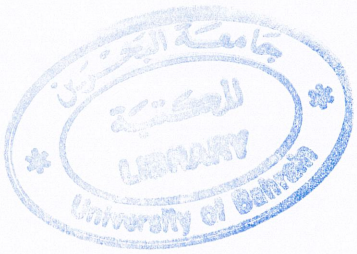
An Investigation of the Role of Internet Artworks in formulating a New Communication Model in the Internet



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"I find the great thing in this world is not so much where we stand, as in what direction we are moving, we must sail sometimes with the wind and sometimes against it, but we must sail, and not drift, nor lie at anchor."
Aphorism by Oliver Wendell Holmes.

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Last but not the least; I would like to dedicate this thesis to my country, the **Kingdom of Bahrain,** hoping that my thesis will contribute in the growth of its development and progression.

Declaration

This thesis is an original and authentic piece of work from me. I have fully acknowledged and referenced material incorporated from secondary sources.

It has not been submitted elsewhere for assessment.

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Abstract

The 'Internet Arts' are a new field that has emerged from the new media revolution. There are many works in this field that are unique, creative and singular in relation to their concept and practice, especially concerning the human communication aspect. The emulations and experimentations in communication by the internet artists' works are now generating new and unexpected communication paradigms.

However, the scholars in the communication field have declared that the current classical communication models are not adequate in reflecting the communication process within the field of this new media. Also, because the internet artworks are imbedded in this new media field, these models are not sufficient to reflect the communication process within them. Therefore, the main aim of this thesis is to identify a new communication model that will have the ability to express the communication process within internet artworks.

The research approach consists of four main steps. Firstly: extract what can be used from relevant theories to provide a suitable solid basis on which to build the new model. Secondly: combining the relevant theories' output with that of the pilot case study, to formulate an initial proposed model. Thirdly: an applied qualitative multi-analysis generated from seven case studies. Fourthly: an analysis of these outputs from the research methods, in order to make the final version of the model.

The initial results indicate that there are non-linear levels within the communication process, and that the internet artist is considering the technological system as a part of the artwork, rather than as a medium to convey its theme. Furthermore, the user is aware of the technological system's role that is combined with artwork, and they are generally not expecting the artists to deconstruct this in their communication through their artwork. It is hoped that the answers derived from these analyses will provide significant knowledge to fill the theoretical gap between the communication science and the internet arts fields, and moreover increase the internet artists' awareness of the communication model implications of their artwork.

Introduction

1.1 Introduction

> 'Benjamin described the major recasting of artistic forms that were begging to take place: authorial roles were challenged while social function was emphasised, He argued for artists to be aware of the potential of new technologies and to position themselves not only in terms of their responsibility to a wide public but also with regard to their power to create meaningful work that could reverberate within society. (Although he was also fearful of the fascistic impulse in the use of technology).' (Lovejoy, 2004, p.221)

Walter Benjamin discussed the issues related to the relationship between the arts and technology in 1930. However, his point of view is still holds true today. In our present time, and particularly since 1994, the technological revolution brought by the Internet has invented a parallel virtual world online, and has enabled its users to achieve effectively instantaneous communications over huge distances. These major advances in technology are the breeding grounds for the emergence of a new form of art called 'Internet Arts'.

This kind of art is challenging for the artist's creativity, and examines their abilities to use new tools to produce their artworks, as Benjamin alerted earlier when he posed the following three questions. These are:

- What is the relation between the artworks and the modes of production?
- What is its position in them?
- Does it merely supply a system that already exists? (Lovejoy, 2004)

All of these previous questions are questions about communication. In other words, in order to understand the complicated situation of the relationship between the artist and this kind of art, we need a communication model.

A communication model that reflects the relationship between the artist, the artwork, the user and the technological tool or as Benjamin called it, the mode of production, should be reflective, and truly have the ability to express the communication process occurring within internet artworks. Therefore, my doctoral research will be the first attempt to build this new communication model.

1.2 Motivation

My motivation for this research stemmed originally from my first degree; 'Mass Communication and Public Relations' and my second degree, my Master of Arts in Interactive Multimedia.

When I studied 'Communication Theory and Models' in my first degree, I was concerned about how the communication models, as a construction of symbols and laws, could represent analogies of the communication process flow. My concerns increased when I studied the masters degree, as I identified the new media arts, with all its new fundamentals. Moreover, I identified the new concepts for interactivity, originality and creativity. I tried to understand the entire world of this new media from the communication perspective. I was keen to analyse the communication process between the user and the new media arts, by applying the communication models with their traditional elements (sender, receiver, channel, message and feedback).

I was particularly enthusiastic about internet artworks as a part of the new media world. I found the situation for this kind of new media arts more complicated in relation to the communication process. This was due to the Internet's unique characteristics as a communications medium.

From this perspective, I am specifically interested in investigating the appropriate communication model (analogy) that reflects the communication process with internet artworks. I will explore how these kinds of artworks formulate new communication patterns, which will result in a new communication model. I believe this could eventually reshape the communication patterns within the internet.

The structure of the thesis is as follows:

Chapter 1: (The Introduction)

This introduces the research core idea, and motivation. It portrays an overview of the thesis content, the main research question, research objectives, significance of the study and the main research terms.

Chapter 2: (The Literature Review)

Provides the theoretical context of the research (the secondary data), by covering the research's major elements, according to the research area which situated in the communication field and 'new media' field. Also, I will clarify the contribution of the secondary data in building the proposed research model.

Chapter 3: (The Methodology)

This provides details on the research approach, methodology and how these strategies and techniques assisted me in reaching my research objectives.

Chapter 4 (The Findings)

In this chapter there will be an extensive presentation of the results of the research methods.

Chapter 5: (The Analysis)

This presents critical analysis of the research outcomes and explains how the findings answer the main research questions.

Chapter 6: (The Summary, and Conclusion)

This presents the results summary, discusses the research objective in line with the final research outcomes, demonstrates the conclusion and outlines further suggestions for future research in this area.

1.3 Major and secondary research questions

I am concerned with investigating the communication model that could represent analogies for the communications process with internet artworks.

In this sense, the research encompassed two major factors: The communication models and the internet arts. Therefore, the research area is situated in two different fields:

- The communication field, i.e. communications (factor 1)
- The new media field, i.e. Internet arts (factor 2)

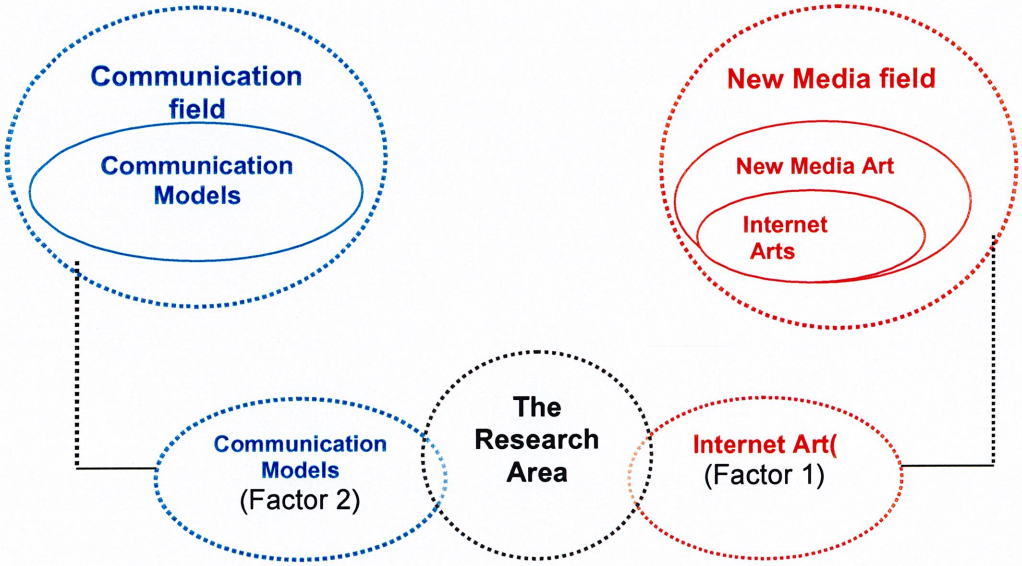


Figure 1-1: The research's broad and specific areas

Definitions of the two main factors in the research

1. Communication Model

This refers to an analogy, perhaps represented as a diagram that could explain the communication process in a particular situation.

Example: A linear model of communication.

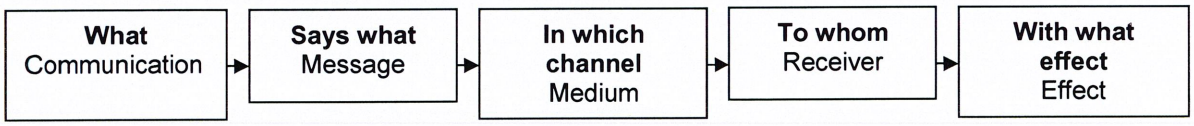


Figure 1-2: Laswell's Formula of communication (quoted from McQuail and Windahl, 1993, p.14).

2. Internet Art

This refers to the art form which uses the Internet as its primary medium (channel) to present the work, taking advantage of the Internet's special characteristics. This art could be represented between different sites located in different geographical locations, either as video screens, computer screens or gallery screens, or any other display tools. This is regardless of the type of technical connection that could have the same function in the future, whether ISDN, telephone line, ADSL, the Internet or any new kind of technological tool. Examples are: artistic internet software, internet based or network installation, online video, and performance offline.

The central question of the research

"For the emulation and experimentation with communication in the Internet by internet artists' works, that result in new and unexpected communication paradigms; what is the communication model that describes this new dynamic communication process for Internet artworks? More precisely, what is the appropriate analogy that defines an unexpected creative hybrid model of communication?"

This Ph.D. inquiry is broken down into the following analytical sub-questions:

- How does the Internet artist think about their work? What is their intention (concept)?
- How does the Internet artist think about the 'technological systems' potentials in relation to their work?
- How does the Internet artist think about user responses to the internet artwork?
- Does the user think that they understand the idea (concept) of the internet artwork?
- Does the user think that the 'Internet artist' should be a part of the communications process within the artwork?
- Is the user aware of the effectiveness of the Internet (technological system), in their communication with the work?

1.3.1 Research Objectives

The main aim of this research is to identify the communication model that has the ability to express the communications process with the internet artworks.

In this sense I would like to declare that I'm not intending to evaluate the artwork from the artistic perspective, as it is not the research focus.

Also, I'm not intending to evaluate the artwork depending on the artist's background, because what I call 'artists' in my research are people who create internet arts, regardless of their background.

Research Objectives

1. Identify the relationship between the Internet artist and the:
    a. Internet artwork (concept)
    b. Internet (technological system)
    c. User

2. Identify the relationship between the user and the:
    a. Internet artwork (concept)
    b. Internet (technological system)
    c. Internet artist

1.4 Significance of the study and its contributions

The original contributions of this study are based on the key role that the Internet performs as an efficient and a stable network for thousands of effective workers around the world, and the role of the internet artworks, particularly, in reshaping the way that the user communicates with the internet.

Also, this study obtains its importance from its role in establishing a new and deep understanding for the communication process of the internet artworks, which will effectively contribute to achieve the following:

The study will draw an appropriate model that explains the communication process for the internet artworks. This will contribute to the development of the internet art field as well as communications research field. For example, Williams *et al.* (1988) have stated that linear models of communication do not serve communication scholars well, when the media are no longer communicating one way.

In the argument regarding communication and technology, McQuail (2000) stressed that there is a need for an interactive, ritual or user-determined model. He added that at present, there are not very sufficient paradigms of theory or research for investigating probable changes in the way new media are practised.

Moreover, Williams *et al.* (1988) confirmed that interactive media raise new challenges for research, as new media are extending the consequences of interaction and human communication. They suggested that one task of communication researchers is to understand these distinctions. Williams *et al.* (1988) consider these networks to be a natural focus for the study of new media, as they said that network paradigm demands different levels of analysis and has different properties of communication, than does a one way linear model.

The study will assist organisations, through this model, to enhance their communication strategies and develop their websites, their internet software and the internet art installation or any kind of art production that is involved with the Internet.

Morris and Ogan (1996) pointed out that, in searching for theories to apply to a group software system, researchers in the field of management information systems (MIS), have recognised that communication studies need a new theoretical model:

> The emergence of new technologies such us Group Support System Software (GSS Software) that allows group decision-making, which combines aspects of both interpersonal interaction and mass media, presents something of a challenge to communication theory. Pool and Jackson (1993) revealed that with new technologies, the line between various contexts begins to blur and it is unclear that models based on mass media or face to face contact are adequate.
>
> (Cited in Morris, M. and Ogan, C., 1996, p. 282).

Due to the lack of internet studies in the mass communication field, many seem to have disregarded focusing on the Internet as a mass medium and have ignored its flow of communication. I hope that this model will assist in filling that theoretical gap. As Morris and Ogan (1996) asserted:

> If mass communications researchers continue to largely disregard the research potential of the Internet, their theories about communication will become less useful. Not only will the discipline be left behind, it will also miss an opportunity to explore and rethink answers to some of the central questions of mass communications research, questions that go to the heart of the model of source-message-receiver with which the field has struggled. (Morris and Ogan, 1996, p.1).

In addition, McQuail (2000) pointed out that too little research has been done to achieve any firm conclusion regarding the fundamental characteristics of the Internet as a medium.

In view of all the previous research evidence, it is envisaged that my research will contribute in building a new communication model for internet artworks, which are situated as an important part of the new media field. Also, there is a great hope that other researchers will continue from this point and conduct further research about new communication models for the other parts of the new media field. Hence, my research will contribute strongly towards a new communication theory for the new media field, when combined with their future research contributions.

1.5 The taxonomy of new communication model terms

The terms of the proposed research model:

I have decided to make new terms for the main elements in the proposed research model, as the terms for any model reflect its unique basic concepts and its theoretical framework. The following table consist of three cells. The first one is the terms of the classical communication models, the second part is related to the Marshall McLuhan approach in understanding the main elements of communication, stressing the four elements of the sender, receiver, message and the medium. The third part relates to my proposed research terms.

Table 1: The terms of the proposed research model

Terms of the classical communication models approach	McLuhan's Approach	Terms of the proposed model for the research
Sender, Encoder, Addresser and Author: all of these terms mean the source of the message. (Watson and Hill,1997)	McLuhan stressed the role of media forms as a source of information. He considered that the sender could sometimes be the message, for example when person speaks from the radio or television, they have become a disembodied content for the medium and this is more obvious in the audience dealing with the internet (Levinson, 1999). McLuhan uses the term media and medium interchangeably and he stressed the medium's role. Which was clear in his famous aphorism (The medium is the message). It means that the medium of a message (print, visual, musical, etc.) determines the way in which that message will be perceived. (McLuhan, 1967).	**Internet Artist:** Refers to the artist who creates their artwork with involvement of internet or its analogies.
Medium: Physical or technical means converting communication messages into a signal capable of being transmitted along given channel. (Watson and Hill,1997, p.139).		**The Technological System:** Refers to the display form or the visual and audible style for the 'Telematic Connecter', e.g. video screen, computer screen while online or offline, mobile phone's screen, personal digital assistant (PDA's)_screen or gallery screens or any future display screen.
Message: that which an act, or work, of communication is about. (Watson and Hill,1997, p.140)		**The Artwork's Concept:** Refers to the artist's intentions through their work.

Receiver, Decoder, Addressee and Reader: all of these terms mean the party who is interpreting the message.(Watson and Hill, 1997)	Also its means that the use of any communications medium has a greater impact than the content that the medium conveys. "The user is the content"; this is how McLuhan understands the message of any medium. In other words his point of view is that humans determine the content of all kind of media and this content come before us (Levinson,1999)	**User:** Refers to the person who participates with internet artwork.
Channel: The physical means by which the signal is transmitted, e.g. light waves, sound waves, radio waves, telephone cables. (Watson and Hill,1997, p.139)		**The Telematic Connection**: Refers to any technological means that could be used to transfer the artwork between two different geographical sites, such as: ISDN, telephone line, etc.
Feedback: is a reciprocal effect of one person or thing upon another; a reaction or response that modified, corrects, etc. (Watson and Hill,1997, p.83)		**The Impression:** The reactions that occur when the user participates with the internet artwork.
		Interface: Refers to the tools that help the user to control the communication with the internet artwork, for instance; the computer keyboard or mouse, touch screen, audio device, webcam, mobile or telephone, etc...
Communication Type: • One to one • One to many • Many to many		**Communication parties:** refers to the parties involved in the communication process with internet artworks. • User to user • User to system • User to user and user to the system

2 Internet Arts: Contextual Review

2.1 Introduction

The purpose of this chapter is to provide the theoretical context of the research (the secondary data) via presenting an account of what has been written on the research-related topics by accredited scholars and researchers. The chapter will present the theoretical background of the research area, which includes the internet arts and communication models.

I will start by presenting the major elements of the internet art field, which are: new media, as a broad area of internet art; concepts and definitions of the internet arts; the taxonomy of internet art and its historical roots, along with an overview of the current artworks.

Then I will present the related elements of the communication model, which includes: the definition and concept the communication models; the classical and the current communication models, and the advantages and the limitations of communication models. Also included are the McLuhan Pattern's and Media (medium) Theory, with a discussion on the artists and their relationship with the technology from the communications perspective. After that I will state the theoretical notions that influenced my proposed communication model and the contribution of the secondary data in building my proposed model.

2.2 New Media: The broad area of the internet art field

Internet art could be classified as part of new media, as it shares most of the new media field attributes, history, and characteristics. According to Baumgartel (2001) internet art's general attributes are; globality, connectivity, immateriality, interactivity, equality and multimedia.

The concept of new media[1] always refers to the question of what is new about new media. The 'conceptual aspect' of this term suggests that there are new characteristics that are exclusive to 'new media', and according to Lister *et al.*

[1] It is worth mentioning that terms like 'hyper media' 'digital media' or 'interactive multimedia', are all commonly used terms referring to the new media field.

(2003) these characteristics can be summarised as; digitality, interactivity, hypertexuality, dispersal and virtuality .

Moreover, Manovich, (2001) considers the new media's singular characteristics as a key difference between old and new media. He called them the 'principles of new media', which are as follows:

1. Numerical Representation: All new media objects are composed of digital code, which means it can be described using a mathematical function. For instance, by applying suitable algorithms to a new media object, it could automatically change the edge of the shapes or change the width of a table in a HTML page. As Manovich (2001) concluded, 'media becomes programmable'.

2. Modularity: New media objects consist of independent parts, each of which consists of smaller independent elements. Each of them operates within that system independently from the operations of the other elements. For instance, the worldwide web is modular, as it consists of web pages, each in turn consisting of separate media elements, and where every component can be accessed on its own.

3. Automation: This means that the media object assists the user in the creation process automatically. For instance, image editing software such as 'Photoshop' can automatically correct scanned images and remove noise. Also, web programs come with elements that can automatically create the basic layout of the document.

4. Variability: New media objects are not something fixed once and for all, but can be exist and function in different versions. Rather than being created by a human author like the old media, these versions are often in part automatically generated by a computer. One of the most basic cases of variability is 'Scalability', in which diverse versions of the same media object can be generated at various sizes or levels of detail.

5. Transcoding: In new media, to 'transcode' something is to translate it into another format. What Manovich (2001) meant here is the cultural transcending, as computerisation turns media into computer data, and from another hand the computerised media still displays the structural organisation that makes sense to its human users. He considers that the new media has two layers: the computer layer and the cultural layer. Both of them influence each other, and the result of this is a blend of human and computer meanings. Human culture models the world, and the computers' owns means of representing it.

In addition, Manovich (2001) added the following elements as potential candidates for the differences between old media and new media. I summarised them as the following: Firstly, new media is analogue media converted to a digital representation. It is digitally encoded and discrete. Secondly, all the digital media types are displayed using one machine; the computer. Thirdly, new media allows random access, and it is possible to access any data equally fast via a computer. This is in contrast to film or videotape which stores data sequentially. Fourthly, Digitisation unavoidably involves a loss of information, and its representation contains a fixed amount of information, in contrast to an analogue representation. Fifthly, in analogue media, each successive copy loses quality, while digitally encoded media can be copied endlessly with the same quality.

Finally, new media is interactive, which means the user owns a degree of control in the communication process. The user can choose which element to use, create or generating a unique work. Eventually the user becomes the co-author of the work. It can be said here, that this attribute of new media is leading new media art into nonlinearity. A good example of this is the interactive narrative, which opens up a potential craft for the writer as well as the audience (Rieser, 2002).

2.3 The concepts and definitions of the Internet Arts

Internet art has been defined in many ways with a varying emphasis on different aspects of the Internet as a singular unique medium. Some have focused on 'internet art' as a special environment. Colman (2004) defined internet art as a 'form of art that is created particularly with and for the online environment. Some focused on the Internet not as a medium, but as a (transmission system) for data that simulates reproductive media' (Stallabrass, 2003, p.12).

Moreover, Green (2000) described internet art with an emphasis on the Internet as a medium and beyond the art's visual elements, 'net art' meant online announcements, discourse instead of singular texts or image, defined more by links, e-mail and exchange than by any optical aesthetics.

My point of view is that internet art as a concept should always consider the Internet's unique characteristics. However, the consideration here should not be for the Internet as a medium that represents the art in a new form only, but rather as a medium that re-shapes the art in the first place.

Wilson (2002) asserted that internet art does not mean taking the gallery's walls and converting them in to something on the computer, but it can digitise them, and afterwards, make them accessible via the net.

My research on the Internet digital arts refers to a digital artwork's form, which uses the Internet as its primary medium to represent the work, taking advantage of the Internet's special characteristics. That could be representing them between different sites located in different geographical locations, either as video screens, computer screens or as gallery screens, or as any other display tools, regardless of the technical connection; whether ISDN (Integrated Services Digital Network), telephone line, ADSL (Asymmetric Digital Subscriber Line), the Internet and any new kind of technological tool that could have the same function in the future.

The rationale from the previous definition stems from the awareness of the element of time to the technological factor, both in the present and in the past.

In the present time, when talking about internet art, we should take into our account that the technology of the Internet is subject to new and rapid changes. A new technology might even change the name of the Internet to another new name.

In the past, before the innovation of the internet, there were the experiments in telematic art, which have the similar attributes to internet art projects nowadays. It is not objective to ignore those previous valuable and pioneering projects. Rather, it is because of modern technological changes. Baumgartel (2001) declared that he considered the early art projects which have dealt with the theme of global networking as an internet art or 'net art'.

In addition, Wilson (2002) added that any art, which is stable, finished, not growing and unchanging, is not considered to be internet art. Instead of this, he defined the internet as a form of art that: 'reflects, stimulates and improves the connectivity that represents from it, and thrives on it, and that needs the net in order to be able to exist' (Wilson, 2002).

Also, Wilson (2002) considers the 'connectivity' as the most remarkable characteristic of the internet. The net connects computers, people, sensors, telephones and just about anything together in the global network.

2.3.1 The taxonomy of the field

It is hard to create a taxonomy for the internet arts, because of two main things. The first one is that it is a newly emerging area, and there are very few studies handling the theoretical perspective of it. The second one is related to the nature of the field, as it is always combined with technology, and what depends on technology is always rapidly changeable.

When I analysed internet artworks, I found that I have two choices. The first one is to classify the field based on the technological form that shaped the artwork, and the second choice was to classify the field based on the artwork's main theme.

In the first choice, I found that internet artworks can be made with different technological forms like online software, static web pages, interactive web pages, online audio, online video, video conferencing, and many other forms that combined them.

However, if I made the classification using technological forms, I would end up with more than twenty genres, not to mention the new technological forms that are evolving everyday.

In relation to the second choice, I found that internet artworks have different themes, and their contexts could be extremely different, such as; the purely artistic theme, social criticism, political dimensions, the connection between arts and natural science, human intimacy, the psychology of communication...etc, plus many other topics that could emerge in the future.

Therefore, I tried to make my classification based on the generic elements of any internet artwork which had to be changing through time and with a sensible amount of categories.

I made the classification with regards to media elements that are essentially involved in internet artworks, which are basically text, visuals, and audio. These elements could all exist within any internet art work or part of them, taking in the account the factors of connectivity, space, and time.

If the classification is based on the media elements only, this means it could be applied to any new media work or project. However, what distinguishes the internet arts from the other kind of new media art is the Internet connectivity in any space through any time.

Figure 2-1: The Taxonomy of Internet Artworks

Internet Artworks Taxonomy
Text The static text, hypertext
Visuals Static images , the moving image and video
Audio Sounds, voices and music

2.4 Internet Arts: The historical roots

Baudrillard in his famous book "Simulation" (1983, p.3) wrote:

> No more mirror of being and appearance, of the real and its concept. No more imaginary coextensively rather, genetic miniaturisation is the dimension of simulation.

With these words, the historical journey of net art could be described as the conflict between what can be considered as reality, and what could be considered as imaginary in the context of simulation. This was always the question of internet artwork over its entire history.

According to Gere (2006) the history of internet art is rooted in the mid-19th century, as J. Hillis Miller (2000), cited by Gere (2006) in this 'second industrial revolution' signified:

> The shift in the West, beginning in the mid-nineteenth century but accelerating ever since, into an economy increasingly dominated by the creation, storage, retrieval, and distribution of information. Even money is now primary information, exchanged and distributed all over the world at the speed of light by telecommunication networks.

