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APPLYING AI TO DESIGN DIGITAL LEARNING MATERIALS IN TEACHING THE LITERATURE THEME WITHIN LOCAL EDUCATIONAL MATERIALS FOR GRADE 6 IN THAI NGUYEN PROVINCE, VIETNAM

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ABSTRACT

In the digital era, Vietnamese education is undergoing a profound transformation toward modernization, centering on the development of learners' qualities and competencies. Consequently, the integration of Artificial Intelligence (AI) into teaching has become an inevitable requirement. This research was conducted by combining theoretical methods including the analysis and synthesis of literature on AI, digital learning resources, and the Literature theme within the Grade 6 Local Education Materials of Thai Nguyen Province with empirical research via questionnaires surveyed among local teachers and students.

Based on an assessment of the current situation, the study proposes a system of principles and implementation processes, alongside introducing several typical AI-supported digital learning products. The research not only helps address the shortage of learning resources but also contributes to the development of digitalization models in pedagogy, enhancing learning engagement and educational effectiveness. Furthermore, it serves as a valuable reference for teachers to innovate their teaching methods within the context of digital transformation in education.

KEYWORDS: AI, digital learning materials, The Literature theme, Grade 6, Thái Nguyên Province.

1. INTRODUCTION

In the digital era, driven by the robust advancement of digital technology and Artificial Intelligence (AI), the demand for modernizing teaching activities toward learner competency development has shifted education into a more flexible, personalized, and efficient direction. Given the orientation toward comprehensive digital transformation, the application of AI in teaching Literature at the high school level has become essential, contributing to pedagogical innovation and the enhancement of educational quality.

Thai Nguyen Province is a land of long-standing cultural traditions and home to numerous ethnic minority groups with rich and diverse cultural lives. Within the local educational materials of Thai

Nguyen Province for Grade 6, the Literature theme introduces a system of unique cultural values crystallized through literary works associated with local identity. This contributes to fostering patriotism and a sense of preserving cultural heritage in students. In teaching the Literature theme within the local educational materials of Thai Nguyen Province for Grade 6, teachers have promptly adapted their methods and begun applying technology. However, such applications remain inefficient and uncommon, and the use of AI to design digital learning materials is still limited—representing a significant gap that needs to be filled.

Previous studies on the application of AI and digital learning materials in teaching Literature and the Literature theme within the local educational materials of Thai Nguyen Province and Northern mountainous provinces in general can be summarized into two approaches. First, research focuses on affirming the necessity of applying artificial intelligence and technology in teaching Literature, such as: Tran Thi Hanh Phuong and Chau Thi Kim Ngan (2024) with the article “Applying Artificial Intelligence (AI) in teaching Literature at high schools” [8], and Trieu Bao Ngoc, Trinh Thi Lan, and Nguyen Thi Hoai Phuong (2025) with the study “Orientations for applying Artificial Intelligence in teaching Speaking and Listening in Literature at high schools” [7]. These studies have clarified the theoretical foundations of AI in education, pointing out characteristics such as personalization, automation, and continuous feedback, while proposing several directions for application in teaching reading, writing, speaking, and listening skills. The study by Nguyen Thanh Huyen, Nguyen Thi Hue, and Nguyen Thi Lieu (2024) with the article “Applying Information Technology to design Learning Games in teaching Adverbials for Grade 4 Students” [6] concretized the application of technology in designing learning materials. However, most of these studies primarily stay at the level of orientation or traditional information technology application and have not delved deeply into designing AI-integrated digital learning material systems for specific themes.

Second are studies on the development of learning materials and technology applications, especially digital learning materials and artificial intelligence for the Literature theme within the local educational materials of Thai Nguyen Province and Northern mountainous provinces in general. Typical examples are the works of Cao Thi Hao (2025), such as “Several issues on developing learning materials for the Literature theme in local education at the Lower Secondary level in Northern mountainous provinces” [2] and “The issue of using AI to develop digital learning materials for the Literature theme in local education in some Northern mountainous provinces of Vietnam” [3], and the research by Tran Thi Thang et al. (2025) titled “Building digital learning materials for organizing experiential activities in teaching local education at the Upper Secondary level” [10]. These studies have initially established a theoretical framework, proposed processes for developing digital learning materials, and suggested possibilities for technological integration in teaching; however, they still primarily remain at the level of orientation, lacking implementation models and specific products that can be utilized in the educational process.

In conclusion, the design of AI-applied digital learning materials for the Literature theme within local educational materials, tailored to specific grade levels and local contexts, remains a research gap that requires further exploration and development.

