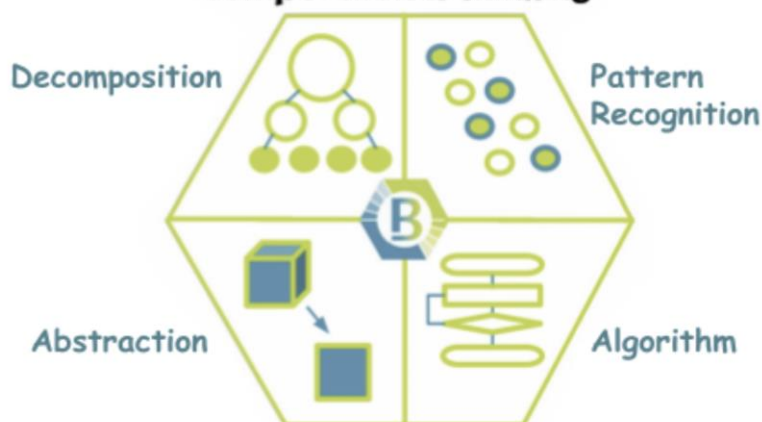


Based on Figure 1, it can be seen that the writing literacy skills of Indonesian students are still very low. One reason for Indonesia's low PISA ranking is that the current development of writing literacy instruction has not effectively enabled students to organize their thoughts logically into a structured writing process (Zahro, 2023). (Vidiyanti & Indrayanti, 2022) analyzed this issue and suggested that the application of Computational Thinking (CT) can enhance students' critical thinking and their ability to express these thoughts through writing, including short stories. This is because writing short stories demands both structured and creative thinking. According to (Wing, 2006), one of the originators of CT, this is a basic skill possessed by every person, not just computer or programming experts. Furthermore, CT is highly beneficial when integrated into the learning of reading, writing, and arithmetic, as it improves students' analytical skills.

In Indonesia, particularly, CT has been a significant development for education since the Informatics Subject was officially integrated into Curriculum 2013 via Permendikbud Numbers 35, 36 and 37 of 2018 (Kemdikbud, 2019). This regulation allows the integration of CT components into other subjects, which are subsequently regulated and developed by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) within the framework of the Merdeka Curriculum at all educational levels (Kemendikbudristek, 2023).

In learning to write short stories, (Pratama et al., 2023) states that Computational Thinking (CT) provides a novel perspective that equips students with the ability to decompose story ideas into smaller elements, recognize patterns in narrative structures, abstract important aspects of the story, and design a systematic writing algorithm. Integrating CT enables students to plan, organize, and develop their short stories more structurally. Consequently, writing short stories is no longer perceived as a difficult task but rather as a sequence of logical steps manageable through the application of CT components.

**Figure 2: Components of Computational Thinking**



Based on the background that has been described, several problems that underlie this research can be identified, namely the less than optimal ability of students in writing short stories, especially in the aspects of developing ideas, arranging plots, and organizing narrative elements. To overcome the problems that have been identified, this study plans to design and develop



teaching materials for writing short stories that systematically integrate Computational Thinking components, thus facilitating students in applying decomposition to break down story ideas, identify patterns in narrative structures, abstract to focus on important elements, and compile clear algorithms or writing steps.

## 2. LITERATURE REVIEW

Short stories are defined as expressions of experiences, ideas, or thoughts that are neatly structured and can be read in about 10 to 30 minutes (Hidayati, 2010). This definition is reinforced by Murhadi and Hasanudin (in Rahmani et al., 2021) who emphasize short stories as short imaginative works of fiction that focus on one problem, equipped with structural elements such as plot, setting, characterization, point of view, style, and theme. The importance of developing multifaceted writing skills in elementary school students is also emphasized by Hikaya et al. (2025), who underline the need for teachers to consider not only basic writing techniques such as grammar, punctuation, and sentence structure, but also creativity, critical thinking, and idea development. This includes expanding vocabulary through reading and discussion, developing ideas into well-organized paragraphs, and providing constructive corrections and feedback to foster students' confidence in writing short stories on an ongoing basis.

Nevertheless, despite the importance of this skill, observations and interviews conducted by Alfiah (2020) indicated several significant challenges in learning to write short stories in elementary schools. These challenges include students' lack of interest in writing short stories, limited vocabulary mastery, and difficulty in developing story ideas. In addition, Alfiah's findings also highlighted the problem of inappropriate use of spelling and punctuation in short stories written by students. This problem shows a gap between the theory of ideal short story writing learning and the reality of its implementation in the field, especially related to cognitive barriers and student motivation.

