Cognitive Processing of Information with Tourism Value: Improving Visitor Accessibility at World Heritage Site "NEA MONI" in Chios, Greece

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ABSTRACT

We present a goal-driven planning process especially designed for non-captive audiences at high density heritage places, such as the UNESCO enlisted Monastery of NEA MONI at Chios, Greece. The process describes all necessary steps taken to improve visitor accessibility and recommends ways to facilitate access to heritage resources in a recreational learning environment. It addresses a series of basic questions about the place's significance and the expected visit outcomes by studying the accessibility of a holistic tourism product. We present a printed GUIDE, with specific mental, emotional, and behavioral objectives, which provides visitors with domain specific knowledge acquisition on an edutainment basis. Information presentation respects principles of Human Cognitive Architecture: the GUIDE presupposes a limited working memory (WM) capacity to deal with visual, auditory and verbal material and an almost unlimited long-term memory (LTM), able to hold mental representations that vary in their degree of automation. It considers working memory limitations, element interactivity continua and types of cognitive loads. The GUIDE is designed on a basis of sequential segments in order to free the WM from irrelevant cognitive load, enabling new cognitive content to relate to prior knowledge. Cognitive accessibility is guaranteed by activating human perception through provocation, by relating to prior acquired experiences, and by providing for novelty and variety, surprise and exploration. **Key words:** WHS (World Heritage Sites), Non-captive Audiences, Recreational Learning, Visitor Experience, Cognitive Processing, Accessibility Networks

1   INTRODUCTION

World Heritage Sites testify for mankind's great actions. But even so tangible heritage objects almost never speak for themselves; they need an interpreter to create cognitive and emotional links with diverse audiences. To facilitate access to heritage environments of global significance on a visitor experience basis, curators need to provide for presentations able to attract visitors' attention and meet their expectations. World Heritage Sites may then become cultural windows, enabling their audiences to explore the self and the other, by confronting familiarity and novelty. In this vein we present an interpretive GUIDE with the aim to inform visitors about global heritage values of NEA MONI in Chios, Greece. It introduces distinctive features of Byzantine Culture, while making visitors a part of the experience. The GUIDE is dedicated to the on-site Interpretation of the Catholicon of NEA MONI and its interior mosaic decoration, the main reasons for enlisting the architectural ensemble to World Heritage List in 1981. Designed to manage information with tourism value in a visitor-centric way, the GUIDE regards in situ orientation, information and cultural heritage education. It presents non-captive audiences the unique features of the WHS NEA MONI: the Catholicon and the iconographic cycle of the Catholicon's interior on the basis of a Heritage Trail with 4 thematic sections and 18 sub-stops. Key issues in the interpretive planning process are profound subject matter knowledge, a significance assessment process (SAP) and cognitive processing of information with tourism value. The specific conditions of learning in recreational environments urge to layer information in accordance to human cognitive architecture using an interpretive writing style with story plots embedded in personalized narrative structures.

Achieving accessibility at destination level presupposes an effective network including components of the conventional tourism product (attractiveness, accessibility, accommodation, catering, transport, entertainment) as well as services and a variety of attractive offers. Achieving and sustaining

accessibility demands a lot of research and attentive planning. Especially WHSs need sophisticated methods to ensure that their invaluable heritage assets are not offered to market consumption below cost. Inaccessible heritage assets in a given destination, e.g. the main motive for travel and tourism, would dramatically affect a destination's fame. Planning considerations should also address questions such as the quality of visitor experience, which is everything that visitors do, think and feel at heritage places. Quality experience depend on a variety of parameters: infrastructure, levels of services and accessibility to tourism goods, the sense of a place, friendliness, distinctiveness, authenticity. WHSs should therefore adopt an innovative Heritage Management, which would allow them to construct their identity and export their image at global level, attracting and retaining satisfied audiences. Besides protection, conservation, and heritage marketing, effective management should specifically plan for physical and cognitive accessibility: linking heritage resources to market segmented audiences (Pedersen, 2002:78, ICOMOS, 1999, 7 and 19, ICOMOS, 2004:5-10).

2   METHODOLOGY

The present paper deals with tools and methods for achieving cognitive accessibility in heritage presentation by applying the interpretive planning process for non-captive audiences at leisure settings. It consists of three main parts. The first part (*Chapter 3 and 4*) introduces to the concept of *information with tourism value* and sets the rules for designing *cognitive frameworks in recreational learning environments*. It explores the specific conditions required to create quality visitor experiences through a visitor-centric informal education process in leisure settings. It examines prerequisites under which successful encoding of relevant messages takes place. It exploits the potential and dynamics of the human memory processor: the relationships between WM and LTM define the implications for managing cognitive loads in recreational learning environments. The second part (*Chapter 5*) provides for a taxonomy of accessibility components in regard to a holistic tourism product. The third part (*Chapter 6*) presents the visitor GUIDE. It is about a self-guided cultural heritage trail within the Catholicon of NEA MONI. Based on the historical and archaeological record, distinctive features to be communicated to visitors were carefully selected in an effort to establish significance and relevance with potential audiences. A specific information management was used, relying on a significance assessment process (SAP), regarding at the same time principles of human cognitive architecture. Through a triple information layering, personalized narrative structures, message nuclei, and subject matter knowledge, is attempted to build bridges that connect the visitors' secular world with complex cultural phenomena from the religious and political sphere of remote pasts.

3   INFORMATION WITH TOURISM VALUE

Time lack is a feature of post-modern society; leisure time is thus treated as more precious than ever. Accessibility to resources and ease of experiencing the destination are critical considerations for visitors. The time needed to find information, to book a hotel, to reach the destination, to access a specific place when visitors arrive, the distance visitors have to travel, the friendliness when acquiring tourism goods, levels of services etc, can directly influence length of stay, the expenditure level and customer loyalty (Caserta and Russo, 2002:251, Russo and van der Borg, 2002:632). Timely and relevant information distribution is one of the most essential elements for a destination's success. Providing appropriate and stimulating information before and during a trip can be one of the most effective strategies for destinations to attract and extend the length of stay (Bieger and Laesser, 2004, Kerstetter and Cho, 2004:966-967). Visitor friendly, validated, quick to access information impinges on the way visitors spend their time, where they go, what services they use and ultimately on the travel expenditure. But in reality even WHSs fail to provide for visitor accessibility: web site, brochures, maps, and information outlets do not usually can act as decision and behaviour formatters. The role that tourism related sectors have in providing credible information to visitors e.g. guide books, travel writers, information and visitor centres, national, regional and local tourism organizations, destination related web sites, DIMMS (Destination Information Management and Marketing Systems), signage and signposting need to be investigated.

4   COGNITIVE PROCESSING OF INFORMATION WITH TOURISM VALUE

Trying to facilitate access to the WHS NEA MONI the GUIDE manages information with tourism value e.g. information related to the phenomena from a visitor-centric point of view by linking causal mechanisms of human cognitive architecture and instructional design in order to facilitate higher cognitive results in non-formative settings. Cognitive processing of information with tourism value facilitates perception of phenomena with less effort in shorter time periods. Irrespectively of the media's nature, information flows structured in this way aim to reduce the time the visitor's needs to prepare for their visit, and to provide them with information comfort during their stay time.

The purpose of tourism signposting and signage is to communicate to visitors and travellers the key aspects of a place's tourism offers (TT, 2002:17). Included are **a-** natural, tangible cultural feature signs erected to indicate the location of natural, cultural or historic features, **b-** commercial tourism facility signs erected to indicate the location of a commercial tourism facility (accommodation, catering, shopping, transport, entertainment and infrastructure possibilities). Two major categories are identified: directional which corresponds to tourist signposting and interpretive, which by nature aims to attract the attention of non-captive audiences: directional and interpretive signage.