It was in mid-ninetieth century, precisely in 1844, when Samuel Morse invented the telegraph. It is worth mentioning that he was an artist, and the invention of the telegraph was his most notable contribution to the history of modern art, because, the spread of communication was enabled by telegraph.

Also, this invention and the others that came later such as the telephone, film, television, video, computer and net art allowed new applications for the production of art and ideas concerning its role, despite the fact that it is unlikely that Morse would have recognised any of this as art. Yet, his invention was part of the set of dramatic shifts out of which artistic modernism, the avant-garde and current media practice all emerged (Gere, 2006).

In the mid-1950s mail art had started evolving. Ray Edward Johnson is considered to be the 'founding father of Mail Art' (Daniels, 1994). In this kind of art, artists typically exchange ephemera in the form of illustrated letters using the postal system as a medium, which relied later on the Internet network as a medium. It thus changed to become what is known as E-mail art.

In the 1960s, the "Fluxus" movement had been active in the visual arts as an international network of artists, composers and designers noted for blending different artistic media, According to Smith (2005) their arts movement was concerning itself about the 'Intermedial', a term coined by Fluxus artist Dick Higgins, in which he meant that Fluxus considered all works as literary, musical, visual, and formative rather than a just as one of these forms or another. In my point of view, this tendency of mixing different arts in one artwork was just the beginning of the new media art era.

In the 1950s and 1960s, theorists such as Marshall McLuhan and Richard Buckminster Fuller began to examine the social shift shaped by the new technologies of information and communication, as McLuhan stated that electronic communication would turn the world into a 'Global Village' (Gere, 2006).

In the late 1970s, the artists Sherrie Rabinowitz and Kit Galloway were funded by NASA to create the Satellite Art Project (1977), in which satellite technology and television were used to bring remote participants together to dance (Green, 2004). This, I believe, is the first art project that was constructed through distance.

In 1980, the computer culture conference in Toronto led to the founding of ARTBOX (an electronic mailbox program for artists to organise communication projects. In 1982 ARTBOX was renamed ARTEX, under which name it hosted a number of important telematic projects. According to Gere (2006) among the most well - known of these was Roy Ascott's 'La Plisure du text' or 'the pleasure of text', proposed in Paris, in 1983. This was online for 12 days, 24 hours a day. Ascott invited artists and groups from 11 cities to help create an evolving participatory fairy tale. I considered this work as one of the early important internet artworks; therefore I chose it as one of my research case studies

In Wiencouver III, 1982, 'The world in 24 hours', one of the most important telematic art events of the period, was directed by Robert Adrian X. This work was about connecting artists in 16 cities in three countries from noon on September 27th to noon the next day.

The available media then were slow scan televisions, telefacsimiles (faxes), sound transmission and the computer. The artists were invited to exchange works, improvisations and information (Gere, 2006).

As Green (2000) pointed out, the term 'net art'[2] stems from 1995, which means that this kind of art started just thirteen years ago. This term first appeared when 'Vuk Cosic'[3], received anonymous e-mails mangled in a transmission in December 1995. Amongst a morass of alphanumeric gibberish, Cosic could make out just one legible term 'Net Art'. He began using this term to talk about online art. Afterwards, the term spread quickly amongst the Internet communities.

From the early 1990s, there has been extraordinary work done under the banners of 'network art', 'net .art', or 'net art'. According to (Gere, 2006, p. 21), these artworks were made by Vuk Cosic, Olia Lialina, Alexei Shulgin, Rachel Baker, Heath Bunting, Paul Sermon, 010010110101101.org, Natalie Bookchin, Lisa Levbratt, Radioqualia, ®™ ark, Matt Fuller, Thomson and Craighead, and many others.

In the mid 1990s until now, the promises of the web as a medium were expanded upon by number of artists. There has been an extraordinary development of work done under the banners of 'net art', 'network art', and 'Internet art'. The online artworks have become more unavoidable in the eyes of the artists, such as web art experiments such as Alexei Shulgin's ABC or a common sample of the WWW works by Jodi; created by Joan Heemskerk and Dirk Paesmans.

The problem of some online artworks that were made in the mid 1990s is that they do not exist now. However, there is an open source project (named the story of net art) that has been listed the net art projects organised by year of creation, from 1994-2000.

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[2] Net art refers to internet art or on line art, however it is not preferable because 'this term has become associated with a small group of early practitioners and a particular style and cannot be applied to online art as a whole' (Stallabrass, 2003, p.11).

[3] Vuk Cosic: one of Internet art's pioneers (Stallabrass, 2003).

The London-based art group I/O/D created 'Web Stalker' in 1998. According to Baumgartel (2001, p.30) 'it was the first 'art browser' to call into representation the convention on the Internet. The I/O/D artworks were in much more fundamental level than any work on the web was able to. Following Web Stalker, the two artists Tom Cropy and Gavin Bialy's work reconnoitred attempts to run against the usual set of the internet metaphors. (Baumgartel, 2001)

Green and Hudson (2004) summarised the emergence and development of Internet art in a timeline that started from 1991.

Table 2: The History of Internet Art

Time	The Emergence and Development of Internet Art
1991	**'THE THING'** begins as a BBS. The VNS Matrix is formed and publishes the Cyber Feminist Manifesto
1993	**First Next 5 Minutes** conference is held in Amsterdam.
1994	**First Web Sites by Net Artist** (including Antonio Muntadas, Alexei Shulgin and Heath Bunting) start to emerge; 'ada' web is founded.
1995	**DIA Centre** in New York commissions web projects by artists.
1996	**Net Art Per Se'** meeting in Trieste marks the use of the term **'net art'** coined by Vuk Cosic. -Rih\on.org launched; 'can you digit?' exhibition at postmasters Gallery -New York; Exposing Now Here, Louisiana Museum of Modern Art.
1997	- **Marko Peljhan** debuts his research station Makrolab at 'Document X' in Kassel, which also holds the first cyber feminist international meeting. - ZKM opens in Karlsruha, Germany. - Beauty and the East' conference held in Ljubljana, Slovenia. - Microsoft's Internet Explorer is launched. - 'ABC of Tactical Media' published by Geert Lovink and David Garcia.
1998	- **'Relational Aesthetics'** is published by Nicholas Bourriaud. - The first international browser takes place.
1999	- **'Net condition'** exhibition at ZKM. - The volume of email exceeds that of standard mail for the first time.

2000	- **Tate** (Britain) commissions two Internet artworks for its website. - Over thirty million registered websites.
2001	- **'The Language of New Media'** by Lev Manovich. - 'Vuc Cosic' represents Slovenia at the Venice Biennale. - Wolfgang Staehle's installation at postmaster's gallery doubles as inadvertent journalism when it documents the terrorist attacks on Manhattan.
2002-2003	- **'Runme.org'** Software Art repository founded. - 'Kingdom of Piracy' exhibition.

The period from 2000 to 2008 has witnessed many unique projects which cover different kind of internet artworks[4], using different types of technologies, for instance:

Online-offline artwork; 'In conversation' (1997-2001); Susan Collins' artwork provided the means for people in the street and on the Internet to connect in a live conversation with each other. Located at http://www.inconversation.com.

Online Games: 'Tele-Twister' (2003) Ken Goldberg's artwork is about a new version of 'Tele-Twister', designed for the Internet. In the original, the game is played with human bodies (the 'twisters').

In this new version the user plays along and directs their moves from the comfort of the computer. It is located at: http://www.tele-actor.net/tele-twister/background.htm

Online Software: 'Syncrorama' (2003). Marcello Mazzella's artwork explores the potential of a simultaneous communication between real and virtual space, through the web, using specifically designed software and hardware. It is located at http://www.syncrorama.com/

[4] The examples are taken from the database of Rhizome Website: http://www.rhizome.org/, Rhizome described themselves as dedicated to the creation, presentation, preservation, and critique of emerging artistic practices that engage with technology.

Moreover, current internet artworks include different artistic categories such as **Conceptual Internet art.** Examples are:

- Net.Art.Per.Se[5] Conference: www.ljudmila.org/naps/cnn/cnn.html
- Ada web[6] at; http://adaweb.walkerart.org, the artist Aleksei Shulgin's
- artwork 'Desktop is': www.easylife.org/desktop and
- 'Form Art': www.c3.hu/collection/form, by the artist Vuk Cosic
- 'Documenta Done': http://www.ljudmila.com/, by the artist I/O/D
- The collective 'Web Stalker' at www.backspace.org/, by the artist John F. Simon
- 'Every Icon': http://www.numeral.com/

Also, there is **online performance** art, for example;

- The artwork made by Adriene Jenik[7]: www.desktoptheater.org.

On the other hand, the diversity of the technologies used in the artwork and with different artistic patterns, have also included various concepts about politics, intimacy, globalisation, history, social role, realignment, identity, peace and many other topics.

The future of the art world is reshaped by the new emerging technologies, and the third era of artworks is driven by the Internet. The artist needs to understand the medium's capabilities as well as the user's experience with this singular kind of artwork, in order to improve their experiments and their creative projects.
Therefore, I think a serious consideration of the communication experience within these kinds of artworks is needed; whether for the user's position or the artist's.

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[5] In May 1996, a group of net artists met in Trieste, Italy, at a conference called Net.Art Per Se.

6 Ada web is a research and development platform, hosting artist projects that contribute to the development of a new visual art.

7 Adriene Jenik is a telecommunications media artist who has been working for over 12 years as a hybrid artist, educator, curator, and engineer. She is an Assistant Professor of Computer and Media Arts in the Visual Arts Department at the University of California. Her work is online at:
http://www.desktoptheater.org/~ajenik/desktoptheater_content/contact/files/c_fr_01.htm

2.5 Towards a new communication model for Internet Arts

In the previous sections I presented the broad area of internet arts, the history of intents arts and the definitions of this kind of new media art. All of these previous elements showed how this kind of art is different, singular and unique.

Also, it shows how it is hard to describe the communication process with these artworks. Therefore, I will present in the following sections the existing alternatives to describe the communication process for these artworks, in order to evaluate the process and extract what could be a good basis for a new communication model for internet artworks.

2.5.1 Communication Models: definition and concept

In the first place, I will represent the definition of communication before the definition of models, as communication is the basic context of the communication models.

The word 'communication' could be defined as: 'the transmission of information, ideas, attitudes, or emotions from one person (or a group to) another person (or groups) primarily through symbols.' (Theodorson and Theodorson (1969), as cited by McQuail and Windahl (1993)).

Nevertheless, I think that the word 'communication' does not stand only for human activities as the previous definition, but it also includes the human activities with the machine or the technology's tools, like the human interaction with computers and the internet world.

Another definition could represent the word 'communication' in a more comprehensive manner, as defined here; 'wherever one system, a source, influences another, the destination, by manipulation or alternative symbols, which can be transmitted over the channel connecting them' (Osgood et al. (1957), as cited by McQuail and Windahl (1993)).

The noticeable thing in this part is that Osgood (1957) said 'wherever one system, a source' which means that his definition includes anything that could be represented as a system or a source, whether it is machine, human or anything

else. However, this definition lacks the 'feedback' concept in the communication process.

However, in general terms, my personal point of view tend to empathise with McQuail's definition (2000) as the most comprehensive one, as he considered the term 'communication' as a term which could refer to different meanings: but the central idea is the process of increased commonality or sharing participants, on the basis of sending and receiving communication messages.

He also clarified that a theoretical disagreement exists about whether we should count as communication the transmission or expression of some message, on its own without evidence of reception, or effect, or completion of a series. Therefore, he assured that the most important perspective on the concerns about what communication is, lies in these two points:

1. The degree of response or feedback
2. The degree in which a communication relationship is also a social relationship

There are two main schools in the study of communication (Fiske, 1990, pp. 2-4), which could be summarised as the following:

Table 3: Schools of communication studies

Semiotic School	**Process School**
Communication is the exchange of meaning.	Communication is the transmission of messages.
Concerned about : ▪ How messages or text interact with people in order to produce meaning. ▪ The roles of texts in our culture.	Concerned about: ▪ How sender and receiver encode and decode. ▪ How transmitters use the channel and media of communication. ▪ Matters like efficiency & accuracy.
Considers communication is the study of text and culture, and the main method of study is semiotics (the science of signs and meaning).	Considers communication as a process by which one person affects the behavior or state of mind of another

Does not consider misunderstanding to be necessarily evidence of communication failure, as they may result from cultural differences between the sender and receiver.	It sees communication as a process by which one person affects the behavior or state of mind of another. If the effect is different from or smaller than that which was intended, this school tends to talk in terms of communication failure and looks at the stages in the process to find where the failure accrued.
▪ Tends to draw upon linguistics and arts subjects. ▪ Tends to address itself to the work of communication.	▪ Tends to draw upon the social sciences, psychology & sociology. ▪ Tends to address itself to the work of communication.
Defines social interaction as that which constitutes the individual as a member of a particular culture or society.	Defines social interaction as the process by which one person relates to other, and involves the behaviour, state of mind or emotional response of another.
Messages are a construction of signs, which through interacting with the receiver produce meaning	Messages are that which are transmitted by the communication process, or by what the sender inputs to, by whatever means.
The sender, defined as the transmitter of the message, declines in importance. The emphasis shifts to the text and how it is read.	The sender's intention may be stated or instated, conscious or unconscious, but must be retrievable by analysis.
Semiotics school classical models: • Peirce's Model (1931) • Ogden and Richards' Model (1923) • Saussure's Model.	Process school classical models: • Shannon and Weaver's Model (1949) • Gerbner's Model (1956) • Lasswell's Model (1948) • Newcomb's Model (1953) • Westly and Maclean's Model (1957) • Jakobson's Model (1960)

In relation to, the word 'models', this word could be define as a simplified description in a graphic form of a piece of reality' (McQuail and Windahl, 1993, p.2). This definition considers the simplicity and the strength of the models, as the model could be in a graphic form, which any person could draw. However, it should be drawn with a very hard condition; or in other words the model should represent the reality. 'The models in general can be purely verbal, diagrammatic, or mathematical' (McQuail and Windahl,1993).

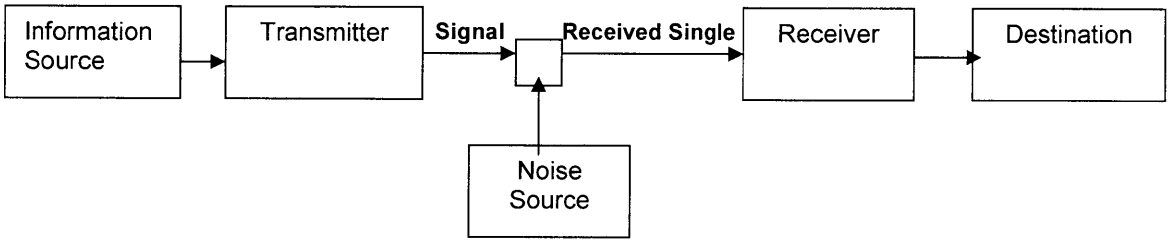
2.5.2 The classical and the current communication models

The history of communications science research began with the development in the domain of psychology and sociology, after the Second World War (1945). Particularly; it was possibly first discussed in the United States (McQuail and Windahl, 1993).

The first communication model was in 1949, which was Shannon and Weaver's model. This model developed by mathematicians. They worked in Bell Telephone Laboratories, in the US. They produced this model in order to solve a problem of how to send a maximum amount of information along a given channel, and how to measure the capacity of any one channel to carry information.

They contracted the model in a simple linear process, which has attracted many critics. But they claim that their model is widely applicable over the whole question of human communication (Fiske, 1990).

Figure 2-2: Shannon and Weaver's (1949) model of communication
(Fiske, 1990, pp.7).



In the 1950s, the communication model activity was productive, which can be considered as enlargement and unity in the study of communication (McQuail and Windahl, 1993).

During the 1960s and 1970s, the focus of communications research tended to shift interest away from the question of the straight effect of mass media onto opinion, attitudes and behaviour.

Instead, the major attention was paid to longer term and indirect social effects, which depended on the relative degree of attention to aspects (McQuail and Windahl 1993).

In the 1970s and 1980s, a strong growth of critical theory kept alive the insight that mass media are not simply a channel of social influence, and that it was more likely to increase the benefit of those with most economic and political power (McQuail and Windahl 1993).

In a future development, McQuail and Windahl (1993) asserted that it is hard to forecast the future of communication model building, because of rapid changes. However, they predicted the following changes for the coming decade:

- A changing balance of communication flows.
- An Increase in the inter-relationship between different kinds of communication, which will increase the attraction of any single comprehensive communication model.

In the following table, I present some examples of the main communication models and brief description of their concept, in order to explain why a new and particular model for internet artworks is needed.

Table 4 The classical communication models

Communication Model	**Main Concept**
Shannon and Weaver's Model of Communication,1949	Developed as a mathematical theory of communication. A one-way linear model of the transmission of messages: consisting of: sender, receiver, message, channel, noise) McQuail and Windahl (1993).
Newcomb's ABX model,1953	Considers communication as a manner in which people are familiarising with their environment and to each other. Based on the concept of balance between one's attitudes and beliefs and those that are important to an individual (Newcomb, 1953).

Schramm's Models of Communication,1954	Considers each individual as a complete communicative system with both sending and receiving capabilities. Meanings of symbols in message (verbal and nonverbal) were decided by the participants' experiences Watson and Hill (1997)
Gerbner's Model of Communication,1956	Stresses the dynamic nature of human communication. This model suggests that the human communication process may be considered as subjective, selective and unpredictable and that human communication systems are open system (McQuail and Windahl, 1993, p.25; Gerbner, 1956)
Wesley and MacLean's Model of Communication,1957	Communication does not start when someone begins to talk to other person, but rather when a person reacts selectively to their immediate physical surroundings. (Mortensen,1972)
Riley and Riley's model of Mass Communication,1959	The process of communication is an integral part of the social system. The sender and receiver are affected by the social order. (McQuail and Windahl, 1993).
Maletzke's Model of Mass Communication,1963	Every medium has its potentials and limitations, and the attributes of the medium must be considered as influencing the way receiver experiences and is effected by media content. Maletzke considers the following medium characteristics as relevant: • The sort of perception required from the receiver • The extent to which the receiver is bound to the medium (McQuail and Windahl, 1993).
Galtung and Ruge's Model of Selective Gatekeeping,1965	Represents the process by which world events are changed by media organisation into a media image or picture of the world. This mode represents the way in which events pass through the gatekeeping process of the mass media. (McQuail and Windahl, 1993).
Dance's Helical Model of Communication 1967	The helix reflects that communication is continuous, unrepeatable. Each stage of action depends upon present forces, and in the same moment coming back upon itself and effected by its past behaviour. It emphasises the crucial factor of feedback. (Mortensen, 1972)
Becker's Mosaic Model of Communication, 1968	Assumes that most communicative acts link message elements from more than one social situation. This model illustrates the complexity of the many layers of the communication process and the

	interaction between its 'cubs', describing the external and the internal world of communication. (Mortensen, 1972; Watson and Hill, 1997)
Barnlund's Transactional Models of Communication, 1970	This model indicates three sets of cues, each interacting upon one another. The public cues, private cues and behavioural cues. Barnlund stressed that the meaning in the communication process is something that is 'invented', 'assigned' rather than something 'received'. (Barnlund, 1970).
McCombs and Show's Age and A-setting Model of Mass Media Effect, 1976	Describing the way that media set the order of importance of current issues. Audiences not only learn about the public issues and other matters in the society through media channels; they also learn how to attach to an issue or topic from emphasising the mass media upon it. In other words, the mass media set the 'agenda' of the campaign. (McCombs and Donald, 1976)
Ball-Rokeach and Defleure's Dependency Model of Mass Communication Effect, 1989	Illustrates the interrelations between three main factors: the media, the society and the audience, and the link of the effects. (McQuail and Windahl, 1993).
Griswold's Cultural Diamond Model, 1994	This model arranged the elements of the creator, cultural objects, recipients and the social world in the shape of a diamond in order to describe the relationship between them. (Griswold, 2004)

The notable thing from this table is that these communication models are created to describe different situations for human communication with their environment, from different perspectives. Some of these models focus on emphasising the communication process more than its elements like Becker's mosaic model of communication (1968), or Dance's Helical Model of Communication (1967).

Some of them are concerned with public issues and the media alike (Barnlund's Transactional Models of Communication, 1970) and (McCombs and Show's Agenda-Setting Model of Mass Media Effect, 1976).

Other models focus on society, and societal aspects alike (McCombs and Show's Agenda-Setting Model of Mass Media Effect, 1976), (Ball-Rokeach and Defleure's Dependency Model of Mass Communication Effect, 1989), or are concerned more about cultural aspects, like Griswold's Cultural Diamond Model (1994).

However, these communication models do not specify clearly the medium's role in the communication process, expect Maletzke's Model of Communication (1963); in which he considers the attributes of the medium as influencing the way the receiver experiences. Although, he emphasises the relationship between the receiver and the medium, he did not clarify the other relationship between the medium and the creator of the work (the source of the message).

Moreover, these models are structured with regards to the traditional kinds of media. They can be applied to the case of the new media field. However, despite there being a lot of common features between the traditional and new media, there are also many differences between them that cannot be neglected in any circumstance.

In addition, It is difficult to apply the concept of any of these models to Internet artworks, specifically because of the following reasons:

- They do not specify the interrelation between the artist (sender) and the medium.
- They do not specify the relationship between the user (receiver) and the medium.
- They do not specify the time dimension in the communication process. In other words; do all the elements of communication exist at the same time? As in the case of internet artworks, there is a creation time for the 'artist', a connection time for the 'user' and the artwork, and afterwards, the evaluation time for the 'artist' to evaluate the user's impressions.

2.5.3 The advantages and the limitations of communication models

I think building models is crucial to understanding the communication process, as McQuail and Windahl's (1993) work considered communication as a compulsory power in social relationships, without at the same time being either visible or having tangible or permanent forms. Therefore, models are especially appropriate in the study of communication.

In addition, models are important for any piece of reality. As McQuail and Windahl's (1993) summarised the model's uses according to Deutsch (1966). Firstly, the models have an organising function by ordering and relating every element to each other and providing us with images of whole that we might not otherwise perceive.

Secondly, models help in explaining the information, by presenting it in a simple manner, which would otherwise be complicated. In this sense particularly, McQuail and Windahl (1993) pointed out that it gives the model a heuristic function, since it guides the researcher to key points of a process or system.

Thirdly, the models enable forecasting outcomes or the course of events, or at least to be a foundation for assigning probability to a various alternative outcomes, as McQuail and Windahl (1993) have commented.

The limitation of models, according to McQuail and Windahl (1993), is that models are inevitably incomplete, oversimplified and involve some concealed assumption. On the other hand, McQuail and Windahl consider that certainly no models are suitable for all purposes and all levels of analysis. However, it is important that the researchers choose the correct model for the purpose that they have in mind.

In my point of view, the models are analogies, and it is impossible that the analogies could be completely comprehensive in reflecting the original pictures for the things that it reflects, as Fisk (1990, p.37) declared that 'The model like a map represents a selected territory, and no map or model can be comprehensive'.

Also, I think its true that human experiences in different situations are subject to change, and analogies or theories in the humanities field, (no matter how they

perfect they seem) could be over simplified, incomplete, and even have concealed assumptions. So, they could not be simply complete or without any theoretical gap.

Therefore, it is logically to say that what could be considered as limitations for models could be also applied for any theory in the humanities field. That is why the different studies are so essential to complement each other, and to move the humanities field forward towards a better understanding of human beings' experiences in life.

2.5.4 McLuhan's Pattern and Media Theory

Marshall McLuhan is one of the world's pre-eminent thinkers about media and communication, and the different Internet publications, especially the famous 'Wired' magazine, have adopted McLuhan as the patron saint of the digital age (Wolf, 1996).

During the past decade, Many new books and articles have been published focusing on McLuhan's theoretical views, and the media ecology movement spearheaded by scholars at New York University and Fordham University have celebrated McLuhan as one of the major thinkers of the 20th century (Fishman, 2006).

McLuhan considers that the communications medium would have far-reaching sociological, aesthetic and philosophical consequences, to the point of actually shifting the ways in which we experience the world (McLuhan, 1967).

According to Meyrowitz, (1994) McLuhan's approach is classified with the research tradition that tried to call attention to the potential of communication technologies in addition to and apart from the content they convey, and he named this kind of research 'The Medium Theory'.[8]

Meyrowitz (1994) summarised 'The Medium Theory' as emphasising the particular characteristics of each individual medium or of each particular kind of media. The question that the medium theorist asked was 'what are the relatively fixed characteristics of each means of communication, and how do these features make the medium physically, psychologically, and socially different from other media, and from face to face communication?

However, McQuail (2005) said in his discussion about applying the medium theory to the new media that the diversity of the category of new media and its changing nature set as a clear limit to this 'Medium Theory'. Therefore, I think it is better to

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[8] Toronto School of communication theory; The body of theory took its impetus from the research of Marshall McLuhan and Harold Innis at the University of Toronto beginning in the 1950's.
See: http://www.utoronto.ca/mcluhan/tsc_theory.htm

study every major category of the new media as a separate part, and confirm my research direction on studying 'the internet artworks' as a separate part of the new media field, but at the same time take into account the general attributes of the new media that could be applied to any part of it. (As I mentioned in section 2.2: New Media: the broad area of Internet Arts).

