Review of Visual Art Representation and Communication on the Web

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ABSTRACT

In this paper we analyse the representation of the visual arts on the Internet through an examination of three main questions:

a) How can multimedia technologies (re)present visual art in innovative ways that *effectively* and *appropriately* communicate meanings to the viewer/user?
b) How can the *language* or *languages* of multimedia technologies be best used to communicate the *language* or *languages* of the target visual art works? Is it possible to identify a generic rhetoric of the web?
c) What is the added value of representation through hypermedia over such traditional media as gallery space, art books, or non-digital media?

The first step consists in finding, analysing and reviewing a representative range of digital exhibition 'spaces' on the web. These might be both digitalised traditional art works such as are represented by classical art museum web sites (for example, Nicolas Pioch's WebLouvre) or art databases, and digitally generated art as represented in digital artist web sites.

We attempt to identify a site typology and generic languages or codes through which the art works communicate meanings to the viewer/user, and to identify a rhetoric implicit in the media technologies themselves, through which hypermedia communicates/(re)presents the art.

The second step has been to design and publish a web-based questionnaire targeted at a pilot user group of both experienced and naive users from a diverse range of backgrounds; the results are expected within 4 months. An analysis of the results will enable us to describe and document the ways in which naive and experienced web users conceptualise Cyberspace; specifically, what kind(s) of space Cyberspace is broadly conceived to be. This will result in a summary report useful as a reference guide for approaching questions (a) and (b) with a sound body of prior understandings. The final outcome will be a set of recommendations on the basis of questions (b) and (c), on how digital galleries/museums might be constructed on the web.

KEYWORDS: Visual Arts Representation, Hypermedia Languages, Virtual Exhibition, Web Rhetoric

INTRODUCTION

The Web has become one of the fastest-growing platforms for new art, a

laboratory for the development of projects in media integration, enabling explorations in the integration of text, image, sound, narrative plot and strategies for participation and interaction in real-time. In this synergy, the speed of development, the constant changes in the setting, and the interaction among fine art, commercial site developers and their audiences are key factors.

Considering the web as medium for interactive communication, we analyse the relationship between artistic expression and aspects of Human Computer Interaction (HCI) with a view to discovering what may be the underlying communication codes of the interactive hypermedia environment.

In this paper the target questions are:

a) How can multimedia technologies (re)present visual arts in innovative ways that *effectively* and *appropriately* communicate meanings to the viewer/user?
b) How can the *language* or *languages* of multimedia technologies be best used to communicate the *language* or *languages* of the target visual art works? Is it possible identifying a generic rhetoric of the web?

DEFINITION OF ARTWORKS ON THE WEB

The definition of 'visual art objects' in an interactive hypermedia environment is broad enough to embrace all works whose mode of expression is visual, such as for example videos, graphics, web pages, Flash movies, or similar objects.

We consider three types of art phenomena on the web:

1) *Traditional visual artworks digitalized* (pictures, paintings) – Traditional Artworks Digitalized (TAD)
2) *Visual artworks made by digital means* (digital images, videos with digital effects, 3D pictures) Digital Artworks (DA)
3) *Artworks made by digital means especially developed for an Interactive Multimedia Environment* (web sites, interactive flash animations, 3D interactive environment) Hypermedia Art Environments (HAE)

While the first and second types of objects are close to the traditional definition of art, the third type is interesting for the unique use of the web as a form of art: these objects are more similar to performance than artworks because the user interaction provokes art object answers, which are often the result of the algorithms integrated in the software partly by the artist and partly by the software producer.

