Analysis of the Requirements for the 'Trip to Desawarnana' (Tri-D) product: a Cinematic Adaptation of Hayam Wuruk's Journey, Based on the Negarakretagama

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Abstract. This study addresses the needs analysis required to develop a prototype of a digital learning medium based on cinematisation that reconstructs the journey of Hayam Wuruk in the 14th century, as recorded in the Nagarakretagama. The method used in this study was a quantitative survey to assess the level of need and readiness of students regarding the medium being developed, conducted via a limited survey with structured questions to determine the percentage of students' need for digital media, particularly videography. Data were collected via a needs analysis questionnaire administered to 30 History Education students at Malang State University. The results indicated a high level of readiness amongst students regarding digital media, with 92.8 per cent agreeing that history teaching should utilise technology and 75 per cent preferring videography to contextualise historical content. This study contributes to digital history pedagogy by presenting source-based and spatially grounded cinematic media that enhance historical literacy and support the competencies required for 21st-century learning.

Keywords: Hayam Wuruk, Nagarakretagama, Cinematisation.

1 Introduction

The development of information technology in the 21st century has brought about major changes in the world of education, including the way in which historical knowledge is conveyed to students. Digital transformation has spurred the emergence of innovative learning models that require active student participation, thereby shifting the learning paradigm from teacher-centred learning towards student-centred learning [1], [2], [3], [4]. This shift requires educators to create learning experiences that are contextual, interactive and technology-based.

In this regard, 21st-century education emphasises the importance of critical thinking, collaboration, creativity and digital literacy as core competencies that underpin interdisciplinary learning [5], [6]. The concept of multi-channel learning enables students to access a variety of digital resources independently [7]. However, rapid technological development also presents challenges, as students may be exposed

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to superficial or fragmented information if their learning is not properly guided. Therefore, innovation in learning media is an urgent priority to ensure that technology serves not only as entertainment, but also as a meaningful and transformative educational tool.

One approach that has gained significant traction over the past decade is the use of film and visual narratives as a learning tool [8], [9]. Several studies have shown that video-based learning is an effective and flexible medium for distance and active learning environments. In line with these findings, the cinematic approach is a form of video media development that not only conveys content but also emphasises students' experiences and emotional engagement. Cinematisation is effective because it presents a learning experience that closely resembles reality, transcends temporal and spatial limitations, and integrates visual, audio, textual and musical elements into a cohesive narrative [10], [11], [12], [13]. In the study of history, this approach provides students with the opportunity to reconstruct the past in depth whilst fostering historical empathy [14], [15].

Despite its potential, efforts to integrate cinematic media with local historical sources in Indonesia remain limited. Yet Indonesia possesses numerous historical sources of great educational value, one of which is the Kakawin Nagarakretagama by Mpu Prapanca. [16]This fourteenth-century manuscript documents the political career of Hayam Wuruk and provides extensive geographical, archaeological and cultural insights into the Majapahit kingdom [17], [18], [19]. The reconstruction of Hayam Wuruk's journey offers significant potential for developing contextual learning materials that strengthen cultural awareness and national identity. Despite these developments, the integration of immersive cinematic media into the study of classical Indonesian historiography remains under-explored. The Nagarakretagama, a 14th-century Javanese court text, documents Hayam Wuruk's political, ceremonial and spiritual journeys in East Java. Although widely used in historiographical research, the text has not yet been extensively adapted into digital learning resources that enable learners to visualise the spatial dynamics of the Majapahit government. This gives rise to several gaps: 1) history learning resources often remain descriptive and text-dominated, thereby limiting students' spatial and contextual understanding; 2) there is little research integrating cinematic adaptations with archaeological and geographical evidence from classical Indonesian sources; 3) digital history learning tools that combine multimedia, spatial reconstruction and historical narrative remain limited.

Recent international research indicates that global education is undergoing a significant transformation towards digital and immersive learning, including the use of interactive videos, educational films, and Virtual Reality (VR) and Augmented Reality (AR) technologies, which are capable of creating more authentic and contextual learning experiences. [20]. This approach has proven effective in enhancing learners' conceptual understanding, emotional engagement and learning retention through multisensory and interactive learning experiences. However, the majority of existing research still focuses on the development of technology-based learning resources in general, particularly in the STEM fields, and has not yet focused significantly on the development of cinematic products based on authentic historical narratives derived from primary sources. Studies on the use of VR and video in

history education remain limited to the general visualisation of events, without in-depth integration of primary historical sources such as the Negarakertagama.

