

Digital Narrative and Collaborative Design in the Chronicles and Legends of Mexico City

By Lily Díaz-Kommonen
University of Art and Design Helsinki, Media Lab
diaz@uiah.fi

1. Abstract

This essay describes the process, combining collaborative design, pedagogy, and research, used in the creation of digital video narratives of the legends and chronicles of the historic center of Mexico City. These digital narratives are to be published as part of an information technology product, namely the Map of Mexico 1550 Digital Facsimile. The narratives were created by a group of students in the program in Interactive Design and the *Universidad Iberoamericana de Ciudad de México*.

Key words: Boundary objects, collaborative design, cultural heritage, digital narrative, ontology.

2. Background and Introduction

2.1 The Map of Mexico 1550 research project

The concept of Digital Facsimile has been described as a digital representation of an original object cultural heritage object of such a high quality, in terms of resolution, color, volume and shape accuracy, that it is accepted by researchers who would normally require to get access to the material version of the object. As a design solution, the Digital Facsimile makes it possible to develop diverse types of digital cultural heritage artifacts targeted to different audiences.¹



Figure 1: Digital three-dimensional reconstruction of the Map of Mexico 1550.

¹. Díaz, Lily, "Digital Archaeology: Connecting Historical Narratives and Digital Environments", *Leonardo, Journal of the International Society for Art and Technology*, Vol. 31, No. 4, The MIT Press, Cambridge, MA, 1998, 283-287.

During the years 1997-2004 such an artifact was designed and produced of Alonso de Santa Cruz' Map of Mexico 1550. The project was realized as a collaborative endeavor between the University of Helsinki, Media Lab, the Helsinki University of Technology, Department of Photogrammetry, and the Uppsala University Library, that is the keeper of the original item. The physical object has been painted on two sheets of parchment joined together at the center and measures 114 X 78 cm. It shows the city surrounded by water and with canals between its buildings and provides abundant information about the ethnography and the flora and fauna of the region during the early colonial days.²

The map was recorded with a stereo photography. Stereo images were used to produce a reconstruction of an elevation model of the map surface. The elevation model consisted of 3D coordinate points, spaced at 4 mm. By using these points, a triangular mesh was generated and the image mosaic was draped over it. As a result we got a textured 3D surface model of the map. (See Figure 1)³

An interaction structure was designed for the digital artifact that is based on the analysis of the activity of working with a physical paper map on a wooden table surface. This interaction structure supports two basic gestures, namely bringing the object closer in the field of view and panning the object in multiple directions on a plane surface. Two interface iterations have been built upon this structure. One is a standalone interactive application that makes use of OpenGL and has been programmed in C++. The other is a Cultural Web Application delivered through Mozilla, Firefox or Communicator and which makes use of CSS and Javascript.

1.2 The Art Center Nabi Digital Storytelling competition

The plan for a content layer to be added to the Digital Facsimile of the Map of Mexico 1550 began during the spring of 2004. With this objective, in 2004 a proposal was submitted to the Art Center Nabi Digital Storytelling competition.⁴ In this proposal, the case was presented for the development and inclusion the Digital Facsimile of narratives based on the Chronicles and Legends of the historic center of the city of Mexico into the facsimile.

The reasoning behind this endeavor was based on the rich tradition of these narratives as repositories of the collective popular memory. In the proposal, the argument was also made for the gathering of documentary video footage, photographs and narratives by local people and in situ. At the moment, in addition to the video narratives of the legends that are described in this essay, the content layer includes photographs from the 19th to the 21st century. However, it is expected that this layer will continue to evolve so as to include a growing corpus of historical material.

2. Digital Cultural Heritage

². Larsson, Lars-Olof, & Lily Díaz-Kommonen. "Catalogue Entries" in *Aztecs*, Thames & Hudson, Ltd., London, UK, 2002, 492.

³. Nuikka, Milka, Díaz-Kommonen, Lily, Henrik Haggren, "Photogrametric Reproduction of the Map of Mexico 1550", in *Proceedings of the XXth Congress of the International Society of Photogrammetry and Remote Sensing*, Istanbul, Turkey, 12-23 July 2004.

⁴. The proposal was awarded first prize. The monies resulting from this were utilized to produce the workshop described in this essay.