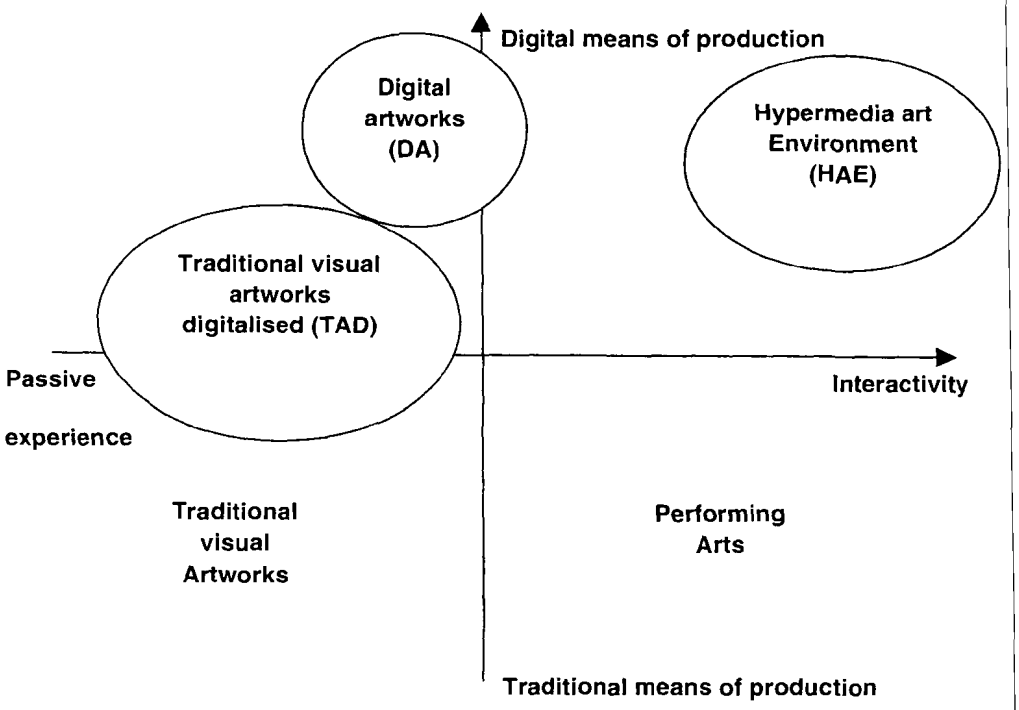

Fig. 1 Diagram of digital and interactive artworks

Since it is clear that the above definitions are mainly based on means of production and degree of interactivity, it can be useful a diagram (Fig. 1) showing the relation between these categories and the artworks. The vertical axe represents the means of production while the degree of interactivity is on the horizontal axe. The visual artworks we call "traditional" are on the bottom, under the horizontal axes, the artworks we consider in this work are on the top side of the schema, from the top left there are artworks made by traditional means and digitalised (TAD), artworks made by digital means like digital images (DA), on the top right are placed the Virtual Artworks, that can be see as interactive environments (HAE).

COMMUNICATION ON THE WEB

To investigate arts communication and representation strategies on the net we use a schema representing a web environment as a tree level system composed by an interface, a structure and contents. Although in reality it is not easy to distinguish contents and structure, for example in 3D synthesis environments, from a theoretic point of view this division could be useful to the following analysis.

The system of content-structure-interface creates an interactive hypermedia environment in which users can actively search information and feel sensation in their natural effort to explore the system functionalities and build their own model of the system[4]. From the Mantovani studies on HCI, we

have that an inexperienced user interacting with an interface starts do develop a mental model about the functionalities of the system behind the interface (often this is an unconscious process). The user starts to develop hypothesis about how the interface works, this hypothesis may come out from past experiences, cultural background, examples, intuition or interface help facilities like icons or a meaningful metaphor.
Interacting with the interface the user more or less consciously tests and corrects his/her hypothetic mental model, during this process the user can be frustrated by an interface that constantly falsify his mental model by unexpected answers to user actions, on the contrary he/she can feel comfortable with an interface behaving as predicted. Once the user has learnt the interface (i.e. has a validate mental model of the system) he/she is able to interact with the system paying less attention to the interface. As a confirmation of this theory usability studies have highlighted two classes of usability parameters: learnability and efficiency. Learnability concerns the attitude of an interface to be learned quickly by inexperienced users (construction of a mental model) while Efficiency concerns the relevant aspects for the interaction of experienced users (coherency with the learnt mental model). Violation of usability parameters can lead to unusable interface, but in some cases it can be means of expression if developers (artists) are aware of the effects on the user. One of the extreme examples can be the www.jodi.org site[5], in which the incommunicability is the only understandable message.