Various approaches and methods of learning to write short stories have been explored in previous studies to overcome these obstacles. Ningrum et al. (2023) studied the use of the Wattpad application in 36 high school students and found an increase in activity and completeness of learning to write short stories after its use (from 62.29% to 64.61%). Another study by Krianasari et al. (2023) introduced a mind-mapping model in learning to write short stories for elementary school students, which was considered to be of very good quality by expert validators and colleagues.

Although both approaches have shown positive results, a critical evaluation of the methods reveals strengths and limitations. The use of the Wattpad application by Ningrum et al. (2023) did indeed increase student engagement and learning outcomes numerically. However, Wattpad's main focus tends to be on output and sharing of work, rather than on the systematic process of developing and organizing story ideas. This potentially ignores important early cognitive stages in narrative creation. Similarly, the mind-mapping model applied by Krianasari et al. (2023) provides an excellent visual tool for brainstorming and organizing ideas, but this model may only generate a broad collection of ideas without specifically guiding students to break them down into cohesive and structured key story elements. These limitations suggest that there is still a need for a more structured and systematic framework to facilitate students in organizing ideas and developing strong narrative structures.



Responding to the need to overcome the barriers to learning short story writing skills, especially in the context of organizing ideas and narrative structures, this study implements the Computational Thinking (CT) approach throughout the short story writing process. CT is defined as a problem-solving method that applies structured thinking techniques, similar to the way computers think in computer science or informatics (Wing, 2008, in Proctor, 2023).

The integration of CT in Indonesia education has received significant support. Since the subject of Informatics was integrated into the 2013 curriculum through Permendikbud number 35, 36, and 37 (2018), CT has been considered a basic competency that Indonesian students need to master, in addition to reading, writing, and arithmetic (Kamila et al., 2023). This view is supported by Gulbahar et al. (2018) who define CT as a way of understanding and solving complex problems using computer science techniques and concepts such as decomposition, pattern recognition, abstraction, and algorithms. Therefore, CT can direct students to develop critical, creative, communicative, and collaborative problem-solving skills. Marifah (2023) further observed that CT can improve logical and mathematical knowledge, can be combined with technology and digital media, and foster self-confidence, open-mindedness, and awareness of environmental issues.

Prior studies have shown the potential of CT in various educational contexts. Endah et al. (2020) found positive post-test results in fostering computational and informatic thinking patterns in elementary school students using the Bebras Task, recommending CT-based learning to foster logical and creative thinking skills. Megawati et al. (2023) also showed the success of implementing CT in Mathematics learning on the topic of integers in elementary schools, with 83.7% of students achieving completion and 80.42% active participation. More relevant to this study, Pratama (2023:68-74) explored the integration of CT in Indonesian language subjects on pantun material in elementary schools. His research showed that CT integration facilitated pattern recognition and algorithmic thinking, resulting in 93% student learning completion and 90% positive responses.

However, there has been no research that specifically explores the application of CT in the context of developing narrative structures and linguistic elements in short story writing. Although Pratama's study shows the potential of CT in language subjects, its focus on pantun (a form of poetry) is different from the demands of short story narrative structures. Previous studies on CT tend to focus on general benefits in problem solving or in the STEM (Science, Technology, Engineering, and Mathematics) domain. This indicates a significant research gap: how CT principles such as decomposition, pattern recognition, abstraction, and algorithms can be systematically applied to help elementary school students break down story ideas into structured narrative components (e.g., plot, characters, settings), identify patterns in narratives, and develop a logical sequence of events (narrative algorithms).

Based on a critical review of previous research, although methods such as Wattpad and mind-mapping have shown potential in improving motivation and organization of ideas in general, none explicitly addresses a systematic framework for decomposing narrative structures and organizing story ideas into cohesive linguistic elements. Similarly, although the benefits of CT in problem solving and other subjects have been demonstrated, the specific application of CT in developing understanding and application of narrative linguistic structures in short story writing remains underexplored.