2.1 The concept of cultural heritage

Cultural heritage is a broad term used to refer to forms of cultural and artistic expression inherited from the near or distant past of a given country or cultural area.⁵ As precious evidence, cultural heritage is often seen as both a *record* and manifestation of the human past in the present.⁶ Because of its links to notions of identity and social cohesion through time, cultural heritage is also *valued* as a legacy, or commodity bestowed from the past to the future generations.

In recent years, partly through the development of the Information Society with its associated trends of globalization, growing interconnectedness, and instant multi-modal communications that erode the boundaries of traditional societies, the concept of cultural heritage has evolved to encompass other qualities beyond those pertaining recording and preservation of cultural objects. Within the scope of UNESCO's activities for example, these changes have already influenced the original idea of cultural heritage. According to UNESCO, the concept initially arose in response to the proliferation of conflicts based on cultural diversity during the 20th Century. However, nowadays, in its approach to development, the agency also recognizes cultural heritage as an irreplaceable source of knowledge with a significant role to play in the present as part of the goal towards a sustainable future.⁷

From a knowledge management perspective UNESCO's work has expanded to include the two major classes of tangible and intangible heritage. Whereas tangible heritage includes the multiple physical expressions created by diverse human cultures in the past⁸, intangible heritage—also referred to as *living* heritage—is used to designate present “practices, representations, expressions, as well as the knowledge and skills, that communities, groups and, in some cases, individuals recognize as part of their cultural heritage.”⁹

Oral traditions, the myriad of rituals and festive events and knowledge that are part of social practices; the performing arts, traditional craftsmanship as well as practices concerning nature and the universe are now encompassed under this rubric of intangible cultural heritage. Arguably, a basic distinction from previous approaches is that in this framework, cultural heritage is not seen as the end in itself but rather as an instrument of mediation. As collective receptor and transmitter of memory, cultural heritage reifies the symbolic value of abstract notions such as individual and collective identity making it a fundamental reference for structuring society. Because it operates as an external manifestation of the spiritual, intellectual and emotive life, it enables us to understand not only ourselves but also others.

2.2 Tangible and intangible heritage in the Map of Mexico 1550 project

Although realized independently, the project of the Digital Facsimile of the Map of Mexico 1550 fits clearly within UNESCO's agenda. The intensive data gathering strategy aims at

⁵. Greenfield, J., *The Return of Cultural Treasures*, Cambridge University Press, 1996.

⁶. World Bank, “Cultural Heritage in Environmental Assessment”, *Environmental Assessment Sourcebook Update*. No. 8, September, 1994.

⁷. UNESCO website: <http://whc.unesco.org/en/about/> (August 28, 2005).

⁸. UNESCO website: http://portal.unesco.org/culture/en/ev.php-URL_ID=2225&URL_DO=DO_TOPIC&URL_SECTION=201.html (August 28, 2005).

⁹. Idem.

preserving and providing accessibility to a unique cultural artifact. The physical representation and reconstruction, with its magnification capability, makes use of digital media to render aspects of the object that are beyond the scope of unaided human vision.

The content layer for the facsimile, containing contemporary photographic depictions of the urban landscape and the narratives such as those created by the students in Mexico, aims to restore the object from the obscure and lonely environment of the exhibition cabinet and into the realm of living heritage. Digital cultural heritage should not, however, be thought of as a substitute of a physical experience but rather should help in revealing and confronting what is out there in the world. As Cassirer noted, “all cultural forms are *active forms of expression*.”¹⁰

3. Collaborative Design

3.1 Collaborative design activity and boundary objects

Collaborative design is an activity whereby the product, or outcome, is created through the individual actions of multiple actors on a *shared object*. Because of the inherent complexity, in collaborative design the requirements, constraints, and desires that coalesce within a design project must be understood and shared by the members of the group working together. The object of activity (its ultimate goal) must be envisioned as a collective entity, with multiple facets each seeking different forms of expression at diverse points in time.