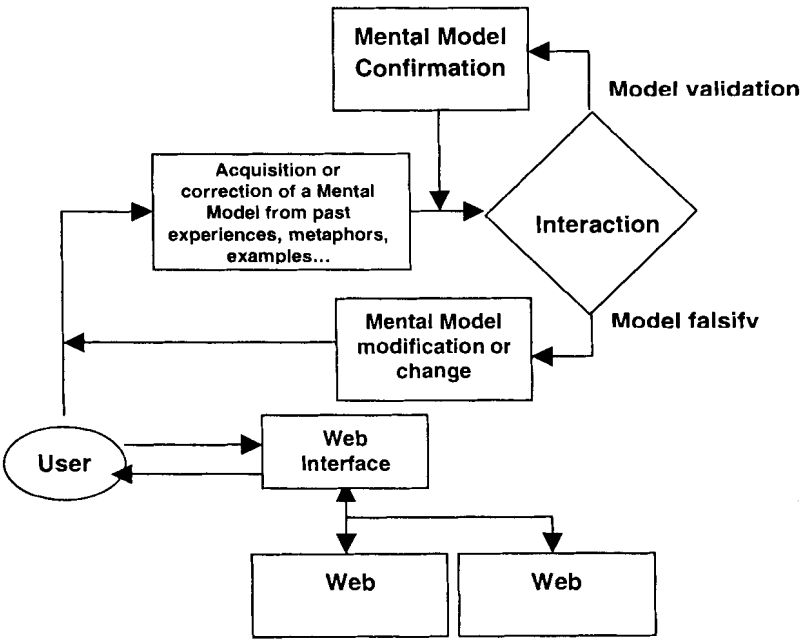

Fig. 2 Development and learning of a user mental model in a Web

TREE LEVELS MODEL

Interface

The interface level is the whole set of the perceivable aspects of a system from a user point of view. In a web application part of the interface is not under the control of developers. Moreover some of the interface aspects, like the browser window and icons, have become part of a common cultural knowledge and are so much stabilized that are felt as a standard code.

Structure

The structure is the organization of contents (i.e. a database or a number of linked web pages) and the set of algorithms fixed up by developers to present the content to the user via the interface level.

Contents

As contents we mean texts, pictures, videos, sounds and any other digital media. In particular we consider two types of contents: informative contents like opening times, exhibition description, maps, etc. and artistic contents like artworks, interactive hypermedia exhibition, etc.

Any level has its own codes and languages: at interface level there are usability parameters and HCI recommendations, at structure level different kinds of organization give different functions to users, databases allow powerful searches and dynamic pages can be adaptable to users, at content level every media has its own set of codes as well. Communication and artistic expression in an interactive hypermedia environment as the web are based on the articulation of all these codes and languages.

Following this schema it is possible to describe and compare at tree level the art web sites, It allow the construction of a typology based on the relationship between communication and artistic expression.

WEB SITE REVIEW

More than 500 web sites have been reviewed using a framework of 13 parameters, the aim is a qualitative review of the art representations on the Web from which work out the following abstractions. The art web site URLs come from a search on magazines, exhibition pamphlets, art books and search engines performed by the Writing and Reading Laboratory[10] of the University of Siena from June to December 2000.

Parameters:

Name of the person or organization owning the site

URL: Uniform Resource Locator

Site format: indicates the type of site: museum web site, virtual gallery, artist site, e-commerce/auction site, webzine or event site or art portal.

