Interpretation of the epic heritage in book graphics

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Abstract

It has long been believed that "Epic Heritage Interpretation" is a useful teaching, messaging, and administrative tool that heightens visitors' understanding of and compassion for historical sites or objects. On the other hand, "epic heritage interpretation" is regarded as a useful teaching, organizing, and messaging means that raises tourists' understanding of and sympathy for the legacy site or items. Graphics are present across a variety of media, such as print and online; creative digital media solely focuses on digital materials. In this study, we focused on one variety of graphic heritage, which is digital heritage. However, the term "digital heritage interpretation" is still somewhat broad, and the field of "digital heritage" theory and dissertation does not yet appear to have a clear methodology or goal. A conceptual framework is constructed from a proposed conceptual model. After that, an online platform is used to test and implement this framework in order to gauge its effect on end users' degree of understanding. A comparative study was carried out between control groups in order to assess how well the previously indicated framework performed in comparison to traditional linear interpretation. This study provides empirical support for the claim that, when compared to the traditional linear approach, end users interpret digital heritage at a higher level when using the proposed interpretative framework. Hence, the speculation is upheld by this exploration, which likewise recognizes "digital incredible heritage understanding" as a technique for end-user communication. Thus, the results of this research are summarized in an interpretive framework for pictorial heritage that includes some considerations organized into four components.

Keywords: Digital, End user, Epic heritage, Graphics, Interpretation.

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1. Introduction

In order to convey the significance and many heritage values of the cultural heritage sites, heritage interpretation is crucial. The public explanation of a social legacy site, including its full importance, various implications, and values, is viewed as an understanding, as per the Global Board on Landmarks and Locales, which is International Council on Monuments and Sites (ICOMOS) [1]. A legacy visit is seen as a process comprising three phases: specifically Pre-visit, Visit (On-site), and Post-visit, Visitor Lifecycle Model [2]. The term "pre-visit" refers to the "fact-finding and planning" phase, during which the visitor gathers information to schedule the visit and establishes a unique context.

While "Heritage Interpretation" refers to efficient teaching, managing, and communicating that raises visitors' awareness of an appreciation of the heritage, "Digital Heritage" refers to any "born digital" or "digital surrogate" objects that contain unique resources of human knowledge and expression [3]. As a result, "Digital Heritage Interpretation" refers to the practice of using the aforementioned digital formats of legacy for interpretation [4].

According to UNESCO's definition, "digital heritage" encompasses any digital content that holds cultural significance, whether it is 2D (text, images, and videos) or 3D (three-dimensional objects, virtual environments for navigation, and images).Furthermore, works that arrangement with computer generated reality or virtual and social legacy are frequently referred to as "virtual heritage" (VH) [5] which is a term that belongs within the category of digital heritage.

Digital legacy projects are typically created and produced in a non-client driven and graphic way, despite the rapid advancement of technology and its effectiveness in dissemination [6]. They rarely take into account the "end-users" (end-clients' impression of the substance) and are solely focused on "process" (data authentication, site review to epigraphy) or "product" (addressing nearer to the real world and technological artistry performance) [7]. With an eye towards gaining a comprehensive understanding, this study looks into the hypothesis and practice of legacy comprehension in a genuine world setting in order to answer the research challenges. This research further leads to additional investigation into Human-Computer Interaction (HCI) as well as issues with human behavior. Various heritage researchers conducted a thorough evaluation of interpretive principles created for real-world cultural sites and found that they were inadequate for adoption or indirect use in the context of digital heritage [8].

Graphics are present across a variety of media, such as print and online, while creative digital media solely focus on digital materials. In this study, we focused on one variety of graphic heritage, which is digital heritage. This study suggests a non-linear interpretive paradigm that includes four components: embodiment, cultural learning, dialogic interaction, and presentation. By involving participants in dialogic interaction and allowing them to actively participate in the creation of discursive content that is, the formation of collective knowledge this interpretive process seeks to leverage the diversity of perspectives on the historical cultural legacy and to improve cultural learning, engagement, and satisfaction. An online platform has been used to perform a comparative study using a poll of end users based on the proposed conceptual framework. By analyzing the end users' interpretations, the experiment assesses how this conceptual framework affects projects related to digital heritage. As a result, it is anticipated that the research findings will influence practice and conversation surrounding digital heritage.