One of the most important themes within McLuhan's theoretical work is his understanding of media as extensions of the human body. The car is an extension of the foot, clothing is an extension of the skin, the electronic devices (computer) are an extension of the central nervous system, and the media are an extension of the mind (McLuhan, 1987).

Moreover, McLuhan suggests that the use of different technologies affects the organisation of human senses, and he divides history into four major periods: oral, writing, printing and electronic. This classification is based on his thought; that every period is characterised by its own 'interplay of the sense' (Meyrowitz, 1994). See Figure 2-3.

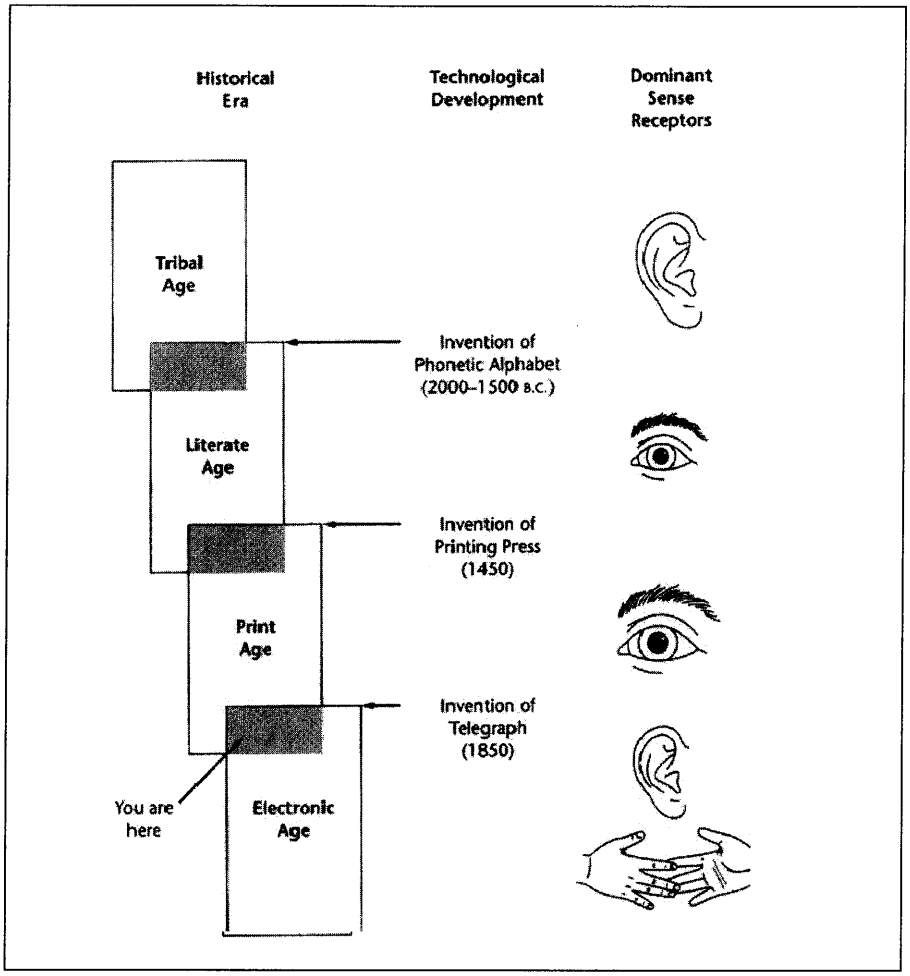


Figure 2-3 The Human Senses and the Historical Ages
from 'A first look at communication theory', 1994 (Griffin ,1994, 333)

From Figure 2-3, McLuhan considers that the **Tribal Age** was an acoustic place, where the human senses like hearing, smell, touch, and taste were improved far beyond the ability to visualise. In the **Literacy Age** the people who could read could exchange an ear for an eye.

In the **Print Age** the phonetic alphabet that was visually possible in the literacy age, become widespread by the printing press, and the press turns words into many words.

Moreover, in the **Electronic Age** the power of the printed word is overshadowed by electronic communication devices, stemming from the invention of the telegraph. (Griffin,1994).

McLuhan considers that the **Electronic Age** brings back a key aspect of oral societies, and ironically, that the electronic media brings back the sensory experience of the **Tribal Age,** as a prime form of communication. As Griffin, (1994) said, McLuhan insisted that in the age of the global electronic village, the oral tradition where sound and touch are more important than sight has returned, and we have gone back to the future.

In the age of the Internet, it could be said that McLuhan's famous slogan of the early 1960s: 'we shape our tools and they in turn shape us' is very true.

The Internet was created and shaped by human brains. A decade after its invention, the scholars working in communication and culture started noticing its impact on the human world and how the development of this tool in the 1990s made our world as McLuhan said, 'the global village'. It has shaped the human sense of space and time forever.

The essential part of McLuhan's theory is considered to be technological determinism, as Griffin (1994) confirmed that McLuhan supposed that inventions in technology invariably cause cultural change, and specifically changes in modes of communication that shape human existence.

2.6 The Artists and Technology: The communication perspective

> In the history of human thinking the most fruitful developments frequently take place at those points where two different lines of thought meet. (Heisenberg, 1959, p.161)

The relationship between art and technology is deeply rooted in human history, regardless of the fact that every field of each has a totally different direction with different entities. They share a lot of elements as they both engage with ideas, theories, and hypotheses that relate to human experience.

An article named 'The Principles of Research' by the famous physics scientist Albert Einstein (1918, cited by Wilson 2002, p.19) stated that the artist and the scientist substitute a self-created world for the experiential one, with the goal of transcendence.

I believe that it is essential to understand the relationship between artists and technology as an initial step to understand the artists' communication with the different types of internet artworks.

Wilson (2002) summarised the main similarities between art and science with the following elements:

- Values the careful observation of their surroundings through the senses.
- Values creativity
- Proposes to begin change, innovation, or enhancement over what exists.
- Uses abstract models to get more understanding of the world
- Aims to create works that have universal importance.

During the past two decades, the world has witnessed rapid and exceptional scientific discoveries, and a new era has emerged from the collaboration of art and technology in different fields like computer arts, interactive multimedia, telecommunication art, video art, film, internet art and many other fields.

Krueger, (1991) has stated that in the present time, there has been progress that heralds the return of a relationship between science, technology and art, and he

gives examples of the efforts of scientists to present abstract concepts visually, of technologists to increase the possibilities of telecommunication and simulated experience. Most importantly, he declared that artists are today utilising the most powerful means of communication: the video and computer.

According to Krueger, (1991) the development of art contributes to science and visa versa. He gave example of the computer animations as they gave astronomers the chance to study the dynamics of galaxies over billions of years. In the same time, the development of the interactive representation of reality has led to the development of three dimensional graphics systems that allow the user to explore a three-dimensional design space visually. These developments motivate the artists to explore this new horizon of reality in their experiments and projects.

One of the most powerful technological tools that attracted the artists from its early versions are computers, as the computer increases the artist's ability to experiment. Krueger, (1991) confirmed that such artwork will be based on a rich experience with the medium, and provide full expression to the artist's ideas.

The important question here is 'do the artists who work with the emerging technology have a different core idea from the work of artists who use the traditional media? According to Wilson (2002) some of the artists' work with the new technology is essentially no different from the work of the other artists. I believe that the artists, who do not understood the technological tool's capabilities and potentials, should not use it within their artwork just to show that their work is in line with the new technologies, since that every artwork has its own aesthetics, whether combined with the new technologies or not.

Thus, I believe it is essential to understand the artist's communication with any kind of work that based on a technological tool in order to understand the theme of the work, such as a computer.

When referring to the language of computer mediated communication in general, there are two important connected phases (Andrew and Ride, 2006):

- Phase 1 (the user level): the metaphorical interface (windows, icons, desktop, and toolbars) and the physical interface (screen, keyboard, mouse, input devices).

- Phase 2 (the computer processing level): the operating system (soft code), central processing unit (algorithmic code, electrical impulses and switches)

Phase 1 could be considered as the visible phase for the user, and phase 2 could be considered as the invisible phase. Andrew and Ride (2006) declared that these two phases are similar to what Manovich (2001) distinguishes as the cultural layer and the computer layer.

The user communication with the contents of Phase 1 could be described nowadays as a common sense experience, wherein the user sits at a desk looking at the monitor (screen) and moving the mouse in different directions or using the keyboard buttons.

Possibly, the user will click on the internet explore icon, which will take them to another world, 'the virtual world' which they can control by clicking on the different icons.

The icon (or avatar)[9] represents the user's presence within the area situated beyond the screen (artificial reality). This new technology has given the user what Krueger (1991) called the 'the super sense', wherein the user could hear, feel, touch and communicate around the representation of a totally different world.

In this scenario, the perspective of communication is now different. The user's sense of space and time are different. The common thought is of communication as the transmission of information from one point to another. However, this is not the case for communicating with internet artwork.

[9] Avatar; Andrew and Ride, (2006) said that this word refers to incarnation. It drives from the Sanskrit word 'avatara' which means 'descent' and usually implies a deliberate descent into the mortal realm for special purpose.

As Krueger, (1991) said, there is a trend toward expanding the sense of being in the same place. The place created by the act of communication is not necessary the same as that at either end of the communication link.

As a result, the question that arises here is: 'Are the artists aware of the technological medium's role in representing their work?' Buick (1997) said that the artists must be an expert with the medium, and always be careful with every single detail in their work.

Also, is the user aware of the medium's technological role that is combined with the artwork? Buick (1997) defined the contemporary technology as not merely a tool, rather it gives ways of looking at ourselves, at our culture and values.

In addition, I would like to clarify here that I always used the word '**communication'** and not the word '**interaction'**, because of two reasons.

The first reason is that the concept of communication is related to the process of increased commonality or sharing participants, on the basis of sending and receiving communication messages as per McQuail's definition (2000). Meanwhile, the concept of interaction is related to the degree to which a participant in a communication process (will) have control over, and exchange roles in, their mutual discourse (William *et al.* 1988, p.10).

Moreover, in view of the fact that my research is focusing only on investigating the communication model that has the ability to describe the communication process and that do not include the interaction degree of the participant with the artworks.

The second reason is that studying the interaction is related to another kind of study which is called the **HCI (i.e. Human Computer Interaction),** and in these kinds of studies, the focusing on interactivity should be in three levels (McMillan, 2002): the user-to-user, the user-to-documents and the user-to-system levels. Since my research's context is concerned about internet artworks combined with the Internet, the previous levels will not be suitable for the nature of my research.

2.7 Towards a new communication model

The current communication models are not adequate to describe the communicating process with internet artwork, as I mentioned in the previous section of my thesis. Therefore, a new model of communication is needed.

There is no certain approach for creating the ideal new communication model. However, the researcher should always take into their account the importance of the secondary data because the last point that the other researchers or scholars stopped on it could be the starting point for other researchers. Therefore, I will present in this section the theoretical notions that have influenced my thoughts in formulating the proposed research model.

Nevertheless, it is essential to present first the relationship between the secondary data (the Literature Review) and the primary data (the Methodology) in my research, and to how every part of them is contributing to my research. This is done in the following steps and in Figure 2-4.

1. First Step: extract from the relevant theories what could be a suitable solid basis to build my new model.

2. Second Step: combine it with the output of the primary data. (Combining it with the results of my pilot case study). Then, formulate an initial proposed model.

3. Third Step: Apply the research methods; the online questionnaire and the online interview, over the seven case studies.

4. Fourth Step: Analyse the output of the research methods, taking into account the secondary data.

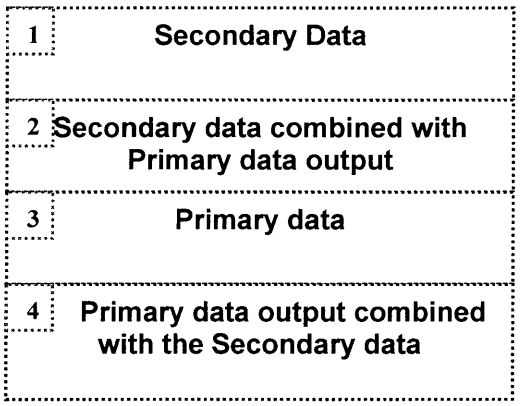


Figure 2-4: Presenting the contribution of the secondary data and primary data in building my research communication model

It is important to clarify that I will present the first step only in this section. The other remaining steps are presented in the Methodology, Findings, and Analysis Chapters.

All the articles and books that I have read in field of communication, sociology, and the psychology of media, have affected the way I made the proposed model. However, the main impact comes from the following theoretical notions:

'The Medium is the Message' concept of Marshal McLuhan

'The Medium is the Message' aphorism was introduced in Marshall McLuhan's most widely known book, 'Understanding Media: The Extensions of Man', published in 1964.

In his argument, McLuhan considered that the 'medium' has been neglected for so long because it is invisible. He compares this to electric light - or more accurately the electromagnetic waves/atoms that make up the visible spectrum. Light is invisible to the naked eye, but ironically lights up the world. 'Electric light is pure information. It is a medium without a message, as it were'. (McLuhan, 1964, p.23) The content of electric light is anything it happens to be shining on. 'Whether the light is being used for brain surgery or night baseball is a matter of no difference (McLuhan, 1964, p.24).

The meaning of the previous slogan stemmed from McLuhan's belief that the effect of a medium is made strong because it is given another medium as 'content', and he give an example of the movie. The content of a movie is a novel (McLuhan, 1987). The question that is raised here, is, what would McLuhan have said if he saw the Internet?

I mean, how would McLuhan explain the complexity of this medium? Is it just simply a medium that holds hundreds of different media? The Internet is holding the medium of press, radio, television, websites, and the other new types of media. Every single medium from them holds other type of media like text, pictures, video, and again every type of them holds another medium, until we reach the message of every one of them.

Thus, the questions raised here are: Is the message a separate conceptual element? In other words, what happens to the message when we convert it to an entity within the medium of the Internet? Does the medium add to it? To what extent does it combine with it?

In addition, what would McLuhan say in the case of the internet artworks? The artwork is holding messages and the internet medium is holding the artwork. And converting artworks to be within the internet requires adapting the messages to be in line with the medium's attributes, so do messages created specifically for this medium get adapted? Is the medium part of the message or a bridge to convey it? And most importantly, is the artist as well as the user aware of this issue when they communicate with this kind of artwork?

The 'Death of the Author' concept from Roland Barthes

'Death of the Author' (1967) is an essay by the French literary critic Roland Barthes. In his essay, Barthes criticizes the reader's trend to think about the characteristics of the author's personality or identity, like their religion, ethnicity, political belief, or other attributes.

For Barthes, 'to give a text an author' and assign a single, corresponding interpretation to it 'is to force a limit on that text.' (Barthes, 1977). His core point of view is that readers must separate a literary work from its author.

The crucial meaning of any work depends on the impressions of the reader, rather than the 'tastes' of the author. This means that a 'text's unity is not situated in its origins; 'the author's mind', 'but in its destination, or its audience' (Barthes, 1977).

Barthes' idea about the separation of the authors from their piece of work has a strong relationship with the artworks in our present time. The new media revolution carries with it different new patterns of authorship which all involve different forms of collaboration (Manovich, 2002), and I think that it is extremely true, in the case of internet artworks. Therein, the author's relationship with the user of the artwork is difficult to describe.

Manovich (2002) gave an example of authorship and named it 'The brand as the author'. He said that when 'jodi.org' became a part of the rising net art with their website, for the first couple of years users only knew the artwork by the name of its URL, but not the artist's names. This was part of the attraction. Eventually the names of the artists, Joan Heemskerk and Dirk Paesmans, became public.

'Authorship as selection from a menu' is another example by Manovich. The user in this kind of authorship is selecting the artworks from a few menus. The examples of such 'authorship by selection' are the websites that allow the users to quickly make a postcard or even a short movie by selecting from a menu of images, videos and sounds.

In the case of software-driven production, Manovich refers to 'a tissue of quotations', the definition of a cultural text by Roland Barthes:

> We know now that a text is not a line of words releasing a single 'theological' meaning (the 'message' of the author-god) but a multi-dimensional space in which a variety of writings, none of them original, blend and clash. The text is a tissue of quotations drawn from innumerable centres of culture (Barthes, 1977, p.143).

Manovich declared that, these quotations come not only from the creators (the memories of what they previously saw, read, and heard), but also from the databases of media assets, as well as numerous other words, which in the case of the Internet are just matter of a click away.

In the case of internet artworks, the scenario that could be imagined is like the following:

At the artist's level; when the artists are finished with their work, they have no idea about the assumptions and intentions of a particular user. They make the work ready for an uncertain user to interpret it, and in the most case the artists do not, neither put their signature or their name on the artwork.

At the user level, the artwork is received either online or offline or in both stages. The user does not know anything about the internet artwork, or what it is supposed to do. What is its interface? In other words, they communicate with the artwork in the sense of discovering it.

This complex situation of communication with the internet artwork increases the questions, which are as follows:

- What kind of communication relationship exists between the artist (author) and user?
- Could we consider that the artist (author) is a dead person, as in Barthes's concept?
- Does the user wonder who the author is?
- Who is the user in the artist's perception? Are they a reader?
- Is the user an integral part of their artwork?
- Can we make a firm conclusion like what Manovich (2000) said, which was that the author and the user are often two total strangers, two aliens who do not share a common communication code?

2.8 Summary

I presented a focused review of the internet arts field by discussing the broad area and its historical roots, along with the definitions and concepts. Then I presented the existing communication models, and discussed why there is a need for a new one to describe the internet artworks. Also I discussed the theories about the medium, and McLuhan's theoretical notions. In addition I presented the artist's relationship with the technology from the communication perspective.

I also discussed the theoretical notions that impact on my proposed communication model. In the next chapter (the methodology) I will discuss the research process to reach to the clear picture of the appropriated communication model for internet artworks.

3 Internet Arts Communication Model: Research Approach

3.1 Introduction

The aim of this chapter is to provide a clear and coherent structure of the research process that was conducted to collect the primary research data. The chapter will include the theoretical framework of the research methodology as well as the practical steps that were applied in the research.

3.2 The Research's Philosophical Assumption

The philosophical stance for any research represents the solid ground on which it is based (whether quantitative or qualitative), as a study. Creswell (2003, cited by Grottoy 1998) suggested that in designing a research procedure we consider four questions which are related to:

- *What is the research epistemology* (the theory of knowledge embedded in the theoretical prospective)?
- *What theoretical prospective lies behind the methodology*? (for example positivism, post-positivist; constructivism, etc.).
- *What is the research methodology*?
- *What are the research methods*?

Creswell, (2003) said that these four questions represent the interrelated stages of decisions that go into the procedure of designing research and they are the phases that inform the choice of the approach, ranging from broad assumptions to more practical projects.

Creswell (2003, cited by Grottoy 1998) conceptualised Crotty's model into the following questions:

- What knowledge claims are being made by the researcher? (including the theoretical perspective)
- What strategies of inquiry will inform the procedures?
- What methods of data collection and analysis will be used?

In my research the answers for the previous questions could be represented in the following table:

Table 5: The Research's Philosophical Assumptions

What knowledge claims are being made by the researcher (including the theoretical perspective)?	The research is following the "Constructivism" paradigms; the school of thought that considers that "the meanings are constructed by human beings as they engage with the world they are interpreting", (Creswell, 2003, p.7). Also, Creswell added that the researchers in this school "seek to understand the context or setting of the participant through visiting this context and gathering information personally, and they make an interpretation of what they find, an interpretation shaped by the researchers' own experience and background. "(Creswell, 2003, p.7)
What strategies of inquiry will inform the procedures?	The Constructivism School considers that the research strategy (methodology) is "hermeneutical and dialectical" as Gupe and Lincoln,1998, said that "individual construction can be elicited and refined only through interaction between and among investigator and respondents. These varying constructions are interpreted using conventional hermeneutical techniques and are compared and constructed through a dialectical interchange" (Gupe and Lincoln,1998, p.200). Thus, the research strategies in this school follow the qualitative approach, which is concerned with understanding and describing the world of human experience. The qualitative approach has different research strategies such as (Grounded theory, Ethnography, Phenomenology and Case Study). I chose the 'Case Study' as my research methodology. All the details about this strategy and the rationality of conducting it in my research are discussed in (2.3), p.20.
What methods of data collection and analysis will be used?	The research methods are the Interview and the online questionnaire, all the details about these methods and the rationality of conducting them in my research are discussed in section 3.5

3.2.1 The Qualitative Approach

As I mentioned previously, my research is based on the 'Constructivism" school which follows the qualitative approach. Through qualitative research we can explore the spacious dominations of the social world by focusing on the 'human experience' and take care over qualities such as how the participants describe their experience in a certain phenomena, and what the significance of the meanings are that they generate. Moreover, qualitative research has an unrivalled ability to represent a compelling argument about how thing works in a particular context, as Mason (2002) suggested.

In my research, the aim of conducting the qualitative research is to achieve the research aim (exploring the communication model that has the ability to describe the communication process with the internet artworks).

Applying the qualitative approaches particularly in my research will enable me to explore the 'human experience' of the 'artist' when they engaged with internet artworks and when they communicate their ideas with the technological system and explore the 'human experience' of the 'user' when they participate with the artworks.

This will assist in drawing a comprehensive picture about the communication process's attributes and eventually, and more importantly, will lead me to achieve the main aim of the research. In order to ensure this, I shall apply the appropriate qualitative methodology that will celebrate richness, depth, context and multi-dimensionality, as (Mason, 2002) proposed.

3.3 Appropriate Methodologies and their Rationalities

The research methodology is based on the case study methodology. I made my choice after comparing different kinds of methodologies in the arts and humanities sector. In order to understand the reasons for selecting the case study methodology particularly, I devised the following table:

Table 6: Appropriate methodologies and their rationalities

Case Study (the chosen research methodology)	Ethnography	Phenomenology	Grounded Theory
"A research strategy focusing on the study of single cases. The case can be an individual person or an institution." (Robson, 2002)	"An approach to the description and understanding of the life and customs of people living in various cultures." (Robson, 2002, p.546)	"A theoretical perspective advocating the study of direct experience taken at face value. It sees behaviour as determined by the phenomena of experience, rather than by external and physically described reality." (Robson, 2002, p.550)	"An inductive methodology developed by Glaser and Strauss used to generate theory through the systematic and simultaneous process of data collection and analysis." (Goulding, 2002, p.170)

In the ethnography strategy, the focus is about the life and customs of people living in diverse cultures. However, my intention for this research is to investigate a communication model for internet artworks regardless of the user's culture, and to focus on the common characteristics of the communication type of the user without taking the perspective of culture (which might be a topic for my future studies).

In the phenomenology strategy, behaviour is considered as being determined by the phenomena of experience. Therefore, the behaviour resolved by a phenomenon in this strategy is the central point. However, my research is not based on a specific phenomenon. It is based on a new, promising art field called 'internet arts'.

Grounded theory strategy is concerned with developing or discovering a theory, and my research aim is to develop a new communication model for Internet artworks. Therefore, the grounded theory strategy seems suitable for this aim.

However, after an extensive reading of what a theory means in the field of communication, I realised that the researcher cannot simply name their research output as a theory. As Hawes (1975, p.28) stated 'A Theory and model construction in communication', he stated that: 'A theory is designed to explain **'how and why'** the conflict occurred and not just to describe **'what' occurred'.**

Thus, since my research is the first attempt to construct a new communication model for Internet artworks, the research questions are more concerned with **'what'** questions, as it tries to take the initial step of describing **'what has occurred'**. Therefore, I decided to postpone the use of grounded theory to the post-doctorate stage. I could then use the output of my research about 'the new communication model' and examine it with **'how and why'** questions in order to develop my communication model to a communication theory. See also section (6.6) entitled 'The Future Studies'.

In view of these results, I chose the case study methodology as it is the most applicable research methodology for the research question. As Burns (2000) said, the case study is the preferred strategy in the following circumstances:

- **When 'how', 'who', 'what' or 'why' questions are being asked**.
  (My research question is concerned with 'what' questions.)

- **When the investigator has little control over the events.**
  (Most of the important artworks are not active or not online at present.)

- **When the focus is on a contemporary experience within a real life context**.
  (The internet arts are a new kind of art that engages the user with a unique contemporary experience.)

3.4 Research Methodology: Case Study Approach

The case study is a well established strategy where the focus is on single cases. The case can be an individual person, a situation, an institution etc. (Robson, 2002). Focusing on the research case enables in-depth understanding of the full meaning of the context (Burns, 2000). This will increase knowledge about the reality, as Daymon and Holloway (2002), pointed out.

As with every methodology, the case study strategy has its own limitations. The main limitation is 'generalisation'. This has been a common feature of literature critical of the case study. However, I found some researchers disagree on that point. Blakter *et. al.*, 2001, stated that the case study strategy allows for generalisation and even that he considers it as one of its advantages. Burn (2000, p.474) defended the case study in a logical manner. He wrote that: 'case studies like experiments are generalisable to theoretical propositions, not to statistical population and the investigator's goal is to expend theories and not to undertake statistical generalisation'.