Type of artworks: indicates the type of artworks found in the site: traditional artworks, digital artworks or interactive artworks.

Newsletter: it is referred to the presence of a newsletter, we consider a newsletter as a frequently updated web page containing a number of short articles.

Forum: an area devoted to the publishing of visitors' comments or messages.

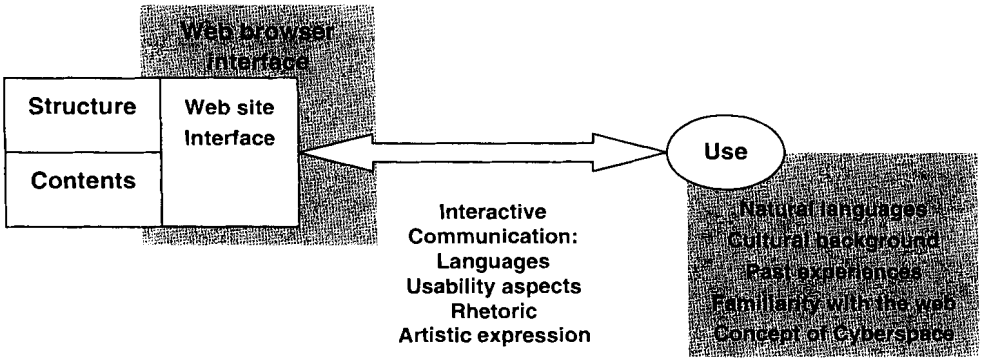

Fig. 3 Web site communication schema

Database: the presence of a database containing artworks or significantly used for indexing artworks or information about art.
3D environment: the presence of a 3D environment accessible to visitors.
Flash Objects: the presence of significant areas of the site developed with the Macromedia Flash or other similar technologies, like for example animated environment.
Downloadable objects: indicates that within the site there are downloadable files like papers, movies, pictures and screensavers.
Links: an area containing links to other web sites
Search functions: the availability of a search engine for the site content.
Number of languages: the number of languages available on the site
Site map: a schema of the site structure
Location in the real world: the geographic location of the institution or person referred by the site if available.
Adv banner: the presence of advertising banners on the site.

ART SPACES ON THE NET

As in the real world even Internet offers different *places* where to find artworks, these places can be defined as formats that contain different types of objects, different exhibition styles, and have different goals. The art-related web sites in this work have been classified accordingly to the following parameters:

- *Main aim*: the developers' objective in building and publishing the site
- *Links to the real world*: aspects of the sites that refer strongly to some physical elements of the real world
- *Type of contents*: a brief description of the object presented in the site
- *Updating periodicity*: the frequency of change in contents, structure or interface.

Real museums/galleries web-sites

Main aim: representing a real institution on the web.
Links to the real world: often these sites are developed on the basis of the institution structure; this means that there are information about opening times, maps, facilities and other stuff.
Type of contents: Artworks and information. the artworks are often presented with the same organization as in the real exhibition and sometimes even the building architecture became a paradigm for the architecture of the web site.
Updating periodicity: not relevant.

Arbitrary updating, some areas presenting events and news regularly updated.

Virtual museums/galleries
Main aim: web sites presenting artworks with no explicit relationship with a real world institution exhibiting it.
Links to the real world: not relevant
Type of contents: These sites have to establish and communicate to the user an exhibition environment: a virtual *space* containing or connecting the artworks. This space could be a metaphor, like a virtual building or a 3D environment, sometimes even this environment can be an artwork as well.
Updating periodicity: not relevant

Artist web-sites
Main aim: developed by an artist or a group of artists as self-presentation and artistic expression.
Links to the real world: non relevant.
Type of contents: these sites frequently offer art experiences to the user, the artist can invent and realize his or her own virtual space and discover him or her self the way to communicate this space to the users.
Updating periodicity: not relevant

Artworks E-commerce site / Auction web-sites (Commercial sites)
Main aim: web sites build to sell artworks and goods related to the arts field.
Links to the real world: references to the physical aspect of artworks or goods being sold.
Type of contents: artworks and goods, information on prices, delivery, guarantee.
Updating periodicity: these sites are constantly updated, being developed mainly with active pages that publish data from databases.