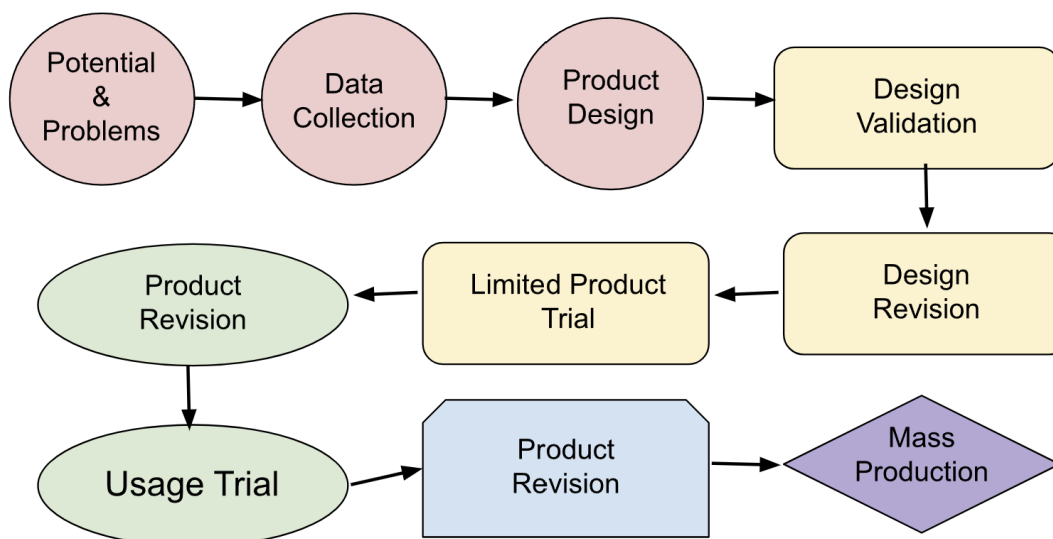


Therefore, this study aims to bridge this gap by implementing Computational Thinking (CT) as a linguistic framework for deconstructing and constructing narrative structures in the short story writing process. This study will explicitly demonstrate how CT principles – specifically decomposition to break down a story into smaller elements, pattern recognition to identify narrative structures, abstraction to focus on the essence of a story, and algorithms to structure a plot – can be used to guide students in outlining story ideas, constructing essay outlines, and organizing students' story ideas in a structured manner. Thus, this study will make a unique contribution by offering an innovative approach that not only addresses common challenges in short story writing (lack of ideas, difficulty in organizing), but also specifically integrates CT to enhance students' understanding of narrative structures and the linguistic elements underlying effective short story writing.

### 3. METHODOLOGY

The Research and Development (R&D) method is used in this study to produce a development of teaching materials and test its effectiveness. (Sugiyono, 2013) developed the research and development design into 10 research steps as illustrated below:

**Figure 3: Steps for Implementing the Research and Development (R&D) Method**



Furthermore, the steps for implementing the research and development method are applied in this study as follows:

1. Potential and Problems:

The researcher identified potential and problems related to learning short story writing in grade 5 of Cita Hati Christian Elementary School Surabaya. These included students' interest in Indonesian short stories alongside their difficulties in developing story ideas and composing plots, as well as a lack of understanding of writing concepts. This identification



informed the development of Computational Thinking (CT)-based teaching materials for writing short stories.

2. Data Collection:

The researcher collected initial data to better understand the identified potential and problems through observation of the initial learning process and student questionnaires (via Google Forms). These data provided information on students' difficulties in writing short stories and an overview of the effectiveness of previous short story writing learning practices.

3. Product Design:

Based on the collected data, the researcher designed an initial plan for Computational Thinking (CT)-based teaching materials for writing short stories. This design includes learning materials and activities that explicitly integrate CT concepts into the writing process: decomposition (breaking down big ideas), pattern recognition (identifying story structure patterns), abstraction (focusing on important story elements), and algorithms (compiling writing steps).

4. Design Validation:

The design of the teaching materials is then validated by experts in the field of Indonesian Language education and experts in the field of Computational Thinking. This validation aims to obtain input on the accuracy of the material, pedagogical approach, clarity of CT integration, and aspects of language and presentation of teaching materials.

5. Design Revision:

Based on the results of design validation from experts, the researcher revised the design of teaching materials that focused on improving content, structure, activities, and CT integration according to the suggestions received.

6. Product Trial (Limited):

The revised teaching materials were trialed on a small group of 5th grade students (outside the main sample) to obtain initial feedback on the effectiveness and attractiveness of the teaching materials from the students' perspective.