In collaborative design, this quest for a shared understanding can be a source for both enrichment and discord. As has been noted, creativity does not just occur inside people’s heads, but in the interaction between a person’s thoughts and a socio-cultural *milieu*.¹¹ Bridging the temporal, conceptual and technological distances among team members from different disciplines and with diverse levels of expertise is one among many obstacles commonly encountered.¹² This is why in collaborative design actors should consciously make use of structures that facilitate coordination and promote exchange of information, cooperation, and sharing of the tasks involved in the activity. So-called *boundary objects* play an important role in assembling such structures.¹³

The primary function of these artifacts is to enable dialogue, reflection, and sharing of the object of the activity. By creating apertures where it is possible to *talk about, think, and do*, these objects allow for fruitful trans-disciplinary collaboration.¹⁴ As tools of design, boundary objects help to gather and steer the focus of the activity in a manner that promotes a final *envisioned* outcome. Also they promote the externalization of tacit and non-verbal modes of knowledge. At the same time, as artifact-tools morphing from shared object and focus of

¹⁰. Cassirer, Ernst, “Perception of Things, Perception of Expression”, *The Logic of the Cultural Sciences*, Yale University Press, 2000, p. 51.

¹¹. Engeström Yrjö, As cited in “Social Creativity: Turning Barriers into Opportunities for Collaborative Design” by Gerhard Fischer, In F. deCindio, & D. Schuler (Eds.), *Proceedings of the Participatory Design Conference (PDC’04)*, CPSR, P.O. Box 717, Palo Alto, CA 94302, University of Toronto, Canada, July, p. 152.

¹². Idem.

¹³. See: Katherine Henderson, *On line and On Paper: Visual Representations, Visual Culture, and Computer Graphics in Design Engineering*, The MIT Press, Cambridge, MA, 1999.

¹⁴. Arias, Ernesto & Hal Eden, et al. “Transcending the Individual Human Mind—Creating Shared Understanding through Collaborative Design,” *ACM Transactions on Human-Computer Interaction*, Vol. 7., No. 1, March 2000, p. 87.

activity into tools for doing, they remain sturdy enough so as to allow for meaningful exchange and communication among a team of expert coming from diverse disciplines.

Boundary objects come in different shapes and formats. One example of how boundary objects are routinely used in design is that one of storyboards. A storyboard is an object that visually describes the different components and events in an audio-visual production. In a storyboard, the descriptions can be broken down to different levels of detail and adjusted to accommodate the viewpoints and vocabulary of diverse disciplines. Storyboards can be used as guiding posts to anticipate and plan ahead. They can also be used as historical devices that record and illustrate the progress of an activity through time. As a tool for reflection, they have the advantage that they can be used iteratively, or as part of a development and testing cycle.

A collaborative structure is not to be regarded as static but rather, as a flexible organization, with objects and concepts emerging on an as needed basis. For future endeavors, it might be a worthy endeavor to investigate techniques that facilitate the visualization of such structure in time, with its components broken down according to participating actors.

3.2 Collaborative structure

For creation of the video narratives of the legends, the collaborative structure was instantiated as a group of documents that initially included the following boundary objects: A legend sample with summarized versions of the narratives to be used by the students with their respective locations already identified, and a proposed schedule of activities including time allotted for the creation of an ontology about the legends by the students. This latter was eventually merged with a production matrix and also used to monitor the production of the works throughout the workshop.

The documents including the legend sample and schedule were prepared in Helsinki and sent to the professor in Mexico who distributed it among 8 teams comprising 3-4 individuals for an approximate total of 32 students. As part of preparation tasks, the students were requested to create storyboards describing the treatment of their legend and specifying which digital tools they would utilize and how these would be employed. These storyboards, or boundary objects, were presented during the first day of class. Although most students fulfilled this requirement, not all of the storyboards were ready in the first day of the workshop and some were presented during the second day of class. In the end these objects remained as part of the documentation and knowledge produced throughout the project.

4. Research and Content Development

4.1 The sources: chronicles and legends of the historic center

The legends of Mexico have long been recognized as a source of popular knowledge about the history of the city. The idea that they could be inserted as content to the Digital Facsimile of the Map of Mexico arose from a lifetime interest in this genre and from the author's childhood memories of a popular Mexican comic book series, *Tradiciones y Leyendas de la Colonia*. This series was published in Mexico throughout the 1960's and well into the

1980's.¹⁵ A venerable grey-haired narrator always introduced the story by citing the place-name, or street-name of the sites rendered in sepia-toned pages where convoluted plots and colorful characters mingled with the history of the city.