1.1. Objective of Study

- Provide a framework to improve the interpretation of digital heritage
- Assess how well the suggested technique helps end users understand the underlying meanings of cultural heritage.
- Create recommendations to aid in the planning and design of upcoming projects involving digital heritage in order to guarantee improved interpretation.

1.2. Scope of Study

Heritage management encompasses a broad range of subjects, including resource management, decision-making, fieldwork, data authentication, design, and presentation. It also includes putting the interpretative process into practice. The primary goal of this research is to provide an interpretative approach that will improve how end users understand digital heritage and aid in the planning and design of the interpretation process. The suggested strategy, then, focuses on the interaction and communication process to effectively plan and develop digital heritage in order to provide a bridge between digital tools and media and end users as an act of interpretation. A two-dimensional online platform was used to test the methodology created for this study. The lack of a suitable commercial package and technological limitations prevents application to a 3D environment from being investigated.

2. Literature Review

In order to create and preserve national identities, it is now crucial and vital to identify and analyze the historical data and cultural values ingrained in people's heritage. For the benefit of both current and future generations, heritage must be protected and preserved as it possesses immeasurable value and is of cultural, historical, artistic, archaeological, scientific, and anthropological significance for both individuals and communities [9].

Cultural heritage plays a much larger function than only safeguarding and preserving its tangible remains. Cultural heritage has to be invested in for the benefit of the community [10]. The present can benefit from the past. particularly when history is handled creatively and innovatively, staying up with contemporary developments, and making use of readily accessible digital tools and technologies like 3D printing, digital modelling, holographic projection, virtual reconstruction, and scanning. By facilitating the creation of easy-to-use, varied cultural experiences, these technologies can help close the communication gaps between the past and present as well as between "things" and "people" [11].

In the digital age, a novel idea known as "digital heritage" has surfaced [12]. It alludes to special materials and data created digitally that have lasting value and significance. It also discusses how digital technology and cultural heritage are combined. In addition to the three traditional components of cultural heritage collection, presentation as well as interpretation, and research and information management the phrase "digital heritage" also refers to the creation and use of digital resources and recording [4]. Texts, databases, music, graphics, software, still and moving pictures, and webpages are just a few examples of the many formats that make up digital heritage content. These formats are created in accordance with particular protocols, standards, and guidelines, and they need ongoing management and upkeep in order to be preserved for as long as possible.

Since the 1990s, electronic tools have been widely utilized in the setting of cultural heritage [13] and they have developed into effective instruments for legacy presentation and interpretation. Heritage display has evolved from its earlier iterations that relied only on printed photos, verbal descriptions, or other constrained static settings, thanks to the incorporation of Reality Creation Technologies, notably virtual reality (VR), additive reality (AR), and mixed reality (MR). Numerous content formats (video, 3D animation, multimedia, etc.) are available with these technologies and numerous methods of interaction (voice interaction, touch-screen interaction, gamified operation, etc.). Additionally, they enhance the authenticity, experience, and interactivity of presentations [14] and facilitate new dialogues and links among the public and heritage [15].

Since visitor satisfaction is increasingly recognized as a key component of historic site offerings, researchers from a variety of disciplines have undertaken substantial research on it [16]. They have identified key expectations of visitors to a heritage attraction, such as acquiring knowledge, instruction, involvement, amusement, dynamic engagement, etc., and summarized some critical influences on the visitor heritage experience, such as information sharing, atmospherics, on-site interaction, audio, and video communication, etc.[17]. Such research provides the basic theoretical basis for this investigation. Interestingly, though, these studies don't address technology's place in the heritage setting directly.

Author of Hartson and Pyla [18] on the other hand, adopted a broader viewpoint focused on digital design, highlighting the importance of learnability and ease-of-use in most digital goods and the fact that consumers could not delight in utilizing a digital device that was extremely difficult to use. They therefore contended that the characteristics of usability, utility, and emotional impact should be included in the scope of UX evaluation. This research does not discuss the cultural heritage setting, but it does offer useful frameworks for evaluating tourists' digital encounters with heritage.

