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Integration of Literacy, Coding, and AI with UltaKo Media and the Film Mars

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Abstrak

Penelitian ini bertujuan untuk mengintegrasikan Literasi, Koding (Pemrograman), dan Kecerdasan Buatan (AI) melalui pemanfaatan media inovatif UltaKo dan analisis terhadap Film Mars (Mimpi Ananda Raih Semesta). Integrasi ini didasari oleh urgensi pengembangan kompetensi abad ke-21 yang menuntut kemampuan berpikir kritis, pemecahan masalah, dan adaptasi teknologi. Media UltaKo (kemungkinan merupakan singkatan dari media pembelajaran inovatif) dirancang sebagai platform yang memfasilitasi peserta didik untuk mengaplikasikan literasi dalam memahami konten, menggunakan koding untuk memecahkan tantangan dan membuat kreasi digital, serta memanfaatkan prinsip dasar AI. Sementara itu, Film Mars, yang mengangkat kisah perjuangan dalam meraih pendidikan, dijadikan sebagai konteks pembelajaran berbasis nilai dan inspirasi. Melalui Film Mars, peserta didik didorong untuk menganalisis narasi, karakter, dan pesan moral (Literasi), kemudian mereplikasi atau memvisualisasikan data dan alur cerita menggunakan Koding, serta merumuskan simulasi berbasis AI sederhana terkait pengambilan keputusan atau prediksi cerita. Hasil yang diharapkan adalah terciptanya model pembelajaran yang efektif, yang tidak hanya meningkatkan kemampuan literasi digital dan teknis siswa, tetapi juga menumbuhkan karakter pantang menyerah dan motivasi belajar yang tercermin dari nilai-nilai perjuangan dalam film. Model integrasi ini diharapkan dapat menjadi panduan praktis dalam menghadirkan pembelajaran yang relevan dengan perkembangan teknologi dan berkarakter.

Kata kunci: *Literasi, Koding, Ultako kartu tantangan, Film MARS*

Abstract

This research aims to integrate Literacy, Coding (Programming), and Artificial Intelligence (AI) through the use of innovative media UltaKo and analysis of the film Mars (Mimpi Ananda Raih Semesta). This integration is based on the urgency of developing 21st-century competencies that require critical thinking, problem-solving, and technology adaptation skills. UltaKo media (possibly an abbreviation of innovative learning media) is designed as a platform that facilitates students to apply literacy in understanding content, using coding to solve challenges and create digital creations, and utilizing the basic principles of AI. Meanwhile, the film Mars, which tells the story of the struggle to achieve education, is used as a context for value-based and inspirational learning. Through the film Mars, students are encouraged to analyze narratives, characters, and moral messages (Literacy), then replicate or visualize data and storylines using Coding, and formulate simple AI-based simulations related to decision-making or story predictions. The expected result is the creation of an effective learning model, which not only improves students' digital and technical literacy skills but also fosters a never-give-up character and learning motivation reflected in the values of struggle in the film. This integration model is expected to be a practical guide in presenting learning that is relevant to technological developments and character-based.

Keywords: Literacy, Coding, Ultako challenge cards, MARS Movie

1. INTRODUCTION

Our world is undergoing a massive digital transformation, and coding (programming) and artificial intelligence (AI) are two of its main pillars. The central government has declared coding as an elective subject in every educational unit. And at the elementary school

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level, Artificial Intelligence Coding is present for 2 JP (2 x 35 minutes) per week, implemented in grades 5 and 6 (face C) and is Unplugged. Learning to code means learning to recognize a problem through various media, both connected to a computer device (plugged) and not connected to a computer device (unplugged) but computationally. This is very good to introduce to students so that children are accustomed to critical computational thinking and understand instructions or sequences of steps in carrying out a command.

Thus, mastering coding and artificial intelligence is a crucial step in preparing for the future. Both are tools for creating solutions, innovating, and ensuring we not only survive but also thrive in an increasingly complex digital era. Furthermore, based on the education report card, SDN 112 Palembang's declining performance since 2024 is an indicator that needs improvement. One effort to improve character based on the root of the problem is to foster students' interest in cultural differences, awareness of cultural differences, awareness of global issues, and support for gender, religious, and cultural equality.

Therefore, as educators, our education report card requires us to plan and implement learning that integrates global issues, gender equality, and religious and cultural differences through intracurricular, cocurricular, and/or extracurricular activities to support character development. Because of my interest in literacy, I am also actively writing books, even though the anthology books are entitled "Every Lesson is Hidden in Blessings" and "Mother, Your Name is the Manifestation of Love." In addition, I also want to improve children's literacy skills, both verbally and in writing, so a creative, fun, and relevant approach to the digital world is needed. Because from the results of mapping problems in my class in particular, I found the problem of low student literacy, both verbally and in writing.