During a recent trip, for a teaching assignment in 2004, I found myself asking colleagues and students as well as roaming through the old bookstores of Mexico City looking for specimens of these magazines. The search for these samples, however, met with little success: Everybody was very much aware about the legends themselves, but nobody seemed to have any recollection about their printed counterparts in comic book format. Because of this inability to locate exemplars of the series, other sources, such as issues of *Crónicas y Leyendas Mexicanas*, a magazine currently published in Mexico City by urban chronicler German Argueta, were consulted. However, in the end the main source utilized by the students as a study guide and to create the content in the project was Luis González Obregón's *Las Calles de México*.



Figure 2: Cover and first page of issue of *Tradiciones y Leyendas de la Colonia*.¹⁶

This anthology of legends, created by a highly esteemed Mexican historian dates back to 1923 and is currently in its 12th edition. In addition to the narratives, the author provides abundant data about the city, its localities, its people and the events in its history. Since this is an economical book that is also widely available it also meant that the students could have a textbook providing access to the same versions of the stories.¹⁷ Also, a high standard of academic quality for the project was ensured, by relying on such canonical source.

4.2 The importance of these narratives as a source of historical knowledge

González Obregón begins his book by remarking how the ideal and physical history of a city is linked with the Street-Names. Though Tecnochtitlán, the ancient capital of the Aztec empire

¹⁵. *History of Mexican Comic Books*: [p://www.angelfire.com/az/monjeloco/60s.html](http://www.angelfire.com/az/monjeloco/60s.html) (August 21, 2005).

¹⁶. *Tradiciones y Leyendas de la Colonia*, Ediciones Latinoamericanas, No 610-121, 31-XII-72.

¹⁷. Obregón González, Luis, *Las Calles de México, Leyendas y Sucedidos, Vida y Costumbres de Otros Tiempos*, Editorial Porrúa, SA de CV, México, 2003.

was destroyed, the original trace of the city remains and it can be discerned by studying the layout of the historical center of Mexico City. This is visually recorded in the Map of Mexico 1550 and subsequent plans of the city. It is further corroborated by the existence of ruins that have been uncovered through archaeological excavation.

Indeed, as Tenochtitlán was re-built into Mexico—the capital of the New Spain—new political and administrative structures were transplanted from overseas and conformed into the existing ruins of the conquered metropolis. From the place where in ancient times the important ceremony of the new fire and where the ritual of *El Volador* was celebrated, *Plaza del Volador*, for example, was transformed first into the site for the *Actos de Fe* of the Inquisition, then into a gathering spot where a provisional bull rink was installed for festivities, later into a market, and finally into the current site of the Supreme court.¹⁸



Figure 3: Video still from the Plaza del Volador (Volador Square) video narrative.

When speaking of the street names and location names Obregón suggests that they (as well as their changes through time) should be studied. He likens these terms to a dead language that “becomes corrupted so that it is lost more and more and for which someday there might not be any interpreter.”¹⁹ Similarly, when speaking about place-names systems as a viable component in anthropological study, Keith Basso suggests that they are more than handy vehicles for reference. They are containers that spatially anchor and situate narrative to its historical and social context, as well as to a physical, embodied, frame of reference.²⁰

Street-names and place-names are an important component in both the legends and chronicles of Mexico as well as in the Uppsala Map. In the case of the former, entire treatises have been written which attempt to analyze and decode the meaning of the toponyms painted in the map.²¹

In the case of the legends, regardless of whether they are presented in comic, or traditional book format the narrator always introduces the story by citing the place-name or street-name

¹⁸. Obregón González, Luis, pp. 76-89.

¹⁹. Idem., p. 1.

²⁰. Basso, Keith, *Wisdom Sits in Places*, University of New Mexico Press, 2001.

²¹. León-Portilla, Miguel and Carmen Aguilera, *Mapa de México Tenochtitlan y sus Contornos hacia 1550*, Celanese Mexicana, 1986.

where the events depicted in the stories take place immediately after the title. Most likely these components assist the reader in envisioning a particular symbolic landscape and point of view. From this perspective, the historical space of the legends conflates with that one of the contemporary so that the reader (or the viewer) can feel herself to be a part of the narrative.