Against this background, this research assesses the level of demand amongst university students for videography-based media. The level of need is assessed from two aspects: the presentation aspect, in the form of the videographic media itself; and the content aspect, namely local historical material concerning Hayam Wuruk's journey as sourced from the Nagarakertagama. By transforming the Nagarakertagama into cinematic learning media, this research contributes to the revitalisation of cultural heritage, the enhancement of contextual history learning, and the strengthening of national identity through modern, learner-centred educational practices.

2 Method

The data collection and analysis methods employed a quantitative survey approach, whereby a questionnaire was distributed via Google Forms to the research subjects. The data obtained took the form of statistical figures that could be interpreted and analysed to describe the conditions being measured. Quantitative data consists of numerical data used to test hypotheses or theories through objective measurement [21]. The Analysis phase began with an examination of the curricular requirements and the identification of pedagogical gaps in the use of technology and the teaching of local history. A needs analysis questionnaire was then distributed to 30 students (one class) enrolled on the Bachelor's degree programme in History Education at Malang State University. The selection of 30 students was based on the requirement to represent 20 per cent of the population (active students). Participants were selected through targeted sampling to ensure that the sample represented learners with formal exposure to local history content and digital pedagogy. The questionnaire comprised 25 items covering three domains: students' understanding of local history material, their readiness to engage with technology-supported media, and their preferences regarding videography as a learning tool. Prior to administration, the instrument underwent content validation by two experts in instructional design and history education to ensure clarity, relevance and alignment with the research objectives. Responses were analysed descriptively to identify patterns of preferences, readiness and learning needs. Quantitative data analysis involved preparing the data, conducting statistical analyses, presenting the results, and interpreting the implications of the analysis to answer the research questions [22]

The needs analysis instrument comprises 25 questions (detailed in Table 1) covering three main domains: understanding of local history and its values, the need for learning resources, and students' preferences regarding video-based media as a learning tool.

Table 1. List of Questions

No	Question
Understanding of Local History	
1	Do you understand the history content in the latest curriculum?
2	Do you think that local history not included in the curriculum is important to learn?

3	Local history is important to learn because it is contextual.
4	To what extent do you understand contextual learning?
5	How well do you understand the local history around you?
6	Do you agree that local history contains important or wise values?
7	Are you familiar with Desawarnana?
8	Are you familiar with the Negarakertagama?
9	Do you understand that Hayam Wuruk travelled to various regions, as recorded by Prapanca?
10	Do you know that many historical sites in Malang and Blitar were once visited by Hayam Wuruk?
11	Do you understand the history content in the latest curriculum?
Requirements for Learning Materials	
12	Which do you prefer: lecture-based learning or learning using media?
13	Do you agree that learning should make use of technology-based media?
14	What type of technology-based media do you prefer?
15	How often do you watch video content on social media?
16	Do you enjoy watching videos on social media?
17	Do you agree that learning materials should be presented in the form of videography?
18	What do you think about local history being presented through videography?
19	Videography-based media can provide a more concrete audiovisual learning experience.
20	Videography makes messages easier to receive and understand.
21	Do you agree that much of the video content on social media presents historical information and material?
22	Do you agree that video-based media can raise historical awareness?
23	Do you agree that learning projects or assignments should require students to create informative historical videos?
24	Do you agree that video-based media is an alternative solution to the challenges of 21st-century learning?
25	Please write down your suggestions regarding the criteria for video-based media that you require for learning.

3 Result and Discussion

3.1 Analysis of the Needs and Relevance of Cinematisation-Based Learning Media

An analysis of the students' responses revealed a high level of readiness and strong preference for technology-supported learning within the History Education group. As summarised in Table 2, the majority of students demonstrated digital literacy and a positive attitude towards multimodal learning media. The primary objective of this stage was to identify the participants' level of understanding, interest and readiness

regarding the use of technology-based learning media and historical videography [23], [24]. A total of 92.8 per cent of respondents agreed that history teaching should incorporate technology-based instructional tools, indicating a strong digital readiness and openness to innovative pedagogical approaches.