2. RESEARCH METHODS

The article employs a combination of theoretical research methods, including the analysis and synthesis of documents concerning Artificial Intelligence (AI), digital learning materials, and the Literature theme within the Grade 6 local educational materials of Thai Nguyen Province. Additionally, empirical research methods are utilized through questionnaire surveys conducted among teachers and students in the province to assess the current status of digital learning material usage, as well as the challenges and advantages teachers face when applying AI tools to design learning materials.

3. RESEARCH RESULTS

3.1 Current status of using AI and digital learning materials in teaching and learning the Literature theme (Grade 6 local educational materials of Thai Nguyen Province)

We conducted a survey targeting two groups: teachers and students in Thai Nguyen and Bac Kan provinces (prior to the merger). Specifically, for teachers, the survey was conducted at 13 schools with the participation of 42 teachers. For students, the survey was carried out at 6 schools with a total of 363 participating students. We would like to analyze several noteworthy results as follows:

For teachers:

Survey results on the current frequency of using digital learning materials and AI applications among teachers:

Chart 1.1. Frequency of teachers using AI tools and digital learning materials in teaching the Literature theme (local educational materials of Thai Nguyen Province, Grade 6).

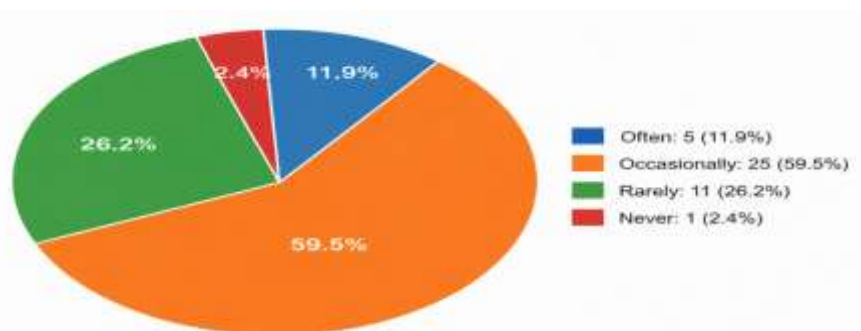


Table 1.1. In which teaching activities of the Literature theme (local educational materials of Thai Nguyen Province, Grade 6) have you applied AI tools and digital learning materials?

Opinions	Quantity	Percentage
Warm-up, lesson introduction, and creating introductory situations	29	69%
Guiding textual reading comprehension	15	33,7%
Practice and knowledge consolidation	14	33,3%
Assigning learning tasks to students	9	21,4%
Assessing learning outcomes	2	4,8%

Types of digital learning materials used by teachers in teaching Literature and the Literature theme (local educational materials of Thai Nguyen Province, Grade 6).

Table 1.2. Types of digital learning materials used by teachers in teaching Literature and the Literature theme (local educational materials of Thai Nguyen Province, Grade 6).

Opinions	Quantity	Percentage
Videos/Clips illustrating textual content	27	64,3%
Podcasts/Audiobooks	5	11,9%
Digital comics, illustrative images	13	31%
Online learning games	9	21,4%
Electronic lectures (PowerPoint, e-learning)	2	4,8%

Based on the data above, the application of AI and digital learning materials in teaching has initially been approached by teachers. However, the frequency of use remains limited, primarily at the "Occasionally" (59.5%) and "rarely" (26.2%) levels. The most frequently used digital learning material is "Videos/Clips illustrating textual content," cited by 27 teachers (64.3%), and it is most commonly utilized during the warm-up or lesson introduction stage (69%).

The survey results regarding the challenges teachers face when applying AI in teaching the Literature theme (local educational materials of Thai Nguyen Province, Grade 6) are illustrated in Chart 1.3.

Table 1.3. Challenges faced by teachers when applying AI in teaching the Literature theme (local educational materials of Thai Nguyen Province, Grade 6).

Opinions	Quantity	Percentage
Limited skills in using AI tools and digital learning materials	16	38,1%
Lack of instructional materials for designing and using digital learning materials	29	69%
Inconsistent technological infrastructure and facilities	6	14,3%
Time-consuming process of investing in learning material design	13	31%
Difficulty in digitizing and utilizing AI for local Literature content	12	28,6%
Concerns about the accuracy and suitability of AI-generated products	19	45,2%

The current state of applying AI in teaching the Literature theme has received implementation attention, yet numerous obstacles persist. The primary difficulty lies in the lack of instructional materials for designing and using digital learning materials, accounting for 69%.