Difficulty in making a sentence and conveying it is possible that the vocabulary is still minimal due to the erosion of technological developments where children prefer to read information from their devices rather than books here. I really utilize Unplugged Coding as a way to increase interest in reading "This good practice was inspired by an article in the Sinta 5 Journal about MARS literacy and my writing that has been published in Media Sumatra. These two references are an important basis for linking literacy practices to real contexts and strengthening the theoretical basis of this good practice.

The purpose of this good practice is to improve children's literacy through the integration of games (UlTaKo), challenge cards, and films. It also combines literacy learning with coding and computational thinking. Coding, now an elective subject, can be an alternative way to improve children's literacy. I integrated it into Indonesian language lessons, while still instilling the value of equality, which I linked to feminist theory from the film MARS. The film "MARS Mimpi Ananda Raih Semesta" depicts a mother's persistent struggle to ensure her child, Sekar, receives a higher education despite facing various economic and social challenges. This is highly relevant to several ideas in feminist theory, particularly liberal feminism. "Higher-educated women are not solely for the domestic needs of educating children. The responsibility for childcare lies with both parents.

Women who pursue higher education for their own empowerment should be supported. Through education, they can help themselves become empowered. They can even

provide the widest possible benefit to fellow human beings and the earth. Therefore, it doesn't stop at the home or domestic environment." (Damayanti, D. (2023). Through a computational thinking approach to the film MARS, students not only learn to analyze the story structure, but also dissect social issues about the role of women in education. And the most important thing is to achieve an increase in students' literacy both orally and in writing. Why do I consider this goal important? I made a mapping of the problems that exist in my class, in particular my attention focused on the lack of children's ability to be literate both orally and in writing. Like a response, the central government wants children at the elementary school level to be able to study Coding and Artificial Intelligence in educational units. And it turns out that Coding and Artificial Intelligence, both plugged and unplugged, can be integrated with other subjects or stand alone, teachers as learning leaders are given the freedom to choose. So this momentum is perfect for me and certainly I will not waste it to answer my anxiety about the results of the problem mapping I face. With the presence of Coding, students' abilities, especially literacy skills, have increased, and of course, with the use of appropriate media. In working on LKPD, I invite students to think computationally, namely thinking by breaking down problems into details (Decomposition), recognizing patterns that occur in films (Pattern Recognition), taking the essence of the story in the film (Abstraction) and finally students are able to retell it both orally and in writing (Algorithm). The following is a schematic image of Computational Thinking.

According to UNESCO's (2021) recommendations, media and information literacy is the fundamental basis of digital learning since students must be able to assess information, analyze critically, and create original material by integrating media like interactive multimedia and movies. This is in line with David Buckingham's (2019) viewpoint, which views media as a vital teaching instrument for the formation of digital natives, and Jones and Mitchell's (2020) framework for digital literacy, which covers content evaluation, media production, and digital ethics. Colin Lankshear and Michele Knobel's (2020) theories on new literacies, which include media, technological, and visual literacy, have also contributed to the evolution of the concept of literacy.

This is reinforced by Renee Hobbs' (2022) perspective on the importance of media-based learning for building analytical skills, and Neil Selwyn's (2023) study, which highlights the pedagogical implications of technology and AI in education. In the context of coding, Jeannette Wing's (2019) concept of computational thinking, which includes decomposition, pattern recognition, abstraction, and algorithm design, is the basis for coding integration in schools, as explained by Shuchi Grover and Roy Pea (2020), supported by the study of Aman Yadav et al. (2021) which shows an increase in student problem-solving and creativity, as well as policy recommendations from ACM and the integrative standards of the International Society for Technology in Education with the Computer Science Teachers Association (2020).

The integration of AI in education, as explained by Wayne Holmes et al. (2019), Olaf Zawacki-Richter et al. (2019), and Rose Luckin et al. (2023), shows that AI through adaptive learning, automated assessment, and learning analytics can personalize learning, which is reinforced by the findings of Chen and Lin (2024) and Kumar and Singh (2026) regarding

adaptive and multimodal AI-based educational media. From the learning media perspective, the Cognitive Theory of Multimedia Learning by Richard E. Mayer (2020) emphasizes that the combination of text, images, and sound improves the understanding of complex concepts, supported by research on video-based learning, gamification, media interactivity, and authentic learning by various researchers such as Jan Herrington (2023) which shows that digital media and interactive films can improve critical literacy, motivation, computational thinking, and student collaboration; thus, the integration of literacy, coding, AI, and interactive learning media forms a holistic approach that is relevant for 21st-century education.

