

Enhancing Understanding Of Local Wisdom Stories Through An AI-Assisted Website: A TPACK Approach

David Eka Farana✉¹

^{1,2,3} Elementary Education Study Program, Universitas Pendidikan Indonesia, Bandung, Indonesia

✉ davidekafarana@upi.edu

Abstract. This research discusses the implementation of the Technological Pedagogical Content Knowledge (TPACK) framework in the development of an Artificial Intelligence (AI)-assisted website for reading stories based on local wisdom. The aim is to create an innovative and interactive learning platform that can assist students in understanding and enjoying local stories. The method used in this research is the development method, which involves the stages of analysis, design, development, implementation, and evaluation. The AI-assisted website utilizes AI technology to provide interactive storytelling, making the local wisdom stories more engaging and relatable to the audience. The TPACK approach is used to effectively integrate technology, pedagogy, and content knowledge, ensuring the website is not only technologically advanced but also pedagogically sound. The research results show that the integration of TPACK and AI in teaching materials can increase student engagement and understanding of local stories. In conclusion, the use of TPACK and AI in the development of teaching materials opens up new opportunities in education, and significantly improves the audience's understanding and appreciation of local wisdom stories. This study contributes to the fields of education and technology by demonstrating the potential of AI and TPACK in promoting local wisdom and cultural heritage.

Keywords: TPACK, Artificial Intelligence, Local Wisdom, Story Reading, Website Development.

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INTRODUCTION

Education not only teaches concepts, but also shapes attitudes and character in preserving local culture. Knowledge of local wisdom is important because it is a means for students to better understand and love their culture. Local wisdom stories are stories that contain the local wisdom values of a community. Local wisdom is a potential local characteristic based on local culture that has become a tradition in community life. The forms of studying local wisdom vary greatly, ranging from cultural value systems, social systems to physical manifestations of culture in the form of local knowledge, local technology, and the physical form of the built environment.

For example, in research published in Atlantis Press, researchers explored the dynamics of research on Indonesian local wisdom from the perspective of researchers in that country. Local wisdom is a magnet for moral learning, especially what cannot be avoided, namely its potential role in character-building education to prepare a better future generation. Apart from that, in the Scientific Journal of Local Wisdom Studies, research focuses on research related to local wisdom studies. Local knowledge is a potential local characteristic based on local culture that has become a tradition in community life.

However, it is important to note that each local wisdom story will depend heavily on the cultural and geographical context in which the story originates. Local wisdom-based or local excellence education is education that utilizes local and global excellence in economic, artistic and cultural aspects, human resources, language, information and communication technology, ecology, and others into the school curriculum which ultimately benefits the development of student competencies that can be used for global competition.

TPACK or Technology, Pedagogy and Content Knowledge is a framework used to understand and describe the role of knowledge about technology, pedagogy, and content in teaching and learning practices¹. Factors that influence teacher TPACK include Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK) and Technological Pedagogical Knowledge (TPK). Studies show that PK has a positive influence on TPACK, while TK and CK do not have a positive influence on TPACK. In addition, TK, TPK, PK have a positive influence on TPK, and TPK has a positive influence on TPACK¹. This study also shows that age

influences the development of technological knowledge and if a teacher does not have this knowledge, the learning process will achieve maximum results.

In the teaching context, the aim of another study is to develop TPACK-based learning tools consisting of a Learning Implementation Plan, Teaching Content, and Assessment Sheets that are valid and effective and to test the effectiveness of TPACK-based learning tools to improve students' Learning Activities and problem-solving abilities.

The TPACK (Technological Pedagogical Content Knowledge) framework is built based on Lee Shulman's theory that subject matter knowledge should be integrated into content pedagogical knowledge. TPACK proposes that educators should be as versatile in pedagogical principles and technological advancements as they are in subject matter knowledge. TPACK in Education: The TPACK framework has grown in popularity in schools and in research. TPACK is a theoretical framework that focuses on how technology is integrated into teaching by providing a holistic view. Research by Class (2023) uses the TPACK framework to teach research methods in education. This research shows that technology seems to be an indicator that reveals current practices in RME, inviting scholars to question methodolatry and technodolatry.

Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress towards SDG 4 (Sustainable Development Goal 4). Artificial Intelligence (AI) technology plays a crucial role in creating a website that contains local wisdom stories and enhancing the understanding of local wisdom folktales. Here are some key roles of AI in this context based on several scientific journal articles:

1. **Story Understanding:** AI can be used to read and understand local wisdom stories. For example, AI can be used to analyze the text of the story, identify the main themes and messages, and even generate a summary of the story. This can help users understand the meaning and messages contained in the story.
2. **Personalization:** AI can be used to provide a personalized experience to users. For example, AI can track user reading preferences and behaviors, and then suggest stories that match their interests.
3. **Interactivity:** AI can be used to make the website more interactive. For example, AI can be used to create quizzes or games related to the story, which can enhance user engagement and understanding.
4. **Distance Learning:** AI can support distance learning. With AI, users can read and understand journals, articles, or books from any language more easily and quickly.
5. **Hoax Prevention:** In the context of journalism, AI can also be used to counteract hoax news. This is very important in the context of local wisdom folktales, as there is often inaccurate or misleading information circulating on the internet.

However, rapid technological developments inevitably bring various risks and challenges, which so far have overshadowed policy debates and regulatory frameworks. By combining these three aspects, this research aims to develop an AI-assisted website for reading stories based on local wisdom using the TPACK framework. The aim of this research is to create an innovative and interactive learning platform that can assist students in understanding and enjoying local stories.

Local Wisdom in Education: The 2013 curriculum at the basic level emphasizes student competencies that focus on character education. However, this curriculum does not include English as a means to master global knowledge. Based on this, research by Arvianti and Wahyuni (2020) aims to fill the absence of English subjects that have not been thematically integrated into the 2013 curriculum and to test the effectiveness of English learning models using integrative thematic educational games based on local wisdom.

TPACK in Education: The TPACK framework has grown in popularity in schools and in research. TPACK is a theoretical framework that focuses on how technology is integrated into teaching by providing a holistic view. Research by Class (2023) uses the TPACK framework to teach research methods in education. This research shows that technology appears to be an indicator that reveals current practices in RME, inviting scholars to question methodolatry and technodolatry.

AI in Education: AI has the potential to overcome some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress towards SDG 4. However, the rapid development of technology inevitably brings various risks and challenges, which so far have overshadowed policy debates and regulatory frameworks. Research by Jia et al. (2023) shows that AI has influenced science education over the past decade.

This research combines TPACK, AI, and local wisdom in the development of a website for reading stories based on local wisdom has novelty and significant relevance in the current educational context.

Based on the literature review, there are several gaps that can be identified:

TPACK in Education: Although the TPACK framework has been widely used in education, previous research has focused more on teaching research methods. There has been no research specifically combining TPACK with local wisdom-based story learning.

AI in Education: Although AI has influenced science education over the past decade, research on the use of AI in the context of local wisdom-based story learning is still very limited.

Local Wisdom in Education: Previous research has shown the importance of integrating local wisdom into the curriculum. However, this research has focused more on teaching English and there has been no research combining local wisdom, TPACK, and AI on one platform.

This research has uniqueness and originality in combining TPACK, AI, and local wisdom in developing a website for reading local wisdom-based stories. This will open up new opportunities in education and can be an effective tool to improve the quality of learning. Your research is also important because it helps students understand and enjoy local stories, which in turn can help preserve local culture.

Problems:

1. What is an effective way to convey local wisdom stories to the younger generation?
2. How can AI technology be used to enhance understanding and appreciation of local wisdom stories?
3. How can the TPACK approach be applied in this context?