Regarding the student survey results:

The survey results on the advantages and difficulties of studying the Literature theme (local educational materials of Thai Nguyen Province, Grade 6) through the use of AI-designed digital learning materials are presented in Tables 1.4 and 1.5.

Table 1.4. Advantages of studying the Literature theme (local educational materials of Thai Nguyen Province, Grade 6) through the use of AI-designed digital learning materials.

Opinions	Quantity	Percentage
Having stable devices and internet connection	92	25,3%
Being proficient in using AI tools	59	16,3%
Abundant and accessible digital materials on Thai Nguyen Literature	149	41%
Having sufficient class time to experience digital learning materials	121	33,3%
Easier to focus thanks to visual and vivid digital learning materials	135	37,2%

Regularly accessing and becoming familiar with technology	54	14,9%
Others	2	0,6%

Table 1.5. Difficulties in accessing AI and digital learning materials when studying the Literature theme (local educational materials of Thai Nguyen Province, Grade 6)?

Opinions	Quantity	Percentage
Lack of devices or internet connection	55	15,2%
Not yet proficient in using AI tools	130	35,8%
Limited digital materials on Thai Nguyen Literature	133	36,6%
Insufficient class time for experience	118	32,5%
Difficulty focusing when studying with digital devices	51	14%
Rare access to technology	51	14%
Preferring the traditional dictation-based (read-and-copy) method	30	8,3%

Students identify several favorable conditions for effective learning of the theme, such as abundant, accessible learning resources and the visual nature of the educational content. This serves as a foundation for the continued development and design of AI-supported digital learning materials. However, major difficulties persist, primarily due to the limited availability of digital resources specifically for Thai Nguyen Literature (36.6%) and a lack of proficiency in using AI tools (35.8%).

The survey results indicate that while the application of AI and digital learning materials in teaching the Literature theme has been initially implemented, it has not yet achieved full effectiveness. Teachers' use of resources and AI remains restricted by challenges in skills, instructional documentation, and design time. Meanwhile, although students show interest in digital materials, they are hindered by limited usage skills and a lack of suitable resources. This situation necessitates the creation of digital learning materials that are clearly oriented, user-friendly, and aligned with the specific characteristics of the educational content. Furthermore, it is essential to propose a concrete design process to support teachers in effective practical implementation.

3.1. Principles and Procedures for AI Technology Application

The design of digital learning materials integrated with artificial intelligence in teaching must adhere to several fundamental principles: **Principle 1: Ensuring the learner-centered role:** The use of AI in digital material design must place learners at the center, creating conditions for students to actively participate in learning activities, thereby forming self-study competencies. **Principle 2: Ensuring suitability for student capacity and promoting creativity:** Materials must be designed to suit the level, characteristics, and needs of learners, while encouraging student participation in learning activities to develop thinking and creative abilities. **Principle 3: Ensuring alignment with genre characteristics and aesthetic values of teaching content:** V.Ia. Propp stated, “In the science of folklore, it can be said that genre is the basic unit from which all research must proceed.” [9; pp. 473,474]. Material design must strictly adhere to genre-specific traits and the aesthetic value of the content; teachers must control and adjust AI-generated products to avoid inaccuracies. **Principle 4: Ensuring high interactivity:** Designing digital materials requires enhancing interactive elements such as questions, tasks, and feedback to ensure active student engagement, thereby consolidating knowledge. **Principle 5: Ensuring feasibility and suitability for implementation conditions:** Materials must be feasible, aligned with practical conditions (equipment, time, proficiency), user-friendly, flexible, and effective in implementation.

Regarding the application procedure, our research inherits the perspective of Yogi Pinilih et al. (2024) with a three-step model: (1) Planning; (2) Design; (3) Development [13]. We specify this through 7 steps adapted for the context of teaching the Literature theme: Step 1: Define objectives and required competencies; Step 2: Research and select theme content; Step 3: Select design tools; Step 4: Process content and materials; Step 5: Design learning materials; Step 6: Organize pilot testing; Step 7: Evaluate and adjust.

3.2. Applying AI to Design Digital Learning Materials for the Literature Theme (Local Educational Materials of Thai Nguyen Province, Grade 6)

3.3.1. Applying AI to Design Interactive Videos

The interactive animated video product is developed to help students identify and remember genre characteristics and fairy tale texts through visual observation, while actively exploring plot structures, characters, and meanings via interactive questions. The animated content, derived from the text, combines a system of cognitive questions (recognition, analysis, evaluation) embedded within the video that automatically pauses, encouraging students to participate actively. Teachers utilize these videos as tools to support knowledge formation, organizing discussions and resolving questions at each pause point to align with lesson objectives. The development process employs AI tools such as ChatGPT, Flow Labs (image generation), Grok (video generation), Google Studio AI (voice generation), CapCut (editing), and integrates interactivity through the giaoviendoimoi.com platform.