The research consists of seven case studies. I made this choice for a set of reasons. Firstly, the use of two or more case studies allows some measure of generalisation in a wider universe (Daymon and Holloway, 2002). What is meant here is the analytical generalisation rather than the statistical generalisation. This eventually affords an enormous amount of description and detail. In addition, this amount of detail suggests many future research questions to follow up in future studies.

Secondly, as (Yin, 2003) stated, having more than two cases will produce a stronger effect on the result. Also, 'Using multi cases can be considered advantageous and the evidence can be more convincing'. (Burns, 2000). Moreover, Daymon and Holloway (2002) confirmed that the major strength of the case study is its ability to generate multiple sources of evidence. The third and last reason is that the case study methodology is enabled with the flexibility to choose the research case studies based on the research context. Therefore, I chose each single case of my research cases based on its singularity in reflecting a different angle of my research field, and these angles should not be neglected.

3.5 Research Methods: using multi-source evidence

I conducted two methods in my research. These were the online questionnaire and the online interviews. The reason for using multiple sources is to allow the 'methodological triangulation' which means using multiple methods to study the same case or topic (Frey *et. al.*, 2000).

The triangulation enables covering the line of investigation, improving the reliability and validity of the research data and findings, and makes the case study report more convincing (Burns, 2000).

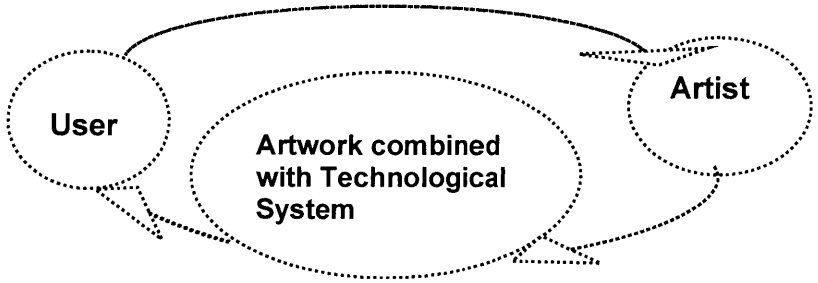
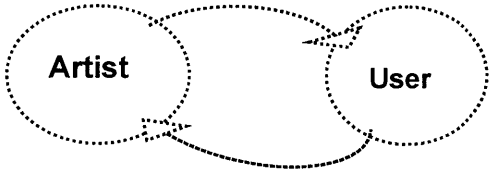
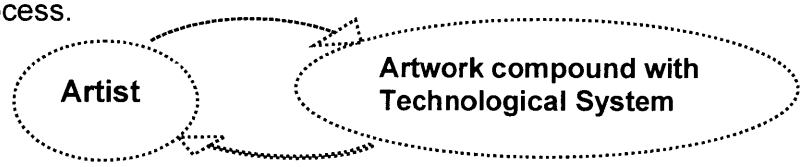
It should be noted that I conducted the 'questionnaire' method, which is considered a quantitative method, with the 'interview' method, which is considered a qualitative method.

The reason for that is to increase the understanding of the research focus and because it considered as one way of methodological triangulation (Frey *et. al.*, 2000).

I should like to point out that using the quantitative approach does not conflict with the case study methodology as one of the qualitative strategies, as Yin (1981) said that the case study method does not entail the use of a particular type of evidence and case studies can be done by conducting either qualitative or quantitative evidence research.

3.5.1 Online Questionnaire and Interviews

Table 7: The purpose of the online questionnaire and interviews

The Research Techniques	The purpose
Questionnaire	I conducted an online questionnaire among seven case studies, in order to draw insights about the **user's** understanding of the **artwork** that is combined with the **technological system** and the point of view of the **internet artist's** role in the communication process, as these results will shed the light on the following part of the communication process:  **Figure 3- 1 The Purpose of the Questionnaire**
Interviews	I carried out online interviews with the research case studies' creators, 'internet artists', in order to investigate their relationship with the artwork's concept, also how they as 'internet artists' think of their 'user'. These result will shed light on the following part of the communication process,  and how the artists employ the characteristics and the potentials of the technological system to serve their artwork concept. These results will shed light on the following part of the communication process.  **Figure 3- 2 The Purpose of the Interviews**

It is envisaged that after applying the previous methods I shall be able to construct a complete communication model, which encompasses the viewpoint of the **internet artist** (from the finding of the Interviews) and the viewpoint of the **users** (from the finding of the Questionnaire) since, combined, these two combined viewpoints result in the complete picture of the communication process, as explained in the previous table.

3.5.2 Phases of the Research Plan

Table 8: Phases of the Research Plan

The phases of the proposed research model	
Phase 1	The pilot study: I chose to make a pilot study before I started the actual case studies because I wanted to pre-test my research methodology in the real world. I conducted the observation method which helped me to acquire a considerable insight into the user's communication with the Internet artworks. The pilot study was the 'Story Room Exhibition', and it consisted of a wide range of New Media Artworks, Interactive Networks, Media Arts and Internet Art's installation - offline and online. The results of the pilot study led me to make the initial version of the communication models.
Phase 2	Case Selection: I conducted a brief, focused questionnaire consisting of two questions and then I distributed it using e-mail to 40 artists of the new media arts pioneers. The aim of this questionnaire was to obtain insights about how the artists evaluate their works and the other artists' works, in order to enlighten me as to the artworks that could be suitable case studies for my research. The questionnaire's questions were as follows: 1. As one of the pioneers of digital media arts, in what ways do you consider your work as a precursor of today's network culture? 2. Are there any particular works by yourself or any other artists that have had a major influence or recurrence as a mass media model on the current Internet? I conducted the questionnaire from 1 December 2006 until 1 February 2007. By the end, I had received 17 responses. These answers helped and confirmed to me the most applicable artworks for my research aim.
Phase 3	Online Questionnaire: Based on these results, I decided that my research will consist of a website which represents a multi-case study. Every one of them will reflect a different angle of Internet artworks. The user will explore the different artworks through reading a brief introduction about each case and the artist who created it. Also, the user will be able to navigate to the original website of the artwork in order to get more details about the work. Afterwards, the participants should complete the entire online questionnaire's questions. This will enable me to answer the following questions (minor research questions):

	• Does the user think that they understand the idea (concept) of the internet artwork? • Does the user think that the internet artist should be part of the communication process with the artwork? • Is the user aware of the effectiveness of the Internet (technological system), in their communication with the work? Please see Appendix (1) For a sample of the questionnaire's questions.
Phase 4	Online Interviews: I sent an email to the internet artists that their experiments were involved in my research (research case studies). This method will enable me to answer the following (research minor questions): • How does the 'internet artist' think of their work? What are their intentions (concept)? • How does the 'internet artist' think of the technological system's potentials in relation to their work? • How does the artist (internet artist) think of the user's responses toward the internet artwork?
Phase 5	Building the models: I shall compare the questionnaire's outcomes with the interview's outcomes. According to these results, I shall make the necessary modification for the initial model in order to build the final version of the communication model. That will enable me to answer the research's main question, which is as follows: **What is the communication model that describes the communication process for Internet artworks?**

3.6 The Pilot Case Study: The Story Room Exhibition

I chose to make a pilot case study before I began the actual case studies, for two reasons:

The first reason is the importance of the pilot case study phase on the research as Yin (2003) stressed that the pilot case study can be so essential that more resources be devoted to this stage of the research than to the collection of data from the actual case studies. Yin considered the pilot case study to be a helpful tool in refining the data collection plane, with respect to both the contents of data and the process that should to be followed afterwards.

The second reason is that I want to derive benefit from the pilot study's finding to assist me in building my initial communication model before I conduct the actual case studies,

3.6.1 The Observation Technique

I conducted observations in order to get close to the participants and to see what they see, and to watch what they do when they engage with the artists' experiments in the exhibition.

My aim was to explore what was happening and record it on the spot, as Robson (2000) stated that the observation technique was commonly used in an exploratory phase. I believe that no method other than the observation technique provides the researcher with such a rich experience with the participants in real life.

There are two types of observation. These are participant observation and non-participant observation. I chose non-participant observation, since I did not wish to be involved in their participation with the artworks. Also, I wanted to focus carefully on participants' impressions, gestures and ways of communication. On the other hand, observation has its limitations. As Robson (2000) stated, there is a major issue concerning the extent to which an observer affects the situation under observation. The practical problem with observation is that it tends to be time consuming.

3.6.2 Environment and Conditions

The reason for selecting the Story Rooms Exhibition is due to its encompassing a wide range of New Media Arts, Interactive Network, Media Arts and Internet Art's installation - offline and online. This will enable me to explore verities the veracity of the Internet arts experiments.

Pilot Study Subject: Story Rooms Exhibition (Interactive Network, Media Arts and installation).

Pilot Study Technique: Observation

Pilot Study Location: The Museum of Science and Industry in Manchester.

Time and Date: 11 October 2005 – 15 January 2006, (10 am - 5 pm).

The Attendance time:

- October (Three days) (10:15 am - 1:00 pm)
- November (Three days) (10:15 am - 1:00 pm)
- December (Three days) (10:15 am - 1:00 pm)

I attended the exhibition for three days a month from October to December inclusive. I was observing more than three people at the same time and in order to pay attention to the users' (audience's) movements and participation, I wrote the observation notes as small paper maps with symbols for the artworks, so I could then easily transfer my drawings to written observation notes.

Figure 3-3 The Story Rooms Exhibition's Map:

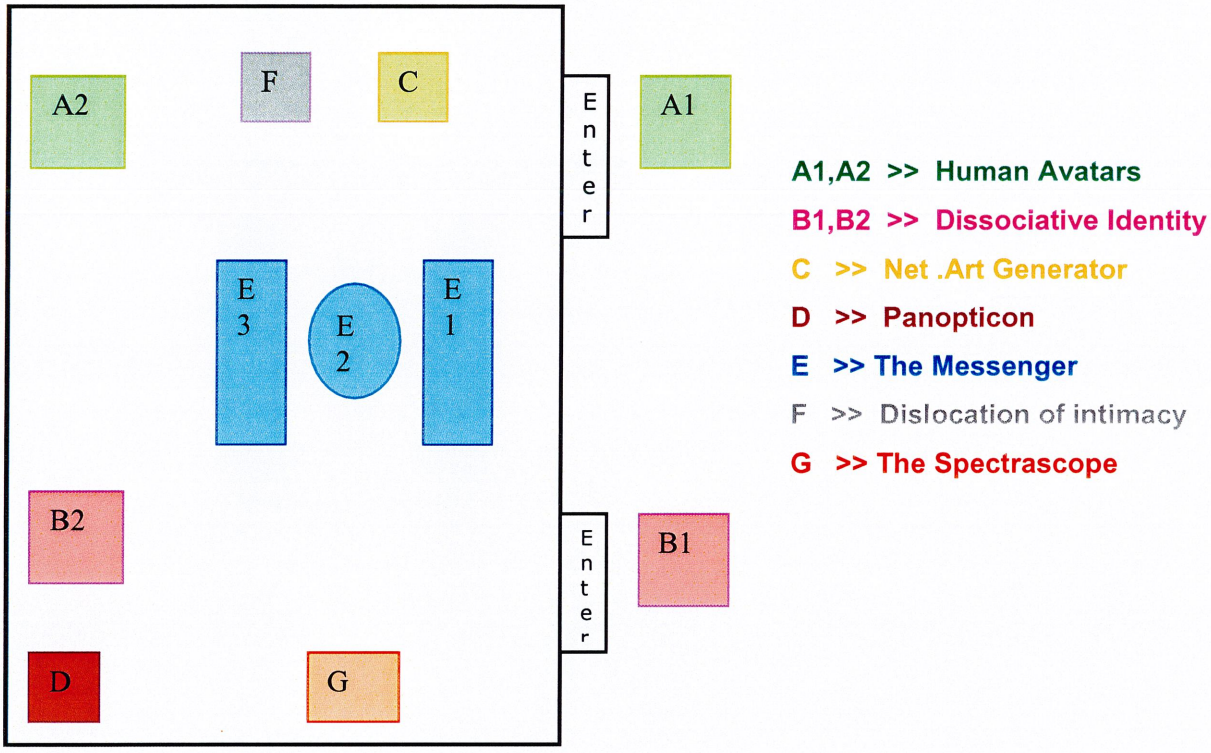


Table 9: The artists' names and the artworks in the story room's exhibition

The Artwork	Artists' Names
Human Avatars	Andrea Zapp
Dissociative Identity	Paul Sermon
Net Art Generator	Cornella Sollfrank
Panopticon	Tan Teck Weng
The Messenger	Paul Demarins
Dislocation of intimacy	Ken Goldberg and The Alpha Lap
The Spectrascope	Susan Collins

3.6.3 The Findings

I classified the users in this exhibition into three categories (the primary school, university students and other adults) because, based on my observation, I noticed that the previous groups formed the majority of the users (audience).

Human Avatars: by Andrea Zapp



Figure 3- 4 Human Avatars[10] **(A 1)** **(A 2)**

'Visitors find themselves in two spaces at once: in a wooden hut and parallel to its remote model version as their own projected avatar. Hence big and small, real and virtual, outside and inside the medium.' - quoted from Zapp, 2005.

The Observation Results:

1. **The primary school children**

They interacted from the first instant to this work. Even the very young children were competing with their colleagues to discover its mystery. Most of them tried the second indoor location (A2) before the outdoor one (A1). Some of these children closed the door of A2 and opened it quickly to see if it were going to appear on the screen for A1 until they discovered that they should always sit on the chair and face the window if they wanted to appear on the second screen in A1.

2. **The University Students**

It was not their first choice when they entered the room but I could tell that they admired its idea. Some of them visited the work more than once. Most of them wrote in the guest book (placed on the chair), some of them took pictures and another group of media students discussed the work with their teacher. Most of their comments were positive and they appreciated the work.

[10] These pictures were taken by the Author – Amani Alhalwachi - 2006

3. Other Adults

Most of the adults did not notice the first location of the work A1. However, when they entered the A2 they discovered that there was another location for the work outside the room, so they went out and tried it with their friends. Some of them were careful when they entered A2 as they did not want to break anything. They even wrote in the guest book while they were standing.

Dissociative Identity: by Paul Sermon



Inside (B 1) [2]



(B 2)[2]

Figure 3- 5 Dissociative Identity

'Two octagonal-shaped rooms are linked together, each containing a beanbag surrounded by four cameras and monitors. Images of the visitors inside are captured from four different perspectives and exchanged between the spaces – with views from above, close-up, face-on, profile and from below. They are keyed together on the screen enabling remote interaction through an exploded and sensual live montage of individual body parts.' Quoted from Zapp, 2005.

The Observation Results:

1. The Primary School Children

All the school children without exception were fascinated by this work. Some of them spent all the time interacting inside both rooms B1 and B2. Some of them were so involved in the work that they moved their bodies and their faces in all directions to see how they would appear in the different views.

[2] This picture was taken by the author – Amani Alhalwachi - 2006

2. The University Students

Some of them entered the first room B1 then tried the second later. Some of them were excited and they exchanged their places with their friends between both rooms. Another girl was taking photos of her friends while they changed their position inside the room.

3. Other Adults

They liked the idea of the angles of the different positions. Some of them stopped for more than three minutes to try the different views by trying different positions and they did the same thing in both sites. I noticed one woman talking to her friend about the idea of the work, saying that she would like to suggest more mirrors to create an additional effect.

Net. Art Generator: by Cornella Sollfrank

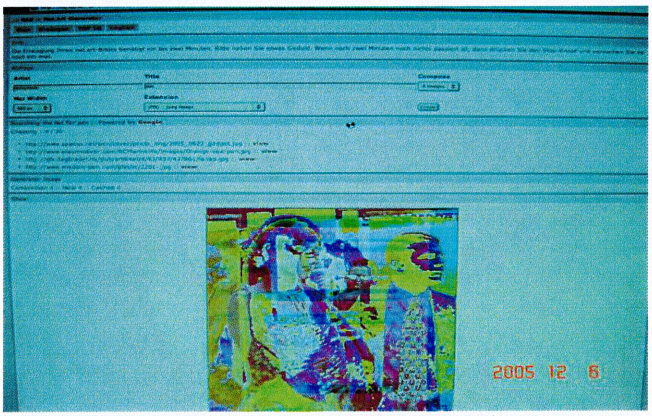


Figure 3- 6 Net. Art Generator (c)*

'Visitors create their own internet art works by typing in a little material from the web is automatically recombined in a new webpage and archived by the authors' name in an online art net. art gallery.' Quoted from Zapp, 2005.

The Observation Results:

1. The Primary School Children

I am not exaggerating when I say that most of them did not try the application of the net art generator, and that they were looking at the nearest internet icon to check their e-mails or entered their favourite websites ('My Favourites'). Very few of them tried to interact with the work. Hence, the museum staff were struggling

* (c) This picture was taken by Dave Griffiths and Nick Jorden: The directors of the 'Story room' DVD - 2006

with them and they told them that they should not use the computers to check their emails.

2. The University Students

A lot of them tried the application and some of them tried it many times using different terms to see the different results. Some of them left this work until the end of their visit and sat for more than five minutes.

3. Other Adults

Some of them tried it but with hesitation and they asked their friends how to use this application and what the word 'pixel' meant. Some of them ignored the application and tried the web address of the 'Dislocation of intimacy' work.

Panopticon: by Tan Teck Weng



Figure 3- 7 Panopticon (D)*

'A miniature room is projected on to a screen: all of a sudden, the table and chairs slowly creep across the floor, dance about, or crash against the walls. Controlled by visitors, who shake a small box in which the little scenery is rebuilt and captured by a camera; taking pleasure in disturbing their own surveillance image - a regulating force of society through the Lilliputian space.' Quoted from Zapp, 2005.

* (D) This picture was taken by Dave Griffiths and Nick Jorden: The directors of the 'Story room' DVD - 2006

The Observation Results:

1. **The Primary School Children**

Most of them noticed this work after they had finished their participation with other works and I think the reason was the location of the work in the room, as it was placed in the corner. Some of them were struggling to use the small box and they left it quickly without trying or asking the museum staff.

2. **The University Students**

Most of them knew that they could move the chairs and the table with the small box; however, they hesitated to try. Some of them were struggling to determine the effective movement of the small box. Therefore, they tried to shake the box up and down and shook it with hardly any results. Some of them asked the museum staff and most of them left it for another work.

3. **Other Adults**

Very few people were interested in stopping to have a look at the work. Some people did not know that the small box had a relationship with the projector until they saw one girl use the small box.

The Messenger: by Paul Demarins



(E 1)*


(E 2)*



(E 3)*

Figure 3- 8 The Messenger

'26 washbowls whispering letters in Spanish letter-shaped electrode in 26 glass jars producing streams of hydrogen bubbles, 26 little skeletons wearing a poncho with a letter are jumping up every now and then, all triggered by some invisible force – the internet and the artist's incoming e-mail. These three ancient telegraph systems.' Quoted from Zapp (2005).

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* E1, * E2* E3, These pictures were taken by Dave Griffiths and Nick Jorden: The directors of the 'Story room' DVD - 2006

The Observation Results:

1. **The Primary School Children**

In the first instance, all of them stopped in front of the skeletons and looked at this work. Some of them tried to touch it, and another group waited for something to happen until they noticed that the skeletons were jumping up randomly.

They stayed for more than two minutes to see if there was something else. Then, they looked at the enamelled washbowls without making a clear reaction. I noticed a lot of them moved quickly and did not look at this part and most of them moved quickly afterwards to the glass jars. Some of them touched the jars and shook them softly to see what was going to happen.

2. **The University Students**

Some of them discussed the idea of the work with their teacher. They analysed every part of it, and what was the core idea of making the work in three parts. Some of them took some photos of this work from different angles, and a group of them were writing notes and reading from the brochure while they were watching the work.

One of the students was saying some letters and waiting for the skeleton's letters to jump, and then he said: "Did he hear us?" (He meant the creator of the work.) His colleagues replied: "He is not here. The artists do not normally engage with the audience in the exhibition."

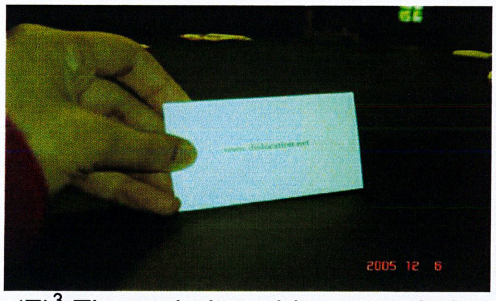
3. **Other Adults**

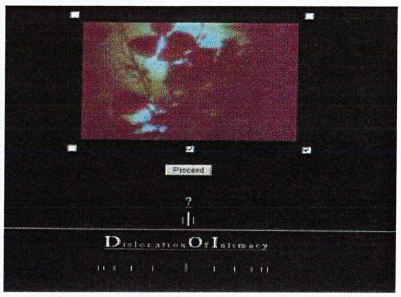
Most of them stopped at least at one part of this work, trying to decode its message and many of them stopped at the skeletons part as it held a mystery!

Moreover, however, I noticed that a man and a woman were fascinated with this part and they were trying to guess which skeleton letter was going to jump up.

In addition, another two women thought that there was a relationship between every jumped letter and made one word or one sentence. They thought that the creator of the work was trying to tell them something.

Dislocation of Intimacy: by Ken Goldberg and The Alpha Lap





(F)[3] The website address card above the black box (F) *Website-index

Figure 3- 9 Dislocation of intimacy

'A sealed black wooden box is plugged in to the wall socket, but its contents are only accessible via the internet, from where a tele-robotic interface in the box is activated. It sends surrealist and mysterious images of light and shadows onto a computer screen – freezing both time and light in a fragile balance.' Quoted from Zapp, 2005.

The Observation Results:

1. **The Primary School Children**

I did not see any child who tried to discover the website address (written above the card) over the black box. It might be that some children did not notice them because of their height. In addition, another reason might be that they did not read the brochure.

2. **The University Students**

Most of those people who tried the 'net generator' work tried this work as well. I could tell that they were attracted by the thought of discovering the mystery of the black box. Moreover, most of those groups tried all the buttons for the different lights to see the different changes of the image.

3. **Other Adults**

I saw few of them try the website inside the room. Some of them took the card with them and they might have tried it later. Some of them asked the museum staff if they could take the card or not.

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[3] (F) This picture was taken by the author - Amani Alhalwachi - 2006

* (F), * (F) These pictures were taken by Dave Griffiths and Nick Jorden: the directors of the "Story room" DVD - 2006

The Spectrascope: by Susan Collins



(G)*



(G)

Figure 3-10 The Spectrascope

'An image from a haunted house is continuously transmitted onto a screen with one pixel per second. Each completed image represents the previous 3 days and ½ and reveals peculiar change. Parallel audio fear frequency of 19 Hertz, just below the range of hearing, poses the question whether the frequency is creating a strange disturbance or the haunted site creating the frequency'. Quoted from Zapp, 2005.

The Observation Results:

1. **The Primary School Children**

I saw little children stop and take a quick look. On the other hand, most of the children ignored this work totally and they even did not ask either their teacher or the museum staff about it.

2. **The University Students**

Many of them stopped and read about this work from the brochure. Other people waited for more than two minutes to see the changes of the image, until they discovered that the changes occurred slowly and it needed a lot of time for them to be noticeable.

3. **Other Adults**

Some of them looked at the work and moved on quickly. Others were confused and thought another image would appear any moment. Some groups thought that this work was part of another work in the room.

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* (G) This picture was taken by Dave Griffiths and Nick Jorden: the directors of the "Story room" DVD - 2006

3.6.4 Summary and Conclusion

The results determined the visitors' responses towards the work. However, these results do not determine the value of the work itself.

Human Avatars

In relation to the visitors' participation, I could say that this was the most successful work in the exhibition. All the different groups liked it and interacted with it. This might be because of its sense of intimacy and its simulation of a real home, not to mention its unique idea(s).

Dissociative Identity

This work created the most suspense, and it had motivated the university students particularly to participate and to discuss the theme of the black colour with the different camera views.

Net. Art Generator

This was interesting for the visitors, even the people who hesitated to try it. However, the children were not so interested and they used the computer for other purposes. I think that if their teacher asked them to try the application, or at least shown them how to use it, they would have liked the idea of the work.

Panopticon

The work was interesting for those who noticed the relation between the projector and the small black box and people who knew how to move it stayed longer. Otherwise many people used it for a little while and then turned to another work.

The Messenger

Most of the visitors were happy to participate with the work or even part of it. However the skeletons part was the popular one for both the children and the adults, though I think few of them understood the core idea of the work. Some of them struggled to understand the relationship between the three parts of it.

Dislocation of intimacy

People who noticed the card and tried the web address inside the exhibition room were happy and the appreciated the idea of the work. The others who took the cards to try it later also indicated that they have the desire to know what inside the black box.

The Spectrascope

Unfortunately, this was the least interesting work for the visitors. It was a static work from the children's point of view and needed deep thinking from the university students' point of view. Moreover, it was hard to understand for the non-specialist people. In other words, there was a lack of communication between the work and the visitors.

As a researcher, I learned many things through this rich experience. It was an essential step in my research, as I derived insight about a lot of important points relating to the participants, such as their education level and its effects on the participants' communication with the artwork, also the importance of the factor of age in understanding why children were so excited by a work, while the adults were not so engaged by it, and vice versa.

I discovered how important it is for artists to watch the users and to see how they grasp the concept of an artwork, how they communicate with its interface, also to what extent they get involved with the work.