Directional Signage includes roadside signs for motorists, drivers and simple navigation before, during and after a trail, warning signs of both informative and preventative nature, navigation to facilities and recreational opportunities within a heritage area (park, archeological site, museums, etc). It manages any information that is related to attractions: accessibility, (parking and transport possibilities, bus schedules, etc) amenities, detailed description of the site / place, maps, route markers and street names, diagrams and photographs, other available tourism packages, activities in proximity or connections to other attractions and ancillary services, such as local tourism bureaus, maps, regional products, etc (Findlay and Southwell, 2004:228, Coccossis, 2005)). Directional Signage also includes any forms of identification and information signs, "Welcome" signs, signage for accredited and non-accredited visitor information services, regional tourist drives, themed tourist routes, regulatory signage (parking, no-parking, prohibited, free etc.), roadside advertising, guide and service signs, signage in rural and urban areas etc (McLennan, 2000:11-25, Tourism NSW, 2003:29-33, RTA, 2001).

Interpretive Signage strives to attract visitor attention by producing connections to meanings and phenomena and is strongly related to persuasive communication theory (McLennan, 2000:7-9, Cialdini, 1996). Interpretive Signage describes the sensitivity and significance of each heritage resource and has to be educational, accurate and narrative. Interpretive Signage coordinates communication with the public by presenting the mission and the values of tangible and intangible resources. Interpretive content assists visitors to develop an awareness and understanding of local cultural heritage, to recognize ecosystem and cultural values, to encourage actions taken in relation to protection of natural and cultural heritage. It is includes a variety of programs and services such as audiovisual programs, historic furnishings, museum exhibit labels, publications, wayside exhibits, graphics design, interpretive, site signage, contextual design, websites (VIC Road, 2001:33-36, Ballantyne at al., 2002, Ludwig, 2003:23 Colquhoun, 2005:64-89, Izquierdo-Tugas et al., 2005:89).

Research demonstrates that prior knowledge and unfamiliar environments influences travel decision and length of stay, (Walmsley and Jenkins, 1994, Ankomah, 1996, Ryan, 2000, Gursoy and McCleary, 2004, Kerstetter and Cho, 2004). Facilitating access to unfamiliar environments in leisure settings, e.g. opportunities for connections to visitors as well as memorable experiences, is a task that requires adequate management of information with tourism value. Brain literacy is an indispensable factor to facilitate information and meta-cognitive awareness in leisure settings (Berninger and Corinna 1998:352, Rushton and Larkin, 2001:25, O'Donell et al., 2002:75-78, Seller, 2004:10-20). Humans acquire, store, recall, code and decode information about the relative locations and attributes of phenomena in their everyday spatial environment. They orientate using perception and memory to create cognitive maps. Contents of informational material should therefore adjust to the principles of human cognitive architecture: eye scan path movements, a limited working memory (WM) and an infinite long term memory (LTM) (Cowan, 1998:77-78, Kolk et al, 2003:26-29, Fusi, 2001, Oberauer at al., 2003, Wang, Liu and Wang, 2003:190-192). Information management presupposes a limited WM capacity to deal with visual, auditory and verbal material as well as an almost unlimited long-term memory, able to retain schemas (mental representations) that vary in their degree of automation.

Interpretive design pursuits the reduction of working memory load, the reinforcement of the association chain by provocative use of schema construction and automation and the use of concept mapping (Sweller et al. 1998:255-258, Paas et. al., 2004: 1-8, Nowak and Canas, 2006). Information structure will provide visitors with specific knowledge acquisition, especially designed on a basis of sequential segments in order to free WM from irrelevant cognitive load, enabling new cognitive content to relate to prior knowledge. Facilitating information in this way heritage places are promoted within the consumers' conscience. Heritage resources become then indispensable components of the regional tourism product, followed by the consumers' willingness to pay for quality products.

Cognitive processing of information with tourism value enables effortless acquisition of novel items and concepts at heritage places by providing access to the unknown through cognitively structured messages. The GUIDE presents non-verbal material dressed in narrative formats strive to facilitate content acquisition. It translated the experts' technical account into an easy to access, cognitively structured communication message that the audience can relate to, means, to put contents into a format that attracts, interests and inspires visitors. Cognitive maps bridge the discrepancy between novelty and familiarity allowing the historic environment – the *novel entity* within the travel experience- to be realized by visitors. Provocative, attractive and coherent collocations make visit-worthy and significant heritage resources accessible to a wider public. Acknowledging the fact that story skeletons with plots provoke conceptual associations, interpretive planning the GUIDE uses the power of connections to create sense by linking two or more, formerly separate entities into a meaningful way with one another. By reducing drastically accumulation of facts, technical accounts and endless chronologies and by presenting facts and reasons in *one format*, novel content becomes the new narrative form. Moreover visitor inclusion and participation during the trail stops in the Catholicon, as well as the ability to explore and move back and forth in this setting render the visit at WHS NEA MONI into a pleasure generating procedure.

4.1 Bridging the spatiotemporal gap

To understand and consequently appreciate the historic environment at WHSs, a visitor needs to bridge the tangible form of a monument to its intangible dimensions, symbols and meanings. Hermeneutics are used as a tool to bridge the spatiotemporal distance that prevents access to cultural heritage phenomena, whereas cognitive distance is bridged through appropriate cognitive load management. Aristotle formulates that Hermeneutics is a systems logic that derives from the ability of humans to think in abstract and taxonomic categories, naming it *categorical knowledge.* Cognitive scientists refer to this inherent quality of human thought as the *general cognitive ability g* (Knowlton, 1999:123-124, Prasada, 2000:66-72, Plomin and Spinath, 2002:169-176, Grossmann, 2002:936-948, Harnad, 2003). Aristotle's text *"de Interpretando"*, a part of *Organon*, is a logical Grammar, examining the structure of the judgment. Being governed by cognition Aristotelian Hermeneutics reject any expression that cannot be verified as true (Αριστοτέλης, Εκδ.Κάκτος, 2000).

Illustrative of the evolution of human societies, heritage environments consist of art cities, cultural routes and heritage trails, cultural districts and other types of cultural landscapes, customs and traditions, collections and material culture as well (English Heritage, 2000:4-5, Fowler, 2003:22). They embrace the landscape as a whole, urban and rural, geological and marine testifying presence and activities of mankind in space and time, constituting a dynamic source of information, a systems approach to historical memory and cultural presentation of entire civilizations, groups and individuals, who left indelible traces in the history of mankind (Añón Feliu, 2002:37-39, Edson, 2004:340). Historic monuments and landscapes bear distinctiveness and authenticity in the foremost intrinsic sense: The (post-modern) human need to find archetype civilizations to identify with, to discover common origin and roots, rendered among other factors a destination's historic environment to a must see visitor attraction. As a gradual accumulation of culture the historic environment is a vital learning source for both locals and visitor, benefits the tourism economy, gives communities identity, can be a stimulus to innovative cultural expressions, creative new architecture and design, a force for regeneration and a powerful contributor to people's quality of everyday life (DCMS, 2001:25, vol.2). The historic environment should be accessible in its diversity to both local population and visitors. Realizing its full potential as an economic and cultural resource, is the main gain for local communities: the historic environment does not enter the tourism market as price-less goods, contributing in this way per se to its very protection (DCMS, 2001:17, vol. 1, and DCMS, 2001:45, vol. 2).

Visitation in heritage environments may very well broaden the audience's horizons by offering *distinctiveness* and *authenticity*. If the past is as a foreign country (Lowenthal, 1985) then a constant war takes places during a conventional visit: the one between *perception and understanding*, which is both of emotional and cognitive nature. Visitor endurance in the first phase of the visit is high due most to intrinsic motivation, but an acceleration of interest loss in the middle visit-phase is to be observed, due to work memory fatigue to process significant amounts of novel elements. Finally working memory loads and other location-related inconveniencies accumulate visitor-fatigue in the last visit-phase, rendering the visit to an unsuccessful event.