Such conceptual frameworks, or mind maps, are integral to our understanding and experiencing of living cultural heritage. For example, like a lot of the popular knowledge about historical center, the location and significance of *Plaza del Volador* is fading from collective memory. Nowadays, the ritual game of *El Volador* can still be seen as performed by the *Voladores de Papantla* in the courtyard of the Museum of Anthropology, one of the main keepers of the indigenous cultural heritage of Mexico. In *Plaza del Volador*, one of the video narratives created by the students, the ritual is shown in its current location in the Museum. However, the video narrative also uses graphics superimposed to a representation of the Map of Mexico 1550 to restore the ritual to the approximate location where it might originally taken place.

4. 3 Designing the legend sample for the workshop

The process of identifying important locations associated with key historical events in the Digital Facsimile of the Map of Mexico 1550 is an activity that has been a part of the project's tasks since its initial stages in 1997. In this manner the artifact resumes the original purpose for which it was created, namely to communicate to others significant information about the city of Mexico. This allows for assembling layers of singular events that are related to a historical location in space and time. Through the use of digital design and technology it is possible to represent all these layers and contents in a manner that can be appreciated by a viewer.

Among the most important criteria used to determine the choice of narratives in the legend sample for the workshop was that the location of the events of the story should occur in a site that could be clearly identified as existing in the Map of Mexico of 1550. These locations were identified through a combination of archival research and surveying. The Digital Facsimile of the 1550 map was compared to a selection of contemporary and historical maps from the city. The information obtained through this procedure was checked with literary sources, such as González Obregón. Though many maps have been consulted throughout the entire duration of the project, a Plan of the City of Mexico from 1906 has been particularly useful.²² Another important source has been S. Linné seminal work on the Map of Mexico 1550.²³ Contemporary popular maps of the Historic Center have also been used.²⁴

An onsite survey with photographic documentation of locations was also made in 2002 as part of the process of preparing materials for the Aztecs exhibition held at the Royal Art Academy

²² . Campbell, Reu, *Campbell's New Revised Complete Guide and Descriptive Book of Mexico*, Roger & Smith Chicago, 1907.

²³ Linne, S. *El Valle y la Ciudad de México en 1550, Relación histórica fundada sobre un mapa geográfico que se conserva en la biblioteca de la Universidad de Uppsala, Suecia*, The Ethnographical Museum of Sweden, New Series Publication, No. 9, Stockholm, Sweden 1947.

²⁴ . Some examples are Jorge Escudero's *La Gran Ciudad de México, Mapa Artístico y Crónica Gráfica* and *Guía Roji*, S.A. de C.V. San Miguel de Chapultepec, México, D.F. 2002.

in London. In this survey, a researcher followed a route through the city that is partly based on the famous Cervántez de Salazar dialogue dating back to the 16th Century. Through this conversation that is reproduced in Linné's work, two imaginary characters engaged in an afternoon stroll, describe the wonders of the city. (Linné's study also indicated the locations in the Map of Mexico 1550.)

The processed film (6 rolls of 36 exposures) and a contemporary street map from Mexico with marks indicating the locations photographed, were returned to Helsinki. These materials have become an integral part of the documentation of the research project: In addition to the handwritten notes of the researcher, the map contained the correct nomenclature of the streets showing the current situation of the city. This map was used during the 2005 workshop as an orienteering device as well as a tool to assist the students in scoping their shooting location. Thus, the earlier work done from Helsinki complemented the work done by the students in Mexico who, in preparation for their participation in the workshop also visited the locations of the events in the stories and interviewed the people in the area.

Methods such as the one described, involving the use of archival research and surveying as part of an identification and selection strategy are used in disciplines such as archaeology. Through the work presented in this essay, we argue that when used in combination with collaborative design and digital technology, they can provide a viable way to involve communities in the recuperation, preservation and re-instantiation of their heritage.

4.4 Reinterpreting history

Preserving the works of culture necessitates constant renewal through their re-creation and every act of creation begins from something taken up and reestablished in a renewed expression.²⁵ Through the textbook the students had access to the full texts of the legends, as well as the summaries contained in the legend sample. These abbreviated versions contained only the episodic, significant events of the plot that move the narrative forward.²⁶ In the end, a combination of these two items was used as the foundation upon to research the history and build new interpretations.