3. Methodology

3.1. Conceptual Framework

While graphics can be found in many other forms of media, including print and online, creative digital media only works with digital content. Therefore, we concentrated on digital heritage as one type of graphic heritage in this study. This study aims to shed light on the importance of an interpretation method that enhances end users' understanding of pictorial heritage. It has been suggested that we must view "end-users" as diverse people with a range of cultural circumstances, i.e., not everyone perceives things in the same way, in order to reduce cultural dissonance and raise public awareness of the inherent worth of cultural heritage. Specifically, figuring out how heritage interpretation might be seen as a continuous process while yet guaranteeing diversity in historical understanding. According to this study, "popular participation" through dialogic interaction, also known as reflexive discussion and interaction, in the interpretive process, may improve interpretation by overcoming the subjectivity and linearity of earlier reconstructions. As of right now, the research points to a non-linear interpretation process that leverages inter-subjective understanding and multiplicity of the historical heritage of culture to generate active participants in dialogic interaction (i.e., interaction and discussion between participants and experts) and discursive creation of content (i.e., formation of collective knowledge) (Figure 1).
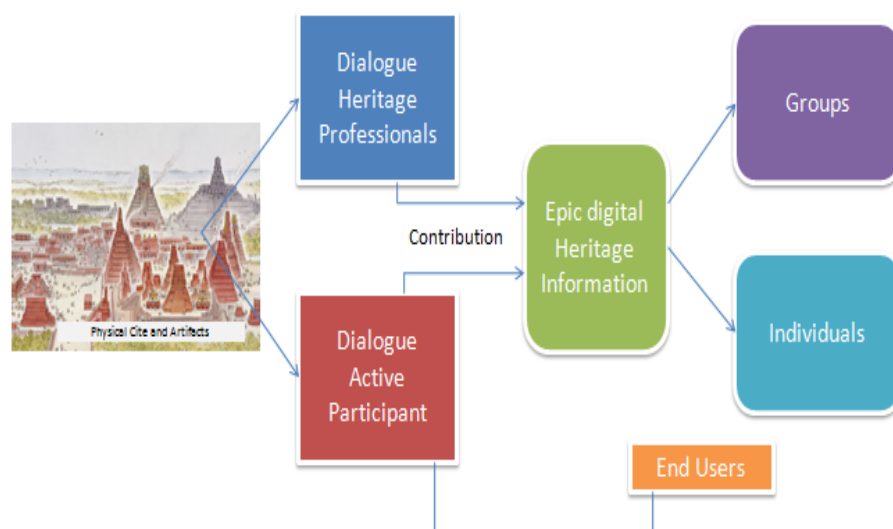

Figure 1.
Dialogic interaction as a strategy for creating a body of communal knowledge.

Given the foregoing understanding, four factors must be taken into account in the process in order to generate an exhaustive analysis of digital heritage: (a) proficient communication or presentation; (b) cultural acquisition; and (c) embodied interaction, all in a setting that fosters (d) through the cultural disposition of a shared spatial experience, participants and specialists interact in a dialogic manner to develop a communal knowledge base.

3.2. Interpretation

In fields such as archaeology, museum studies, and heritage management, the assessment of "interpretive services" and the administration of user satisfaction surveys have long been standard procedures. In order to optimize the efficacy of the service, the evaluation procedure encompasses not only the interpretative approach but also the visitors and exhibitions. Through extensive research and practice, these fields have produced a variety of evaluation approaches, procedures, and sets of indicators to quantify the efficacy of the interpretative program. They view evaluation as a continuous process.

3.3. Experimental Design

Based on the research hypothesis, a conceptual framework was created to improve how end users comprehend epic pictorial legacy. Since one of the goals of the research was to use controlled groups to assess how well the previously described framework performed in comparison to the conventional linear interpretation, a comparative experimental design was selected. The comparative experimental design is appropriate for this study because it allows for the controlled manipulation of independent factors to measure dependent variables (such as provocation, learning, and satisfaction). Thus, this experiment lends credence to the evaluation of the conceptual framework's effects on individuals who are actively involved. The experiment platform was placed at Ellora Caves in India, which is the site of the magnificent Kailasa Temple, built in 1983 and recognized as a UNESCO World Heritage Site. Two groups of the study population were created, and each group was given access to a separate treatment model or experiment platform.