7. Product Revision:

Based on the results of the limited trial and student feedback, the researcher revised the teaching materials again focusing on improvements related to ease of use, clarity of instructions, and effectiveness of activities in integrating CT and improving short story writing skills.

8. Trial of Usage (Classroom Action):

The revised teaching materials were trialed on a larger group, namely 20 5<sup>th</sup>-grade students of Cita Hati Christian Elementary School Surabaya during the specified period of 9-27 September 2024). At this stage, the researcher observed how the teaching materials were implemented in the actual learning process and collected data from the results of the essay outline work, Google Forms response questionnaires, and the results of students' short story work with Flipbook media.

9. Product Revision:



After the Trial of Use and analysis of collected data, the researcher conducted a final revision of the teaching materials to improve the effectiveness and practicality of CT-based short story writing teaching materials.

10. Mass Production (Dissemination):

After data analysis and final revision, the researcher compiled a research report and prepared a journal publication that describes the development process and results of this CT-based teaching material.

#### 4. RESULTS AND DISCUSSION

The development of this teaching material is focused on the Indonesian language subject, especially on short story writing skills, which are based on Computational Thinking (CT), and are designed to facilitate students in applying CT components, namely idea decomposition, narrative pattern recognition, abstraction of important story elements, and compilation of writing steps (algorithms). The learning process of writing short stories using CT-based teaching materials is carried out through a series of activities that aim to empower students in planning, compiling, and developing their stories creatively with structured thinking patterns like computer programming methods (Zapata-Cáceres et al., 2024). The Learning Outcomes of the Indonesian Language Subject Phase C, which are the focus of development in this teaching material, relate to students' ability to convey feelings based on facts and imagination (from themselves and others). This includes doing so beautifully and interestingly in prose form with creative use of vocabulary (Education Standards, Curriculum, and Assessment Agency, Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, 2022:14). Then, the main objective of developing this teaching material is to improve students' ability in writing short stories through the application of Computational Thinking components.

The process of compiling a short story outline is designed to help students think logically and structured through the Computational Thinking (CT) approach (Voogt et al., 2015). The first step is Story Idea Decomposition, where students imagine the main idea of their short story and then break it down into smaller parts. They identify the main idea or theme of the story in one sentence, then divide the storyline into several important parts or scenes that are arranged into outlines. At this stage, students also determine the main problem or conflict faced by the character and an initial picture of the solution to the problem.





**Figure 4: CT-Based Short Story Outline: Decomposition**  
**CT-BASED SHORT STORY OUTLINE**  
(KERANGKA KARANGAN CERITA PENDEK BERBASIS 'COMPUTATIONAL THINKING')

Name/Class: \_\_\_\_\_ / \_\_\_\_\_  
Nama/Kelas

Short Story Title: \_\_\_\_\_  
Judul Cerita Pendek

**Instructions:**

Instruksi

**Follow each section carefully. Provide clear and detailed answers.**

*Ikuti setiap bagian dengan saksama. Berikan jawaban yang jelas dan rinci.*

**(This outline will help you plan your short story using logical and structured thinking steps.)**

*(Kerangka karangan ini akan membantumu merencanakan cerita pendekmu dengan menggunakan langkah-langkah berpikir logis dan terstruktur.)*

**Part 1: STORY IDEA DECOMPOSITION**

Bagian 1: DEKOMPOSISI IDE CERITA

**(Breaking down a big problem into smaller parts.)**

*(Memecah masalah besar menjadi bagian kecil.)*

Imagine the main idea of your short story. Then, break down that big idea into smaller parts.

*Bayangkan ide utama cerita pendekmu. Lalu, pecahkan ide besar itu menjadi bagian-bagian yang lebih kecil.*

**1. My main story idea:**

*Ide utama cerita saya*

**(Write the main idea or theme of your short story in one sentence.)**

*(Tuliskan ide pokok atau tema utama cerita pendekmu dalam satu kalimat.)*

\_\_\_\_\_

**2. The important parts of my story:**

*Bagian-bagian penting dalam cerita saya*

**(Think about the plot in broad strokes. Divide the story into several main sections or important scenes.)**

*(Pikirkan alur cerita secara garis besar. Bagi cerita menjadi beberapa bagian utama atau adegan penting.)*