To defeat time and distance decay, e.g. to offer contemporary visitors the chance to understand historically and/or geographically remote cultures and mentalities new tools are required (Steiner and Reisinger, 2005). Gadamerian Hermeneutics is an attempt to clarify the conditions in which understanding takes place. Among these conditions are, crucially, prejudices and fore-meanings in the mind of the interpreter. Understanding is therefore interpretation, which uses one's own preconceptions so that the meaning of the object can really be made to speak to us. Understanding is thus a productive process, since interpretations keep changing during the process of what and when is being understood. One of the main problems visitors face during the visit is with is how to distinguish 'true prejudices', by which we understand, from the 'false' ones, by which we misunderstand. Gadamer suggests to develop historical self-awareness which makes conscious one's own prejudices and allows one to isolate and evaluate an object on its own. Another important condition in which understanding takes place is temporal distance: present and past are firmly connected and the past is not something that has to be painfully regained in each present, *if* the interpreter has the tool to decode it (Gadamer, 1990). Leisure visitors are heterogeneous groups with multi-generational members and not always historically "self-aware".

Capturing and keeping their attention high up during and possibly after the visit means to create bridges between the inherent values of phenomena selected for presentation, and the audiences. Far beyond the dissemination of factual information, cognitive accessibility aims to create meanings, so that visitors can put a phenomenon into personal perspective and identify with it in a way that is more profound and enduring way. Meaning should create in them *the* sense of the place or the resource. Meanings are contextual in nature, including a linguistic, spatial and a social context (Chen, 2003:11). To understand the meanings of given items is to understand those meanings within the given context. Communicated through the use of language, meanings are embedded in language and culture. Being culturally and socially constructed they are shared by all who access them, but not by those who are unable to decode them. One of the most significant contexts of meanings is the spatial context, the sense of the place. Meanings extracted from a visit to a place, heritage or natural site, collection etc constitute the high added value experience a visitor takes away in memory. In this vein, meaning *is* the experience- the only experience any visitor has with a place (Sternberg, 1997:953. Vitterso, 2000:434)

4.2.   Exploiting the Human Memory processor

Human memory is a space hosting complicated procedures that take place in the 'learning machine', the human cortex: (Posner, 1997:220-221, Keller und Leuninger, 1993:221-238). Human memory is the collective function of the human ability to perceive and learn, to cognize: a property genetically intrinsic only to humans (Waxman, 1996:281). Memory is not only the information storage place, but also the information processor, whereas memory functions are distributed in the cortex and sub cortex. The human memory processor consists of Long-Term Memory (LTM), Sensory Memory (SM), Short-term (STM) and Working-Memory (WM) (Robinson, 1998:306).

4.2.1.   Long-Term Memory (LTM)

Long-term memory (LTM) is memory that lasts from over 30 seconds to years. It differs from working memory or short-term memory, which stores items for only around 30 seconds. LTM is a relatively permanent and passive repository for information. LTM is the permanent memory that human beings rely on for storing acquired information such as facts, knowledge, and skills (Fusi, 2001, Schiffrin, 2003:344, Wang et al. 2003:190).

4.2.2. *Sensory Memory (SM)*

Sensory memory (SM) is our ability to retain impressions of sensory information after the original stimulus has ceased. It operates within the approximate time frame of less than 1 second and is outside of conscious control (i.e. it happens automatically and unbidden). Despite retaining information for a very short period if time, it is not to be confused with Short Term Memory (STM) which typically lasts 10-15 seconds without rehearsal of the remembered material and is so named to distinguish it from LTM which can store information for as long as a lifetime.

4.2.3. *Short-term Memory (STM)*

Short Term Memory (STM) is a finite capacity memory, which means that it stores a limited amount of information for a limited amount of time (roughly 30-45 seconds). The information held in STM may be recently processed sensory input, items recently retrieved from LTM, or the result of recent mental processing, which is related to the concept of WM. It is generally considered that some or all memories pass from a short-term to a long-term store after a small period of time, a model referred to as the "modal model" - described by Atkinson and Shiffrin in 1968. The relationship between STM and WM varies between authors, but it is generally acknowledged that the two concepts are distinct: WM is defined as the framework, structures and processes used for temporarily storing and manipulating information, while STM generally refers only to the storage structures involved and is thus considered a subset of working memory. STM is an active memory system, including sensory memories with short residence times, and longer residence phonological and working memories. A variety of attention effects are governed in this system: Expectations concerning coming events are set in place here. Sensory information about new events enters STM, where attention selects attended portions for longer residence and further processing. In STM attention is used to generate probes for long-term retrieval, and used to select from the information retrieved (Schiffrin, 2003:344). In order to overcome its finite capacity, and retain information for longer, information must be periodically repeated, or rehearsed-either by articulating it out loud, or by mentally simulating such articulation. In this way, the information will re-enter the short-term store and be retained for a further period. Prior to the creation of current memory models, Miller argued that human STM has a forward memory span of approximately seven items. Memorizing 12 digits (e.g., 1, 7, 8, 9, 1, 9, 4, 5, 2, 0, 1, 0) is a difficult task, but memorizing them as three dates (i.e., 1789, 1945, and 2000) is comparatively easier task. This is because the first approach requires storage of 12 separate items, whereas the second only requires the storage of 3 familiar schemas. This process was referred to by Miller as "*chunking a strategy for making more efficient use of short-term memory by re-coding information*" (Miller, 1956:81-97). It is crucial for interpretive planners to know, that recreational learning environments are not suitable for any kind of repetition and that chunking of information is the most appropriate way to present complex material within the short time frame visitors have at their disposal (Ham, 1999:161-171).

4.2.4. *Working Memory (WM)*

Working Memory (WM) is the collection of structures and processes within the brain used for temporarily storing and manipulating information. WM is the key to human intelligence, enabling us to problem solving and planning. Described as the mind's blackboard, WM is a mental workspace consisting of a small set of data items representing the current state of knowledge of a system at any stage in the performance of a task. WM manipulates and organizes new information and integrates it with existing knowledge. Limited in capacity it needs rehearsal or practice to prevent loss of information. Working memory consists of both memory for items which are currently being processed, and components governing attention and directing the processing itself. Baddeley delivered a WM model whose basic constructs are easily testable (Baddeley 1981:17-23, and 2003). The model assumes that the storage of limited amounts of either auditory or visuospatial material is mediated by three domain-specific 'slave' systems: the *Articulate Phonological Loop*, the *Visuospatial Sketch Pad* and the *Central Executive*. The Articulate Phonological Loop is a buffer dealing with the manipulation and retention of auditory data. The Phonological Loop can be further divided into a pure storage buffer and a rehearsal process, with rehearsal responsible for re-circulating decay-prone information in the buffer via internal speech. The Visuospatial Sketch Pad is a buffer specialized for visual-spatial material. It holds images and visual data and from that manipulates and processes the stimuli in order to produce the desired outcome for instance judging distance while driving. These buffers are governed by a Central Executive that utilizes the information contained in them. The Central Executive is a limited

capacity buffer but able to perform more complex memory activities that include a substantial processing component: it stores and retrieves information, directing the flow of information through the short-term memory system.