Despite their positive attitude towards digital media, the students demonstrated limited exposure to classical Javanese historiography. In particular, only 10.7 per cent were aware of the documented itinerary of Hayam Wuruk's journey. These findings illustrate a significant knowledge gap regarding local historical content, even though 85.7 per cent acknowledged that local history contains important cultural and ethical values. The contrast between cultural awareness and textual unfamiliarity underlines the need for accessible, contextualised and visually supported history learning tools. Preferences regarding learning media further reinforce the relevance of cinematography-based instructional design. As reflected in Table 2, 75 per cent of participants preferred videography as the primary learning medium, whilst 78.6 per cent considered videography effective in conveying clearer audiovisual explanations. Furthermore, 82.1 per cent indicated that video media enhances engagement and motivation, and 85.7 per cent agreed that videography aligns with 21st-century learning demands and supports the development of historical awareness.

These data confirm users' need for and readiness to adopt cinematisation-based learning media, whilst also supporting the 21st-century learning paradigm shift that emphasises digital literacy and contextual learning experiences. Therefore, the development of the videography-based 'Trip to Desawarnana' (TriD) media is regarded as a relevant pedagogical solution that links students' cognitive understanding of history with visual-spatial experiences.

Table 2. Summary of the Results of the Needs Analysis

Category	Item Focus	Agree/ Strongly Agree	%	Interpretation
Understanding Local History	The importance of local historical values	24	85,7%	Possess a strong cultural awareness but still have limited conceptual knowledge.
	Understanding Desawarnana Appreciating the life of Hayam Wuruk	0	0%	Have no previous experience with textual sources.
Media Requirements	Learning should make use of technology-based media.	3	10,7%	Very low level of basic knowledge
	Preferring media to lectures.	26	92,8%	High level of digital readiness
	Videography as a learning medium	22	78,6%	Students prefer interactive formats.
Perceptions of Videography	Videography enhances audiovisual clarity.	21	75%	High level of acceptance of video-based learning.

Relevance of Learning Outcomes	Videography increases engagement.	22	78,6%	Perceived pedagogical benefits are very significant.
	Videography strengthens historical awareness.	23	82,1%	Students find videos more motivating.
	Videography as a 21st-century learning solution	22	78,6%	Potential to support historical literacy.
	Videography as a 21st-century learning solution	24	85,7%	Highly aligned with digital-age competencies

The data above indicates that there is a very high level of user demand for the media to be developed. This is consistent with current trends, which show that video-based digital media is highly relevant for use in the teaching of history.

The analysis reveals that 85.7 per cent of undergraduates stated that local history holds significant value; however, none (0 per cent) were familiar with Desawarnana as a source of local history, and only 10.7 per cent were aware of or had heard of Hayam Wuruk's journey as recounted in the manuscript. These findings reveal a paradox between the affective and cognitive dimensions of history learning. Students possess a normative awareness of the importance of local history but lack sufficient substantive knowledge regarding the historical sources that form the basis for reconstructing that local history.

This phenomenon suggests that the history learning process has not yet fully developed historical literacy—that is, the ability to understand, interpret and utilise historical sources in constructing historical knowledge. According to Sam Wineburg, history learning is not merely about presenting a chronology of events; rather, it must develop historical thinking skills through source analysis, the interpretation of evidence and an understanding of historical context [25]. Consequently, the low level of knowledge amongst university students regarding Desawarnana suggests that teaching remains focused on the presentation of secondary information rather than the exploration of primary historical sources.

4 Conclusion

Based on the results of the needs analysis, it can be concluded that learners require video-based learning materials capable of presenting content in an engaging, interactive and contextual manner. Video-based materials are considered to help learners understand abstract concepts through more realistic visual and audio presentations, thereby hopefully enhancing their motivation to learn, their attention and their active engagement in the learning process. The results of the learners' needs analysis highlight two aspects. Firstly, learners' level of understanding of local history material remains very limited. This is particularly true for local history material relating to the journey of Hayam Wuruk, as recounted in the Negarakertagama manuscript. The survey results merely indicate that pupils' understanding is limited to popular general concepts; they still lack understanding of more specialised topics. The second aspect is the need for the integration of digital media into history teaching,

particularly videography. The findings reveal a gap in the utilisation of videography in history teaching; according to the students' perceptions, videography can serve as an effective medium for historical material. This underscores the relevance of cinematisation as an innovative teaching method, aligning with the characteristics of 21st-century learning which demands digital literacy, creativity and active participation. Consequently, the results of this needs analysis provide a strong foundation for the development of videography media products that align with the characteristics, needs and preferences of the pupils. It is hoped that the products developed will not only be suitable for use as learning media but will also enhance the effectiveness of the learning process, learning outcomes and provide a more meaningful learning experience for the pupils.

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