3.4. Data Collection

Levels of interpretation (i.e., provocation, learning, and satisfaction) among end users between groups (Group A and B) have to be compared in order to assess the effects of the treatment modalities. A post-experience questionnaire survey was used as the data collection strategy in this study after the indicators were dissected and the variables were determined. An opening part was created to gather background and demographic data from the respondents, and using a mix of closed-ended along with open-ended questions, a semi-structured questionnaire was created. For questions requiring more factual responses, Likert scale responses were appropriate, but numerous choices and "yes-or-no" answers were utilized for questions requiring subjective opinions and judgment. The 5-point Likert scale was broken down into individual language points so that responders could easily grasp it. However, as a questionnaire is a quicker and more straightforward method of handling a large sample size, information was gathered using it rather than conducting interviews with the 175 participants.

3.5. Population and Sampling

Ellora Caves in Aurangabad, India, a UNESCO-designated World Heritage Site, were selected to serve as the example for the platform's trial due to familiarity with the local environment. Respondents were selected from among undergraduate students at MGM University Aurangabad in India. The participants were chosen using purposive or judgment sampling, which was based on the goals and aims of the study. As a result, the selection of participants was based on three criteria: (i) a readiness to take part in the survey willingly; (ii) internet access; and (iii) a notice in artistic heritage. Typically, the population size determines the sample size. In order to guarantee the lower limit, 175 responses in total were divided into two groups of end users within the parameters of this study. However, 160 (78 in group B and 82 in group A) were ultimately found to be authentic.

4. Results and Discussion

The data from the semi-structured questionnaire, to which 175 individuals from groups A and B replied, is analyzed and presented in this chapter. Comparing the acquired interpretations between these two groups was the main objective here. That is, to look into whether the conceptual framework has any effect at all on improving end users' interpretations of epic pictorial legacy, such as learning, provocation, and satisfaction.

The portion on quantitative data analysis used a conventional technique. The Statistical Package for the Social Sciences (SPSS) was used to enter and analyze the data. In addition to basic inferential statistical methods like Chi-square and one-way ANOVA, descriptive statistics such as cross-tabulations and mean values were also employed.

4.1. Descriptive Analysis

In total, 175 responders were chosen and divided into two distinct control groups. However, because the feedback was either partially completed or not completed at all, 15 responses were rejected. As a result, 160 respondents (Groups A and B, respectively, consisting of 82 and 78) were accepted for this study.

Table 1.
Demographic Analysis.

Type of Respondents			Gender		Total
			Female	Male	
Group A	Department	BBA	2	3	5
		Mathematics	1	2	3
		Architecture	19	39	58
		FMRT	1	1	2
		English	1	2	3
		MBBS	1	2	3
		Pharmacy	1	3	4
		ECE	1	3	4
	Total		27	55	82
Group B	Department	Architecture	17	43	60
		BGE	1	2	3
		Social Science	5	2	7
		English	1	2	3
		FMRT	1	1	2
		ECE	1	2	3
	Total		26	52	78

Table 1 above makes clear that the bulk of of responders in both groups were from the Architecture Department. The shared history of these respondents served as a reliable indicator of their sincere interest in built heritage, which qualified them to participate in the poll. Male participants (67%) outnumbered female participants (33%), as Table 1 illustrates. The proportion of men to women may have some bearing on the general response pattern, but the specific patterns differing between the sexes were not examined in this study.