THE HUMAN MEMORY PROCESSOR		
DESCRIPTION	**CAPACITY**	**OPERATIONS**
Sensory Memory	Finite Storage Capacity	• retains impressions of sensory information
	Time Frame: less than 1 sec	• operates outside of conscious control
Working Memory	Finite Storage-Retrieval Capacity Specific Processing Capacity	• workspace that manipulates visual and auditory data
	Time Frame less than 30 sec	• organizes and integrates data with existing knowledge
		• governs and directs attention
Short Term Memory	Finite Storage-Retrieval Capacity	• comprises the storage structures of WM
	Time Frame less than 15 sec	• enhances its performance by chunking and rehearsal
Long Term Memory	Unlimited Storage-Retrieval Capacity	• the human' brains permanent knowledge repository
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Fig. 1: The Human Memory Processor

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4.2.5. *WM and LTM: Implications for cognitive accessibility*

The main difference between academic learners and non captive audiences is the obligation *and* possibility to rehearse study material. Repetition and rehearsal is a quality and at the same time an advantage of formal education, but has no relevance whatsoever in leisure settings. Audiences should access and comprehend information presented in a manner that no repetition is needed, if they are to spend happily their leisure time. The more detailed the audience's profile, the easier it is to select appropriate media, but this is only one aspect of the problem. An alternative framework is urgently needed to support recreational learning and information presentation by optimizing knowledge transfer through the activation of memory mechanisms and prior knowledge.

Human cognitive architecture offers an unlimited LTM able to hold mental representations of varied automaticity degrees, but a limited capacity WM with independent subcomponents to deal with auditory and visual material. The constraints inherent in the WM should be the determinants for the design of effective mentally accessible presentations. Humans are conscious of and monitor ONLY within WM content: unless it is brought to WM all other cognitive functions remain unused. WM holds +_ 7 items or information elements at a time and processes info at several environments simultaneously: organizing, contrasting, comparing, etc. Humans deal with up to two or three elements simultaneously. Interactions between elements in the WM require (more) WM capacity, reducing the number of elements that can be dealt simultaneously. WM is incapable of highly complex interactions using novel elements. Humans are poor at complex reasoning unless most of the elements with which they reason are previously stored in LTM. WM is used to process all conscious information, but is

very limited with respect to the number of elements it can handle. Its capacity may be enhanced if information is processed using both the visual and auditory channel. All material handled by WM can be transferred to LTM. Everything that is learned as a consequence of information processed in WM is stored in an effectively limitless LTM in the form of schemas that can vary in their automaticity degree. Both schema construction and automation have the dual function of storing information in LTM and reducing WM loads.

Information stored in LTM has a high degree of connectivity, includes large and complex interactions and procedures. Human intellectual ability comes from stored knowledge and not from the ability to engage in complete reasoning that takes place in WM. Intellectual skills are constructions of large numbers of increasingly sophisticated schemas (mental representations) with high degree of automation. Schemas consist of multiple elements treated as a single element allowing myriads of irrelevant elements to be ignored, whereas automated schemas allow fluid performance of familiar tasks and facilitate performance of unfamiliar tasks. Cognitive Load Theory (CLT) is based on theories of human cognitive architecture, whereas the major assumption is that WM is a limited capacity processor (Sweller et al. 1998, and 2004, Kirschner, 2002, Bannert, 2002). During learning humans allocate most of their cognitive resources to the activity of perception, but in many cases novel contents cause WM overloading. Aiming to better knowledge transfer and performance, CLT is concerned to reduce possible WM loads assuming that all information that has to be processed in WM can be placed on an element interactivity continuum. Elements in low interactivity material interact minimally and so it can be learned serially without imposing a heavy WM load. These materials can be characterized as having a low intrinsic cognitive load. In contrast, interactions between the elements of high element interactivity material require them to be processed simultaneously in WM resulting in a high intrinsic cognitive load (Sweller et al., 1998:252-270).

In order to facilitate knowledge transfer at leisure settings, a framework is suggested, that manages types of cognitive loads (CL) involved in the learning process. The missing advantage of repetition and rehearsal is substituted by the empowerment of associations, which are constructed through the help of schemas. Any instructional design that ignores WM limitations is ex principio deficient, and for non-captive audiences totally inappropriate. Presentations that require recreational learners to engage in complex reasoning processing involving combinations of unfamiliar elements are likely to be ignored. Presentation content should be analyzed from a cognitive load perspective (CL), since limited WM is a defining aspect of human cognitive architecture and directs learners' attention to relevant learning processing.

The prime goal of information presentation in leisure settings should be the ease with which information is processed in WM. The use of procedures able reduce cognitive loads should not be though at the expense of understanding. Construction and automation of schemas, useful of solving problems of interest, may very well be utilized to reduce cognitive loads, and capture visitor attention in the long term. Schemas are stored and organized in LTM but information that constructs them is processed in the WM. Familiarity allows the human brain to expend less effort to concentrate on personal and meaningful content, and therefore use of known schemata facilitates perception of novel items in recreational settings. The fact that conscious experience and working memory interact (Baars and Franklin 2003:166), should lead interpretive presentations to consider meaning making experiences as indispensable components for a successful information processing of novel items. Learning mechanisms specifically designed for non-captive audiences must embed interacting elements in familiar schemas. These can be then treated as single elements in WM, and effectively reduce loads provoked by novel items.

4.4. Access to quality experiences: recreational learning environments

WHSs offer a unique kind of learning, based on first-hand experience of authentic objects, works of art and other resources in a public, social environment, supporting in this way cultural literacy for individuals and cultural development for hosts and guests. Being participatory public spaces WHSs are places for debate, shaping by their shared values individual behavior and societies as a whole. They can provide ethical leadership, and help children and adults to acquire skills of learning through cultural resources. As tourism resources they may support host communities by generating tourism revenue. But in many cases these prerequisites are not met. Historic environment and cultural values remain often to the majority of visitors' codified landscapes. Although visitors at WHSs wish to understand

and experience the particularities of the places, and relate to their own cultural background, a short time budget, which characterizes visitation at heritage places, and informational gaps between audiences, curators and heritage phenomena downgrade the quality of visitor experience. In order to effectively manage leisure time spent by non-captive audiences at the WHS of NEA MONI the GUIDE considers visitor experience components and learning particularities at cultural heritage settings associated with leisure and tourism.

Cultural heritage presentation in leisure settings such as WHSs offer a high-density experience, showcasing the best of what's on offer in a short amount of time and compact space. Visitor experience at WHSs is the opportunity to derive from their visit meanings and values of the Site, knowledge, attitudes, behaviour, emotions, impressions, relationships, or other subjective elements and sensory experiences (Beeho and Prentice, 1997:76, Belnap, 1997:42-45, Dallen, 1997:752, HFC, 1998:16-19, Ramos and Duganne, 2000, Haylar and Griffin, 2005:523-525). However many visitors do not come with a deliberate intention to seek information and may not be willing to devote mental effort to learning activities, preferring to approach their visit in a mentally passive fashion (Schauble et al., 1996). Usually audiences with no prior knowledge about WHSs visited take advantage of destination-based information services and activities centering on the natural, cultural, and historical environment, and seek learning, excitement, and reflection-based benefits through their participation in varied activities, - the educational aspects of the visit are secondary to other aspects such as entertainment, social interaction or relaxation (Frauman and Norman, 2004:387, Owen at al. 2004). Identified are five main experience types: entertainment, recreation, cognition, social and self-fulfillment (Packer and Ballantyne, 2001:140-141):

TYPOLOGY OF VISITOR EXPERIENCES	
1	The need for social contacts at cultural heritage settings rather than a learning experience.
2	The need for restorative environments or experiences which create a sense of peace and calm.
3	The need novelty or change, for new sources of stimulation and adventure, to explore the unknown.
4	The need to see leisure as an opportunity for self-fulfillment, self-development or a source of meaning in life.
5	The need for learning or cognitive engagement.

Fig. 2: Types of Visitor Experiences (Modified according to Packer and Ballantyne, 2001)

Leisure motivations are shifting more and more towards a search for novel, authentic and quality experiences which incorporate a learning component (Prentice et al., 1998:6, Anderson 1999:50-58, Reed et al., 1999:14, Hooper-Greenhill, 2004:163). We may conclude that learning activities takes precedence over other interests, if enthusiasm is created among visitors for the meanings and values of the places visited.