Furthermore, I learned why creating artwork which commands the attention of the different users' ages, education levels and interests might be so difficult and demanding.

In addition, one of the most important things that I noticed in the exhibition was the audience's understanding of the technological role in presenting the artwork. Some of them were highly aware, as was clear from the way they communicated with the artwork and became involved afterwards.

Also, the user's understanding of the artist's role in presenting their artwork in the exhibition stood out. Some of the users (audience) do not expect any role while

others think differently. A good example of this is the conversation between the university student and his colleagues when they were in front of the 'Messenger' work. The student was expecting the skeleton's letters to jump according to what he said. He asked: "Did he hear us?" meaning the creator of the work, and his colleagues replied: "He is not here. The artists do not normally engage with the user in the exhibition." Also, another example is when two women thought that there was a relationship between every jumped letter and that it created one word or one sentence. They thought that the creator of the work (the artist) was trying to tell them something.

In view of these results, many questions arose in my mind about the communication process attributes of this kind of artwork; such as could we consider that the communication process between the artist and the user occurred at the same time and do the users understand the technological system's role while they communicate with the artwork? Another consideration is how the user evaluates the artist's role when they present their artwork in a public area like an exhibition, especially as these places provide the opportunity for an artist to see the users in the real life and explore their responses directly and naturally.

My experience with the pilot case studies' results assisted me in constructing the initial proposed model by combining it with my perceptions about the artworks, artists, users and technological systems, which are mostly based on my reading of the research's secondary data, (Alhalwachi, 2007) and as I mentioned in Section 2.7 'Toward a new communication model'.

3.6.5 The Initial Proposed model

The suggested communication model for the Internet Artworks

Model of levels

The traditional communication models suggest that the communication process occurs in a linear line, and that all the communication's elements should be engaged at the same time. However, I suggest that the communication process for internet artwork should not be linear as the communication elements (**Internet Artist**, **Users**, **Art Work, Technological System**) will not appear at the same time. Therefore, I propose that the communication process should occur in three levels and the communication elements should appear in the level that requires its emergence or its appearance. For that reason, I have called that proposed model 'The model of levels', which divides the communication process into three levels.

However, in order to understand the concept of my initial proposed model it is essential to present some important conceptual issues that relate to it before I start talking in detail about the model. These issues are the following:

1. **The existing (alternative) communication models**: Are important for indicating to me part of 'what is missing'? What should a new communication model should include or be provided with?

2. **The theoretical notions of my proposed model**: This represents the theoretical background that will place the new model on a solid theoretical basis.

3. **The contribution of the pilot case study in constructing my proposed model**: The pilot case study is important because its outputs represent the initial results for the primary research data. This in turn could provide my research with the initial conceptual framework of my proposed research model before I start the actual studies.

The existing (alternative) communication models.

In section (2.5.2) precisely Table 4 on page 40, I discussed the most important communication models related to the study of the humanities, and I explained why it is hard to apply the concept of any of these models to internet artworks. Specifically, the reasons are as follows:

- They do not specify the interrelationship between the artist (sender) and the medium.
- They do not specify the relationship between the user (receiver) and the medium.
- They do not specify the time dimension in the communication process. In other words: do all the elements of communication exist at the same time? As in the case of internet artworks, there is a creation time for the 'artist', a connection time for the 'user' and the artwork, and afterwards, an evaluation time for the 'artist' to evaluate the user's impressions.

Therefore, I suggested that the new proposed model for internet arts should present the interrelationship between the artist, the user and the medium. It should also specify the relationship between the user (receiver) and the artwork along with the medium. Also, I suggested that the new communication model should specify the time dimension, in terms of answering the question: do all the different communication elements exist at the same time?

The theoretical notions of my proposed model.

All the articles and books that I have read in field of communication, sociology, and the psychology of the media have affected the way I made the proposed model. However, the main impact come from the following theoretical notions:

- 'The Medium is the Message' concept of Marshal McLuhan
- The 'Death of the Author' concept from Roland Barthes

I discussed the previous theoretical notions extensively in section (2.7) page 54, and I sum up with the following questions:

What would McLuhan say in the case of internet artwork? The artwork is holding messages and the Internet medium is holding the artwork. Converting artworks to

be within the Internet requires adapting the messages to be in line with the medium's attributes. So, do messages created specifically for this medium get adapted? Is the medium part of the message or a bridge to convey it? And most importantly, is the artist as well as the user aware of this issue when they communicate with this kind of artwork?

In relation to the 'Death of the Author' concept from Roland Barthes; what kind of communication relationship is there between the artist (author) and user? Could we consider that the artist (author) is a dead person, as in Barthes's concept? Does the user wonder who the author is? Who is the user in the artist's perception? Are they a reader? Is the user an integral part of their artwork? Can we make a firm conclusion as Manovich (2000) said, that *'the author and the user are often two total strangers, two aliens which do not share a common communication code'?*

All these previous questions represent the starting point from which to build the theoretical framework of my proposed communication model.

The contribution of the pilot case study in constructing my proposed model.

In section (3.6.4) page 80, I provided a summary of the pilot case study results. However, the most important issue that I noticed in the exhibition was the audience's understanding of the technological role in presenting the artwork. Some of them were highly aware, as was clear from the way they communicated with the artwork and became involved afterwards.

Also, the user's understanding of the artist's role in presenting their artwork in the exhibition stood out. Some of the users (audience) do not expect any role, while others think differently.

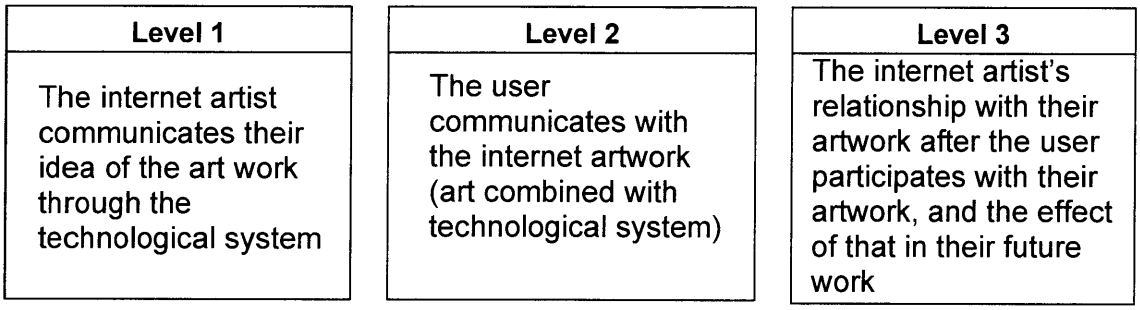
In addition, the questions that had arisen after I applied this method were as follows:

1. Could we consider that the communication process between the artist and the user occurred at the same time?
2. Do the users understand the technological system's role while they communicate with the artwork?

3. How does the user evaluate the artist's role when they present their artwork in a public area like an exhibition? Especially as these places provide the opportunity for an artist to see the users in the real life and explore their responses directly and naturally.

All of these previous important conceptual issues contribute towards demonstrating my initial proposed model. This is a new communication model, called 'The Model of Levels', as shown below in Figure 3-11

Figure 3-11: The Model of levels



Level 1

The main elements refer to the communication elements that appear in level 1 (internet artist, internet artwork concept, the technological system.)

The characteristics refer to the main attributes that explain the communication in this particular level (wherein the artist communicates with their artwork's concept).

In my research I suggested that identifying the following concerns would help in understanding communication at this stage:

1. What are the artist's intentions regarding their artwork project? Is the artist aware of the of the technological system's role in representing their artwork?
2. What does the artist think of their audience? Are they an integral part?

Level 2

The main elements refer to the communication elements that appear in level 2 (the user and internet artwork combined with the technological system.)
The characteristics refer to the main attributes that explain the communication in this particular level (wherein the user communicates with the artwork).

- The user's understanding of the artwork project.
- The user's awareness of the technological system's role in representing the artwork.
- The user's understanding of the artist's role in presenting his/her work.

Level 3

The main elements refer to the communication elements that appear in level 3 (internet artist, the artwork.)
The characteristics refer to the main attributes that explain the communication in this particular level (internet artist's relationship with their artwork after the user participates with their artwork, and the effect of that on their future work). In my research, I suggested that exploring the following concerns would help in understanding communication at this stage:

1. Is the concept of the artist's recent artwork related to their early network art project?
2. Is the artist aware of the technological system's changes, and have these changes come about as a result of their early artwork?
3. What does the artist think of the user? Are they an integral part of their future work, as in their early work?

At the end of this section, it is necessary to present the direct relationship between the research questions and the major contents of the communication model levels in the following table.

Table 10: The relationship between the research questions and the proposed model

The Research Questions	The Proposed Communication Model
How does the 'internet artist' think of their work? What are their intentions (concepts)? How does the 'internet artist' think of the 'technological systems' potential in relation to their work? How does the 'internet artist' think of the user's responses towards the internet artwork?	**Level 1** The main elements: (internet artist, internet artwork's concept, the technological system). In my research I suggested that identifying the following concerns will help in understanding the communication at this stage: -What are the artist's intentions towards their artwork project? -Is the artist aware of the of the technological system's role in representing their artwork. -How does the artist think of their audience? Are they an integral part? **Level 3** The main elements: (internet artist, the artwork) In my research I suggested that the exploring the following concerns will help in understanding the communication in this stage: - Is the concept of the artist's recent artwork related to their early network art project? - Is the artist aware of the of the technological system's changes. Did these changes come about as a result of their early artwork? -What does the artist think of the user? Are they an integral part in their future work, as in their early work?
Does the user think that they understand the idea (concept) of the internet artwork? Does the user think that the 'internet artist' should be a part of the communications process within the artwork? Is the user aware of the effectiveness of the Internet (technological system), in their communication with the artwork?	**Level 2** The main elements refer to the communication elements that appear in this level (The user and Internet artwork combined with the technological system) The characteristics refer to the main attributes that explain the communication in this particular level (wherein the user communicates with the artwork). • The user's understanding of the artwork project • The user's awareness of the technological system's role in representing the artwork. • The user's understandings of the artist's role in presenting their work.

3.7 Multi Case Studies

I conducted a brief, focused questionnaire to send to the new media arts pioneers, in order to enable me to choose the artworks that have a high and rich potential to be suitable case studies for my research, and I circulated the questionnaire to 40 artists, using e-mail. I chose the artists from the well-known electronic databases of new media arts, which are as follows:

- http://www.rhizome.org
- http://www.virtualart.at/common/recentWork.do
- http://www.medienkunstnetz.de/index/names/
- http://www.aec.at/en/index.asp

The questionnaire consisted of two questions, as follows:

1. As one of the pioneers of digital media arts, in what ways do you consider your work to be a precursor of today's network culture?

2. Are there any particular works by yourself or any other artists that have had a major influence or recurrence as a mass media model on the current Internet?

I received 18 responses from the artists by email. The remaining artists did not reply. Their names are as follows:

- Alexei Shulgin
- Bill Seaman
- Christian Möller
- Cornelia Sollfrank
- Susan Collins
- Ulrich Weinberg
- Konrad Becker
- Luc Courchesne
- Masaki Fujihat
- Matt Adams
- Robert Adrian X
- Toni Dove
- Ken Goldberg
- Claudia Giannetti
- David Rokeby
- Etoy
- Taki
- Graham Harwood
- Jill Scott
- Jane Prophet
- Kit Galloway
- Knowbotic Research

The table below presents the 18 artists' answers to my questionnaire.

Table 11: The Focused Questionnaire's results

No.	Artist's Name & Contact Information	Main Interest	The Artist's Response to the Questions
1	Christa Sommerer, christa.sommerer@ufg.ac.at Laurent Mignonneau laurent.mignonneau@ufg.ac.at	Media art and Interactive Design	**The Answer to Question (1):** Our work 'Life Species' produced in 1997 for the NTT-ICC collection used Internet-based interaction as a means to let worldwide Internet users produce artificially living creatures that lived and were shown at the NTT-ICC museum in Tokyo, where people also could physically interact with them. What was interesting for us at this time is how one could split up interaction into local and into global interaction, a distributed interaction that is still very much explored in ubiquitous computing and ambient intelligence systems. Another system we developed in 1998 was VERBARIUM where on-line users could create a virtual poetic garden, a kind of visualised diary that transforms text into growth shapes that can be visually experienced. Please see these two systems described at our website. An important aspect of both works is how distributed interaction can become a source for creating complexity on the internet. Please see some articles on Life Species and VERBARIUM and how they model complexity on the internet address here attached. **The Answer to Question (2)**: I would say that a lot of the early telematic art and metaphors in telecommunication art (Sherry Rabinowitz, Roy Ascott, Robert Adrian X/Heidi Grundmann, Paul Sermon, Lynn Hershman, etc. had a very strong impact on how net-based interaction and physical computing are merging these days and how we think of distributed bodies and distributed networks and how they are implemented into consumer products. http://www.interface.ufg.ac.at/christa-laurent/index.html

2	EDUARDO KAC ekac@artic.edu	interactive net installations and his bio art	**The Answer to Question (1)**: I started to create media art in 1983, although I had already some ASCII pieces in 1982. My first work online dates from 1985. In 1986 I launched telepresence art. From then on, I have been developing telepresence art, which branched/evolved into bio art and transgenic art. **The Answer to Question (2)**: My telepresence works (starting 1986) were the first to forge a synthesis between remote action and remote REAL PHYSICAL manifestation (beyond virtuality). If you look at the dates, you'll see that work of this kind by others comes essentially after 1993. Genesis merges telepresence art and transgenic art.
3	Gerfried Stocker info@aec.at	Media art, robotics and Telecomm-unication	**The Answer to Question (1)**: It's always hard to talk in such a way about one's own artwork, so I would like to answer this question more in general. And actually the answer is very short. Look at all the hype of web2.0 that is going on at the moment, and how excited everybody is to discover the Internet as a social realm ... that is exactly what all the artists who were working with electronic communication technology and later with digital networks had in mind, what they were envisioning. Many of these projects can be considered as prototypic arrangements to explore this social and participatory potential of digital communication. Shared and distributed authorship, real time exchange of content that is provided to be used, modified and further developed by others, all these are issues that were key in most of the network projects or telematic projects of the 80's and early 90's.But also in the field of mass media like TV you can find good examples. Van Gogh TV made already in 1990 their first reality TV project at Ars Electronica (Hotel Pompino) with artists living in a container village and broadcasting it live on TV with lots of interactive back-channels for the TV-audience ... that was long before Big Brother.

			The Answer to Question (2): So there would be a lot of reasons to say enthusiastically 'yes' to your questions. On the other side the problem remains that only very few people pay attention to the experiments of contemporary art and almost nobody outside of the arts listens to artists. So I wouldn't dare to say that we had 'major influence' on the development of the Internet - we just understood already much earlier what it's all about.
4	Golan Levin Golan@media.mit.edu	Digital Arts design, artefacts	**The Answer to Question (1)**: My work is completely speculative and it is not intended as a way of predicting or inventing future everyday technologies. **The Answer to Question (2)**: When I think of mass media models on the internet, I think of wikis, Flickr, delicious, blogs, Youtube. My work in no way predicted these. Possibly my project "secret lives of numbers" anticipated some other related projects, hard to say. http://www.flickr.com/, http://www.delicious-monster.com/ http://www.youtube.com/browse?s=mp http://www.turbulence.org/Works/nums/ http://www.myspace.com/ ,http://turbulence.org/Works/nums/
5	Jeffery Shaw http://www.jeffrey-shaw.net/html_main/frameset-works.php3	Interactive audio-visual installation	**The Answer to Question (1)**: You can decide for yourself after reading some early texts of mine (attachment), also look at texts I wrote for the ZKM catalogue THE NET CONDITION. **The Answer to Question (2)**: • Tele-virtual chit chat • The Distributed legible city • The tele-virtual fruit machine(Agnes Hegedus) http://www.mat.ucsb.edu/~g.legrady/academic/courses/01sp200a/students/enricaLovaglio/VRsite/authors/G.html

6	Jonah Brucker Cohen jonah@coin-operated.com	Networking, Telecomm-unications and network interaction	**The Answer to Question (1)**: My work examines the proliferation of networks in society and popular culture. This includes methods in which networks are used, disseminated, and referenced through normal occurrences in everyday life and by the media. I try to examine everything from the 'rules' associated with networked experiences to the embedded metaphors of networks - from naming conventions to our increasing daily dependence and interaction with electronic technologies. I'm interested in how these systems are used and why they exist in their current design and implementation. In particular, my projects question and critically examine the relationships between networks and how they exist as both utilitarian tools for communication as well as social delimiters for interaction in public spaces. **The Answer to Question (2)**: Even with the most thorough research methods and methodologies, it is extremely difficult to 'prove' if any work that I've done, or that any other artists have done, has had a major (or any) influence on modern forms of communication or the Internet itself. The intent with a few of my works is to critically engage with existing forms of online communication and experience, but knowing if this intent has been reached is almost impossible outside of a closed, sterile, or quantifiable research environment. For instance, the intent with my 'Bump List' project was to shift people's perceptions of the rules associated with email lists and other forms of online communication. The 'Bump List' was billed as 'An Email Community for the Determined' and only supported a maximum amount of six total subscribers. When a new person joined the list, they would bump off the seventh member. Over the course of a year, the project had a few hundred thousand subscriptions, including dozens of users who 'invented' ways of subverting the rule system to achieve a more coherent form of communication. Despite all of these 'workarounds', users created to subvert the existing system, it is impossible

			to prove whether or not the original system actually changed the way that people communicated in the long term. The project did, however, initiate a discussion amongst users on the list about the benefits and constraints associated with current forms of email lists and there were even some suggestions people came up with about ways to tailor these forms of communication to encourage discussions amongst users on particular lists or in specific communities. So there is evidence that people were interested in using systems like the Bump List to alter their existing methods of online discussion, but since the project was a closed system, it is hard to know what their output might have been if it had been customised to their purpose. See (http://www.coin-operated.com/)
7	Ken Rinaldo Rinaldo.@osu.edu	interactive robotics, biological art, artificial life, interspecies communica-tion, rapid prototyping and digital imaging	**The Answer to Question (1)**: My works are primarily inspired by natural living systems, the ultimate matter, energy and information processing networks. Installation works such as Autopoiesis 2000 or the Autotelematic Spider Bots 2006 are two examples of works that demonstrate artistic expressions and demonstrations of non-linear and self-organizing distributed robotic systems. Truth is that my favourite magazine is the New Scientist and I get most of my artistic inspiration from reading this pub, Scientific American, physorg.com, and the scientific research, which has given rise to my artistic expressions, is often the same research, which has given rise to the massively parallel distributed computing systems, which are both the precursors and foundation of our distributed network culture. **The Answer to Question (2)**: I am not sure what you are asking here. If you want to rephrase this question I am glad to take a second stab at it.
8	Ken Feingold / info@kenfeingold.com	Computer Art and new media arts	**The Answer to Question (1)**: Perhaps I was just one of the people with a better sense of what was ahead. Something smelled like the future. I don't really consider my work to be a precursor of anything, just something I do in the time and place I am in.

			It's not as if my work was well-known or part of mass culture - there were just a small number of us going to these festivals and exhibitions and we made the work for each other, more or less. **The Answer to Question (2)**: I think it is very hard to speak of art works influencing mass media or mass culture. Of course, they do ... but how? In the way that everything is connected to everything else, sure, but directly? The threads are invisible. If I make a puppet with a video camera in its eye, a picture of it appears in Newsweek, and then a stuffed bear comes out with a video camera in its eye, is it my influence? I tend to think not. More likely the toy designer and I had the same idea, or maybe the designer saw the picture and forgot about it, or maybe I saw something I forgot! Who knows? Good luck with your research. My remark: 'Historical' is easily confused with 'Hysterical'. (John Baldessari, early 70's)
9	Lynn Hershman / hotwirelh@aol.com	Photography, video, film, instillation, interactive computer and net-based media art	**The Answer to Question (1)**: My work anticipated digital technology, reproduction, human machine interaction and public space, probably ranging from the Dante Hotel. Check out http://presence.stanford.edu:3455/Collaboratory/946 **The Answer to Question (2)**: I am working now on massive distribution of a political film using all internet possibilities, think Tillie the telerobotic doll, or the de 3 was a model of surveillance and capture as well. check out my writing on these at http://www.lynnhershman.com http://lynnhershman.com/tillie/We.html http://www.agentruby.com/indexflash.html
10	MICHAEL NAIMARK *michael@naimark.net*	Cinematography, interactive systems, and immersive projection	**The Answer to Question (1)**: Whatever pioneering work to which I may have contributed was around immersive mediated experiences, particularly around sense of presence and sense of place. I envision a day when networks will be able to pipe around immersive experiences live, but we're not quite there yet. for example:

			Google vr webcam. **The Answer to Question (2)**: Certainly lots from other artists. The closest for me may be around stopping cameras (ironically, given my answer to Q1). Google camera zapper http://www.naimark.net/feelingluckystory.html http://www.naimark.net/
12	Mark Amerika amerika@altx.com	Digital Media Arts, Internet arts	**The Answer to Question (1)**: My own practice anticipated blogging (my Amerika Online column), net art (GRAMMATRON, PHON:E:ME), web cinema (FILMTEXT), podcasting (ALT-X Audio), and other forms that are now just taken for granted as part of mainstream culture. In an odd twist of fate, early net artists help "legitimate" what are now mainstream net art and social networking practices. This means that the idea of inventing personas for the digital flux so that we can watch our online identities fluidly drift through the networked space of flows is now something any myspacer or facebooker does automatically as a way to project their image, their digital image. We did not have that luxury. It was not automatic, but maybe prophetic. **The Answer to Question (2)**: Alt-X has had a major influence because it was building a community of interest around personal expression, especially those interested in inventing new forms of electronic literature and digital art. We provided a platform for that alternative. D-I-Y network of activity. Once the net audience saw how we did that, then we switched it up on them and started releasing wild new net art works like GRAMMATRON and BEAST (TM) and a few others you can find in the Hyper-X section. Other artists were doing this too, but usually as individuals, like Mark Napier, Ben Benjamin, Yael Kanarek, and Fake shop. http://www.markamerika.com/filmtext/ http://www.grammatron.com/, http://www.altx.com/ .
13	Paul DeMarinis demarini@stanford.edu	Arts, music and computer installations	**The Answer to Question (1)**: No.