Bagian 1: \_\_\_\_\_

*Part 1*

Bagian 2: \_\_\_\_\_

*Part 2*

Bagian 3: \_\_\_\_\_

*Part 3*

**3. Main problem in the story:**

*Masalah utama dalam cerita*

**(Identify the main problem or conflict faced by the character(s) in the story.)**

*(Identifikasi masalah atau konflik utama yang dihadapi oleh karakter dalam cerita.)*

\_\_\_\_\_

**4. Solution of the problem:**

*Penyelesaian masalah*

**(How will the main problem in the story be solved?)**

*(Bagaimana masalah utama dalam cerita akan diselesaikan?)*

\_\_\_\_\_



The next step is Pattern Recognition. In this stage, students are invited to connect their story ideas to other stories they have encountered, looking for patterns of narrative structure that are possible to follow. In addition, they also think about whether there are characters in their story that are similar to characters from other stories, while identifying differences that make their stories unique and interesting.

**Figure 5: CT-Based Short Story Outline: Pattern Recognition**

**Part 2: PATTERN RECOGNITION**

*Bagian 2: PENGENALAN POLA*

**(Finding similarities and differences.)**

*(Mencari kesamaan dan perbedaan.)*

Think about other stories you have read, watched, or heard. Are there any patterns or elements similar to your story idea?

*Pikirkan tentang cerita-cerita lain yang pernah kamu baca, tonton, atau dengar. Apakah ada pola atau elemen yang mirip dengan ide ceritamu?*

**5. Narrative structure pattern:**

*Pola struktur naratif*

**(Will your short story follow a specific plot pattern? Explain!)**

*(Apakah cerita pendekmu akan mengikuti pola alur cerita tertentu? Jelaskan!)*

**6. Similar characters:**

*Karakter yang mirip*

**(Are there any characters in your story that have similarities with characters from other stories? Mention the similarities!)**

*(Apakah ada karakter dalam ceritamu yang memiliki kemiripan dengan karakter dari cerita lain? Sebutkan kemiripannya!)*

**7. Differences that make my story unique:**

*Perbedaan yang membuat cerita saya unik*

**(What makes your short story different and interesting?)**

*(Apa yang membuat cerita pendekmu berbeda dan menarik?)*

After recognizing the pattern, students move on to the Abstraction stage. At this stage, students' focus shifts to the important elements in the story. Students identify the main characters, explain their roles and characteristics. Furthermore, students also determine the setting of the place and time of the most significant story events. Finally, students formulate the moral message or message they want to convey through their story.



Figure 6: CT-Based Short Story Outline: Abstraction

**Part 3: ABSTRACTION**

Bagian 3: ABSTRAKSI

(Focus on important things.)

(Fokus pada hal penting.)

Focus on the important elements in your story.

Fokuskan pada elemen-elemen penting dalam ceritamu.

8. Characters:

Tokoh-Tokoh

(Who are the characters in your story? Explain their roles and personalities.)

(Siapa tokoh-tokoh dalam ceritamu? Jelaskan peran dan wataknya.)

---

---

---

---

9. Setting:

Latar

(Mention the place and time of events in the story.)

(Sebutkan latar tempat dan waktu kejadian dalam cerita.)

Place:

Tempat

Time:

Waktu

---

---

10. Moral message or lesson:

Pesan moral atau amanat

(What important message do you want to convey through this story?)

(Pesan penting apa yang ingin kamu sampaikan melalui cerita ini?)

---

The final stage in compiling this outline is the Algorithm. At this stage, students design the steps for writing a short story sequentially, starting from the beginning of the story, the beginning of the problem or conflict, the peak of the problem or climax, to the resolution of the problem. For each step in developing this story, students also note important details that need to be developed during writing later, such as physical descriptions and character traits, depictions of the setting, and relevant dialogue designs. By following this sequence of steps, students are expected to be able to compile a structured and well-planned short story outline, based on the principles of computational thinking.



Figure 7: CT-Based Short Story Outline: Algorithm

**Part 4: ALGORITHM**

Bagian 4: ALGORITMA

(Designing writing steps.)

(Merancang langkah-langkah penulisan.)

Plan the steps for writing your short story by considering the sequence of events and details that need to be developed.

Rencanakan langkah-langkah menulis cerita pendekmu dengan memikirkan urutan kejadian dan detail yang perlu dikembangkan.