Art Webzines
Main aim: communicate art-related information and develop users community.
Links to the real world: not relevant.
Type of contents: articles, artworks, information and data in any art related field.
Updating periodicity: web sites are periodically updated like real world magazines (many art magazines have a web version).

Art Event and Conference web-sites
Main aim: sites presenting a conference or an event
Links to the real world: often a strong connection with the place in which the event will be hold.
Type of contents: times, maps, facilities description, submission and participation forms.
Updating periodicity: developed for a limited on-line publication could become a repository for the event documentation like proceedings and articles or a durable web space in case the event happens periodically.

Arts vertical portals
Main aim: attract a grate number of users with similar needs and interest in the field of arts
Links to the real world: not relevant
Type of contents: information about arts and a significant number of links to art web resources.
Updating periodicity: these sites are frequently updated and can become similar to webzines

There are sites strongly connected with the real world, like the Museum and event web site, while in others like Portals, Webzines and E-commerce sites the main value is the amount of information. Artists and galleries web sites are their main interest in the

presented artworks. These different focuses have a wide influence in the way developers face the two aspects of the web design:

- Follow his/her taste and design a web environment that users have to explore and discover, within the web technological limits.
- Take in to account usability recommendations and technology limitation to design a web environment as easy as possible for users.

COMMUNICATION AND EXPRESSION ON THE WEB

Web Developers produce communication setting up an environment (images, texts, sounds and presentation algorithms) ready to be interpreted for users. Web Developers must consider technological limitations (bandwidth, processor speed, plug in needed), users background knowledge (natural languages, cultural codes, opinions) and some codes or languages universally accepted in Internet (For example the existence of a browser window or a site classification in portals, search engine, webzine). Then, in art-related sites (museums web-site, webzines, etc.), the web design, besides containing an artistic expression, must respect usability parameters, user needs and other web developing general rules.

To make a comparison, web artists produce communication setting up an environment ready to be interpreted for users, considering the technological limits as well, but they have no usability or cultural limits in articulate hypermedia content and build interface since every artwork tends to establish a its own language[2]. In a word, Web artists are free to explore hypermedia environments expression capabilities virtually without limits.

Summing up, the art web site is either a free artistic expressions or a container-format of artist expressions. Hence, as an artistic expression, an art web site can contains artworks at content level (museum, gallery, webzines, artists website), at structural level (organization of content in a artistic manner) and interface level (representation of organized contents in an artistic manner). As a container of artistic expressions, the art web site is both a place where you can find artworks and just information related to the art at content level (virtual museums, webzines, non art specific web sites), at structural level (organization of content according to usability parameters); at interface level (representation of organized contests according to usability parameters).

AN ART WEB SITES TYPOLOGY

The results of the screening of about 500 art web sites are presented in the following table (Fig. 4). The goal is to give an idea of the state of the art by making a comparison among the 7 types of web sites on visual art topics from a tree levels communication approach point of view: Content, Structure and Interface.

Free artistic expression: it means a free expression area just limited by technical constrains, without reference to usability parameters.

Informative – artistic expression: the content is composed by sound organized information to communicate and digital, hypermedia or traditional digitalized artworks to see.

Informative – artworks: The site presents information and artworks but it is not an interactive expressive environment itself.