			The Answer to Question (2): In early (mid 70's) artists who were onto the network culture idea: **a)** at Mills College Jim Horton and the League of Automatic Music Composers (Rich Gold, John Bischoff) which later (1980's) became the now legendary "The Hub" network band. **b)** in San Francisco Carl Loeffler's satellite based projects at La Mamelle gallery (late 1970's early 1980's) networked telematic. **c)** at MIT Joe Davis's (mid 1980's) modem based telematic channels.
14	Paul Sermon	pioneer in telematics art	**The Answer to Question (1):** One example of how my early artistic use of the net has influenced today's internet as follows: I started using computer networks as a creative arts platform back in the mid eighties when I was a student of Professor Roy Ascot. This was in the days before the internet and at that time there were only a small number of private computer networks and international government funded networks primarily used for military purposes. During the eighties a European government decision was made to provide free academic use of this network and earn (the European academic research network) was born. Similar provision was provided in other countries, such as BITNET in the USA. As a student I worked together with an artist Robert Pepperell trying to develop ways of using "EARN " to send images to artists in the US using BITNET. We had to develop elaborate software techniques to convert images into ASCII text code and send them as email messages to recipients in the US who would have to convert them from ASCII code back into images at the receiving end. One of the main difficulties we encountered at the time was that US ASCII code was slightly different to European ASCII code and we therefore had to make a request to the government owned Rutherford Labs, based in Oxfordshire - who handled all network traffic across - to standardize an international ASCII code. Sending images in this way was a completely new idea at the time, and the scientific research team based at Rutherford Labs never had such a request before and so

			were keen help out. It turns out the same standardized ASCII code they implemented for us is still used today for handling much of the internet traffic, which is ultimately the result of a couple of artists experimenting with creative networking projects early on before the establishment of the internet. Although this story doesn't directly propose my work as a precursor of the today's network, it does illustrate how artists' experiments can influence and shape the internet beyond the initial military intended uses of the network. This was exactly the reason Roy Ascott was proposing that artists need to engage with these new technologies at the time as he foresaw the internet explosion and argued artists like myself to shape and influence what was to come. **The Answer to Question (2):** There are certainly many specific examples of artists' projects that have been assimilated in today's internet. However, it's the collective activity that has been most influential. Network communities such as the WELL, established in the San Francisco Bay area in the early 80s is a model of many network communities created to day. Check out the WELL: http://www.well.com, http://www.well.com/aboutwell.html. (This is the most single important precursor of any network community today).
15	Roy Ascott roy.ascott@btinternet.com	pioneer of cybernetics and telematics in art whose work focuses on the impact of digital and telecom-munications arts	**The Answer to Questions (1) and (2):** I think you might find pertinent the observations of Eddie Shanken in his introductory essay to my book Telematic Embrace: http://www.amazon.co.uk/Telematic-Embrace-Visionary-Technology-Consciousness/dp/0520218035/sr=11-1/qid=1165529293/ref=sr_11_1/202-9444516-1899816 http://www.medienkunstnetz.de/works/la-plissure-du-texte/
16	Rafael Lozano Hemmer Rafael@lozano-	projections, sound, internet and cell-phone	**The Answer to Question (1)**: Not really, network culture was already there when I came in.

	hemmer.com	links	**The Answer to Question (2)**: Sorry can't think of any. Even though, for example, my Vectorial Elevation receives hundreds of thousands of participants every time it is exhibited I still would not consider it "mass media". http://www4.alzado.net/edintro.html
17	Simon Biggs simon@babar.demon.co.uk	Computer-based interactive installation, animation, CD-ROMs, the World Wide Web and related media.	**The Answer to Question (1)**: It is difficult to evaluate how my work prefigures that of other artists. It might have, but it might not have. I regard my work as pretty obscure and I doubt many are aware of it. That aside, I can see where some of my artworks have exploited techniques or articulated ideas before others were more generally using them. I do not think I would claim to have invented or done anything first, and I do not buy into that discourse anyway. The research I did at the CSIRO in Sydney in 1984 allowed me to develop methods and tools for interactive installation that have only come into more general use in the last few years. This was applied in early works such as Torso (1984) and Recombinant Figure (1985). Specific works I produced, such as Golem (1988), Alchemy (1990) and Pandemonium (1992), forged a link between ancient forms of representation and contemporary technology that seems to have been fashionable for some years more recently. Pieces such as Solitary (1992), Shadows (1993) and, more recently, Halo (1998) established and refined advanced interaction systems that other artists have since adopted. On the network side of things, works I made, such as Great Wall of China, were amongst the first on the web to use generative systems in interactive ways to extend the possibilities of what was until then a rather static medium composed of text and image. Babel (2001), a later work, seems to have been well received and is internationally regarded as a classic example of internet based artwork of the 1990's and thereafter. I am aware that some of my writing is in use on the curriculum of a number of universities in the USA and elsewhere and that it is cited in a variety of

			research and practice contexts. **The Answer to Question (2)**: It will not say much about my own work's influence on popular culture, although I have seen things, especially in pop-clips and TV advertising, that gave me a shiver down my back as it was pretty likely that whomever had made it had seen some work of mine from some period in the past. Personally I am ambivalent about this. Firstly I am upset as I see somebody else profiting from my work in a way that generally functions to trivialise it. On the other hand, I think all knowledge and artefacts are there to be shared and that free use of material encourages innovation and development. Other artists that I think have had a real effect on the mass media version of the Internet would include Vuk Cosic (ASCII TV), The Yes Men (fake sites and appropriation), JoDi (visual style), Stelarc and Symbiotic (reconfiguring the human). There are many others I could name (and probably should) but off the top of my head this is a selection of the type of artists that tend to make work that has effects beyond the insular art world. http://www.littlepig.org.uk/
18	Stelarc stelarc@va.com.au	Human interaction with technological tools	**The Answer to Questions (1) and (2)**: These are actually very difficult questions to answer as they are not directly related to my work as such. They require a subjective view about my work in relation to others and the historical development of the net and I'm not really the best person to analyse that. Also, much of my work had to do with medical imaging, prosthetics and robotics which is not directly related to net culture.The 3 www performances, Fractal Flesh, Ping Body and Parasite explored the body performing involuntarily, remotely and with its being telematically scaled. The body becomes an extended operational system performing beyond the boundaries of its skin and beyond the local space it inhabits.

The results of this questionnaire were very useful, as I acquired insight into how the artists evaluate their artworks and the other artists' works, and I got their

perception of the artworks that they considered to be precursors of today's network culture, as well as the artworks that they think have had a major influence or a recurrence as a mass media model on the current Internet.

Hence, I decided to choose the following artworks to be my research case studies. (The full details about the following artworks and the rationalities of choosing them are provided in the next section).

1. The Pleasure of Text, 1983, (Roy Ascott)
2. Van Gogh TV, Piazza Virtuale,1990, (Karel Dudesek)
3. Telematic Dreaming, 1992, (Paul Sermon)
4. TerraVision, 1994, (ART+COM)
5. Avatars, 1996, (Bruce Damer)
6. Vectorial Elevation, 1999, (Rafael Lozano-Hemmer)
7. The Living Web, 2002, (Christa Sommerer, Laurent Mignonneau)

It is worth mentioning that some of the artworks are not accessible online, such as: The Pleasure of Text, Van Gogh TV, Piazza Virtuale, Telematic Dreaming, TerraVision and The Living Web. However, I decided to choose them as case studies because these artworks represent a very important example of Internet artwork, and I cannot neglect them just because they are not available online. Therefore, I tried hard to provide all the main information that explains these artworks to avoid any problem with the user responses towards these artworks.

I built a website (www.amani-alhalwachi.com) that includes all the important information about the artists and their artworks (the research case studies).

I added hyperlinks to the main websites that provide more in-depth information about these artworks. I then informed the participants of my online questionnaire; that they should read the information about the different artworks before they start answering the questions. See more details about user access to the questionnaire on page 120.

3.7.1 The Pleasure of Text, 1983, (Roy Ascott)

Table 12 : The Pleasure of Text - main information

The artwork location	**The Pleasure of Text - 1983** The project was produced as part of the "Electra" exhibition organised in 1983 by Frank Popper for the Musée d'Art Moderne de la Ville in Paris.
The artist	**Roy Ascott** A British artist, pioneering the place of cybernetics and telematics in art, he has been working with issues of art, technology and consciousness since the 1960s. He directs the Planetary Collegium from the University of Plymouth, which he founded (originally as CAiiA at the University of Wales Newport) in 1994. He is Visiting Professor in Design Media Arts, University of California, Los Angeles. He has held senior university posts in the US, Austria, Canada and the UK. Also, he is founding editor of Technoetic Arts and advises journals, juries and new media centres in Brazil, China, Japan, Korea, North America and Europe. His theoretical work is published in many languages. Source: The official website of (planetary-collegium) : (http://www.planetary-collegium.net/people/detail/ra, 2007)
The work's summary	Ascott's proposal was to use the ARTEX network both as an organising instrument and as a textual medium for the creation of a world-wide, distributed narrative - a collective global fairy tale. The project allowed Ascott and his collaborators at eleven locations in the United States, Canada, Europe and Australia to experiment with what the artist has termed 'Distributed Authorship'. Each remote location represented a character in the 'planetary fairy tale' and participated in the collective creating and contributing of texts. La Plissure du Texte was active on line 24 hours a day for 12 days - from December 11 to 23, 1983 - and every location should have an identical copy of the complete text. (Ascott, 2003).

Synchronisation - Store-and-forward - Real-time, - Both real time, archive (recorded)	Includes both real time and archive (Recorded)
The system type (Open, Closed)	Open System
The rationale for choosing this work as a case study	This artwork reflects a new human communication angle. It represents an important experience about sharing the practice of creativity, as the global artists who were involved in this experiment presented themselves as different characters at different geographical sites to create one message. They were all the owner of the same piece of artwork - what might be called 'The distributed authorship'.
The work's URL	http://www.telematic.walkerart.org/timeline/timeline_ascott.html

3.7.2 Van Gogh TV, Piazza Virtuale, 1993 - (Karel Dudesek)

Table 13: Piazza Virtuale - Case study main information

Name of the artwork	**Piazza Virtuale, 1993** was broadcast over ZDF (the famous German broadcaster), from a cluster of temporary container buildings erected in a town square in Kassel, Germany
Name of the artist	**Karel Dudesek** is a British performance artist, musician, TV and radio activist. Currently he is professor at the Ravensbourne College of Design and Communication, London, leading the postgraduate courses in Interactive Digital Media and Networked Media Environments. Dudesek became known with Minus Delta, IUPA, Van Gogh TV and the Ponton Media Lab. Source: The official website of (Prix Ars Electronica): http://www.aec.at/en/archives/index.asp, (2007).
The work's summary	For 100 days, anyone with a telephone and a TV within broadcast range could take part in 'free-wheelin'. 'The piazza or town square used to be the centre of urban life. People came together to talk, play, buy, sell, make music and paint. It is this exchange, this dialogue, which lends the square its life, colour and resonance'. The 'virtual piazza' is based on the idea of TV as a piazza whose communications processes reach the screen by way of electronic networks. Anyone can get involved at home: TV as dialogue, 'Piazza virtuale' is a step in the direction of the media art of the future, in which interactive TV will provide an important collective form of expression. As a creative outline for interactive TV, 'Piazza virtuale' invites the viewers to help make the programme. For this purpose a computer-generated presentation mode was designed which can combine text, stills, video, computer animation, sound and music on and for the TV screen and can be accessed directly from home using a touch-tone phone. Source: The official website of (Prix Ars Electronica): (http://www.aec.at/en/archives/index.asp,2007)

Synchronisation -Store-and-forward - Real-time, - Both real time, archive (recorded)	Includes both the Real time and archive (recorded)
The system type (Open, Closed)	Open System
The rationale for choosing this work as a case study	This work of art reflects human social communication through and with more than one type of technological form. This experiment enables the individuals to participate with television and to send what they think through the telephone's touch tone and electronic networks. This experiment is like an early version of an interactive TV online.
The work's URL	Not available at present

3.7.3 Telematic Dreaming, 1992, (Paul Sermon)

Table 14: Telematic Dreaming - Case study - main information

The artwork	**Telematic Dreaming – 1992** Originally produced in June, 1992, as a commission for the annual summer exhibition curated by the Finnish Ministry of Culture in Kajaani, Finland
The artist	**Paul Sermon** is a British leading pioneer of telematic art and performance. He studied for a BA (Hons) Fine Art degree under Professor Roy Ascott at The University of Wales, from September 1985 to June 1988. He studied for a postgraduate MFA degree at The University of Reading, England, from October 1989 to June 1991. He was awarded the Prix Ars Electronica 'Golden Nica', in the category of interactive art, for the hyper media installation 'Think about the People now', in Linz, Austria, September 1991. Since June 2000 he has been based at The University of Salford working primarily within the research field of immersive and expanded telematic environments. Since the early 1990s, Paul Sermon's practice-based research in the field of contemporary media arts has centered on the creative use of telecommunication technologies. Source: The official website of Paul Sermon: http://www.hgb-leipzig.de/~sermon/, (2007)
The work's summary	This is an installation that exists within the ISDN digital telephone network. Two separate interfaces are located in separate locations. These interfaces in themselves are dynamic installations that function as customised video-conferencing systems. A double bed is located within both locations, one in a blacked out space and the other in an illuminated space. The bed in the light location has a camera situated directly above it, sending a live video image of the bed and a person ('A') lying on it, to a video projector located above the other bed in the blacked out location.

	The live video image is projected down on to the bed with another person ('B') on it. A second camera, next to the video projector, sends a live video image of the projection of person 'A' with person 'B' back to a series of monitors that surround the bed and person 'A' in the illuminated location. The telepresented image functions like a mirror that reflects one person within another person's reflection. Source: The official website of (Telematic dreaming): http://www.hgb-leipzig.de/~sermon, (2007)
Synchronisation -Store-and-forward - Real-time, - Both real time, archive (recorded)	Real time
The system type (Open, Closed)	Open System
The rationale for choosing this work as a case study	This art work reflects many aspects of human physical communication through the technological system, as the sense of human intimacy, which is considered to be the most vibrant and vital part of the human body, is explored by the eyes. It is like feeling the heat of touching by means of your eyes. This singular experiment represents how human communication can be so complex with this unique exchange of the role of human senses.
The work's URL	http://www.hgb-leipzig.de/~sermon/

3.7.4 TerraVision, 1994, (ART+COM)

Table 15: TerraVision - Case study - main information

Name of the artwork	**TerraVision – 1994** It was shown at Siggraph and exhibited at the SGI showroom. Sponsored by Deutsche Telekom Berkom, Berlin.
Name of the artist	**ART+COM** was founded in 1988 by designers, scientists, artists and technicians as a registered association. The company's aim at that time has remained unchanged to the present day which is to explore the future of all new media, of whatever discipline, and to implement them in project applications. Source: The Official website of (ART+ COM): (http://www.artcom.de, 2007)
The work's summary	This is the first system to present visualisation and unlimited freedom of navigation within an infinitely large spatial data environment. Providing visuals ranging from overviews of the Earth to extremely detailed movements in buildings, it is a self-contained, virtual reality, one-to-one representation of the Earth. By means of a stylised globe, users can zoom in on any location in the world and obtain minutely detailed pictures. (Virtual earth). The system offers satellite images, aerial photos and geographically referenced data of all types - e.g. topographical or architectural schematic representations. Source: The official website of (TerraVision): (http://www.artcom.de, 2007)
Synchronisation -Store-and-forward - Real-time, - Both real time, archive (recorded)	Store and forward
The system type (Open, Closed)	Closed System
The rationale for choosing this work as a case study	This artwork reflects the idea of communication with the actual geographical places from the movement of icons, and how it is possible for the first time in human history to use a simple move of the fingers to see the natural geographical place in the earth and to navigate through the different parts as though you were walking inside them.
The work's URL	http://www.artcom.de/index.php?lang=en&option=com_acprojects&id=5&Itemid=144&page=6

3.7.5 Avatars, 1996, (Bruce Damer)

Table 16: Avatars - Case study - main information

Name of the artwork	**Avatars, 1996** Three-dimensional, virtual worlds online.
Name of the artist	**Bruce Damer** is an American visiting scholar at the University of Washington HIT Lab and, through Digital Space, is engaged in innovative projects with such partners as NASA and Adobe Systems Inc. He holds an MSEE from the University of Southern California and a BSc from the University of Victoria in Canada. Bruce formerly served as chief technologist at Elixir Technologies Corporation . Bruce was in the field of optical computing, beginning in 1984 at the IBM Canada Toronto Laboratory and at the IBM Thomas J. Watson Research Centre and then continuing as a graduate student at the USC Optical Materials and Devices Laboratory. Bruce co-directs a research and development consortium bringing virtual worlds and communities to the net. Source: The Official website of (Bruce Damer) (http://www.damer.com,2007)
The work's summary	These artworks are communities growing inside two- and three-dimensional, virtual worlds online. Some virtual worlds contain large three-dimensional cities, others are space stations, marketplaces, stages and weird places that do not look like anything in the real world. Hundreds or even thousands of people are visiting these worlds, exploring, communicating and creating. Every one of these people has chosen a digital body, a kind of virtual persona called an Avatar. Source: The Official website of (Avatars): (http://www.digitalspace.com/avatars/book/fullbook/index.htm#front 2007)
Synchronisation - Store-and-forward - Real-time - Both real time, archive (recorded)	Includes both the Real time and archive (recorded)
The system type (Open, Closed)	Open System
The rationale for choosing this work as a case study	This work of art reflects one of the earlier experiments in human communication in digital societies in three-dimensional digital characters which enables the individuals to imagine themselves in a digital body and to interact with other people in the cyberspace
The work's URL	http://www.digitalspace.com/avatars/book/fullbook/appendix/projects.htm

3.7.6 Vectorial Elevation, 1999, (Rafael Lozano-Hemmer)

Table 17: Vectorial Elevation - Case study - main information

Name of the artwork	**Vectorial Elevation, 1999** Interactive art project, created a cyberlink between Cyberspace world (Internet) and Mexico City's Zócalo Square.
Name of the artist	**Rafael Lozano-Hemmer**: A Mexican-Canadian artist, in 1989 he received a B.Sc. in Physical Chemistry from Concordia University in Montréal, Canada. He is an Electronic artist who develops large-scale interactive installations in public spaces, usually deploying new technologies and custom-made physical interfaces, using robotics, projections, sound, internet and cell-phone links, sensors and other devices. Source: The Official website of (Rafael Lozano-Hemmer): http://www.lozano-hemmer.com/einfo.html
The work's summary	With the arrival of the year 2000, Mexico City's Zócalo Square was transformed by immense light sculptures created by participants on the Internet using a virtual reality program, which allowed thousands of people from 89 countries to control 18 robotic searchlights with 126,000 watts of power to link with Cyberspace. This website allowed you to design enormous light sculptures in the sky over the city of Dublin, using 22 robotic searchlights placed around O'Connell Street. The beams of light were visible at a distance of15 kilometres; every 14 seconds a new design was displayed as it arrived from the Internet. At the present time, this website includes a program with a virtual model of downtown Dublin where you can direct the searchlights and view the resulting matrix of light from any angle. Currently this program is operative but since the lights are no longer in the city it will simply search the archive for the five designs closest to the one the user submitted. The system made a web page documenting each design and wrote an email to the participant when it was done. Source: The Official website of (Vectorial Elevation): (http://www4.alzado.net/edinformacion.html,2007)

Synchronisation -Store-and-forward - Real-time - Both real time, archive (recorded)	Includes both the Real time and archive (recorded)
The system type (Open, Closed)	Open System
The rationale for choosing this work as a case study	This artwork reflects human communication between the online and offline communities. This remarkable experiment allows people from different geographical sites to interact with people in real life by changing the direction of light sculptures through a virtual reality program on the internet.
The work's URL	http://www.alzado.net/

3.7.7 The Living Web, 2002, (Christa Sommerer, Laurent Mignonneau)

Table 18: The Living Web - Case study - main information

Name of the artwork	**The Living Web, 2002** interactive and immersive installation using internet technology, presented in ANIMAX Theatre, Bonn at the Art of Immersion Media Art Festival in Germany
Name of the artist	**Christa Sommerer and Laurent Mignonneau:** Christa Sommerer born 1964 in Austria, Laurent Mignonneau born 1967 in Angouleme, France. They are internationally renowned media artists working in the field of interactive computer installation. They are Professors at the University of Art and Design in Linz, Austria, where they head the Department for Interface Culture at the Institute for Media. Sommerer and Mignonneau previously held positions as Professors at the IAMAS International Academy of Media Arts and Sciences in Gifu, Japan and as Researchers and Artistic Directors at the ATR Media Integration and Communications Research Lab in Kyoto, Japan. They also were Visiting Researchers at the MIT CAVS in Cambridge US, the Beckmann Institute in Champaign Urbana, IL, US and the NTT-Intercommunication Centre in Tokyo. Source: The Official website of Christa Sommerer and Laurent Mignonneau): (http://www.interface.ufg.ac.at/christa-laurent/BIOGRAPHY/Biographylong.html,2007)
The work's summary	This CAVE-based interactive and immersive installation explores the potential of the world-wide web as an interactive data and information medium. Today, information on the Internet is presented in a standard fashion, as defined by the currently available image browsers. In "The Living Web" users can immerse themselves physically and in 3D into the image and sound information streamed "live" from the Internet. Microphones pick up the users' conversations and use them to generate and download corresponding image and sound files from the web.

	Users can furthermore interact with these data through intuitive interfaces and explore their content in more detail. Source: The Official website of (The Living Web): (http://www.interface.ufg.ac.at/christa-laurent/WORKS/FRAMES/FrameSet.html, 2007)
Synchronisation -Store-and-forward - Real-time - Both Real time, archive (recorded)	Includes both the Real time and archive (recorded)
The system type (Open, Closed)	Open System
The rationale for choosing this work as a case study	This artwork reflects a new and promising way of communication with the internet. As its inventors suggested three-dimensional walls to visualise the internet contents, the individual will be able to participate via the internet through his/her full body instead of the hands and eyes only.
The work's URL	http://www.interface.ufg.ac.at/christalaurent/WORKS/FRAMES/FrameSet.html

3.8 Research Methods

3.8.1 The Online Questionnaire Structure

I chose to conduct an online questionnaire because I believe that it is the most applicable type to the nature of my research, hence the research participants are taken more from people who are familiar with technology. There are other advantages besides, and, of course, this kind of mode has its limitations (disadvantages). Therefore, I have clarified both in the following tables:

Table 19: Online Questionnaire – Advantages and Limitations

Advantages of online questionnaires	Limitations of online questionnaires
• The internet is more accessible to a large population in a relatively short space of time. (Sapford and Jupp, 2006) • The respondent could fill in the questionnaire whenever he/she decided. • It would be better than the paper-based questionnaire, because the researcher could guarantee via questionnaire software that every respondent could only submit their form electronically by filling in all the items, as a study by Fontana and Frey (2003), cited by Schaefer and Dilman (1998) stated that 'email surveys achieved similar response rates to mail surveys but generated better quality in terms of item completions'.	• Sapford and Jupp (2006) pointed out that online surveying allows some level of targeting but makes it more difficult to demonstrate population validity. However, they also clarified that one way of warranting this is by including a large sample in order to minimise sample bias. Therefore, and in order to avoid this, I sent the online questionnaire to more than 300 people.

The research questionnaire type is called a self-administrated questionnaire, which means that the respondents complete them on their own. Nardi (2005) stated that self-administered questionnaires allow for more standardisation of the question and increase reliability, as the researcher is not influencing the participant by explaining the items in different ways to different respondents. He also added

that this kind of questionnaire is best designed for investigating attitudes and opinions that are not usually observable.

I conducted an online questionnaire, in order to obtain insight about:

1. The user's attitude towards internet art generally and the research case studies particularly.
2. The user's understanding of the internet art projects (research case studies)
3. The user's awareness of the technological system's role in representing the artwork.
4. The user's understanding of the artist's role in presenting his/her artwork.

The results of this questionnaire will help to answer the research's minor questions:

- Does the user think that they grasp the idea (concept) of the internet artwork?

- Does the user think that the internet artist should be part of the communication process with the artwork?

- Is the user aware of the effectiveness of the Internet (technological system) in their communication with the work?

Afterwards, the results of these questions will help in attaining the research objective and identify the relationship between the Internet artist and:

d. The internet artwork (concept)
e. The Internet (technological system)
f. The user

As my questionnaire aims to explore the attitude of the internet arts user, the structure of the questions is based on the 'Likert scale' which identifies the extent of a person's beliefs, attitude or feelings toward the subject (Frey et. al., 2000). The questions are mainly closed-ended questions (statements form) in which an answer is selected from a list pre-selected by the researcher, the answers being on a scale which ranges from 'strongly agree' to 'strongly disagree' (Please refer to a sample questionnaire in Appendix 1).

Robson (1993) stated that the Likert scale is very widely used and has the added advantage of being relatively easy to develop. He also added that items in the Likert scale can look interesting to the respondent and people often enjoy completing it.

Robson's point of view is that this is important not only because if people are interested they are likely to give considered rather than unthinking answers but also because people in many situations may, not unreasonably, just not be prepared to co-operate in something that appears uninteresting.

The questionnaire consisted of 14 questions. The first three related to the topics of Age, Gender, and Education. It is worth mentioning that my purpose in indicating these aspects is to identify general demographic information on my participants. I am not intending to use them as main factors in my research. The other eleven questions are the main research focus.

I believe that in order to understand the rationalities of the questionnaire's questions, I should clarify its concerns, which are as follows:

General Concerns

These refer to the audience's attitude towards the internet artworks generally.

1. Do the users know about artworks that are similar to the case studies?
2. Are the users aware of the internet communication technology of famous works; Google Earth, MySpace, Youtube, Second life?

Specific Concerns

These refer to the users' understanding of the artworks in my research (the case studies) particularly (see next page):

1. Do the users come across or hear about any artworks?
   (the research case studies)
2. Do the users hear about the artists who created these artworks?
3. Do the users think that they understand the idea of each artwork?
4. Are the users aware of the technological system's role in representing the artworks?
5. Do the users think that this kind of art involves the human physical senses?
6. Do the users think that these artworks could be a unique phenomenon in the communication technology field?
7. Do the users think that the artist (the original creator of the work) should be engaged in the artwork, as part of the communication process with it?
8. How do the users describe their reactions towards the artworks?

The following concerns overleaf were included in the research questionnaires, as they will help to explain 'Level 2' in my initial proposed research model.

Table 20: Online Questionnaire – Concerns and statements (Alhalwachi, 2008)

The Research Concerns	The Questionnaire's Question(s) or Statement(s)
Are the users aware of the Internet's famous communication technology works: Google Earth, My Space, you tube, Second life?	**Have you heard of or seen any of the following online projects?**
Do the users come across or hear about any artworks (the research case studies)?	**Have you heard about these previous artworks (the research case studies) before?**
Do the users hear about the artists who created these artworks?	**Have you heard or read about the artists before?**
Do the users know about artworks that are similar to the case studies?	**There is a direct relationship between this artwork (research case studies) and any one of the following recent internet protocol developments: (Google Earth, YouTube, MySpace, and Second life).**
Do the users think that they understand the idea of each artwork?	**The theme and the content of the artwork (research case studies) are clear to me.**
Are the users aware of the technological system's role in representing the artworks?	**The technology in this art work (research case studies) is considered as a tool and is not directly related to the content of the artwork.** **The concept of this artwork (research case studies) is embodied in the telecommunication technology it uses.**
Do the users think that this kind of art involves the human physical senses?	**The artwork (research case studies) involves the audience at a multi- sensory level (human physical sense).**
Do the users think that these artworks could be a unique phenomenon in the communication technology field?	**The artwork (research case studies) is a unique ground-breaking development in the communication technology field.**
Do the users think that the artist (the original creator of the work) should be engaged in the artwork, as part of the communication process with the artwork?	**It is essential that the artist take an interactive role during the public presentation of this work.**
How do they describe their reaction towards artwork?	**How would you describe your response, after having looked at the following art-works (research case studies)?**

3.8.1.1 The relation between the research questions and the online questionnaire

The table below represents the relationship between the questionnaire's questions (statement) and my research questions: precisely the questions that relate to the user's communication with the artwork.