A key area of visitor learning is the development of experiences through *active involvement* in cultural activities. Success depends on the quality of information presentation. A significant number of individuals and organizations within the cultural sector operate informally or have ineffective methods of presenting information hence the quality of information is significantly compromised (Lehnes and Zanyi, 2001:3). Cultural heritage leisure settings can be of great value in the learning process, provided that they are used actively to develop understanding and practice of relevant heritage phenomena. Gardner's theory of multiple intelligence helps to explain why people learn, remember, perform and understand in different ways according to the strengths of those intelligences (Gardner, 1983). In leisure settings, however, learning experiences are not imposed by conventional instruction methods: Learning is tailored to non-captive audiences, a fact that differentiates instructional design from formal academic settings (Ham and Krumpe, 1996:11-23, Colley et al., 2001:18). In contrast to formal education, where learning motivation is often dependent on fear of punishment or on forfeiture of reward, learning content must be willingly embraced by visitors. Recreation audiences select freely to attend or ignore communication content; in addition, visitors' perspective regarding the experience and the learning outcomes may be secondary to recreational objectives. Interpretive products and services should therefore offer enjoyment and relevance to audiences based on clearly organized message nuclei, if they are to attract visitors. In this vein cultural heritage managers may meet an audience's demand, which prefers educational interactive entertainment to passive observation.

Research into experiential and situated learning suggests that humans can be divided into those who prefer to perceive concretely through sensing and thinking. They may then prefer to process these new experiences actively through doing, or reflectively through watching. These differences can be related

to the dominance of either the right brain (to which is attributed concrete, non-rational, intuitive and non-verbal thought) or the left brain (to which is attributed abstract, rational, analytical and verbal thought). Experiential and situated learning frameworks are flexible enough to be designed to suit many different learning styles (Clancey, 1995:49-70, Anderson, 1999, Colquhoun, 2005:8-10). WHSs are ideal centers for self-directed learning, learning entirely outside the formal education sector. Instead of working to a fixed curriculum, self-directed learners take the initiative in deciding their own learning programs according to their own interests. Most successful self-directed learners developed their knowledge through learning networks rather than in isolation, are extrinsically- orientated and consider themselves as part of a wider learning community (Brookfield, 1983 and 1986 in Anderson, 1999:17). Trying to promote self-directed learning using extensively cognitive and emotional components, the GUIDE employs presentation modes that rely on principles of human cognitive architecture. It strives to interpret heritage assets in a manner that enhances visitor experiences, conveying at the same time distinctiveness (*novel elements*), authenticity (*original elements*) and familiarity (*common elements*) while keeping cognitive loads balanced.

5   ACCESSIBILITY NETWORKS

Heritage tourism may be defined as social phenomenon interacting with supply and demand, where visitation incentives are based on the place's distinctive cultural features as well as the visitor's perception and evaluation of them. There is a difference however between *heritage tourists* and *tourists at heritage places* (Poria at al. 2003:238), mainly because heritage places are at the same time multiple attractions poles for cultural and non-cultural activities (Jansen-Verbeke, 1998:739-742, Bianchini 1996:11-24). What may render WHSs to successful tourism products are factors as the visitors' perception of a place, personal interests and beliefs, a well marketed image, market trends and appropriate heritage management. Perceptions regulate behaviour and the more linked these are to the contents of a place the higher is the possibility for travelling.

Successful heritage attractions are inexpensive, visitor friendly, physically and intellectually accessible, meet visitors' needs and market requirements, create the tourist experience, recoup value for money, while at the same time maintain authenticity and integrity of the site (Garrod and Fyall 2000:866). Unfortunately in many cases these prerequisites are not met. Although they build the determinant for the travel decision (Serageldin, 1999:1-2), centrally subsidized heritage resources are offered to the tourism market below cost: local and national tax-payers carry the burden of sustaining quality (Serageldin, 2000:51-58). Market value as an optimal mix of conservation and access nourishes long-term survival. If heritage assets, the main heritage tourism catalysts, remain external to markets, they cannot be conserved, whereas saturation of the central supply of facilities and overuse of the proximate resources downgrade the quality of the tourism product (Mourato and Mazzanti, 2002:51-54, Throsby, 2000:10-16, 2002:102 ff). Unfortunately heritage managers and curators in Greece remain external to the tourism business. They consider themselves as providers of public access to heritage attractions, guardians of regional and national assets, but do not relate the future of the specific public goods to financial solvency which would guarantee public access to the assets, nor do they seem to be familiar with notions such as Carrying and Service Capacity (Garrod and Fyall, 2000:684, Coccossis and Mexa, 2004, Masters, Scott and Barrows, 2002:8 ff.).

Accessibility is defined as the communication with the public, the accessibility of the destination and its attractions and the atmosphere of the place (Garrod and Fyall, 2000). It includes the existence of a strategy for tourism management at the metropolitan level, the quality of information and hospitality, the presence and quality of secondary or complementary tourist services, internal and external accessibility, attractions and events (Russo and van der Borg, 2002:633-634). Heritage places should be accessible to everyone, including people with mobility or sensory impairments, the elderly, parents with small children and anyone who is temporarily disabled as a result of illness or injury (Martin 1999:1). Improved access can open up wider markets for owners and managers, which could be promoted to increase visitation. However, increased visitation must be managed to ensure it does not accelerate deterioration of the original fabric. Heritage buildings have different functions, which may

result in the development of a range of different access solutions. The first step in planning access improvements is to undertake an *access audit*. This will assess and document the barriers to access which exist within a place and its surroundings. Once an access audit and conservation assessment has been completed, an *access plan* can be prepared reconciling, where necessary, the needs of access and conservation. This will involve, on the one hand, assessing the significance of the building and its setting and, on the other, the access needs of its users (Adams and Foster, 2004:18-19, Stoneham, 200:20-23).

ACCESSIBILITY
Information with Tourism Value (Visitor-centric and consumption Relevant Information Presentation)
Infrastructure
Pricing Policies
Tourism Carrying Capacity (TCC)
Tourism Service Capacity (TSC)
Accommodation
Catering
Transport Means
COGNITIVE ACCESSIBILITY (Mental Emotional Spiritual)
Recognition
Presentation
Interpretation

Fig. 3: Accessibility Networks

5.1 Training tourism involved agents to the benefits of accessibility

Tourism is highly labour intensive and requires a wide range of strategic and management skills and friendly professional service at the interface with visitors. Well trained staff supports entrepreneurial initiatives. To strengthen experience delivery, all sectors need to work with educational institutions to ensure that programs are developed for the existing and future work force needs. Linguistic and cross-cultural skills are crucial to the tourism industry – especially in Greece, visited by a linguistically varied public. Even if many tourists manage to communicate with basic knowledge of the English or another foreign language, good knowledge of foreign languages should be a basic requirement for those employed in the tourism sector. Experiencing another nature, climate and culture is one of the main motives that make people travel to other countries for their holidays. Understanding of how cultural factors can affect the visitor's experience is a necessary component of tourism planning, marketing, and delivery. An ability to recognise and deal with cultural factors will improve the quality of the interaction between staff and visitors.

VOCATIONAL TRAINING
• analyse and evaluate situations, practices, issues, topics and debates within the hospitality industry
• vocational competence within sectors of the hospitality industry
• communicate effectively using hospitality-related language confidently, accurately and appropriately
• awareness of legal, ethical, cultural and social responsibility within all roles related to the hospitality industry
• appreciation of the skills and attitudes that enhance employability, enjoyment of life and preparedness for life-long learning.
• quality customer care: what it is and how to do it , how to understand visitor perceptions and expectations and manage their motivations
• understanding causes of customer dissatisfaction, recognising and avoiding obstacles to quality service
• interpersonal skills, managing difficult people and situations: how to communicate effectively
• improving self-esteem, self-image, attitudes, beliefs and taking responsibility

Fig. 4 Vocational training leads to accessible tourism services and visitor satisfaction

Physical Accessibility

5.1.1   Geographical Accessibility

Tourism is an industry of knowledge based activities. Places are important *if* they have a widely recognized identity. Cognitive distance has the potential modify tourists' cognition of vacation transport costs and influence the purchase decision (Ankomah, 1996:140). Public infrastructure is not commercial in nature, but it is a task for tourism planning to provide for signage, way finding systems, restrooms, tourist information bureaus, visitor information centres and kiosks, trails, parks, public toilets, walking tracks, picnic facilities parking and public domain attractiveness as well as effective transport means. Heritage places providing the correct mix of infrastructure elements are able to satisfy visitors and at the same time provide residents with facilities and experiences that without tourism, they would not be able to enjoy to the same extent.