Attention to web communication standards – artistic expression: developers have to communicate information to the user, since the

targeted user is supposed to be interested in arts and the content is art related, the communication form can be artistic itself and sometimes even go against usability parameters.

content has a limited influence on the interface or structure usability and efficiencies. In art-related sites (museums web-site, webzines, etc.), the web design, besides containing an

Formats of art-related web sites	Web site level: Contents	Structure	Interface
Real museums/galleries web sites	Informative - artistic expression	Attention to web communication standards - artistic expression	Attention to web communication standards - artistic expression
Virtual museums/galleries	Free artistic expression	Free artistic expression	Attention to web communication standards - artistic expression
Artist web sites	Free artistic expression	Free artistic expression	Free artistic expression
Artworks E-commerce sites / Auction web sites	Informative - artworks	Attention to web communication standards	Attention to web communication standards
Art Webzines	Informative - artistic expression	Attention to web communication standards - artistic expression	Attention to web communication standards
Art Event and Conference web sites	Informative - artistic expression	Attention to web communication standards - artistic expression	Attention to web communication standards - artistic expression
Arts Vertical Portals	Informative - artworks	Attention to web communication standards	Attention to web communication standards

Fig. 4 Web site formats vs communication levels

Attention to web communication standards: Usability parameters and targeted user needs have to be taken carefully in account in the development. This definition means that the type of artistic expression, must respect usability parameters, user needs and other web developing general rules. However, these rules can change according to growing user knowledge

interface of the web site. The process of assembling contents to build a site is similar to the speech construction formalized by the classical rhetoric: *the argumentation*.

The object of the theory of argumentation is the study of the discursive techniques allowing us to induce or increase the mind's adherence to the theses presented for its assent... The indispensable minimum for argumentation appears to be the existence of a common language, of a technique allowing communication to take place... To engage in argument, a person must attach some importance to gaining the adherence of his interlocutor, to securing his assent, his mental cooperation.[8].

Perelman, in his Treatise of Argumentation drew a framework of the argumentation theory, which can be partly used to understand even the web communication. In this work we reviewed different types of art content web sites, in the following part we put in relationship the web site characteristics with the rhetoric categories of Loci (that means places in Latin) showing how these categories are implicitly used by web developers.

The task of designing and developing a Web site is not so far from the discourse construction of the ancient rhetors: there is a target group of users, the audience, there are contents, and several languages to convey these contents. The goal is to convince the users to visit the site, as the goal of rethors was to gain the adhesion of the audience.

Perelman makes a distinction between two strategies for obtaining the adhesion of the audience: persuading and convincing. Persuasion is the adherence obtained by mean of emotions, therefore such argumentation based on emotions is strictly dependent on a particular audience, an audience with common feelings about the presented arguments. Conviction on the contrary is based upon rational adhesion to arguments considered as valid by any rational being. Roland Barthes identifies the Persuasion as a psychological method based on a specific audience while conviction is based on a logical structure built up on some evidences or general opinion assumed as evidences by a general audience[3]. Both Perelman and Barthes underline that convincing or persuading an audience have different effect on the person's behaviour: while the conviction based upon a rational process can produce intellectual adhesion but not necessarily move to action persuasion can be more effective in stimulate actions from the audience.

In the reviewed web sites we find persuasive aspects in the free art expression, based on the emotional adhesion of the user, and convincing aspects in what we call informative content or rational organization and interface layout.

Rhetoric definitions	**Perelman**	Persuading	Convincing
	Barthes	Based upon feelings and individual psychology	In force of a logical structure based on evidences
	Effects	Action	Intellectual adhesion
Web site level	**Content**	Artistic expression	Informative/services
	Structure	Artistic expression	Attention to web communication standards
	Interface	Artistic expression	Attention to web communication standards

Fig. 5 Web rhetoric aspects

These two aspects can be put in relationship with the classification parameter, drawing a map of the web language rhetoric usage.

When a speaker wants to establish values or hierarchies or to intensify the adherence they gain, he may consolidate them by connecting them with other values or hierarchies, but he may also resort to premises of a very general value of a very general nature that we shall term Loci[9]. Loci are headings under which arguments can be classified. Bice Mortara Garavelli defines Loci as places where ideas can be find in a structured manner, starting from a specific concept like quality, quantity, order, etc.[7].