Table 21: The relation between the research questions and the online questionnaire

Research Questions (the three questions that are related to the user's attitude)	**The Questionnaire's Question(s) or Statement(s)**
Does the user think that they understand the idea (concept) of the internet artwork?	Have you heard of or seen any of the following online projects?
	Have you heard about these previous artworks (the research case studies) before?
	Have you heard or read about the artists before?
	The artwork (research case studies) is a unique ground-breaking development in the communications technology field
	The artwork (research case studies) involves the audience at a multi-sensory level (human physical sense).
	How would you describe your response, after having looked at the following artworks (research case studies)?
Is the user aware of the effectiveness of the Internet (technological system), in their communication with the artwork?	The technology in this artwork (research case studies) is considered as a tool and is not directly related to the content of the artwork.
	The concept of this artwork (research case studies) is embodied within the telecommunication technology it uses
Does the user think that the 'internet artist' should be a part of the communications process with the artwork?	It is essential that the artist take an interactive role during the public presentation of this work.

3.8.2 The Sample

There are two issues related to the questionnaire's sample. The first one is sample method and the other one is sample size. As my research follows the qualitative approach, the sampling method is purposeful. This type of sampling is focused on gaining a rich and in-depth understanding of the issues under investigation (Daymon and Holloway, 2002). There are many methods of this sampling, and each one of them could be suitable depending on the research aim and objectives.

I chose the **Homogeneous sampling** which consists of choosing individuals who belong to the same group or have similar characteristics (Daymon and Holloway, 2002). In my research, this group are people who are interested or who have a good background in new media arts projects or experiments, regardless of their age or gender. The reason for this is because the aim of the questionnaire is to explore the attitudes of individuals who are engaged in or familiar with new media arts projects and internet artworks experiments particularly. Therefore, it is logical to draw my samples exclusively from them.

In relation to the sample size, in the qualitative approach there is no certain rule or no formula exists to determine sample size (Patton, 2002) because the logic of the qualitative approach is to make analytical generalisation rather than statistical generalisation as in quantitative research.

I circulated the online questionnaire to more than 300 subjects (including creative arts students and academic professors, digital arts specialists and people from different fields who are interested) and I asked them in my email to send the questionnaire to people who are interested in such things.

User Access to the questionnaire:

I mentioned in my e-mail to the participants that they should firstly, go to my website (http://www.amani-alhalwachi.com/) to explore the general information about the research case studies, then they could fill in the research online questionnaire either from the same website or directly via the separate hyperlink (URL) that was provided at the bottom of the e-mail.

Also, I mentioned this in the introduction to the questionnaire in case they forgot or missed this note when they read my e-mail. Furthermore, when the participants read the questions 7, 8, 9, 10, 13 and 14 (which demanded more focus on the research case studies) they found a polite request to go back to my website and explore the cases again and re-read the information that could help them to determine their answers. I carried out all of these previous procedures to ensure that my participants had good access to the research case studies, which will result in more accurate answers to my research questions.

Ethical Issues in relation to the Questionnaire:

I should like to declare that I am fully aware of the ethical consideration in all of its level, whether in designing the questionnaire or during distribution and even after the data (returned questionnaire) have been collected. It is important to be careful to write a questionnaire without manipulating the phrasing and the order of questions to generate certain results.

Also, during the distribution process, the researcher should not know or try to learn the respondent's personal information or personal data. Additionally, when the final stage arrives and the researcher collects their research findings, it is essential that they do not change or manipulate the results, which would contaminate the final results of the research with false data.

3.8.3 Online Questionnaire: pilot study (pre-test)

The pilot study is a vital procedure when conducting a questionnaire as this research tool needs to be tested before it is applied in reality. As Robson (2000) said, a pilot study is a small-range version of real life. In order to test my questionnaire, I sent emails to ten people who had good backgrounds in creative technology, asking them to fill in my research questionnaire electronically using a hyperlink that is situated on my website.

After two weeks, I received their responses with their comments on the questionnaire and it was very useful.

In the following tables I present their comments and the amendments that I made directly to the questionnaire:

Table 22: Online Questionnaire – pilot study result

The Respondents' Comments	The Amendments
They find the procedure for accessing my questionnaire long drawn out, as they have to access my website first then choose the questionnaire link.	I made a direct link to the questionnaire.
Some of the respondents found themselves uncertain of their own attitudes regarding some statements in the questionnaire.	I added the option 'don't know' to the questionnaire's scale range.
Some of the respondents found some of the vocabulary in the statements rather complex.	I re-phrased some words to make them simpler and more direct
I noticed that one of the submitted questionnaires was not fully completed.	I made changes in the questionnaire's setting to prevent the submission of any questionnaire with an incomplete question, and a short message to the respondent appeared reminding them to complete the missing question before they submitted the questionnaire electronically.

3.8.4 Research Methods: The Online Interviews

I decided to carry out online interviews because most of the artists in my research case studies live in different geographical areas such as Canada, Austria, Germany and the US. Moreover, as Sapford and Jupp (2006) confirmed, good results have been reported by researchers using the computer for immediate communication.

The intention was to conduct a semi-structured interview via sending the main questions and waiting for the artist's answers, and to send other questions arising from their answers. However, because the artists are busy they delayed in replying to my e-mails, therefore the interviews in my research appear in structured interview form.

The structured interviews are well organised and include all the important questions, and they take less time, compared with semi-structured or unstructured interviews. However, the main limitation of the structured interviews is that they are not flexible and generate less information than the semi-structured or unstructured interviews. I conducted the interviews, in order to obtain insight about:

- The artist's perceptions of his audience (user).
- The artist's awareness of the technological system's role in representing the artwork.
- The artist's intentions concerning his network art project.

The information resulting from these interviews will help to answer the research's minor questions:

- How does the internet artist think of their work? What are their intentions (concept)?

- How does the internet artist think about the Technological system's potential in relation of their work?

- How does the internet artist think about the users' responses to the internet artwork?

Afterwards, the answers to these questions will help to achieve the research objective which is to identify the relationship between the internet artist and:

- The internet artwork (concept)
- The Internet (technological system)
- The user

The following concerns were incorporated in the research interview's questions as they will help to explain Levels 1 and 3 in my proposed initial research model

- What are the artist's intentions regarding their artwork?

- Is the artist aware of the technological system's role in representing his artwork, or the kind of changes in using the same technology at the present time?

- What does the artist think about the user (audience)? Are they an essential part, past and present?

The Research Interview Questions

- Are the intentions of the artwork specific to the time when it was created, both culturally and socially? Or, how is the concept of the artwork dependent on the time when it was created?

- Has the significance of the technology changed since your first experiments with the artwork and do you think this is in any way connected with your early works?

- Do you think the users (audience) are as integral to the concept of the artwork today as they were when you first created it? If yes, have the public perceptions of the artwork changed since then?

3.9 Summary

I discussed the philosophical stance, and the methodical approach of my research, and then I presented the phased plan of the research, and clarified how I would apply the research methods, the online questionnaire and the online interviews to the research case studies. Also, I clarified how the research methods related to my research questions and aims. In the next chapter I will present the data that was generated through applying these methods.

4 The Findings

4.1 Introduction

In this chapter I will present the results of the research methods: the online interviews and the online questionnaire. The interviews were conducted with seven creators (artists), and I received answers from all of them. As for the online questionnaire, it was conducted with 300 participants, and I have received 111 responses.

4.2 The Online Interview Results

I sent the interview questions via e-mail to the following artists:

1. Roy Ascott (The pleasure of text)
2. Karel Dudesek (Van Gogh TV, Piazza Virtuale)
3. Paul Sermon (Telematic Dreaming)
4. ART+COM (TerraVision)
5. Bruce Damer (Avatars)
6. Rafael Lozano-Hemmer (Vectorial Elevation)
7. Christa Sommerer, Laurent Mignonneau (The Living Web)

The interviews consisted of three main questions:

- Are the intentions (of the artwork) specific to the time when it was created, both culturally and socially? Or, how is the concept of the artwork dependent on the time in which it was created?

- Has the significance (of the technology) changed since your first experiments (with the artwork) and do you think this is in any way connected with your early works?

- Do you think the users (audience) are as integral to the concept of the artwork today as they were when you first created it? If yes, have the public perceptions (of the artwork) changed since then?

It is worth mentioning that every artist answered the previous questions in a different way. Some of them answered the questions very briefly and some answered in a more focused, brief way and other more extensively. The complete interviews are presented in the following sections.

4.2.1 Online Interview with: Roy Ascott



Figure 4.1: Picture of the artwork 'The Pleasure of Text', by kind permission from Walker Art website.

Roy replied in brief answers, as shown below, and he said that it is better to read his article named 'Distance Makes the Art Grow Further: Distributed Authorship and Telematic Textuality' In 'La Plissure Du Texte', to extract the answers from it. Therefore, in the analysis chapter I summarised the main themes in his article and take out what could be an answer for my interview questions.

The Interview

Do you think the artistic intentions of 'The Pleasure of Text' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

(Roy Ascott's answer):The social dimension is relevant at all times, the concept of collaborative and distributed authorship also.

Do you think the audience are as integral to the concept of 'The Pleasure of Text' today as they were when you first created it? Have the public perceptions of the work changed since then?

(Roy Ascott's answer): There was very little personal online computing in the early eighties, so that public access through sites like the Museum of Modern Art in Paris, Art Gallery of New South Wales in Sidney etc. made sense at that time.

How has the significance of the ARTEX network changed since your first experiments with 'The Pleasure of Text' in 1983, and do you think this is in any way a result of your early pioneering work?

(Roy Ascott's answer): ARTEX ended in 1984. LPDT established the idea of telematic 'distributed authorship'.

4.2.2 Online Interview with: K a r e l D u d s e k



Figure 4.2: Pictures of the artwork 'Van Gogh TV – Piazza Virtuale', captured from Videocassette, by kind permission from Karel Dudesek.

The Interview

Do you think that the artistic intentions of 'Van Gogh TV – Piazza Virtuale' were specific to the time when it was created? Was the concept of the work reliant on this period of time?

(Karel Dudesek's answer): There were many intentions for Piazza Virtuale driven out of technical and electronic curiosity and questions about how far the technical and practical boundaries could be pushed.

Making television in those times (as well as today) was highly monopolized, and was either a government or commercial business. Unless you were not part of the 'power-eco-system' of TV, it would be impossible to get a programme on air.

There were political intentions as well, which came out of our aversion to, and against mainstream TV, which basically brainwashed its audience, serving up 'content' as a drug to keep the population quiet. Inspired by the Austrian philosopher Günther Anders – 'the theory of guilt'. There were also aesthetic intentions.

We were concerned with the challenge to design a screen surface which could accommodate the fast changing input of images and sounds, as well as network feeds from many places, sources and countries. Van Gogh TV's and Piazza Virtuale's intentions were always clear: the audience is the artist.

The Ponton European Media Art Lab produced other Van Gogh TV projects, where the artistic concern was played out differently than Piazza Virtuale. There were TV projects like Hotel Pompino (Linz, Ars Electronica 1990) which integrated live performance, but less the live audience. But finally, which in my opinion was the most sophisticated project, Ballroom TV (Berlin 1994), was completely composed of live performances from both the location and via phone, internet and videophones, and was set up specifically for audience participation.

The live mix combined all the live audio and video feeds from local cameras, video tapes, live music, and it was mixed together into a composite signal and broadcast live on Berlin's Cable TV.

There have been many social intentions in Van Gogh TV projects, to enable the viewer a digital stage and allow for some type of barter, on the screen. I am not sure if Piazza Virtuale could be repeated in these times. It would need an office full of solicitors, to avoid ending up either in jail, bankrupt, or both.

To make it clear, any technical evolution also needs a cultural, economic, social and political one. It makes little sense to have all the mobility, input - output and editing power when basically TV distribution and access is kept in similar isolation and under censorship.

Also in 2008 and beyond, the world needs Piazza Virtuale as a feature which is embedded in the available media broadcasting infrastructure. There is no need to change everything about television, but one - out of more than a hundred channels - should be similarly structured, free of the influenza of Hollywood and the commercial broadcast industry.

The ecology of today is not only regarding the glaciers which are melting down and the air pollution which is dangerous. We also need to acknowledge that the

mental environment is similarly full of garbage and has been poisoned for ages with a purely profit-oriented media industry: one that makes its audience dumb and stupid.

How can you relate the interactive live work you did in the 1990s, to the Internet today?

(Karel Dudesek's answer): YouTube is good. The difference is, that Van Gogh TV / Piazza Virtuale was live and instant. It was free TV, which so far no one else has achieved. YouTube is basically the same pre-digested content in a web 2.0 can, like video was. The only difference now is, that video is available on-line, as video on demand.

The technical developments today are pushing the envelope further and further, but with only a disconnected sense, as a solution for details. The process to develop a Gesamtkunstwerk such as Piazza Virtuale was, involved assembling and connecting all the available possibilities. This is barely done anymore by anybody.

None of us knew what would come out of the Van Gogh TV / Piazza Virtuale experiment; when we first proposed the concept to the broadcasters we gained access to. When we signed the contract, the director had a question: 'What happens if no one participates?' Someone of the VGTV team answered, "then the screen will remain black." We looked in his face and pure fear rose out of this answer: 'Hardware, software, nowhere'. Shutting off and starting your own system is what makes the difference.

Do you think that audiences are as integral to the concept of 'Van Gogh TV - Piazza Virtuale' today as they were when you first created the programme? Has the public's perceptions of the work changed since then?

(Karel Dudesek's answer): The idea of 'user generated content' was first introduced extensively by Van Gogh TV in Piazza Virtuale. A logical step in the process and progress of media's rapidly changing landscape, the developments of

How has Interactive TV changed since your first television experiments as Van Gogh TV, and especially Piazza Virtuale in 1992? What do you think is the significance of your early pioneering work?

(Karel Dudesek's answer): Interactive TV, like we introduced working as Van Gogh TV, has not been adopted by mainstream television. The iTV projects of the entertainment industry are torn between viewer numbers, production costs, legal obstacles, and therefore commercial viability.

In my view, iTV lost out on the potential to give a whole new role to TV audiences, to participate and contribute to an ongoing process of developing the media, and to create real community media.

Today iTV is more or less video and advertising on demand, and appears to be waiting for the next technological generation of the internet (IPTV), as well as hoping for significant hardware and software developments.

The project 'Piazza Virtuale' exhausted the technical and experimental interactive media possibilities which existed in 1992, and which have not changed much even now.

Yes, one huge advance is that we now have mobile phones which can create video sequences, and they can be sent directly to a broadcaster and seen immediately on TV.

However, the variety of modules which Van Gogh TV developed, like chat systems, video and ISDN phones, and cameras in public entry points, have only partially found their way into the commercial broadcasting shows of today.

Van Gogh TV's most important development was its radical multi-framing of images, and the multi-layering of inputs (including sound and text) which is a significant marker historically, and the inspiration for research and understanding about how multiple screen information can be read and consumed by viewers.

The Piazza Virtuale broadcast was a patchwork of incoming information: faxes, text messages, videos, pictures, sounds, noises and voices which created a vivid surface, one that clearly visualised an invisible cloud of information and the massive amount of content and information which surrounds us all, permanently. Someone referred to this broadcast cacophony as 'electronic wallpaper'.

The segmented screen design made only a slight impact on broadcast formats, but was quickly absorbed by early internet applications, in the 1990s.

4.2.3 Online Interview with: P a u l S e r m o n



Figure 4.3: Picture of the artwork 'Telematic Dreaming', by kind permission from Paul Sermon

The Interview

Do you think the artistic intentions of 'Telematic Dreaming' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

(Paul Sermon's answer): When I created Telematic Dreaming in 1992, the world was undergoing a major shift in technical perceptions.

Virtual Reality had just arrived, the first steps into cyberspace were being made and words such as 'telepresence' were starting to appear.

It was a very exciting time and Telematic Dreaming was at the centre of that. Fortunately, the work was never tied to a specific software and technical shelf life. As a concept it has continued to be exhibited, over 25 times around the world

since its development, audience perceptions of the technology have probably changed, but their deeper understanding of the work has remained at the forefront.

Do you think the audience are as integral to the concept of 'Telematic Dreaming' today as they were when you first created it? Have the public's perceptions of the work changed since then?

(Paul Sermon's answer): The audience have always and will continue to be, integral to the concept of Telematic Dreaming. The audience are the artwork.

However, perceptions have changed. And as videoconferencing has become ubiquitous the 'wow factor' of the technology has settled, and the content and potential for meaningful communication has become more important.

How has the significance of videoconferencing changed since your first experiments with 'Telematic Dreaming', in 1992, and do you think this is in any way a result of your early pioneering work?

(Paul Sermon's answer): The technical world of video conferencing has changed significantly since my first experiments in the early '90s, which existed as point-to-point systems using fixed connections over digital telephone lines (ISDN), and was at that time extremely expensive to use and purchase.

In the early '90s there were only handful of commercial developers, usually national telephone companies such as British Telecom, AT&T, France Telecom etc., who all directed there sales towards business use, which tended to define and prescribe their use.

However, with the introduction of broadband internet connections at a consumer level a lot has changed and Internet based videoconferencing has brought the price down very low and software is now sometimes freeware and the entire advertising pitch has shifted from business to consumer markets. Apple have marketed their iChat AV videoconferencing software (free with their operating system OSX) entirely towards the family use, using the image of grandparents talking to grandchildren on the other side of the world as the marketing model.

4.2.4 Online Interview with: A R T + C O M



Figure 4.4: Picture of the artwork 'TerraVision', by kind permission of ART+COM.

The Interview

It is worth mentioning that 'Joachim Sauter' has answered the interview questions on behalf of ART+COM group.

Do you think the artistic intentions of 'TerraVision' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

(ART+COM's answer): At the beginning it was not an artistic project. It was a design-driven, development and research project. The art world invited it in because of its social and political relevance.

I think that it was not reliant on the period of time. It was a little bit too early and only possible because of lucky conditions (The right people being together at the right moment with the right equipment and a vision).

Do you think the audience are as integral to the concept of 'TerraVision' today as they were when you first created it? Has the public's perceptions of the work changed since then?

(ART+COM's answer): I can't answer the question because development stopped at the end of the '90s.

How has the significance of satellite technology changed since your first experiments with 'TerraVision' in 1994, and do you think this is in any way a result of your early pioneering work?

(ART+COM's answer): As we all know, 'Google Earth' is one of the most bespoken applications of the last year. The relevance to the society is enormous. We learn our environment nowadays not only through moving through it horizontally.

Now we do it also vertically. And we can see it changing through time. When we did TerraVison this kind of application was only for a small community (it had been a research project, not a product).

As we learned from the Google Earth people, TerraVision was the initial motivation for that. We showed it in '95 at Siggraph and exhibited it at the SGI showroom. Motivated by that developers from SGI then created their own system which became Keyhole which was then sold to Google and became Google Earth.

4.2.5 Online Interview with: B r u c e D a m e r



Figure 4.5: Picture of the artwork 'Avatars', by kind permission from Bruce Damer

The Interview

Do you think the artistic intentions of 'Avatars' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

(Bruce Damer's answer): Avatars have a deeper history than the mid-1990s, having a presence in the Habitat Project at Lucasfilm a decade earlier, and presaged by Maze War of the 1970s. You can see a recent column for ACM interactions and the art journal 'intellect' at: [http://www.digitalspace.com/papers/intellect07/] for some of this background.

In this way, avatars have appeared on the scene multiple times, and for multiple reasons (driven by the available technology). The avatar 'Cambrian explosion' of the mid-1990s was particular to the availability of dial-up internet connections on personal computers capable of a decent resolution graphical interface and in some cases, 3D rendering. So you saw a richness of expression of these platforms at the time. So the artistic intentions were well expressed.

Individual platform creators and users helped fill the niches with different designs not possible in the earlier Habitat or Maze War.

Today one could argue there is only an increment of more artistic expression than a decade ago. There is much more resolution and animation capability with today's 3D graphics cards, but the forms of expression tend to be not as flamboyantly different as those of the mid-1990s.

My whole 1997 book is available online and describes this era pretty well from a platform and artistic expression basis:
http:// www.digitalspace.com/avatars/book/fullbook/index.htm
(This compares and contrasts the graphical and design treatment of these early platforms.)

Do you think the audience are as integral to the concept of 'Avatars' today as they were when you first created it? Have the public's perceptions of the work changed since then?

(Bruce Damer's answer): If you mean the audience of users of Avatar enabled shared graphical worlds, then my answer is ' yes'. 'Social' virtual worlds as contrasted with 'Game Play' worlds are about the users creating their own realities and acting out roles in that reality. So the audience is the platform.

This is as true for 'Second Life' today as it was for Active Worlds a decade ago. Today, public perceptions are much more informed about avatars and virtual worlds than ten years ago. The recent wave of publicity lead by Second Life has made 'avatar' a household term (at least in terms of its Cyberspace usage). Overall I think the public perception is positive, if a bit quizzical.

How has the significance of the Internet changed since your first experiments with 'Avatars in 1996', and do you think this is in any way a result of your early pioneering work?

(Bruce Damer's answer): Avatars in 1995-96 represented one of the only ways online to have a real-time presence (other than IRC) and preceded the emergence of instant messaging and other forms (first voice-over IP).

Avatars and virtual worlds also represented the first way to have a directed social network in the middle 90s and encouraged the development of community websites. In a way, therefore, 1990s avatars and their worlds and communities presaged the development of today's social network technologies (MySpace, Facebook etc) as well as real time communications systems (IM, Skype, texting) and, of course, the 'second coming' of social virtual worlds (Second Life, There, IMVU, etc.).

4.2.6 Online Interview with: R a f a e l L o z a n o – H e m m e



Figure 4.6: Picture of the artwork 'Vectorial Elevation', by kind permission from Rafael Lozano-Hemme

The Interview

Do you think the artistic intentions of 'Vectorial Elevation' are specific to the time when it was created? And is the concept of the work reliant on this period of time?

(Rafael Lozano-Hemme's answer): No, neither really specific nor reliant on the time, other than the fact that the technologies used to accomplish the project were readily available in 1999 (servo-motor control, GPS tracking, Java 3d applets, DMX control, webcams, etc). The API we used for the 3D simulations, for example, was from a company that went bankrupt in 2002...but the 3D engine can be changed. So long as the concept remains consistent, the result is not specific to the tools in this particular project (I do have other projects that depend on their technological platform, but that is another story).

Do you think the audience are as integral to the concept of 'Vectorial Elevation' today as they were when you first created it? Have the public perceptions of the work changed since then?

(Rafael Lozano-Hemme's answer): Participation is still absolutely essential for Vectorial Elevation to exist so, yes, the audience is still an integral part of the artwork. In 1999 only 1 per cent of Mexicans had internet access, today the number is closer to 30-40 per cent, so in that sense access has become more widespread and projects that require net participation benefit from being considered less 'elitist' (understood as both financial and/or technical elites).

How has the significance of the Internet changed since your first experiments with 'Vectorial Elevation' in 1999, and do you think this is in any way a result of your early pioneering work?

(Rafael Lozano-Hemme's answer): For better and for worse the internet became more mainstream. Though an explosion of user-generated content did in fact occur, something which in my opinion is mostly a positive development, corporate conglomerates and central governments found ways to 'monetise' the network, to censor it, and encourage massive consumption. My work had very little effect with any of these developments.

4.2.7 Online Interview with: Christa Sommerer And Laurent Mignonneau



Figure 4.7: Picture of the artwork 'The Living Web', by kind permission from Christa Sommerer and Laurent Mignonneau

The Interview

Do you think the artistic intentions of 'The Living Web' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

(Christa Sommerer and Laurent Mignonneau 's answer): The main concept of 'The Living Web' was to provide a new and more intuitive and immersive way to browse the Internet through multi-modal interaction, speech recognition, and multi-touch systems. Please see this paper of VSMM 2002 [1] here attached for all the exact descriptions.

To come back to your question: yes, the previous works on innovative and intuitive interface design (Interactive Plant Growing 1992, A-Volve 1994, Phototropy 1995, etc) have helped us to come up with ideas of designing systems that don't use the

mouse-and-keyboard metaphor for interactions but to build new interaction scenarios where the users interaction data are more closely linked to open-ended and emerging image and sound structures.

Do you think the audience are as integral to the concept of 'The Living Web' today as they were when you first created it? Have the public perceptions of the work changed since then?

(Christa Sommerer and Laurent Mignonneau 's answer)): Yes, absolutely, in all of our works the active audience is very important as they actually initiate, trigger and direct all the interactions. Without the audience there would be no interaction and no images and no sounds.

In the case of 'The Living Web' images and sounds only appear when users speak and thus create keywords that lead to downloading images and sounds from the Internet. As the vocabulary is not restricted, users can speak about anything and retrieve the vastest amount of images from the Internet. It is a totally open system where multi-modal interaction is a key element to experience the complexity of the Internet.

How has the significance of the Internet changed since your first experiments with 'The Living Web' in 2002, and do you think this is in any way a result of your early pioneering work?

(Christa Sommerer and Laurent Mignonneau's answer): We think that not so much has changed since 2000. In everyday human computer interactions we still use screens and keyboards to interact with the Internet. Only recently, multi-touch systems have become popular (see I-phone, etc.) even though these ideas have been developed long ago (we actually have a patent on multi-touch image browsing systems in Japan).

