

# Interactive Persepolis: A Study on Role of Interaction Design in Cultural Heritage Tourism

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## Abstract

Interactive Persepolis is an interactive tourism information system (TIS) for the Persepolis historical site, based on a "location-aware system." Interactive Persepolis interprets information through involving tourist experiences. There is a missing connection between cultural heritage tourism planners and information technologists for designing a state of the art interactive TIS. One role of interaction design is to develop usable and meaningful information systems. We connect these two fields by applying interaction design factors to reach a design process. Finally we present an example based on the extracted process and evaluate it with an imaginary personae.

## Keywords

Cultural heritage tourism, interpretive planning, tourism information system, user experience

### Abbreviations

TIS: Tourism Information System

IxD: Interaction Design

CH: Cultural Heritage

VR: Virtual Reality

AR: Augmented Reality

LBS: Location Based System

HDM: Head Mounted Display

UX: User Experience;

## Introduction

There is a gap between cultural heritage tourism planners and information technologists. Tourism managers and planners and information technologist working in the field of interpretive planning separately, use their own method of transferring information to tourists regardless of other possible ways. According to the "National Trust for Historic Preservation Organization", cultural heritage tourism is: "Traveling to experience the places, artifacts and activities that authentically represent the stories and people of the past and present, it includes cultural, historic and natural resources." [1] By this definition the most important thing to cultural heritage tourists is "experience," and interaction design is the most suitable solution for designing experiences for cultural heritage tourists. We try to connect TIS and IT and depict a process for designing an interactive tourism information system. This process focuses on user experiences as a main structure for technology users and also interpretive planning as a main structure of cultural heritage tourism. By means of our process we can develop cultural heritage tourism through inclusive, state-of-the-art designs and systems.

## Role of IxD in Cultural Heritage Tourism

One of the most important factors for attracting tourists to countries with rich cultural heritages is providing various ways of presenting and interpreting information about museums, heritage sites or special places. Using IxD principles and factors will help to transform cultural heritage data into easily understood, tangible and memorable information for tourists.

### Interpretive Planning

The planning of information interpretation is called interpretive planning in the tourism industry and according to studies in this field: "To attract visitors, the experience that you offer must be compelling and should engage the visitor's five senses as much as possible." [1]

Studies have shown that visitors remember:

- 10% of what they hear
- 30% of what they read
- 50% of what they see
- 90% of what they do

Today's travelers are looking for experiences that

- Engage all five senses: at a minimum, these experiences provide opportunities for visitors to ask questions and make comments about their own knowledge and experiences.
- Reveal what happens "behind the scenes": who is the artist, and how do they create their art?
- Relate to their own personal experiences: when experiencing historic homes or areas, how does this compare to the ways we live today?
- Relate to a larger historical context: how does a heritage experience fit into the larger context of local, regional or even national history?

John Veverka in his book "Interpretive Master Planning" mentions this definition of interpretation:

"Interpretation is a communication process, designed to reveal meanings and relationships of our cultural and natural heritage, through involvement with objects, artifacts, landscapes and sites." It continues: "It should be stressed that interpretive communications is not simply presenting information, but a specific communication strategy that is used to translate that information for people, from the technical language of the expert, to the everyday language of the visitor." [6] If we want to see the interpretation process as a system, we should consider some issues which are similar across design processes, like whom are we interpreting for? What are we interpreting? What messages do we want to communicate? What are our specific objects? What media will we use and how will it be evaluated?

## Tourism Information System (TIS)

“Tourism information system is a collection of knowledge and data about attractive destination.”[2] Based on this definition, TIS is involved with methods of receiving information about a specific place in official or non-official ways. TIS is a tool for transmitting information about a historical site to visitors. Our focus is on transmitting the information to visitors in such a way that they also participate in it interactively.



Figure 1. Role of IxD in cultural heritage tourism

### Current view

Developing new technologies has brought new possibilities to challenge the implementation of innovative interactive systems to promote the relationship between technology, culture, heritage and the public. Emerging technological concepts like ubiquitous computing, micro geography and augmented reality offer a brand new approach to cultural institutions in general, museums, monuments and heritage sites in particular. These systems enable visitors to access contextual information offering multimedia content to the public that can now have a more personal and customized visit.[5] These technologies are “virtual reality” (VR), augmented reality (AR); location based systems (LBS), location aware systems, head-mounted displays (HDM) GIS, GPS and Wi-Fi.