11. Story development steps:

Langkah-langkah pengembangan cerita

(Write down the sequence of events of the story you will develop. Start from the beginning to the end.)

(Tuliskan urutan kejadian cerita yang akan kamu kembangkan. Mulailah dari awal hingga akhir.)

Step 1-Beginning of the Story: \_\_\_\_\_

Langkah 1-Awal Cerita

Step 2-Beginning of the Problem/Conflict: \_\_\_\_\_

Langkah 2-Awal Masalah/Konflik

Step 3-Peak of the Problem/Climax: \_\_\_\_\_

Langkah 3-Puncak Masalah/Klimaks

Step 4-Problem Resolution: \_\_\_\_\_

Langkah 4-Penyelesaian Masalah

12. Details to be developed:

Detail yang perlu dikembangkan

(Mention important details at each step; physical descriptions and character traits, setting(s), and dialogue(s).)

(Sebutkan detail-detail penting pada setiap langkah; deskripsi fisik dan watak karakter, latar, dan dialog.)

Detail Langkah 1: \_\_\_\_\_

Detail Step 1

Detail Langkah 2: \_\_\_\_\_

Detail Step 2

Detail Langkah 3: \_\_\_\_\_

Detail Step 3

Detail Langkah 4: \_\_\_\_\_

Detail Step 4

Data on student learning outcomes were collected from the assessment rubric scores of the story outline (developed using Google Docs or Canva Document) and students' short stories (produced with Canva eBook media and shared as a Flipbook link) (Muliawan, 2020). The assessment rubric comprised the following criteria:

1. Story creativity
2. Story structure
3. Characterization of characters



4. Use of language
5. Moral message
6. Illustrations and visuals
7. Design and layout
8. Suitability to the theme
9. Collaboration
10. Digital innovation

Subsequently, the assessment results for students' Computational Thinking-based short story writing abilities were converted into percentage values via Toddle. A score above 76 percent was deemed indicative of proficiency.

**Table 1: Student Learning Outcome Data: Evaluation of CT-Based Short Story Writing**

Student Name Initials	Scores		Notes
AV	96%	E	<i>E: Exceeding expectation</i> <i>M: Meeting expectation</i> <i>D: Developing competence</i> <i>P: Progressing towards expectation</i> <i>N: Needs further improvement</i>
CC	93%	M	
ES	99%	E	
JD	94%	M	
JS	88%	M	
JG	89%	M	
JM	94%	M	
JJ	95%	E	
KB	98%	E	
KL	87%	M	
KI	87%	M	
KS	93%	M	
MG	88%	M	
NW	88%	M	
OT	94%	M	
RN	95%	E	
SH	99%	E	
SO	98%	E	
WM	87%	M	
ZL	98%	E	





Based on table 1, it appears that 20 students were able to complete their learning outcomes. Additional data were gathered from student responses to questionnaires administered through Google Forms following their instruction in CT-based Indonesian short story writing.

**Diagram 1: Percentage of Student Response Results for CT-Based Short Story Writing Learning**

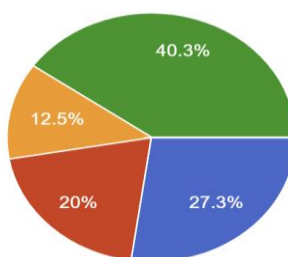


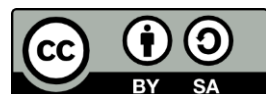
Diagram 1 indicates that 40.3% of students enjoyed learning to write Indonesian short stories with Computational Thinking, 27.3% found Computational Thinking helpful for writing, 20% reported feeling happier learning Indonesian with Computational Thinking, and 12.5% believed Computational Thinking could be applied to other Indonesian writing skills like poetry and speeches. These responses collectively demonstrate a positive attitude towards using Computational Thinking in developing teaching materials for Indonesian Short Story Writing Skills.

## 5. CONCLUSION

The findings and discussions of this study reveal that: (1) The integration of Computational Thinking within Indonesian language learning for short story writing skills cultivates a structured yet creative mode of thought encompassing decomposition, pattern recognition, abstraction, and algorithm (So et al., 2020). (2) Student learning outcomes in Indonesian short story writing skills following CT-based learning demonstrated 100% of learning completion among the 20 student respondents. (3) Questionnaire responses regarding Computational Thinking-based short story writing learning were positive. The development of Computational Thinking-based teaching materials for Indonesian short story writing skills at the elementary level empowers students to engage in creative and structured thinking for sequential story idea design, progressing from the narrative's inception through the introduction of conflict, the climax, and ultimately to the resolution (Saidin et al., 2021).