The process of creating summaries for each of the legends in the legend sample was loosely informed by methods used in anthropological myth analysis and reconstruction that approach narrative from a systemic perspective.²⁷ Though this topic will be treated in a separate essay it is sufficient to say that from this point of view, the stories in the legends can be seen as a system of ordered episodes, with every narrative having its own logic and rationality that must be respected. The latter is at the same time related to the social context and environment in which the stories unfold. How do people live? What is their environment and social context like? The narratives gather within them the collective knowledge of the people with respect to these matters. At the same time, they might provide additional meaning and provide possible solutions regarding conflictive and situations in the social order.

²⁵. Cassirer, Ernst, "The Tragedy of Culture" in *The Logic of the Cultural Sciences*, Yale University Press, 2000.

²⁶. The topic of episodic elements in narrative structures will be dealt with in a separate essay.

²⁷. Notes from the workshop given by Prof. Pierre-Yves Jacopin at the Media Lab in the year 2000, <http://www.mlab.uiah.fi/~lily/myth/index.html> (Oct. 15, 2005). See also: Jacopin, Pierre-Yves, "On the Syntactic Structure of Myth, or the Yukuna Invention of Speech", *Cultural Anthropology* 3(2), May 1988.



Figure 4: Selected key frames from the Virgen del Perdón (Virgin of Forgiveness) video Narrative. “This legend tells the story about a man who is put in jail by the Inquisition for being Jewish. During his time in jail he paints such a beautiful image of the Virgin Mary that he is pardoned and walks away free. The image is preserved in the Altar of Forgiveness in the Cathedral of Mexico where nowadays, people still pray to her.”²⁸

With their persistence through time, the chronicles and legends of the historical center of Mexico City possess elements of the mythical. Therefore, they can be treated in a similar manner and different possibilities can be explored regarding the social context and situations that the stories address. By looking at Themes category in the Ontology of the Legends in Figure 5, where we can read the different interpretations of the Mexican students: *Ecce Homo* and *El Ahorcado*, are tales which deal with the corruption of society. *La Quemada* deals with the effect of jealousy in love relationships. *La Virgen del Perdón*, a narrative about injustice and religious persecution that takes place in *calle de la Moneda* and *Catedral de México*, on the other hand, deals with hope and the use of creativity in seeking the solution to a bad situation.

4.5 Narrative and collaborative ontology design

Representing to the system the knowledge and meaning that oozes from the map itself as well as from the diverse layers of content materials is a major concern in a digital cultural heritage application. This means addressing the needs of a *polysemous* target audience and it is one of the reasons why designing the ontology *collaboratively* with the students and including their point of view, was a key objective of the project from the beginning. In the end, the objective should be to represent as much as possible the knowledge and interests of the different communities that coalesce, and come together, in the objects of cultural heritage:

“...cultural heritage institutions must reach many types of audiences, each with diverse needs ... the creation of digital repositories is an expensive labor-intensive activity that should benefit the community as a whole.”²⁹

²⁸. Summary of The Virgin of Forgiveness from the legend sample.

²⁹. Díaz-Kommonen, Lily, *Art, Fact, and Artifact Production, Design Research and Multidisciplinary Collaboration*. ILMARI, Helsinki, 2002, 230.

Through a brief presentation, the students were introduced to the topic of ontology and its importance to digital design. The legends were then analyzed and discussed in class. Different interpretations regarding the plot and objectives of the story were debated. What is the story about? What is the physical location? In what epoch is the legend situated? Are there any characters? Are they historically known personages? Who are they? What is the theme of the story? What elements of the plot are absolutely necessary and could not be changed without changing the story? Is there a purpose or function to the story? Is it a lesson? Does it explain a phenomenon? Does it provide more information about a conflict? All the participants in the project pondered about these issues.