## Design Methodology

In this section, the focus is on defining a process based on user experience (UX) and interpretive planning principles. The main process structure is based on the authors’ design-centered approach to bridge the gap between interpretive planning and IxD; some similarities to other processes which are currently used by IxD designers are expected. There were four steps to the development process:

- Investigation: our main structure process was inspired by IDEO’s ten step design process.[4]
- Assimilation: applying interpretive planning and UX principles to extract the existing overlaps
- Reviewing the previous steps.
- Finalization: depicting the project via workflows and diagrams.

Our design process is shaped to meet the requirements of an interactive TIS project and includes the following steps:

### Data package

Gathering and collecting the information is the first and main step in any process. The information package is a term we use for all project inputs as follows: site information, client requirements, users’ information and statistics.



Figure 2. data package parts

### Analyzing

Main activities of this section are studying and categorizing the information package, highlighting the important parts, finding the gaps and filling them

### Transforming into design language

Converting multidisciplinary information (historical information, cultural heritage management concerns, interpretive planning factors, etc) into a design language will help the design team to come up with a better understanding of project requirements.

### Classification

The next step is classifying our outputs based on four interpretive objectives, emotional objects (E.O), promotional objects (P.O), learning objects (L.O) and behavioral objects (B.O).

- Emotional objects: what you want your visitors to feel.
- Promotional objects: how you want to present your organization.
- Learning objects: what you want your visitors to know.
- Behavioral objects: what you want your visitors to do.

### Conception

As with any other design process, conception is the beginning of synthesizing information by the design team. In fact, conception is an idea generation stage which can contain ideas in a variety of formats.

### Envisioning

By envisioning we materialized the ideas. Ideas are like dreams until they are visualized into some concrete representation. The representation can be any sort of description of the design, whether visual or behavioral, or a combination. [4]

### Selection

Now it's time to choose. We have a number of concepts with various advantages and disadvantages; we select those concepts that are close to our former framework.

### Prototyping

Here we are going to realize the selected visual concepts by making prototypes. Prototypes are practical models that we use for testing usage.

### User testing

As our approach was highly dependent upon the quality of the specific user experience, we incorporated significant user feedback in our prototype design process. In addition, for assessing the tangible interaction abilities of the prototype, we tested over the full range of human sensory perception.

### Framing

Framing focuses on addressing tangible interactions for applying the most effective connection between the user and the interface, and increasing the ability to remember site information. The most effective way to remember information sorted by priority can be portrayed as:

Do > See > Read > Hear

### Verification

To confirm that design results match client requests, we present the document and visual results to clients. Clients may offer feedback about the extracted result and the designs which best fit their needs. We now move to finalizing the concepts.

### Evaluation

By reviewing and criticizing all the project outputs, we can sort them in an organized process. Then, using key criteria which are obtained in this section, our process comes near to the final steps. This is called evaluation.

### Visualization

After we have shaped the design scheme, we should finalize the design by detail designing. This can be achieved through technical design, 3D modeling, etc.

### Launching

Preparing and motivating the market to accept the final designed or redesigned system is the final step of the process, and is called Launching.

## Interactive Persepolis

### Site information

Persepolis located in 57 km north-east of Shiraz, Iran. About 518 B.C, Darius the Great (522-486 B.C.), who ruled over a world empire with solid cultural institutions and containing many of the civilized nations of the ancient world, decided to found Persepolis in the heart of his empire, to serve as a symbol of his power and also as a magnificent setting for celebrating the great national and religious festival of "Nowruz" ("New Year's Day"), which normally coincided with the Spring equinox (around 21st March).