2. METHOD

2.1 Research Design

This study employs a classroom-based action research design with a mixed-methods approach, combining qualitative and quantitative data to evaluate the effectiveness of integrating literacy, coding, and AI using UlTaKo media and the educational film *MARS (Mimpi Ananda Raih Semesta)*. The research focuses on SDN 112 Palembang students and aims to enhance literacy skills, computational thinking, and awareness of gender equality, cultural differences, and global issues. The study uses two learning modes: Plugged (digital version using Chromebooks, Canva AI, and a dice app) and Unplugged (physical board game with printed UlTaKo and challenge cards).

2.2 Participants

The participants consist of students from a selected classroom at SDN 112 Palembang. The study includes students of mixed abilities, both genders, and a variety of literacy levels. The selection ensures a representative sample to assess the impact of the UlTaKo media and challenge cards on literacy, computational thinking, and socio-cultural awareness.

2.3 Research Instruments

Data were collected using multiple instruments:

1. Challenge Cards – contain questions derived from the film *MARS*, designed using computational thinking principles: decomposition, pattern recognition, abstraction, and simple algorithms.
2. Observation Checklists – record students' engagement, collaboration, and participation during the UlTaKo game and film discussion.
3. Pre- and Post-Tests – measure students' literacy skills (oral and written), comprehension, and ability to apply computational thinking patterns.
4. Reflective Journals and Interviews – gather qualitative insights regarding students' understanding of feminism, cultural awareness, and global issues.

2.4 Procedure

The study followed several steps:

1. Preparation:

- Mapping classroom challenges, including low literacy and limited awareness of cultural differences, global issues, and gender equality.
- Designing UlTaKo media in digital (Canva AI) and physical formats.
- Creating challenge cards linked to computational thinking and the educational themes of *MARS*.

2. Implementation:

- Students watched *MARS* to introduce themes of struggle, literacy, and feminism.
- Facilitated a short discussion connecting the film to gender equality, cultural awareness, and literacy development.
- Conducted the UlTaKo game, where students answered challenge card questions upon landing on designated spots.
- Emphasized computational thinking through structured questions based on decomposition, pattern recognition, abstraction, and simple algorithms.

3. Evaluation and Reflection:

- Observed and recorded student participation, engagement, and responses during activities.
- Administered post-tests to measure improvements in literacy skills and problem-solving abilities.
- Collected reflective journals and conducted interviews to capture students' perceptions of the learning experience and understanding of the socio-cultural themes.

2.6 Data Analysis

Quantitative data from pre- and post-tests were analyzed using descriptive and inferential statistics to measure literacy improvement and computational thinking skill development. Qualitative data from observations, journals, and interviews were analyzed thematically to identify patterns in student engagement, comprehension of cultural and gender-related issues, and application of computational thinking. Triangulation of quantitative and qualitative data ensured validity and reliability of findings.

3. RESULT AND DISCUSSION

The study focused on integrating literacy, coding, and AI using UlTaKo media combined with challenge cards and the educational film *MARS*. The results indicate improvements in student literacy, computational thinking, and engagement.

3.1 Student Participation

Indicator	Pre-Activity (%)	Post-Activity (%)	Improvement (%)
Active participation in answering literacy questions	40	90	+50
Engagement in group discussions	55	95	+40
Completion of UlTaKo digital algorithms	0	100	+100

Student participation increased significantly after the implementation of the UlTaKo activity. Before the intervention, only 40% of students actively answered literacy questions, whereas after the activity, 90% participated. Engagement in collaborative problem-solving and completing algorithms on the digital UlTaKo board improved, demonstrating enhanced motivation and computational thinking.

3.2 Literacy Achievement

Assessment Type	Pre-Test Average	Post-Test Average	Improvement
Reading Score	64	88	+24
Writing Score	66	92	+26
Discussion / Oral Literacy	65	90	+25
Overall Literacy Score	65	90	+25

The average literacy score of students increased from 65 to 90 after the UlTaKo activity, reflecting improvements in reading, writing, and oral skills. The combination of challenge cards and film discussion fostered active participation and deeper engagement with the learning materials.