According to the results, the majority of replies from each of the categories (group A, 69.7%, and group B, 55.3%) have never been to the actual heritage site, which is Ellora Caves (Figure 2). However, those who went to the location (group A 69.4%, group B 34.8%) said they had been there during the previous year. A chi-square analysis of independence with a ρ value larger than 0.05 [x^2 (2, N=59) =4.796, ρ>.091] implies that there was no statistically significant difference between the groups' visits to the actual heritage site.
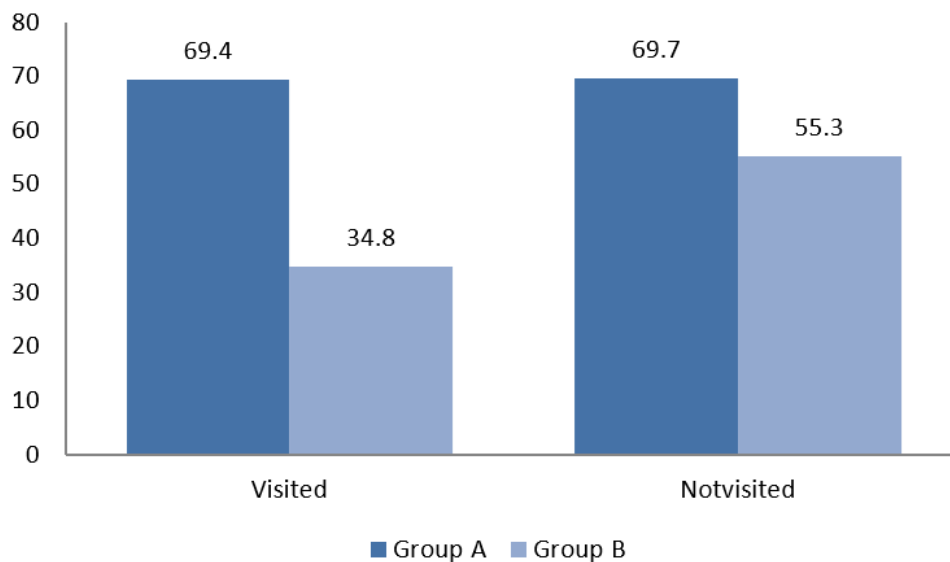

Figure 2.
Visit the website count of the heritage world.

While many respondents from both groups claimed to be seasoned internet users, just a tiny percentage (5.3%) from group A were discovered to be novices (Table 2).

Table 2.
Self-rating of respondents' proficiency with internet usage.

Respondent	Proficiency with the internet			
	Expert	Moderate Experience	Low Experience	Novice
Group A	5.3	41.2	47.5	5.3
Group B	5.4	45.6	42.9	0

The majority of participants had prior Internet usage experience. However, group A (61.3%) has fewer members of any online community than group B (98.5%) (Figure 3).
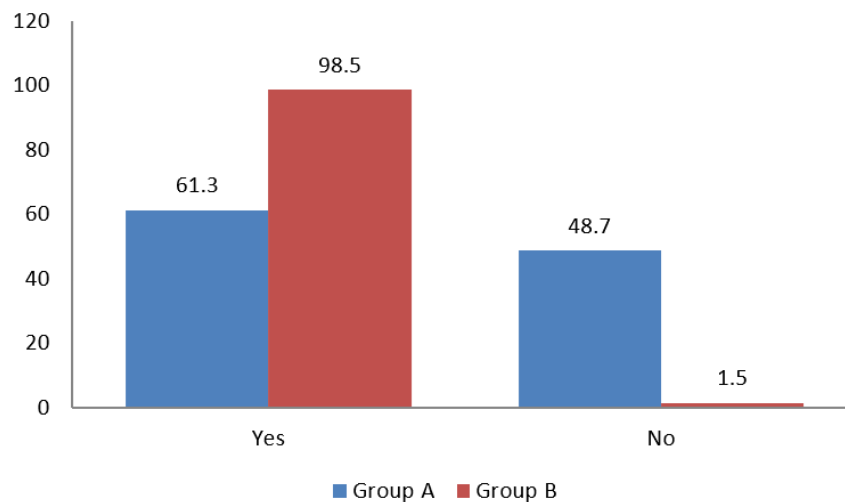

Figure 3.
Participation in social networking sites.

4.2. Evaluating End Users' Satisfaction

This study demonstrates that four factors, or determinants, including satisfaction, affect end users' perceptions of legacy. The results of the perceived satisfaction between the two groups of respondents are summarized in this section. The idea of "satisfaction" was operationalized by translating it into signs, such as "expectation fulfilled."

Four characteristics were used to gauge how well end customers were met with the content: (i) content originality; (ii) new or sophisticated knowledge; and (iii) ease of navigation and employ. And (iv) received support or feedback from other people. To confirm any potential notable mean variations among groups A and B in terms of the fulfillment of expectations, one-way ANOVA tests were used. Aside from the comment regarding "easy to navigate and use," the results presented in Table 3 show that respondents from Group B had considerably better expectations fulfilled when it came to obtaining feedback, learning new information, and being able to navigate and utilize the platform.