5.1.2 Facilities

Access into Heritage Sites is often difficult because earlier design and construction techniques did not usually consider people's varying abilities to the extent they do today. Technological improvements in assistance equipment and improvements in building design have helped to correct earlier inequities. Access to the historic landscape means unassisted barrier-free movement from arrival to destination. Accessibility to heritage resources should include a continuous route which allows the individual to experience a range of environments found at a given places. Whenever possible, all areas of a heritage place or building should be accessible. Access must be provided from the main access point, onto, into and through the site, historic building or historic landscape. There should be at least one accessible route using appropriate grades or ramps from a site access point, such as a designated parking space for all including visitors with disabilities, to an accessible entrance. There should be at least one accessible public entrance into a site and appropriate door width, threshold and configuration. If one public entrance is not achievable, then an alternative building entrance for the disabled should be identified (by signs) and it should remain unlocked during hours of operation.

It is expected that, once inside a historic building, the public visitor or employee will have barrier-free access to all services provided to the general public. This includes bathrooms, offices, restaurant dining, etc. Corridors and interior doorways must be wide enough for a wheel chair, modest floor level changes must be ramped, and thresholds must be shallow. At a minimum, all services on the accessible entrance floor must be available to all visitors including the disabled. The extent to which a historic interior can be modified without loss of its historic character will depend on the size, scale, and detailing of the features along the accessible route. WHSs are composed of character-defining features, so that careful consideration must be given to avoiding alterations to those features that contribute to Site's significance. In some instances, complete accessibility may be possible by resurfacing an entrance path. In other instances, new trails, ramps or parking may be necessary to accommodate the public. Alterations and interventions should not change to the historic character of significant places. Alterations to non-character-defining features are acceptable in order to provide the highest level of access within the building with the lowest level of impact. Less significant interior spaces can be considered in order to provide necessary amenities on the floor of principal access. Toilet facilities should be provided for the general public and one accessible unisex unit (sized for wheelchair use and with a privacy latch) must be provided. All public spaces on at least the level of the accessible entrance should be made accessible.

5.1.3 Visitor with physical disabilities

The major travel constraints cited by Darcy were problems with the accessibility of accommodation (42%), the accessibility of destinations (36%), lack of accessible attractions followed by the lack of accurate information (30%) (Darcy, 1998:39). For individuals with physical disabilities any change in grade including stairs and some ramps are severe barriers. Existing paths or trails should be evaluated to determine if their grade, alignment, width, and surface material are appropriate. Other outdoor features, such as drinking fountains, trash receptacles, and interpretive wayside exhibits should be designed in such a way that they are easily reachable and understandable by everyone. In historic public parks, recreational facilities including swimming areas, camping grounds, picnic areas, playgrounds, and ball fields, should be constantly evaluated to offer a variety of recreational activities to disabled people. One of the best solutions to landscape accessibility is minimizing the distance between arrival and destination points. This may require accessible parking, with curb cuts and a path within easy reach of an historic building, picnic area, or an interpretive trail. For some landscapes, a natural or historic site grade that is very steep or composed of massive terracing and steps may prohibit full access without damage to the

character of the property. In this case, partial accessibility to some elevations may be necessary (English Heritage 1995).

PHYSICAL ACCESSIBILITY
General Infrastructure
In situ Visitor Facilities
Tourism Carrying Capacity (TCC)
Tourism Service Capacity (TSC)
Access to Destination (External Accessibility)
Attraction and Activities Location (Internal Accessibility)
Transport (Internal Access – Timetables)

Fig.5: Prerequisites to access components of a holistic tourism product

5.2 Economic Accessibility

Economic accessibility includes generally the access to the sites, building and collections, audio facilities, access to temporary or special exhibitions, catering or restaurant services provided within museums, purchases from shops located in the vicinity of the site (Bailey and Falconer, 1993:172). Pricing policies should though justify the expenditure and aim to repeat visitation. Visitors are willing to pay a price, but they should receive value in return. Pricing policies are fixed prices indicating the right to consume types of heritage. Entry prices should be based on the analysis of the services rendered presupposing visitor participation at all costs, or there can be a scale according to target groups, or a policy for networking heritage clusters with significant advantages for ticket or package holders. Pricing policies should reflect the balance between price and returned value (Garrod and Fyall, 2002:686). Once a visitor enters a heritage place on an entry price he has a 'contract' with the cultural operator (Greffe, 2004:305-306). The price paid should reveal the services he is entitled to, the expected quality, behavioural norms- if necessary, the sense of contributing to a good cause (usually restoration, conservation, maintenance and expansion projects) and the ability to express his opinion regarding the fulfilment of the contract.

5.3 Digital Accessibility

Innovative technologies enable the (re)presentation, exploration, celebration and above all the dissemination of heritage resources especially at regional and local level. The use of multimedia, as synthesis of a multivariate type of information like text, video, sound, image in web pages signal a brand new way of communication with and promoting WHS. Computer terminals with touch screens also accessible at appropriate places on and off the Site (a at major entry point) feed off curiosity sustained by user-friendly software. Smart information architecture should be able to handle semantics in Information Systems (Data mining, Information retrieval and Intelligent Information agents), Cooperative Information Systems (pragmatics, autonomy and Self-interested Agents) the use of other media in Information Systems (Multimedia data management and multimedia retrieval) and stay mobile with new forms of distribution (connectivity, processing caps) and mobile agents. Mobile Computing, Intelligent Agents and Self-organizing Information Systems are already in use.

To appreciate cultural activity at high density WHSs, visitors have to be presented who created the cultural entity, when, where, and why. Cultural information retrieval should be answering questions of who, where, why, how, when and what created, Also what was discovered and why it is exhibited. Starting with limited knowledge e-visitors try to discover additional information. Information retrieval using machine intermediaries to organize its findings, proceeds along prior knowledge to more complex schemas. (Bearman and Trant, 2000:5). With the significance of linking given, the new task is to retrieve and navigate directly with concepts through a new systems generation which will extract the semantics from the knowledge implicit to the media, associate between media representations and semantics without a heavy manual input (Lewis et al. 1999, pp. 4).

To guarantee cognitive access to heritage resources information architects should develop narrative tools to support the conceptual framework of heritage interpretation, so that heritage resources can be made accessible to a wider public, as well as attractive through provocative, coherent collocations. Story skeletons with plots provoke conceptual associations. Using the power of connections to create sense hypertexts link two or more, formerly separate, entities in a meaningful way with one another. By

presenting facts and reasons in one format hypertexts become the new narrative forms which enhance the visitors' participation within a given setting, the ability to explore and move back and forth in this setting, so that learning becomes a pleasure generating procedure. In order to design effective cognitive web structures narrative structures, planners should exploit the semantic and episodic memory potential:

- Active Interpretation Framework: the visitor is equipped with appropriate digital narratives which incorporate the typical exhibits constructing a plot, which allows any cultural and natural setting to be viewed from different perspectives. Visualized culture narrative elements are able to tell stories, validate other elements and structures as long as they are (re)presented in the prevailing historical and socioeconomic context that created them. Innovative technologies have the tools to create the image whereas interpretive hypertextual descriptions give up the accumulation of facts, technical accounts and data.