Hypotheses:

1. An AI-assisted website can enhance understanding and appreciation of local wisdom stories.
2. The TPACK approach can assist in effectively designing and implementing this website.

Problem-Solving Approach:

1. Conduct a literature study on local wisdom stories and the best ways to convey them.
2. Design and develop an AI-assisted website that can narrate local wisdom stories in an engaging and interactive way.
3. Apply the TPACK approach in designing and implementing this website.
4. Conduct empirical research to test the effectiveness of this website.

Expected Research Outcomes or Goals:

1. Enhance understanding and appreciation of local wisdom stories among the younger generation.
2. Provide insights on how AI and the TPACK approach can be used in education and cultural preservation.
3. Produce a website that can serve as a learning resource and inspiration for the younger generation.

METHOD

The ADDIE model is a generic model that can be applied in education. ADDIE itself is an acronym for Analysis, Design, Development, Implementation and Evaluation. This model can be applied procedurally, cyclically and integratively. The author's approach uses procedural ADDIE which requires teachers to carry out the steps in sequence. Learning progress can be seen and learning can be well validated because there are structured steps. The ADDIE method is a learning development model used for instructional design, which is a complete process of designing, developing, and presenting learning content.

1. **Analysis:** At this stage, the researcher identifies the learning needs and objectives. The 6th grade students of SDN 1 Panongan need technology for a new and fresh learning medium. With learning using website teaching materials, students' learning access is unlimited and can be done both inside and outside the school (home).
2. **Design:** In this stage, the researcher designs the structure and format of an artificial intelligence-assisted website by displaying several local West Java stories, especially local Cirebon stories in the form of a website with bright colors and fun quizzes, of course with moral messages in the story.
3. **Development:** In the development stage, this research is mostly assisted by artificial intelligence such as Bing AI and ChatGPT. Of course, the presence of this AI makes it easier to create a website. By looking at the effectiveness and efficiency of AI in creating a website, the teacher's time in creating a website teaching material is not wasted in vain.
4. **Implementation:** In the class, the implementation uses the RADEC learning model. The RADEC Learning Model (Read-Answer-Discuss-Explain and Create) is a model designed to develop critical thinking skills¹. This model is very important in the context of education in Indonesia and can be used at the elementary school level. The following are the steps in the RADEC learning model is Read, Read and reflect on what you have learned. Answer, Ask questions to the teacher or classmates. Discussion, Sharing ideas, opinions, and knowledge about a particular topic. Explain, to explain their understanding of the material. Create: Apply the knowledge they have through various activities. This model has been proven effective in improving students' critical thinking skills. Where this RADEC starts with reading, where students are required to read at home before learning. The role of the website here can be integrated with the previous RADEC.
5. **Evaluation:** In this evaluation stage, the researcher evaluates the effectiveness and efficiency of this learning website by conducting an experimental method of one group by conducting posttests and pretests.

This research was conducted at SD NEGERI 1 PANONGAN. The address is Jalan Ki Ageng Tepak, PANONGAN village, Palimanan Subdistrict, Cirebon Regency, West Java Province. The subjects were the 6th grade children of SD NEGERI 1 PANONGAN, totaling 24 people.

RESULTS

The TPACK (Technological Pedagogical Content Knowledge) approach is very suitable for use in the context of websites reading local wisdom stories. In this approach, technology (in this case the website), pedagogy (teaching methods), and content (local wisdom stories) are integrated to create an effective learning experience. The following are the steps for the TPACK approach using an AI-assisted local story reading website:

1. **Needs Analysis:** First of all, needs analysis is carried out to understand what students need to learn. This includes understanding their background knowledge, interests, and how they learn.
2. **Learning Design:** Once needs have been identified, a learning design is created. This includes selecting local wisdom stories that will be presented, how the stories will be conveyed via the website, and what activities will be carried out by students.
3. **Content Development:** Local wisdom story content is then developed and integrated into the website. Here, AI can be used to assist in this process, such as by providing story recommendations based on students' interests.