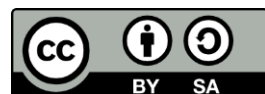
## ABOUT THE AUTHORS

Fransiska Marta Sari, Mudhar, and Riyati are Master of Indonesian Language Education students at Dr. Soetomo University, Surabaya. Together with Sri Utami as the lecturer, they focus on developing Indonesian language teaching materials for short story writing skills based on Computational Thinking in elementary level.



## REFERENCES

- ALFIYAH. (2020). *PROBLEMATIKA MENULIS CERITA PENDEK SISWA KELAS V SEKOLAH DASAR*.
- Endah, S. N., Sarwoko, E. A., Bahtiar, N., Wibowo, A., & Kurniawan, K. (2020). Pembinaan Pola Pikir Komputasi dan Informatika pada Siswa Sekolah Dasar. *E-DIMAS: JURNAL PENGABDIAN KEPADA MASYARAKAT*, 11.
- Gulbahar, Y., Kalelioglu, F., & Kert, S. B. (2018). *Teaching Computational Thinking to In-Service Computer Science Teachers through a Massive Open Online Course PROCEEDING*.
- Harziko. (2022). *SEJARAH, FUNGSI DAN KEDUDUKAN BAHASA INDONESIA*.
- Hidayati, A. N. (2010). *Pengaruh Positive Thingking Terhadap Kemampuan Menyelesaikan Masalah (Problem Solving) Pada Siswa Kelas II Madrasah Aliyah Ma'arif Cepogo*.
- Hikaya, N., Hamzah, R. A., Rahmadani, E., & Putri, A. (2025). Mengembangkan Keterampilan Menulis di Sekolah Dasar. *Jurnal Inovasi Edukasi*, 8.
- Kamila, C. U., Waskito, A. P. N., & Aprinastuti, C. (2023). Integrasi computational thinking pada pembelajaran dengan model problem based learning di sekolah dasar. *COLLASE (Creative of Learning Students Elementary Education)*, 6(3), 409–415. <https://doi.org/10.22460/collase.v6i3.17459>
- Kemdikbud. (2019). *Hasil PISA Indonesia 2018: Akses Makin Meluas, Saatnya Tingkatkan Kualitas dalam Siaran Pers Nomor: 397/Sipres/A5.3/XII/2019*.
- Kemendikbudristek. (2023). *Pisa 2022 dan Pemulihan Pembelajaran di Indonesia dalam Pemulihan Pembelajaran Indonesia*.
- Krianasari, D. A., Sumiyani, & Taufiqurrahman, A. (2023). ANALISIS KEMAMPUAN MENULIS MENGGUNAKAN METODE MIND MAPPING PADA SISWA KELAS II SDN KUTABARU I. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 8.
- Marifah, R. A. (2023). Kemampuan Berpikir Komputasi Siswa SMP Ditinjau dari Self-Efficacy pada Model Pembelajaran Problem Based Learning Berbantuan Edmodo. *PRISMA, Prosiding Seminar Nasional Matematika XVI*, 6.
- Megawati, A. T., Sholihah, M., & Limiansih, K. (2023). IMPLEMENTASI COMPUTATIONAL THINKING DALAM PEMBELAJARAN MATEMATIKA DI SEKOLAH DASAR. *Jurnal Review Pendidikan Dasar : Jurnal Kajian Pendidikan Dan Hasil Penelitian*, 9(2), 96–103. <https://doi.org/10.26740/jrpd.v9n2.p96-103>
- Muliawan, B. (2020). *Analisis Kerangka Dalam Keterampilan Menulis Teks Cerita Pendek*.
- Ningrum, D. M. F., Ristiyani, R., & Roysa, M. (2023). Pembelajaran Menulis Cerita Pendek Menggunakan Aplikasi Wattpad. *Edukasiana: Jurnal Inovasi Pendidikan*, 2(1), 26–32. <https://doi.org/10.56916/ejip.v2i1.231>
- Nurgiyantoro, B. (2010). *Penilaian pembelajaran bahasa berbasis kompetensi oleh Burhan Nurgiyantoro* (1st ed.). BPFE.
- OECD. (2024). *PISA 2022. Perfiles Educativos*, 46(183), 188–202. <https://doi.org/10.22201/issue.24486167e.2024.183.61714>
- PISA. (2023). *PISA 2022 Results Factsheets Indonesia dalam The Language of Science Education*.
- Pratama, H. Y., Tobia, M. I., Saniyati, S. L., Yuginanda, A. S., & Soffa, F. M. (2023). Integrasi Computational Thinking Pada Mata Pelajaran Bahasa Indonesia Materi Pantun Kelas IV