- Interpretive Representation through Processual Information Management: the (re)presentation of a given heritage context, may it be a pottery collection, or an ancient temple, or endogenous flora and fauna, is supported by computational ontologies that arrange, present, classify heritage objects according to different taxonomy principles, demonstrating at the same time how a work of art is the inspiration source of a series of cultural products, and aims to secure the contextualized learning process. Conceptual models reveal temporal and causal relationships between the tangible heritage resources and may represent the steps taken to their completion, so the visitors familiarizes with how for instance pottery objects are being created, or how a roman family cooks its meal, or how mosaics are put together, what created the glaziers etc. Using web-based tools as the *Resource Annotation Tools* visitors are able to create their own collection, their own living heritage- space (Mullholland and Collins, 2002).

- Edutainment: Edutainment is a powerful tool that benefits the visitors through first hand experiences and spiritual enrichment. Interpretation is a communication process based also on of exploratory learning techniques. The dual character of edutainment -entertainment and exploratory learning is a combination that generates the pleasure of being (self) instructed. The prerequisite for edutainment to be effective is that structure and management of information results in meaningful messages for the recipients. Virtual or real, visitors have to receive a message, understand it, remember it and somehow use it after the visit.

5.4 Services Accessibility

The range, capacity and quality of lodging, catering, retail, entertainment, public amenities and attractions are critical to the ability of a place to attract and retain visitors. Tourism is a 'people' industry and customer service is critical (AHC, 2001:11). WHS managers have to plan to deliver outstanding experiences from the first moment that visitors click on a web site or look at a brochure, to when they enter or leave the Site. Impressions start at the entrance to the Site: visitors are attracted to clean, welcoming, and well maintained places. Highly-skilled staff knows what different visitors want from their experience. Managing authorities may overlook the ugliness of their streets, the absence of trees, the poor lighting, trash and bad signage, but visitors don't. Quality service is critical to both promoting customer spending and generating visitor referrals (Christou, 2004). Accessing quality services associated with all aspects of the visitor experience is the key to repeat visitation and word of mouth referrals, so essential to long-term destination viability. World Heritage places that become recognized as delivering quality services and experiences enjoy the benefits of market leaders.

SERVICES ACCESSIBILITY
Tourism Carrying Capacity (TCC)
Tourism Service Capacity (TSC)
Access to Accommodation and realted facilities
Catering and local cuisine
Access to Transport (External and Internal options and time tables)
Access to Activities (Leisure Time Management)

Fig. 6 : Accessing the components of the tourism product

5.5 Cognitive Accessibility (Mental, Emotional, Spiritual)

Acknowledging the fact that tourism production is substantially placeless, whereas tourism consumption is place-centric, the planning process for quality visitor experiences should focus on the distinctive, non exchangeable features of a heritage resource (Russo and van der Borg, 2002:632). In

order for heritage resources to be mentally, emotionally and spiritually accessible, they have to be presented in a visitor-centric way (Moscardo, 1996:383, SNH 1997:3-7, Carter, 1997:9-10). Especially heritage agencies seeking to promote public visitation to their assets should develop a visitor-centered heritage interpretation model, able to transform the resource into a powerful tourism attractor. Heritage assets of global values should be presented on the basis of their meanings, explaining inherent values and significance. Without suitable presentation and appreciation of what is being valued and therefore conserved, cultural heritage resources remain meaningless to the majority of visitors (Bauer, 2002:37-52) the understanding of local history, a powerful tourism attractor, is lost.

Experience seeking visitors wish to discover what is unique about a place and its people (Bodger, 2004). Cognitively accessible presentations add value and visitor are willing to pay a premium price for the right experience: It is the overall accessibility to heritage place that will define its identity and hence the difference in the market. In order to survive, WHSs have to satisfy the needs and expectations of experience-seeking visitors. Visitor centred communication policies and staff with basic interpretive skills play a significant role: it is not just a collection or a site visit that ensure satisfaction, therefore managing authorities should give close attention to continued professional development of those involved in the heritage (AHC, 2001:12).

Access to WHS should be provided also for visually and hearing-impaired, as well as physically disabled visitors. This may call for special signs or maps that feature large type or involve a sign language interpreter. Telecommunication devices for the deaf may also be required.

ACCESSIBILITY NETWORKS AT NEA MONI	
1. Training tourism involved agents to the benefits of accessibility	• No training provided to manage the significance of the Site at local and national level • Unknown Visitor Profile
2. Physical Accessibility (Geographical, Facilities)	Execellent Conservation Status
1. Geographical Accessibility	Very poor signage and signposting regarding external and internal accessibility
2. Facilities	Ver poor toilet and parking facilities aouside ths site
3. Visitors with physical disabilities	No provisions whatsoever
3. Economic Accessibility	No fees for entry No fees for the guided visit
4. Digital Accessibility	**Information without tourism value**
	• Informastion presentation in local websites unstructured and poor • Scarce Information in national registers does not stimulate to visit the Site
5. Services Accessibility	• No provisions whatsoever • The Site is not a major component of the overall tourism product of the island
Cognitive Accessibility (Mental, Emotional, Spiritual)	• A very sucesfull guided visit • The Guide booklet

Fig. 7: Accessibility Networks of NEA MONI:
Excellent conservation status, external to the tourism market

6. ANATOMY OF AN INTERPRETIVE GUIDE

WHS interpreted for non-captive audiences are first class purveyors of learning in disguise. By activating cognitive and emotional components interpreted WHS generate multiple communication corridors for the general public enriching the visitor experience with a wide palette of conversational meanings. The on-site visit becomes informative as well as personally meaningful, not solely an occasion to absorb factual knowledge about unfamiliar aesthetics and history. In order to make the most effective use of the assets at NEA MONI during leisure time spent in situ, the GUIDE aids non-

captive audiences to obtain high quality visitor experiences, mediated through cognitive processing of relevant information in the basis of exploratory learning techniques. Clearly communicated, sense of place and the experience per se merge into a competitive high added value tourism product.

NEA MONI represents one of the main features of the island's cultural identity. The international significance of this area has been recognized through UNESCO's World Heritage Site designation in 1981. The Monastery has a role to play in heritage education and interpretation, informing visitors of the cultural and natural resources of both the Site and the island. Visitors are encouraged to develop a sense of stewardship for the Site and the values it stands for. The Heritage Trail's Narrator escorts non-captive audiences during the visit in the Catholicon, to explore the architecture of the dome and the iconographic cycle inside it. The Trail is signposted and consists of four thematic sections with 18 sub-stops altogether. The trail provides readers with Site orientation and information. It plays a major role in the dissemination of information on NEA MONI specifically and Byzantine art in general. Recreation opportunities available at the Site, outdoor safety, wilderness and conservation ethics, firewood conservation, bear safety, low impact Site use, mountain bike and driving safety on the national road are topics discussed in a forthcoming GUIDE. The objectives set were to supply a large audience with information about NEA MONI and furnish this information about local and regional tourism opportunities. The actions take were an interpretation assessment for the Site, an interpretation and information plan, a display plan to present natural and cultural features and recreation opportunities of NEA MONI, and introduce the WHS values. The development of an extensive program of visitor contact and communication involving both personal services and self-explanatory material such as visitor programs, school programs, self-guided trails, special events, brochures and displays will be considered in the forthcoming GUIDE. The present GUIDE will be redesigned to consider education and information programs with Byzantine Museums and the IME Institute for Hellenic History and future off-site interpretation signage will be located in remote and sensitive areas, the harbor and the airport.