### Problem definition

One of the most important principles of interpretive planning of cultural heritage tourism is to provide the visitors with compiled and accessible information. Despite the different methods to inform CH visitors around the globe, still there is a need for an interactive system that can transfer the information to them through their own experiences. There is also a need to offer an interactive information system for Persepolis. Currently information is transferred by info stands, brochures and tour guides, but they cannot satisfy the visitors of the site. Considering this deficiency and the author's personal experience and knowledge about the site, we have found a good potential for offering an appropriate solution to promote the current situation through our predefined process.

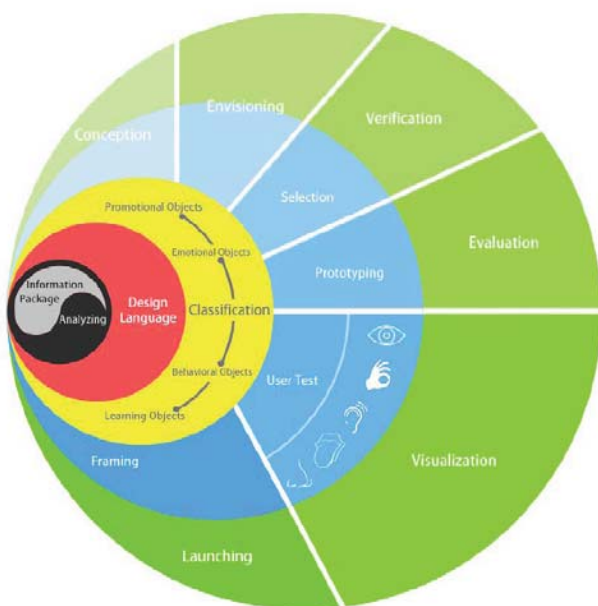


Figure 3. Extracted interaction design process for TIS

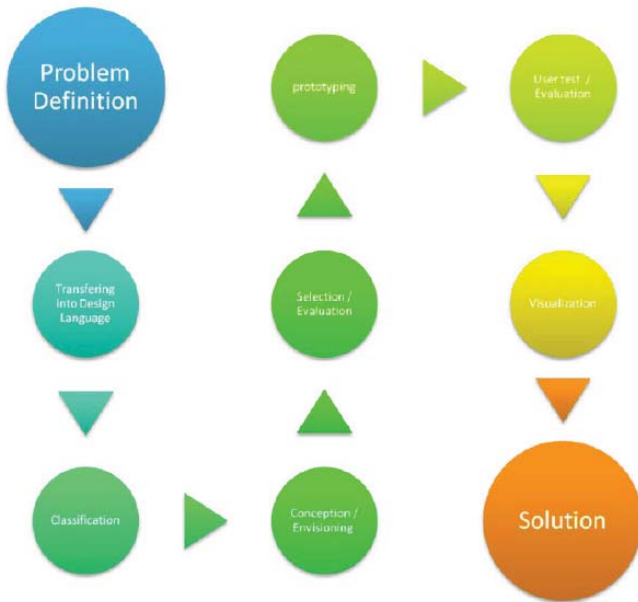


Figure 3. Extracted interaction design process for TIS

### Design solution (More in Explanation File)

To give tourists a unique experience in their visits we designed a package which consists of a smart T-shirt as a gift and a portable device which will guide them through their visits in “Persepolis”.

#### Smart T-Shirt

The T-shirt is an interactive medium, with the site map on it and the ability to record the path which a user passed by in his visit using O-LED and GPS technology. Therefore he can remember his journey to Persepolis. He can also show his friends the path that he went through during his visit and explain to them his personal experiences.

#### Persepolis Device

The portable device is an intelligent guide which can help, inform, entertain and interact with the user during his visit. It is a multifunctional guide helping the user to be interactively informed using “progressive disclosure”. “Progressive disclosure” is a strategy for managing information complexity in which only necessary and requested information is displayed at any time given by separating information into multiplies layers and only presenting the layers that are relevant or necessary.” [3]

## Conclusion

The device we have designed is quite innovative, and encourages tourists to have their own personal experience at the Persepolis historical site. Based on our research during this project we consider there to be vast potential for working on similar projects on Iranian historical sites. It can be developed through future technologies and is offering more tangible experiences. For future work we suggest more detailed focus on involving user experience by engaging their five senses.

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