In this work we refer to two main classes of Loci: Loci of quality and Loci of quantity, which can be easily relates to the concept of Convincing and Persuading above explained.

Loci of quality: Loci which affirm that a thing is better than another for quantity reason, based on statement like: a great number of good things is better than a smaller; A good thing useful for a comparatively large number of ends is parameters Flash Objects 3D environment and interfaces violating better than one useful for a lesser degree; which is more lasting or durable is better than which is less so. Loci of quantity are close to the concept of normality vs. exception: the superiority of which is accepted by the great number of people.

We can find a number of sites heading to the quantity: presenting a large number of artworks or news about art. These sites must be based on specific structures and interfaces like databases, search engines and site maps so we can affirm that often these parameters can be related to Loci of quantity more or less unconsciously used by developers to enhance the appeal of their site.

Loci of Quality: occur when the strength of numbers is challenged, and it is in such a context that they are most readily perceived, at the limits the locus of quality leads to a high rating of the unique against the normality.

Web sites focusing on the quality tend to be unique experiences for their users, to do so developers have a tendency to use contents structures and interfaces that allow a free expression of their creativity. Within the reviewing deliberately usability recommendations are the most frequently signs of a

willing to be unique against a supposed normality of the web.
On the basis of the above analysis we can identify 4 types of web rhetoric styles:

Persuasive based on locus of quantity
Site based on emotional response from a well-defined target of users that consider positively the availability of a great number of information, artworks or other things contained in the site.
Format: Virtual galleries, Auction/ E-commerce site.

Persuasive based on locus of quality
Sites based on emotional response from a well-defined target of users that consider of high value the experience of visiting the site.
Format: Artist web site, Virtual Galleries

Convincing based on locus of quantity
Sites based on the value that users give to the availability on the site of a great number of things belonging to one or more classes, like artworks, news, etc.
Format: Art Portal, Art Webzines, Conference web site

Convincing based on locus of quality
Sites based on the prestige of something universally considered as a thing of great value, like a great institution or a famous artist. In the web the prestige can be even the fact of being a real institution like a real museum.
Format: Real Museum web site, Event/Conference web site.
The table (Fig. 6) presents the Web Rhetoric Styles in relationship with some relevant parameters used in the Art web sites Review. The results of this Rhetoric analysis will be compared with the questionnaire data, intended to represent the users perception of the web, their reactions and expectations.

QUESTIONNAIRE

The questionnaire is designed to gather qualitative information about naïve and experienced users, perception of the cyberspace and expectation form art web sites. In particular, its aim is to show the difference in the perception of cyberspace across 2 axes: web expertise and art knowledge.
The questionnaire is composed by 6 groups of questions:

Rhetoric pattern	Locus	Format	Review parameters
Persuading	Quality	Virtual galleries, Auction /E-commerce web-sites	Database, Flash objects, Search Functions, 3D Objects, ADV Banner
Persuading	Quantity	Artist web-sites, Virtual galleries	Flash Objects, 3D Objects
Convincing	Quality	Arts Portals, Art Webzines, Conference web sites	Database, Forum, Newsletter, Search functions, Site map, Links, Flash objects, ADV Banner, Downloadable Objects
Convincing	Quantity	Real Museum web sites, Event/Conference web sites	Database, Forum, Newsletter, Search functions, Site map, Links, Location in the real world, ADV Banner, Downloadable Objects