Profound subject matter knowledge is an indispensable step to assess the significance of the Site and define all possible tourism uses of the selected stops. Facts about the resource were carefully selected by specialists on an interdisciplinary basis, whereas the interpretive plan identifies and presents the diverse intangible and universal meanings NEA MONI inspires at various audiences. The interpretive plan developed manages information in a visitor centric manner: it shows multiple perspectives and the relationships of events, encouraging visitors to derive personal meanings. It provides guidance on the artistic achievements allowing visitors to understand causal and functional relationships, alternative hypotheses, and the nature of evidence. Gaining these insights involves multidisciplinary research, critical examination of evidence, selection of facts, and synthesis of these facts into meaningful interpretive narratives. Interpretation is not just a collection of static facts; rather it seeks to provide visitors with a better appreciation and understanding of resources and experiences. Central themes were discussed with specialists in an attempt to answer organize known facts into illuminating and provocative patterns at each stop.

The GUIDE's writing style is not scientific, although it contains scientifically proved information. It is an interpretive writing style, which draws from technical, informational, scientific, historical, and cultural sources and incorporates techniques to balance cognitive loads represented by novel material, while striving to preserve authenticity and integrity of the Site in the presentation context. A *Narrator* strives to connect readers emotionally and intellectually to the meanings and significance of the resource(s) being interpreted, by evoking sensory impressions and images using extensively automated schemas. Highlighted textboxes explains technical features and provides factual data for reference or other use. This kind of information architecture leads readers to accomplish a specific task and integrate novel structures.

Instead of a chronological array of series and facts the *Narrator* provides a clear focus for *connections* with the various resources by demonstrating the cohesive development of relevant ideas. Creating connections, e.g. links between visitor experience and interests and the meanings of the resource is a crucial element for the length of stay time at the Site and the quality of visitor satisfaction. Connections can be subtle or sublime and relate to places, things, and ideas; they may be described as moments of intellectual and/or emotional revelation, perception, insight or discovery related to the meanings of the resource" (NPS, 2001). The *Narrator* strives to offer visitors meaningful associations embedded in personalized narrative structures, e.g. to make the special connections that exist between the spectators and the items evident. In order to construct meaningful associations in the given heritage context the

Narrator motivates visitors to careful, accurate, inquisitive observation and facilitates discovery and participatory activities by helping visitors recognize that as more information is gathered, their understanding changes and grows.

The GUIDE uses a four-step process to plan for cognitive accessibility:

1.   A Significance Assessment Process (SAP) is used to define the main interpretive topics, e.g. the dome's architecture and the iconographic cycle (Unesco, 2005:13-14, and 19-24, Russel and Winkworth, 2001:25-46, NSW, 2001:9). SAP secondary criteria determine the selection of the items at each stop and the nature of the significant person's or group's relationships with the items and to other historical resources. The SAP process assesses also the interpretive potential describing items values, for instance if they demonstrate a significant accomplishment of a person or group: the Monastery was built by the Emperor as the fulfillment of his promise to the monks, who discovered the holy Icon. Items, phenomena and themes presented are specifically identified Sub-themes are autonomously presented as sub-stops within the trail. Items that retain enough integrity to convey its significant associations are being then presented; fully destroyed items are not considered, unless non-visible significant details at selected scenes are complemented by the *Narrator*.

2)   Distinctive art features have been associated with a significant aspect of a group's thematic contribution such as the Mosaic Art School of Constantinople, while

3)   selected phenomena are presented within their historical and thematic context. Significance of the persons or groups associated with items are determined and presented within the thematic context of their contribution (Emperor Monomachos, the monks, Lady Mary etc.).

4)   In order to establish comparative significance of items at each stop, contributions by persons or groups are compared to those of others who were influential within the same framework to (John, the Evangelist and the other Apostles, John, the Forerunner at the other parties involved at the Baptism ceremony). The comparisons are contextual, within a local area, a family network or an institutional structure (Crucifixion, Deposition from the Cross, Resurrection are presented within the context of a family's tragedy with relatives, Mary, the Mother and her sisters, and closest friends, John the Apostle, to represent the tragedy of human pain).

THE SIGNIFICANCE ASSESSMENT PROCESS				
MAIN PRINCIPLES		LEVELS OF SIGNIFICANCE		
1. Historical Values		1. Spatial Level		
2. Aesthetical Values		1.1. Global Level		
3. Scientific, Research, Technical Values		1.2. National, 1.3. Regional, 1.4. Local		
4. Social Values		2. Social Level		
5. Spiritual Values		2.1. Community, 2.2. Group, 2.3. Family, 2.4. Personal		
Tourism Modifiers				
1.Provenance	1.1. Authenticity	1.2. Originality		1.3. Designation
2.Integrity	2.1 Completeness	2.2. Exemplarity		2.3. Bio-and Cultural Diversity
3.Distinctiveness	3.1 Representativeness	3.2 Novelty		3.3 Familiarity
4. Accessibility	4.1 Availability	4.2 TCC	4.3 Resource Condition	4.4.Infrastructure - in situ facilities	4.5 Service CC
5.Interpretive Potential	5.1 Current State of the Resource, 5.2 Legal State of the Resource, 5.3 Intervention Capacity, 5.4 Knowledge of the Resource, 5.5 Audience Segmentation, 5.6. Interpretive Opportunities, 5.7 Media Selection, 5.8 Presentation Techniques			

Fig. 8: Assessing the significance of heritage resources for tourism at WHS Nea Moni

The GUIDE organizes information management within the framework of Cognitive Load Theory (CLT). CLT is concerned with the effective instructional design in accord to human cognitive architecture (Sweller, 1994 and Sweller and Paas, 1998, Paas at al., 2004). As cognitive load (CL) is to be understood a construct that represents the load imposed on the cognitive system when a particular task is performed. There three specific types of loads that the GUIDE has considered (Sweller et al., 1998:258-265, Gerjets et al., 2004:33-43). The intrinsic cognitive load (ICL) is affected by the intrinsic nature of material and cannot be drastically altered by instructional interventions. It depends on the

interactivity of the elements, on the nature of the material to be learnt, as well as on the expertise of learners. Information with this type of load is explained in the highlighted boxes of the printed GUIDE.

In order to broaden the interactivity continuum at each stop the GUIDE transfers all scenes from the Passion Christi into already automated schemas: *"Baptism"* as the known ceremony with parents, godfather and godson and guests invited, *"Transfiguration"* as an explanation which reveals the divine and human nature of God, *"Crucifixion"* and *"Deposition from the Cross"* as funeral ceremonies loaded with tragic and dramatic emotion. *"Resurrection"* reveals a double-layered meaning. It correlates the *"Triumph over the Death"* with the Empire's political ideology about time and art: dates are not important, since the Empire is eternal. The extraneous cognitive load (ECL) is generated by the manner in which material is presented rather than by the intrinsic characteristics of the material. It may very well be altered and even determined by instructional interventions. To reduce this type of loads the GUIDE has excluded technical terms and has layered information in a double format. Non-highlighted parts are governed by personalized, easy to follow narratives structures, highlighted parts include "do you want to know more" structures and are easily to identify optically. A challenge for the quality of information in this GUIDE presents the germane cognitive load (GCL), which generally reflects the effort that familiar schemas are used to acquire knowledge and may be increased by instructional interventions.

Constructing new schemas within the GUIDE is made possible by the "*Do you want to know more*" section and by the step by step insertion of novel items throughout the context.

PLANNING FOR COGNITIVE ACCESSIBILITY AT WHS NEA MONI	
Planning Principles	**Applications**
1a. Significance Assessment Process (SIP): Identification of interpretive topics	The dome's architecture and the iconographic cycle
1b. SIP - Priority setting in selecting items, phenomena, persons, myths	Christ's Life Cycle, Cupola, Lady Mary
2. Distinctive features of each phenomenon	Technique of the Constantinopolitan Mosaics Art School, Composition of the scenes, Byzantine Iconography, Myth Structures
3. Historical and thematic context of selected items	Chist's Life Cycle, Myths connected to Monastery
4. Contextual Comparisons	Protagonist and Second Roles (Mary, Jesus, Others, the Emperors, the Architects)

Fig. 9: Connections and Associations for Non- Captive Audiences at WHS NEA MONI

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