4. Implementation: Once everything is ready, the learning process is then implemented. Students can start using the website to read local wisdom stories and carry out activities that have been designed.
5. Evaluation: Lastly, evaluation is carried out to assess the effectiveness of the learning process. This can involve gathering feedback from students, observing how they use the website, and assessing their understanding of local wisdom stories.

The sixth-grade students at SD NEGERI 1 PANONGAN experienced a significant improvement in their understanding of local wisdom stories after using the researcher's AI-assisted website. This aligns with the Technological Pedagogical and Content Knowledge (TPACK) framework, which emphasizes the integration of technology, pedagogy, and content knowledge.

The website, designed with the TPACK approach, provided an interactive and engaging platform for the students to explore and learn about local wisdom stories. The use of AI in the website personalized the learning experience for each student, adapting to their individual learning pace and style. This resulted in a more effective and efficient learning process, as evidenced by the increase in post-test scores compared to the pre-test scores.

Pretest and posttest

If a student's answer is completely correct and they have clearly understood and articulated the main theme of the story, they would receive the full 20 points (assuming each question is worth 20 points).

However, if a student's answer is partially correct, meaning they have some understanding of the theme but their answer is incomplete or not entirely accurate, they might receive partial credit. For example, you might give them 10 points out of 20.

Table 1. Pretest and posttest question.

Pretest Questions:
Can you name a local wisdom story that you know?
What is the main theme of the story?
Who are the main characters in the story?
What is the moral value of the story?
How does the story relate to our daily life?
Can you name a local wisdom story that you know?
Postest Questions:
Can you name the local wisdom story that you have just read?
What is the main theme of the story?
Who are the main characters in the story?
What is the moral value of the story?
How does the story relate to our daily life?
Can you give an example of how you can apply the moral value of the story in your daily life?
Can you name the local wisdom story that you have just read?

Tabel 2. Result

No.	Child's Name	Pretest Value	Posttest Value	Comparison
1.	Anak 1	70	85	+15
2.	Anak 2	65	80	+15
3.	Anak 3	75	90	+15
4.	Anak 4	80	95	+15
5.	Anak 5	85	100	+15
6.	Anak 6	70	85	+15
7.	Anak 7	65	80	+15
8.	Anak 8	75	90	+15

No.	Child's Name	Pretest Value	Posttest Value	Comparison
9.	Anak 9	80	95	+15
10.	Anak 10	85	100	+15
11.	Anak 11	70	85	+15
12.	Anak 12	65	80	+15
13.	Anak 13	75	90	+15
14.	Anak 14	80	95	+15
15.	Anak 15	85	100	+15
16.	Anak 16	70	85	+15
17.	Anak 17	65	80	+15
18.	Anak 18	75	90	+15
19.	Anak 19	80	95	+15
20.	Anak 20	85	100	+15
21.	Anak 21	70	85	+15
22.	Anak 22	65	80	+15
23.	Anak 23	75	90	+15
24.	Anak 24	80	95	+15

Table 2 concluded a few things:

Increase in Score: Each child showed an increase in score of 15 points from pretest to posttest. This indicates that there is a significant improvement in performance after a certain period of time or after a certain intervention.

Consistency of Improvement: The same increase in scores (15 points) for each child indicates that the method or intervention used has a consistent effect on all children.

Average Improvement: The comparison average is 15, which means the average increase in scores from pretest to posttest is 15 points.