- Sekolah Dasar. *Jurnal Penelitian, Pendidikan Dan Pengajaran: JPPP*, 4(1). <https://doi.org/10.30596/jppp.v4i1.14564>
- Pratiwi, S. M., Hidayat, W., & Fauzi, M. R. (2020). *ANALISIS KEKELIRUAN MENULIS TEKS PANTUN PADA SISWA SD KELAS V*. 3(5).
- Proctor, C. (2023). Computational thinking. In *International Encyclopedia of Education (Fourth Edition)* (pp. 88–95). Elsevier. <https://doi.org/10.1016/B978-0-12-818630-5.13078-7>
- Putri, T. S., Widyaningrum, H. K., & Marlina, D. (2023). Pengembangan Multimedia Flipbook Untuk Kemampuan Menulis Cerita Pendek Pada Siswa Kelas V SD Negeri 02 Mojorejo. *Prosiding Konferensi Ilmiah Dasar*, 4.
- Rachmadtullah, R. (2015). KEMAMPUAN BERPIKIR KRITIS DAN KONSEP DIRI DENGAN HASIL BELAJAR PENDIDIKAN KEWARGANEGARAAN SISWA KELAS V SEKOLAH DASAR. *Jurnal Pendidikan Dasar*, 6(2), 287. <https://doi.org/10.21009/JPD.062.10>
- Rahmani, A., Ratnasari, D. T., & Afrida, T. (2021). PENERAPAN MEDIA AUDIO VISUAL UNTUK MENUMBUHKAN MINAT BELAJAR IPS. *Jurnal Holistika*, 5(2), 112. <https://doi.org/10.24853/holistika.5.2.112-118>
- Saidin, N. D., Khalid, F., Martin, R., Kuppusamy, Y., & Munusamy, N. A. (2021). Benefits and Challenges of Applying Computational Thinking in Education. *International Journal of Information and Education Technology*, 11(5), 248–254. <https://doi.org/10.18178/ijiet.2021.11.5.1519>
- So, H.-J., Jong, M. S.-Y., & Liu, C.-C. (2020). Computational Thinking Education in the Asian Pacific Region. *The Asia-Pacific Education Researcher*, 29(1), 1–8. <https://doi.org/10.1007/s40299-019-00494-w>
- Sugiyono. (2013). Sugiyono Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D. *Alfabeta*.
- Vidiyanti, R., & Indrayanti, T. (2022). PENERAPAN MODEL PEMBELAJARAN COOPERATIVE LEARNING “THINK TALK WRITE” DALAM MENULIS CERITA FANTASI PESERTA DIDIK KELAS VII-F SMPN 1 WONOAYU SIDOARJO. *Buana Bastra*, 6(2), 23–28. <https://doi.org/10.36456/bastra.vol6.no2.a5036>
- Voogt, J., Fisser, P., Good, J., Mishra, P., & Yadav, A. (2015). Computational thinking in compulsory education: Towards an agenda for research and practice. *Education and Information Technologies*, 20(4), 715–728. <https://doi.org/10.1007/s10639-015-9412-6>
- Wing, J. M. (2006). Computational thinking. *Communications of the ACM*, 49(3), 33–35. <https://doi.org/10.1145/1118178.1118215>
- Wing, J. M. (2008). Computational thinking and thinking about computing. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 366(1881), 3717–3725. <https://doi.org/10.1098/rsta.2008.0118>
- Zahro, F. D. (2023). The Translingual Literacy Movement: Optimizing Multilingual Skills through Literature. *Academia Open*, 8(2). <https://doi.org/10.21070/acopen.8.2023.6594>
- Zapata-Cáceres, M., Marcelino, P., El-Hamamsy, L., & Martín-Barroso, E. (2024). A Bebras Computational Thinking (ABC-Thinking) program for primary school: Evaluation using the competent computational thinking test. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-023-12441-w>