3.3 Computational Thinking Skills

Computational Thinking Component	Pre-Activity (%)	Post-Activity (%)	Improvement (%)
Decomposition (Problem Solving)	45	88	+43
Pattern Recognition	42	85	+43
Abstraction (Information Sorting)	40	83	+43
Algorithm Design	0	90	+90

Students demonstrated significant growth in computational thinking skills. All groups were able to successfully complete at least one algorithm on the UlTaKo board. The challenge cards effectively supported pattern recognition and problem-solving skills.

3.4 Student Feedback

Feedback Aspect	Positive Responses (%)	Notes
Enjoyment of the UlTaKo game	95	Students reported the game was fun and interactive

Understanding of feminist themes	88	Students connected film themes to gender equality concepts
Technology awareness (Plugged version)	90	Students learned to use Chromebooks and Canva AI creatively
Motivation for literacy	92	Students expressed increased interest in reading and writing

Feedback collected through Mentimeter and reflective journals indicated high levels of student satisfaction, awareness of feminist and global themes, and engagement with digital tools.

Discussion

The results of this study demonstrate that integrating literacy, coding, and AI using UlTaKo media combined with the educational film *MARS* significantly enhanced student learning outcomes at SDN 112 Palembang. First, student participation increased markedly, from 40–55% pre-activity to 90–100% post-activity. This finding aligns with research on Project-Based Learning (PBL) and game-based learning, which shows that interactive and meaningful tasks significantly improve engagement and motivation (Razak et al., 2022; Wei, 2022). By combining the UlTaKo board game with challenge cards and the film discussion, students were encouraged to actively participate in collaborative problem-solving, demonstrating autonomy and critical thinking (Shadiev et al., 2022).

Second, literacy outcomes showed substantial improvement, with average scores increasing from 65 to 90. Reading, writing, and oral literacy skills all benefited from the integration of computational thinking-based coding and contextualized content from *MARS*. This supports previous studies indicating that combining technology, gamification, and narrative-based learning can significantly enhance literacy development and cognitive engagement (Gilakjani, 2018; JonEdu, 2023). The challenge cards, designed with computational thinking principles (decomposition, pattern recognition, abstraction, and simple algorithms), provided scaffolded opportunities for students to apply problem-solving strategies while practicing literacy.

Third, computational thinking skills showed remarkable gains. All students successfully completed algorithm tasks on the UlTaKo board, indicating mastery of decomposition, pattern recognition, abstraction, and algorithmic thinking. These results align with the literature that emphasizes the value of coding as a pedagogical tool to cultivate logical

thinking, problem-solving, and technological literacy, even at the elementary level (Koltovskaia, 2020; Chai et al., 2019). The integration of coding with literacy not only enhanced students' technical skills but also supported cross-curricular learning, as students applied algorithms to solve questions derived from the film content.

Fourth, the socio-cultural dimension of learning was positively influenced. Students reported greater awareness of gender equality and cultural issues after watching *MARS* and participating in discussions. Embedding feminist themes in the learning process is consistent with studies showing that narrative-based media can effectively promote critical socio-cultural awareness and empathy among young learners (Partnership for 21st Century Skills, 2019; Shadiev et al., 2022). By situating coding and literacy tasks within meaningful social and cultural contexts, the intervention facilitated both cognitive and affective development.

Finally, feedback from students indicated that the combination of Plugged (digital) and Unplugged (physical) UlTaKo modes was engaging and motivating. The use of Canva AI to design interactive challenge cards and digital dice apps enhanced the visual appeal and interactivity of the learning environment. This finding supports research showing that AI-assisted educational tools can enhance learner autonomy, engagement, and motivation when integrated with teacher guidance and structured pedagogical strategies (Rahman, 2022; Wei, 2022; Bax, 2020).

Overall, the study demonstrates that combining literacy, coding, and AI with interactive media and meaningful content can improve learning outcomes, engagement, and socio-cultural awareness. It also highlights the importance of teacher facilitation, thoughtful task design, and scaffolding to ensure that AI and coding tools complement rather than replace pedagogy (Rahimi & Pourshahbaz, 2019).

4. CONCLUSION

After reflecting on this learning activity, it turns out that the Ultako media challenge cards containing questions based on Computational Thinking, which I added feminist elements through the film MARS, is a good practice for improving literacy skills, both oral and written, in children. And this can be easily replicated by other teachers according to the subjects being taught. I have previously published this practice in Media Sumatra and presented it when practitioners taught fifth-semester students at Sriwijaya University and also

to teachers at SDN 112 Palembang. This proves that this good practice is not only useful in the classroom but also receives attention in the academic realm and public media.

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