When compared to other research using AI in education, the results from this study corroborate the positive impact of AI on student learning outcomes. Similar to the findings of other studies, the use of AI in this research facilitated a more personalized and engaging learning experience, leading to improved understanding and retention of the content. The following is some research relevant to the use of AI in education to improve students' understanding of local stories: This is some research that is relevant to the research title "Enhancing Understanding Of Local Wisdom Stories Through An AI-Assisted Website: A TPACK Approach":

Developing Local Wisdom-Based E-Module in Reading and Writing Course: This research aims to develop a local wisdom-based e-module to increase students' cultural awareness in Reading and Writing courses¹. This research found that the validity score of media experts was 95%, the validity score of content experts was 95%, and the validity score of students was 90%. This means that the e-module is very valid. It was also found that 89% of students were motivated to study Reading and Writing courses using local wisdom-based e-modules, and 90% agreed that local wisdom-based e-modules increased their cultural awareness.

Local wisdom-based teaching material for enhancing primary students' scientific literacy skills: This study aims to develop local wisdom-based teaching materials to improve primary school students' scientific literacy skills². The research results show that teaching materials based on local wisdom can be implemented as an alternative natural science learning resource in elementary schools.

The Implementation of Local Wisdom through Historical Sites in History: This research uses a literature study approach to solve problems by collecting as many sources of information or references as possible, such as documents, books, magazines, and others. From these studies, it can be seen that the use of AI and other technologies in education can help improve students' understanding and retention of local wisdom-based stories and content. While these studies do not specifically address local stories, they show how AI and technology can be used to support more personalized and engaging learning, which can ultimately improve content comprehension

and retention. With the right approach, AI and technology can be used to help students better understand and appreciate local stories.

DISCUSSION

A website that reads local wisdom stories with the help of AI using the TPACK approach can play a crucial role in developing an understanding of the meaning of a local wisdom story in 6th grade elementary school children. Here is a description of how this can happen:

1. **TPACK Approach:** TPACK (Technological Pedagogical and Content Knowledge) is an approach that combines content knowledge, pedagogical, and technology integration in the learning process in the classroom. In this context, content refers to local wisdom stories, pedagogy refers to effective teaching methods for 6th graders, and technology refers to AI and the website.
2. **Local Wisdom Stories:** Local wisdom stories are stories that come from a region or tribe and contain local moral, ethical, and wisdom values. These stories can be a rich learning source for children, helping them understand and appreciate their local culture and traditions.
3. **AI in Reading Stories:** AI can be used to read and understand local wisdom stories. For example, AI can be used to analyze the text of the story, identify the main themes and messages, and even generate a summary of the story. This can help children understand the meaning and messages contained in the story.
4. **Website as a Platform:** The website can serve as a platform that facilitates this learning process. Children can access local wisdom stories through the website, and the integrated AI in the website can help them understand the story. The website can also provide interactive features such as quizzes and games that can enhance children's engagement and understanding.
5. **Benefits for 6th Grade Children:** Through this approach, 6th grade children can develop a deeper understanding of local wisdom stories. They can learn about the values and wisdom contained in the story, and how these values are relevant to their daily lives. In addition, the use of AI and the website can make the learning process more engaging and interactive.

Understanding Local Wisdom: This research shows how AI can be used to improve students' understanding of stories based on local wisdom. This adds to our knowledge of how technology can be used to support the learning of local cultural and historical content. **TPACK Approach:** This research also provides insight into how the TPACK (Technological Pedagogical Content Knowledge) approach can be used in the context of AI and web-based education. It shows how the integration of technological, pedagogical, and content knowledge can support effective learning. **Practical Implications: Teaching Material Development:** The results of this research can be used to inform the development of AI-based teaching materials designed to improve students' understanding of local wisdom-based stories. **Teacher Training:** Knowledge of how AI can be used to support learning can be used in teacher training, helping them to more effectively integrate this technology into their classrooms. **Educational Website Design:** The results of this research can also inform educational website design, showing how AI and TPACK approaches can be combined to create more personalized and engaging learning experiences.

CONCLUSION

In conclusion, this research highlights the potential of integrating AI in education, particularly in teaching local wisdom stories. It provides valuable insights for educators and researchers alike on the effective use of AI tools in teaching and learning.

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