Fig. 6 Web rhetoric patterns

Demographic data
To collect demographic information about the takers, these data are: age, gender, country, occupation and qualification. There is no asking for personal identification across the questionnaire at all.
Web skills
Questions to identify the user web experience.
Web browsing styles
Questions about how the user behaves browsing the web, how he/she finds links, reads texts and pictures and perceives the interface.
Concept of cyberspace
According to a words classification schema designed by Chris Hutchison[6], this part aims to define an unconscious user perception of cyberspace. The schema classify in 5 categories some worlds commonly used in relationship with the cyberspace: *Document Space, Electronic Space, Fluid Space, And Solid Space.*
Arts related knowledge
Questions to reveal the user knowledge in arts field
Questions on real vs. virtual exhibition visits
Questions on user habits and expectations
There are 30 closed questions, 5 of them are demographic ones; many questions have a free text form to allow the user expresses an answer different from the closed ones.
The questionnaire will be published on the web within the Siena University web site and it will be on-line for about 4 months from March 2001 to June 2001, the URL[11] will be sent directly to a group of users by mail, the questionnaire results will be automatically store in a database file. The target group is composed by both

naïve and experienced users, with different background mainly from EU Countries.
The questionnaire results will be analyzed to identify differences and similarities in the perception of cyberspace among 4 types of users:

a) Web Experienced – Arts proficient Users
b) Web Experienced – Arts inexpert User
c) Web Naïve – Arts proficient Users
d) Web Naïve – Arts inexpert Use

PERSPECTIVES

As the first part of the research in this paper is presented a framework for the visual arts representation and communication on the web to answer the questions a and b presented in the Introduction. It consisted in defining the types of artworks present in Internet, adopting a web communication model and constructing a Web site typology analysing different visual arts related Web sites. Finally we underline a sort of implicit rhetoric of the web, based on different contents structures and interface.
Throughout this framework it is possible to identify the web as a means of expression both artists and information art web site for.
The artists use every level (Content, Structure, Interface) in an expressive/free manner, whereas web sites are based on a specific format in order to be clear, simply and efficacy.
The format implies a good coherence between structure, content and interface, and a proper style depending on way of communication and rhetoric aspect, the Quality and Quantity Loci are an example.
As Alberto Abruzzese[1] says every single artwork not only contains a message but tends to create an own language and a proper way of communication. Hence, the analysis of the art communication and representation on line offers a rich perspective. to test the possibilities offered by the medium through the exploration of new expressive ways and new technological solutions. The meeting between art and Internet allows the exploration of the web expressive and communicative potential: the defined formats and communication strategies can become communication models in different contexts.
The starting point for a deeper inspection of the art communication on the web will be carried on comparing this framework to the questionnaire outcomes in the following part of the research. Then, we will try to answer to the question of what is the added value of representation through hypermedia over traditional *ways* as gallery space, art books, or non-digital media. The final outcome is a set of recommendations on how digital galleries/museums and other art web site might be constructed on the web.

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REFERENCES

1. Abruzzese, Alberto, *Le lacrime di Bambi,* in: Stefano Zecchi, a cura di, *La comunicazione*, Bologna, Il Mulino, 1997, p. 37-77

2. Abruzzese, Alberto, p. 37-77

3. Barthes, Roland, *L'ancienne Rethorique*, 1972, It. trans.: *La Retorica Antica*, Bompiani, Milano, 1998, p. 60

4. Giuseppe Mantovani, *L'interazione uomo-computer*, Bologna, il Mulino, 1995, p.133-135

5. *http://www.jodi.org*, visited in December 2000

6. Hutchison. Chris, *A sense of place: The digital Museum*, Proceedings of EVA 96 (Conference and Exhibition on Electronic Imaging and the visual arts), Paris, 4th-6th December, 1996.

7. Mortara Garavelli, Bice, *Manuale di Retorica*, Bergamo, Bompiani, 1989, p. 75

8. Perelman, Chaim, Olbrechts-Tyteca, *La Nouvelle Retorique, Traité de l'Argumentation*, 1958, En. trans.: *The New Rhetoric, A treatise on Argumentation*, The University of Notre Dame Press, Notre Dame, London, 1971, pp. 4-15

9. Perelman, Chaim, p.83

10. Università di Siena, *http://www.unisi.it*

11. Web Questionnaire: *http://www.unisi.it/lettura&scrittura/quest/questionnaire-en.htm*

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