We selected the fairy tale "Ca Vit" for illustration. The process is as follows: Use ChatGPT to develop the script and create prompts for characters and scenes. Then, use Flow Labs to generate and synchronize character scene images based on the prompts, and input these images into Grok to create motion videos according to the script prompts. These short videos are compiled and edited in CapCut, combining audio (text-to-speech via Google Studio AI) and background music to finalize the product. Finally, the giaoviendoimoi.com website is used to insert interactive questions into the video for storage and classroom use.

Finalized products: Video product link::<https://youtu.be/GVfdoaWY-qg>; Interactive video product link: <https://giaoviendoimoi.com/join?code=38419>.

3.3.2. Applying AI to Design E-books (Interactive Books) and Comics

This product aims to transform texts into visual digital learning materials, assisting students in developing self-study competencies and actively acquiring textual knowledge. The content is presented as a comic book integrated with videos, audio, and games, organized into segments. Teachers can use these materials before class for students to explore content and prepare knowledge, while simultaneously checking comprehension levels through the game system. The materials utilize AI tools including ChatGPT (scriptwriting), Nano Banana (image generation), Canva (layout design), and Heyzine (multimedia integration and interactive book creation).

We chose to illustrate the legend "The Tale of Thuong Temple and Duom Mountain." The process is as follows: Use ChatGPT to construct the comic script (setting, narration, dialogue), then refine and request prompts with specific color and size criteria for consistency. Based on the script, Nano Banana generates images from the prompts. Once images are ready, the teacher uses Canva for arrangement, design, and editing. Finally, the file is exported as a PDF and uploaded to Heyzine to create an interactive book, integrating additional effects, audio, video, and games for teaching purposes.

Finalized products: <https://heyzine.com/flip-book/bd792e7661.html>

3.3.3. Creating Knowledge Assessment Games with AI

This product is designed to help students consolidate textual knowledge after learning, creating a positive learning atmosphere while increasing student interest and initiative. The game content consists of a multiple-choice question system focusing on core knowledge such as genre characteristics and textual content. Teachers use these materials during practice activities to both test and help students reinforce their knowledge. The development process is carried out using ChatGPT (for content and game structure) and Canva AI (for interface, image, and layout design).

We selected the legend "The Tale of Cong River and Coc Mountain" for illustration. The process is as follows: The teacher develops a set of knowledge assessment questions based on the lesson content, uses ChatGPT to generate design prompts for the game, and then adjusts and adds requirements for form, color, etc. Next, the prompts are entered into Canva AI (Code section) to generate the game and

edit the content and interface. The product is exported as a slideshow or web link for classroom use and student assignments.

Finalized products: <https://trochoisutichsongcongnuicoc6.my.canva.site/ng-d-ng-ch-a-c-t-n>

3.3.4. Designing Postcards (Text-to-Speech)

The audio Postcard product is designed to spark interest and help students access texts through imagery and narration, leading to a deeper understanding of the content. The product combines illustrations with story audio, supporting students in capturing the content and meaning of the work visually. Teachers can use this during knowledge formation or general overview activities. The design process utilizes Nano Banana (image generation), TTSTFree.com (text-to-speech), and Canva (layout and integration).

We chose to illustrate the fairy tale "The Origin of the Monkey." The process is as follows: The teacher uses Nano Banana to create the cover image, then uses TTSTFree.com to convert text into speech (MP3). Finally, the Postcard is designed in Canva, where the image and audio are inserted, and the file is exported for use.

Finalized products: [Postcard Nguồn gốc con khỉ](#).

4. CONCLUSION

The application of AI in designing digital learning materials for teaching the Literature theme (local educational materials Grade 6, Thai Nguyen Province) is a direction that aligns with current educational reform and digital transformation requirements. Research indicates that AI assists teachers in creating diverse, visual, and highly interactive materials, contributing to enhanced student learning interest. However, the implementation process still faces certain limitations such as AI usage skills, resource availability, and practical teaching conditions. Therefore, support in training, instructional documentation, and the development of appropriate digital learning materials is necessary. Applying AI in teaching not only improves instructional effectiveness but also promotes methodological innovation and the development of education towards a modern direction.

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