TITLE	AUTHORS	DATE & LOCATION	THEME(S)	CHARACTERS	MONUMENTS	PRODUCTION TECHNIQUE
La Quemada	Fernando Mendoza Franco, Alejandro Serrano Martínez, Pavel Vázquez Díaz, Gerardo López Lopezarce.	16 th Century 8 ^{va} Calle de Jesús María	Love, jealousy, spiritual beauty	Beatriz Espinosa, Don Martín de Scopoli, Marqués de Piamonte, Fray Marcos de Jesús y García.	Sections filmed at the Basílica de los Remedios and in the calle de Vizcainas.	Costume drama.
La Virgen del Perdón	Adrian Letechipia, Fernando Pizarro, Poetierre Vásquez.	Catedral, calle de la Moneda	Hope, creative spirit.	Jewish man, jail guard.	Cathedral, calle de la Moneda	Combination of animation, video, and special effects.
Ecce Homo	Tania Lili Santamaría, Nejhme Temer, Paola Calzada, Nanzui Palomino.	Portal de los Agustinos	Greediness, deceit, appearances.	Spanish emigrant.	Portal de los Agustinos	Combination of photographs, special effects, and voiceover narrative.
La Cruz de los Ajusticiados	Noé Barragán Moreno, Sara Quezada Puga, Pedro Alejandro Carrasco Campos, Gabriel Pérez Arcos.	17 th Century (1768-1769). 4a. de la República del Salvador	Treason, justice, vengeance.	Zazorena (Spanish father), Zazorena (son), Young wife.	Church of Jesus Nazareno, church of San Agustín	Combination of video, graphics, photographs and special effects.
El Ahorcado	León Cheskin, Gabriel Medina, José Luis Santa María.	07/03/1649. Calle de la Moneda, Licenciado Verdad	Death, social problems.	Dead man, Tribunal of the Inquisition, dead man's family,	Zócalo.	Video, drama.
La Plaza del Volador	Paulina López, Karla Contreras, Román Maya.	1507 was the last year that the ceremony was held. Calle de Pino Suárez,	Mexican traditions, change hope, fear.	Moteczuhzoma Xocoyotzin, Voladores.	Sections filmed at the Museum of Anthropology.	Combination of video, photographs, and special effects.
Cetro de Nezahualcoyotl.	Santiago Martínez; Pedro Sanchez; Benjamin Morales.	Between 1800 y 1850. (No exact date.) 3 ^a de Belisario Domínguez)	Friendship, deceit, hate, disdain, scorn	Don Carlos Maria de Bustamante, General Don Jose María Tornel, Netzahualcóyotl.	No building left and no recollection of the house.	Video drama.

Figure 5: Ontology of the Legends of the Historic Center of México City. The works are distributed through a Creative Common licensing agreement.

The final answers, from the point of view of the students corresponding these queries can be examined in the ontology. In addition to the basic metadata tags of Author, Title and Date

additional entries have been added to the table. Some of these, such as for example the Theme entries, deal with more abstract notions, such as the social value or the topic of the story as interpreted by the Mexican students. Others, such as the Monument field allow for inclusion of external information about tangible heritage that might be related to the story and its interpretation by the students. The Characters and Production Technique entries deal with aspects of the genre, or form of expression used by the students. Encoding this additional information should facilitate future searches as well as help to increment the semantic value of the content materials in the system.

This exercise of making a collaborative ontology also helped all parties involved to obtain a clear, and timely, articulation regarding each team's interpretation of the legends and how these would be illustrated visually. This latter aspect was of key importance given the fact that the materials to be produced were destined for an item of great historical value. At the end of the workshop, each group submitted the ontology that, in their opinion, best described the contents of their legend. These elements were combined to create the ontology included in this essay. It is very likely that this ontology will be modified when it is implemented in the final system design.

5. Summary and Conclusions

In this essay I have reviewed some of the activities and results of a research project that made use of collaborative design and pedagogy methods to create new content materials for the Digital Facsimile of the Map of Mexico 1550, a valued object of the cultural heritage sector. The process of creating new—as well as transferring old—intangible heritage in the form of digital narratives was reviewed from the perspective of the chronicles and legends of the historic center of Mexico City.

These activities can be further standardized and adapted for use in workshops in similar urban locations. In this manner, a design methodology for documenting and reinterpreting intangible, living heritage of the cities could be brought into being.

I want to express my gratitude for their generosity to Patricia Espinoza, Jorge Meza Aguilar, Teijo Pellinen, Tania Rodríguez, the students at the Iberoamericana and to Art Center Nabi in Seoul, Korea.