Table 3.
Fulfillment of Expectation.

Indicator	Variable	Mean		ANOVA	Null Hypothesis (H₀)
		Group A	Group B		
Fulfillment of Expectation	Discovered unique contents	0.81	1.26	$F(1,158)=9.356$ $P<0.005$	Rejected
	obtained latest information	0.87	1.45	$F(1,158)=16.343$ $P<0.000$	Rejected
	Simple to use and navigate	0.53	0.43	$F(1,158)=0.548$ $P>0.499$	Accepted
	Got feedback	0.22	0.88	$F(1,158)=17.714$ $P<0.000$	Rejected

4.3. Assessing end Users' Curiosity and Empathy

This study demonstrates that end users' degree of empathy or provocation toward a heritage monument has a major impact on how they perceive the past. Thus, one of the main goals of legacy interpretation is to assist end users in changing their attitudes or behaviors. The self-rated reactions from both groups are compiled in this part to confirm any potential shifts in provocation and empathy towards the Ellora Caves following a week of use of the experimental platform. Provocation and empathy were transformed into signs, i.e., increased attention to the subject.

The end-users' reflections regarding their want to learn more about Ellora Caves and their Table 4 displays their readiness to visit additional comparable real-world heritage sites. The results show that group B is more interested in learning about Ellora Caves ($\mu A=1.27$, $\mu B=1.57$), and this group differential has an independently significant meaning [$F(1,156)=7.110$, $p<0.001$].

Table 4.
Increased attention to Ellora Caves.

Indicators	Variable	Mean		ANOVA	Null Hypothesis(H_0)
		Group A	Group B		
Increased attention on topic	A willingness to learn more	1.27	1.57	F(1.156)=7.110 p<0.001	Rejects
	Availability to visit other real-world historical sites	1.54	1.68	F(1.156)=0.180 P<0.581	Accept

4.4. Appraising Learning

The goal of this study is to determine whether good interpretation encourages the accumulation of knowledge and historical understanding. As a result, an effective interpretation procedure may improve the end users' knowledge acquisition. An indicator, such as the capacity to connect prior knowledge and experience, was chosen in order to gauge the group's conceptual understanding of learning.

In this phase, respondents were instructed to select an image from a collection of Ellora Caves images that did not look alike. Three of the four photos came from the Ellora Caves, and one from the Elephanta Caves. The results presented in Table 4 show that, despite the difficulty in identifying the dissimilar image, the group change is minor [χ^2 (0.14, df=1, p>0.923].

Table 5.
Results of the Image Interpretation Survey.

Response On	Respondent		Value of χ^2
	Group A	Group B	
Recall period of edifice	26.4	46.5	P< 0.028
Recall amount of cells	67.3	83.2	P< 0.050
Identified incorrect image	69.1	66.8	P> 0.923

One of the main goals of legacy interpretation is the dissemination of cultural information, or the "educational motive." As a result, the efficiency with which end users may learn about and become aware of the past influences the effectiveness of the interpretive process. The results of this section show that Group B performed better than Group A in all factual question responses.

5. Conclusion

The purpose of this article is to examine how important end users' perceptions of epic digital heritage are. The research yields two main results: firstly, a methodological framework for interpreting digital legacy has been developed. By defining "digital heritage interpretation" and its goals, a conceptual model was created, which was then expanded into an intellectual structure. After that, the framework was put into practice on a digital platform, and its impact on the degree of interpretation by end users was evaluated. This study demonstrates that an all-encompassing approach that can enhance the epic graphical legacy's interpretation from a user-centric standpoint is possible.

To increase levels of satisfaction and provocation, the conceptual model employs a holistic approach that includes effective presentation, incarnation, cultural acquisition, and dialogic interaction in order to achieve an enhanced interpretation. This study has shown, through empirical evidence, that when the conceptual framework is applied, end users interpret digital heritage at a higher level than when the traditional linear model of interpretation is used. In this sense, this study is not a duplicate of the earliest attempts to create a thorough interpretation technique for digital heritage. In order to obtain an acceptable interpretation by the end users, the application of that interpretation paradigm as a contribution opens up opportunities for application in various graphical contexts (both 2D and 3D) and opens up an entirely novel avenue of knowledge in the discipline of the digital heritage domain.

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