See also [2].'Riding the Net' (2000), 'The Living Room' (2001) and 'The Living Web' (2002) have all proposed new and more intuitive way to browse the Internet. Interestingly, the idea of 'Riding the Net' (2000) to using speech recognition,

intuitive image browsing and sound output to let users intuitively browse the Internet through visualized conversations resurfaced one year after we presented "Riding the Net" at Siggraph 2000 [4], in the science fiction thriller "Minority Report" [3], where the main protagonist interacts with projected images and sounds in a simulated multi-touch interactive web browsing system, extremely similar to what Sommerer and Mignonneau presented a year earlier.

[1] C. Sommerer, L. Mignonneau, and R. Lopez-Gulliver, "Interfacing the Web: Multi-modal and Immersive Interaction with the Internet", VSMM 2002 - 7th International Conference on Virtual Systems and MultiMedia, Conference Proceedings (Korea), pp. 753-764. 2002.

[2] The Art and Science of Interface and Interaction Design – Vol. 1 (2008), Editors: C.Sommerer, L.C. Jain, L. Mignonneau, Publisher: Springer Verlag Heidelberg.

[3] Sommerer, C., Mignonneau, L., Lopez-Gulliver, R.:Riding the Net. In: Siggraph 2001 Conference Abstracts and Applications, p. 133. ACM Siggraph, New York(2001).

[4] Minority Report (December 2002) Actors: Tom Cruise, Colin Farrell, Arye Gross, Jessica Harper, Patrick Kilpatrick, Caroline Lagerfelt, Studio: Dreamworks Video; based on: Dick, P.K.: The Minority Report and Other Classic Stories, Citadel (May 2002).

4.3 The Online Questionnaire Results

The following statistical tables are the results of the online questionnaire, which was launched over two months, from 15th October 2007 until 15th December 2007. This questionnaire has been distributed through e-mail to more than 300 respondents (including creative arts students and academic professors, digital arts specialists, and people who are interested, from other fields). I asked them in my email to send the questionnaire to people who are interested in such things. From the distribution process I gained a total of 111 responses.

The general demographic attributes for my online questionnaire's participants:

Table 23: Online Questionnaire Findings – Age of Participants

Age	Percentage
Less than 20	18.9 %
20-30	18. %
31-40	22.5 %
41-50	19.8 %
More than 50	20.7 %

Table 24: Online Questionnaire Findings – Gender of Participants

Gender	Percentage
Female	47.7%
Male	52.3%

Table 25: Online Questionnaire Findings – Education of Participants

Education	Percentage
Less than high school	18.9 %
High School	23.4 %
Bachelor	28.8 %
Post-graduate	28.8 %

Table 26: Online Questionnaire Findings - Question 4

The following table is explored. Did the users come across or hear about any artwork from the research case studies?

4. Have you heard about these previous artworks (the research case studies) before?	
Statements	**Percentage**
Yes, I have seen all of these works before	18.9 %
Yes, I have seen some of those works before.	23.4 %
No, however I have seen something similar to these works	28.8 %
No, I have not seen either these art works or similar to them	28.8 %

Table 27: Online Questionnaire Findings - Question 5

The following table is explored; Are the users aware of the Internet communication technology's famous works: Google Earth, MySpace, YouTube, and Second Life?

5. Have you heard or seen any of the following online projects?		
Online Project	**Answer Percentages**	
	yes	**No**
Google Earth	(73.87%)	(26.13%)
YouTube	(81.98%)	(18.02%)
MySpace	(71.17%)	(28.83%)
Second life	(74.77%)	(25.23%)

Table 28: Online Questionnaire Findings - Question 6

The following table is explored. Have they heard about the artists who created these works?

6. Have you heard or read about any of the following artists before?		
Artists' names	**Answer Percentages**	
	yes	**No**
ART+COM	62 (55.86%)	49 (44.14%)
Bruce Damer	40 (36.04%)	71 (63.96%)
Karel Dudesek	47 (42.34%)	64 (57.66%)
Paul Sermon	46 (41.44%)	65 (58.56%)
Roy Ascott	54 (48.65%)	57 (51.35%)
Rafael Lozano-Hemmer	48 (43.24%)	63 (56.76%)
Christa Sommerer and Laurent Mignonneau	47 (42.34%)	64 (57.66%)

Table 29: Online Questionnaire Findings - Question 7

The following table is explored: Do they think that these artworks could be a unique phenomenon in the communication technology field?

7. The artwork (research case studies) is a unique ground-breaking development in the communication technology field.					
Artwork names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The Pleasure of Text	(27.03%)	(48.65%)	(12.61%)	(6.31%)	(5.41%)
Van Gogh TV, Piazza Virtuale	(20.72%)	(49.55%)	(14.41%)	(11.71%)	(3.60%)
TerraVision	(21.62%)	(46.85%)	(17.12%)	(11.71%)	(2.70%)
Telematic Dreaming	(27.03%)	(41.44%)	(18.92%)	(9.91%)	(2.70%)
Avatars	(24.32%)	(42.34%)	(21.62%)	(8.11%)	(3.60%)
Vectorial Elevation	(25.23%)	(46.85%)	(15.32%)	(9.01%)	(3.60%)
The Living Web	(29.73%)	(44.14%)	(15.32%)	(8.11%)	(2.70%)

Table 30: Online Questionnaire Findings - Questions 8

The following tables are explored: Are they aware of the role of the medium's technology in representing the artwork?

8. The concept of this artwork (research case studies) is embodied in the telecommunication technology it uses.					
Artwork names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The Pleasure of Text	(7.21%)	(29.73%)	(29.73%)	(29.73%)	(3.60%)
Van Gogh TV, Piazza Virtuale	(6.31%)	(29.73%)	(30.63%)	(30.63%)	(2.70%)
TerraVision	(8.11%)	(28.83%)	(29.73%)	(29.73%)	(3.60%)
Telematic Dreaming	(8.11%)	(27.93%)	(30.63%)	(29.73%)	(3.60%)
Avatars	(10.81%)	(26.13%)	(29.73%)	(29.73%)	(3.60%)
Vectorial Elevation	(9.91%)	(27.03%)	(27.93%)	(31.53%)	(3.60%)
The Living Web	(9.91%)	(27.93%)	(28.83%)	(29.73%)	(3.60%)

Table 31: Online Questionnaire Findings- Question 9

9. The technology in this artwork (research case studies) is considered as a tool and is not directly related to the content of the artwork.					
Artwork names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The Pleasure of Text	(7.21%)	(12.61%)	(36.04%)	(36.94%)	(7.21%)
Van Gogh TV, Piazza Virtuale	(4.50%)	(17.12%)	(31.53%)	(36.94%)	(9.91%)
Terravision	(6.31%)	(20.72%)	(24.32%)	(40.54%)	(8.11%)
Telematic Dreaming	(4.50%)	(18.02%)	(22.52%)	(45.05%)	(9.91%)
Avatars	(6.31%)	(18.92%)	(26.13%)	(39.64%)	(9.01%)
Vectorial Elevation	(6.31%)	(18.02%)	(24.32%)	(41.44%)	(9.91%)
The Living Web	(6.31%)	(16.22%)	(24.32%)	(45.05%)	(8.11%)

Table 32: Online Questionnaire Findings - Question 10

Do the users think that the artist (the original creator of the work) should be engaged in the artwork, as part of the communication process with the artwork?

10. It is essential that the artist takes an interactive role during the public presentation of this work.					
Artwork names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The Pleasure of Text	(6.31%)	(27.93%)	(24.32%)	(35.14%)	(6.31%)
Van Gogh TV, Piazza Virtuale	(5.41%)	(21.62%)	(23.42%)	(43.24%)	(6.31%)
TerraVision	(2.70%)	(18.02%)	(25.23%)	(48.65%)	(5.41%)
Telematic Dreaming	(3.60%)	(16.22%)	(23.42%)	(47.75%)	(9.01%)
Avatars	(3.60%)	(14.41%)	(25.23%)	(50.45%)	(6.31%)
Vectorial Elevation	(3.60%)	(15.32%)	(22.52%)	(49.55%)	(9.01%)
The Living Web	(3.60%)	(14.41%)	(22.52%)	(54.05%)	(5.41%)

Table 33: Online Questionnaire Findings - Question 11

Do they think that this kind of art involved the human physical senses of the user?

11. The artwork (research case studies) involves the audience at a multi-sensory level (of the human physical senses).					
Artwork names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The Pleasure of Text	(7.21%)	(54.95%)	(23.42%)	(9.91%)	(4.50%)
Van Gogh TV, Piazza Virtuale	(17.12%)	(47.75%)	(18.92%)	(13.51%)	(2.70%)
TerraVision	(16.22%)	(49.55%)	(18.92%)	(11.71%)	(3.60%)
Telematic Dreaming	(44.14%)	(37.84%)	(9.01%)	(5.41%)	(3.60%)
Avatars	(26.13%)	(49.55%)	(16.22%)	(3.60%)	(4.50%)
Vectorial Elevation	(26.13%)	(49.55%)	(15.32%)	(4.50%)	(4.50%)
The Living Web	(35.14%)	(45.05%)	(12.61%)	(1.80%)	(5.41%)

Table 34 - Online Questionnaire Findings - Question 12

The following table is explored: Do they think that they understand the idea of the artwork?

12. The theme and the content of the artwork (research case studies) are clear to me.					
Artwork names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The Pleasure of Text	(22.52%)	(64.86%)	(7.21%)	(3.60%)	(1.80%)
Van Gogh TV, Piazza Virtuale	(18.02%)	(65.77%)	(10.81%)	(3.60%)	(1.80%)
TerraVision	(20.72%)	(67.57%)	(3.60%)	(5.41%)	(2.70%)
Telematic Dreaming	(20.72%)	(70.27%)	(0.90%)	(5.41%)	(2.70%)
Avatars	(24.32%)	(68.47%)	(2.70%)	(2.70%)	(1.80%)
Vectorial Elevation	(23.42%)	(64.86%)	(5.41%)	(2.70%)	(3.60%)
The Living Web	(24.32%)	(63.96%)	(3.60%)	(4.50%)	(3.60%)

Table 35 - Online Questionnaire Findings - Question 13

The following table is explored: do the users find any similarities between the research case studies and the recent internet protocol development: (Google Earth, YouTube, MySpace and Second life?

13. There is a direct relationship between this art work (research case studies) and any one of the following recent internet protocol development: (Google Earth, You Tube, My Space and Second life).					
Artworks' names	**Strongly Agree**	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**
The pleasure of Text	(15.71%)	(20.00%)	(52.86%)	(7.14%)	(4.29%)
Van Gogh TV, Piazza Virtuale	(26.32%)	(11.84%)	(51.32%)	(5.26%)	(5.26%)
TerraVision	(74.73%)	(9.89%)	(9.89%)	(2.20%)	(3.30%)
Telematic Dreaming	(30.14%)	(6.85%)	(49.32%)	(8.22%)	(5.48%)
Avatars	(71.59%)	(12.50%)	(10.23%)	(3.41%)	(2.27%)
Vectorial Elevation	(16.67%)	(6.94%)	(62.50%)	(8.33%)	(5.56%)
The Living Web	(11.59%)	(11.59%)	(65.22%)	(7.25%)	(4.35%)

Table 36 - Online Questionnaire Findings - Question 14

The following table is explored: How do they describe their reaction towards the artwork?

14. How would you describe your response, after having looked at to the following artworks (research case studies)?					
Art works' names	**Very impressed**	**Impressed**	**Interested**	**No specific response**	**Not interested**
The pleasure of Text	(23.42%)	(33.33%)	(13.51%)	(22.52%)	(7.21%)
Van Gogh TV, Piazza Virtuale	(12.61%)	(28.83%)	(25.23%)	(26.13%)	(7.21%)
Terravision	(13.51%)	(27.93%)	(24.32%)	(27.03%)	(7.21%)
Telematic Dreaming	(15.32%)	(27.93%)	(22.52%)	(26.13%)	(8.11%)
Avatars	(18.02%)	(22.52%)	(24.32%)	(22.52%)	(12.61%)
Vectorial Elevation	(18.92%)	(24.32%)	(23.42%)	(23.42%)	(9.91%)
The Living Web	(22.52%)	(22.52%)	(20.72%)	(27.03%)	(7.21%)

4.4 Summary

I presented the results of the online interviews in the dialogue form, and I presented the artists' answers exactly as they wrote them to me in the e-mails. As for the online questionnaire, I presented the results in tables that included the percentages for the participants' answers for the different questions of the questionnaire. In the next chapter I will discuses extensively the previous results.

5 The Analysis and Discussion

5.1 Introduction

This chapter will include the discussion of the online interview results and the online questionnaire results: the output of the both methods add an important insight to the research. This because it is essential to explain the characteristics of the three levels in the proposed communication model, and this afterwards will show me the way to make the final version of the communication model. Hence, this in turn will make me answer the research's major question. The table below shows the interrelations between the interview outputs and the communication model, as it will explain the characteristics of level 1 and level 3 of the communication model.

Table 37: The Contribution of the Interview's Output to the Proposed Communication Model

The Interview's Questions	The Contribution of the Interview's output to the Proposed Communication Model
Are the intentions of (The artwork) specific to the time when it was created, both culturally and socially? Or, how is the concept of the artwork dependent on the time it was created?	**Level 1** The main elements: (internet artist, Internet artwork's concept, the technological system), In my research I suggested that the identifying the following concern will help in understanding the communication in this stage: -What are the Artist's intentions of his/her art work project? -Does the artist aware of the of the technological system role in representing his/her art work. -How the Artist thinks of his/her audience? Are they an integral part? **Level 3** The main elements: (internet artist, the artwork) In my research I suggested that the exploring the following concern will help in understanding the communication in this stage: - Is the concept of the recent artist's artwork related to their early network art project? - Is the artist aware of the of the technological system's changes. Did these changes come about as a result of their early artwork? - How does the artist thinks of the user? Are they an integral part in their future work, as in their early work?
Do you think the audience is as integral to the concept of the artwork today as when they were when you first created it? If yes, have the public's perceptions of the artwork changed since then?	
Has the significance of the technology changed since your first experiments with the artwork, and do you think this is in anyway connected with your early works?	

The below table explains the relationship between the questionnaire's output and the proposed communication model for level 2 of the model

Table 38: The contribution of the questionnaire's output to the proposed communication model.

The Questionnaire's Questions	The Contribution of the Questionnaire's Output to the Proposed Communication Model
Have you heard or seen any of the following online projects?	**Level 2** The main elements: refers to the communication elements that appear in this level (The user and Internet artwork combined with the technological system) The characteristics: refers to the main attributes that explain the communication in this particular level (wherein the user communicates with the artwork). • The user's understanding of the artwork project • The user's awareness of the technological system's role in representing the artwork • The user's understandings of the artist's role in presenting their work.
Have you heard about these previous artworks (the research case studies) before?	
Have you heard or read about any of the following artists before?	
There is a direct relationship between this artwork (research case studies) and any one of the following recent Internet protocol developments: (Google Earth, YouTube, MySpace, and Second Life). If you don't have an idea about the previous works, please go to the next question.	
The theme and the content of the artwork (research case study) are clear to me.	
The technology in this artwork (research case study) is considered as a tool and is not directly related to the content of the artwork. The concept of this artwork (research case study) is embodied in the telecommunication technology it uses.	
The artwork (research case study) involves the audience at a multi-sensory level (human physical sense).	
The artwork (research case study) is a unique ground-breaking development in the communications technology field.	
It is essential that the artist takes an interactive role during the public presentation of this work.	
How would you describe your response, after having looked at the following artworks (research case studies)?	

5.2 The Discussion of the Online Interview Results

I will discussed the interview results for the research case studies in order to identify the artist's relationship with the artwork, the technological system, and the user in level (1) and level (3) of communication levels, according to my proposed communication model.

5.2.1 Roy Ascott - (The Pleasure of Text)

Through his telematic journey which has taken him from Vienna to Toronto, and from the deepest part of the Mato Gross in Brazil to Japan, Australia and Korea, Roy Ascot has crystallized many concepts about art, mind, myths, the semantic and the conscious.

Through his creative artwork 'The Pleasure of Text' he brought to the artistic and esoteric practice a new notion and named it 'The distributed authorship'. In the following passage of text, I will demonstrate how Ascott communicates his idea to this artwork and the path to do it, through what I extracted from what he wrote in the book's chapter entitled 'Distance Makes the Art Grow Further: Distributed Authorship and Telematic Textuality' (in La Plissure du Texte"[11]), and from his brief answers to my questions as well.

Artwork Name: The Pleasure of Text; the French name (La Plissure du Text)

Artist Name: Roy Ascott

Technological System Type: ARTEX Network[12]

The Descriptive Structure of the Artwork

La Plissure du Texte was active online from 11/12/1983 to 23/12/1983, and for twenty-four hours a day for twelve days. In eleven cities, the network included local networks of artists, friends, and random members of the general public who would visiting the Museum of Art Space in France, where the artwork was located. (Ascott, 2005).

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[11] Ascott, R. 2005. Distance Makes the Art Grow Further: Distributed Authorship and Telematic Textuality In La Plissure du Texte. In: A. Chandler and N. Neumark (eds), At a Distance: Precursors to Art and Activism on the Internet. Cambridge, Mass, MIT Press. pp 282-29

[12] ARTEX Network :is an electronic-mail program for artists on the worldwide (Ascott, 2005)

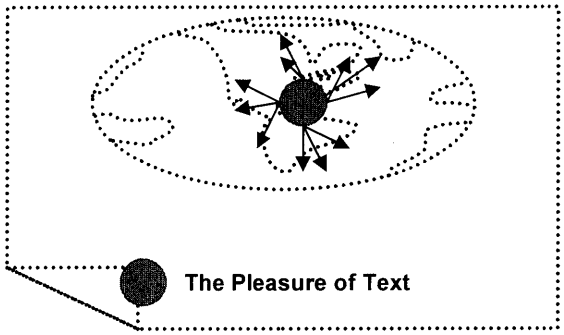


Figure 5.1 Sketch of 'The Pleasure of the Text'

The Discussion

Do you think the artistic intentions of 'The Pleasure of Text' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

Ascott's brief answer was that the social dimension is relevant at all times, and also the concept of collaborative and distributed authorship. Nevertheless, a better understanding of Roy's artistic intention of this artwork and how the concept of his artwork related to time when it was created, could be extracted from his writing in 'Distance Makes the Art Grow Further: Distributed Authorship and Telematic Textuality In La Plissure du Texte; which I formulated from the writing in the following phases:

Phase 1: The path to the 'Pleasure of Text' artwork:

> Text means tissue; but whereas hitherto we have always taken this tissue as a product, a ready made veil, behind which lies, more or less hidden, meaning (truth) we are now emphasising, in the tissue, the generative idea that the text is made, is worked out in a perpetual interweaving; lost in this tissue—this texture—the subject unmakes himself, like a spider dissolving in the constructive secretions of its web. Roland Barthes (1970, cited by Ascott 2005)

Ascott's artistic intention for the 'LPDT' is influenced by Roland Barthes' previous canonical statement, as he introduces his chapter by saying that the previous statement indeed informs the 'LPDT' artwork. This explain Ascott's tendency to convey a meaning that lies beyond the text or what Barthes called it the 'tissue', and it is also explains why his artwork could be interpreted from different perspective.

Ascott (2005) stated that the modern science and technology is the other factor that exerted a huge influence on his thoughts. The metaphors of biology infiltrated his visual thinking, precisely, the 'Cybernetics'[13] which led him to LPDT, and prepared him for the telematic revelation.

Phase 2: The making of the 'Pleasure of Text' artwork:

Ascott's interest in signs, in semiotics, and in myths was also fed by Vladimir Propp's study of narrative structure and the morphology of the fairy tale. Ascott thinks that Propp's investigation of folk tales required a number of fundamental elements at the surface of the narrative. He showed how these elements corresponded to different types of action.

According to Ascott (2005) Propp's structural analysis of the 'dramatis personae', and his focus on behaviour that recognised that actions are more important than the agents, chimed well with Ascott's interest in process and system.

> I was especially attracted to the idea that each character actually represented a centre of action more than a simple persona, and that whatever specifics of a given magical narrative, the protagonist, from a state of initial harmony, follows a sequence of actions: discovers a lack, goes on a quest, finds helpers/opponents, is given tests, is rewarded, or a new lack develops. (Ascott, 2005, p.288)

In LPDT, each participant was allocated the role of traditional fairy tale character: princess, witch, fairy godmother, prince, etc. Ascott did not suggest a storyline and the artists were basically asked to manage or create with out a certain plot.

Phase3: The 'Pleasure of Text': Artwork for the past and the present

The singular situations of this artwork are that the narrative evolved in a more nonlinear way, as every artist contributes to the text in their own way. Also, every one of them colours the text with different flavours. Also, the narrative's text is written from inside the narrative, as it were, with each dramatis persona seen within themselves as the protagonist.

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[13] Cybernetics is the term stems from the Greek Κυβερνήτης (kybernētēs, steersman, governor, pilot, or rudder — the same root as government). Cybernetics is a broad field of study, but the essential goal of cybernetics is to understand and define the functions and processes of systems that have goals. (Wiener,1948)

This means that every artist feels that their piece of text is at the centre of action. However, all of the artists are sharing the authorship of the whole text.

Moreover, as a result of the differences between time zones and the nature of improvisation, the narrative often overlapped and fragmented, leading into a multiplicity of directions. There are no more continuous lines in this extraordinary narrative. Even though one beginning exists in the text, there are multiple directions with multiple conclusions.

The LPDT artwork also includes two notions. These are the idea of nonlinear narrative, and distributed authorship. These two concepts are still relayed in our present time, for example: the online narrative, and interactive narrative.

This means that Ascott's artistic intentions for his artwork are not specific only to the time it was created, and the concept of distributed authorship could be applied to the present as well as the past.

Do you think the audience are as integral to the concept of 'The Pleasure of Text' today as they were when you first created it? Have the public's perceptions of the work changed since then?

Ascott's brief answer was that there was very little personal online computing in the early eighties, so as a result public access through sites like the Museum of Modern Art in Paris, the Art Gallery of New South Wales in Sidney etc, made sense at that time.

He described the user's participation with his artwork work like the following:

> Over the three-week period of the project hundreds of 'users' became involved in a massive intertext, the weaving of a textual tissue that could not be classified, even though ostensibly the project was to generate a 'planetary fairytale' (Ascott, 2005, p. 290)

Ascott considered the user or as he called it the 'viewer' as an integral part of the concept of the artwork, as he said in his following statement about the art practice of the telematic media:

> The concept of emergence and the principle of uncertainty must be evoked, since the processes involved are neither perspective nor deterministic - all is

> open ended, incomplete, and contingent, awaiting always the intervention and constructive collaboration of the viewer.
> (Ascott, 2003, p. 371)

Moreover, Ascott (2005) declared that the role of the artist had changed from the traditional role of producing content, as a 'context maker,' to providing a field of operations in which the user could become actively involved in the creation of meaning and in the shaping of experience that the artwork might take.

Ascott (2003) confirmed that this changing of the artist's role is the end of the historical sense of the artist's role as an 'honourable calling'. Also, the artwork is incomplete and waiting for the user's (viewer) interpretation. However, Ascott did not state anything in his writing about the changing of public perceptions of LDPT artwork.

How has the significance of the ARTEX network changed since your first experiments with 'The Pleasure of the Text' in 1983, and do you think this is in anyway a result of your early pioneering work?

Ascott's brief answer was that ARTEX ended in 1984. LPDT established the idea of telematic 'distributed authorship'. However, Ascott (2005) explained that the ARTEX system is an electronic-mail program for artists on the worldwide IP Sharp Associates (IPSA) time-sharing network. It was initiated as 'ARTBOX' in 1980 by the famous artist Robert Adrian X. He employed the ARTEX system for his artwork 'The World in 24 Hours'. Also, this system was created to offer artists a cheap and simple alternative to IPSA's business-oriented program, with the final version, ARTEX, being completed a few years later.

Ascott (2005) added that this system was an e-mail network for artists, a medium for text-based telecommunication projects, and a means of organising on-line events. During the ten years of its operation, about a dozen artists used it regularly, and anywhere from thirty to forty others might be involved at any one time. This means that the technological system which was used for LDPT was created for a certain period of time and ended in 1984 as Ascott stated. However, the singular concept of 'distributed authorship' still exists in many forms in our present time.

5.2.2 Karel Dudesek (Van Gogh TV / Piazza Virtuale)

> The Piazza is a special feature from the Dokumenta IX in Kassel, thanking all the people, all hard - and software suppliers, and proudly announcing that they were switched into Lithuania, Latvia, Russia and a couple of other eastern European countries. It is broadcast by the largest German TV station. (Mulder, 1992, p.4).

This was the first early version of interactive TV. It connected the TV with the telephone, it turned the TV's screen in to a computer monitor, and it predicted the arrival of the last television generation, the iPTV.[14]

Artwork Name: 'Piazza Virtuale' is part of Van Gogh's TV projects which are three projects; the hotel Pampino, Piazza Virtuale and Ballroom TV.

Artist Name: Karel Dudesek

Technological System Type: Interactive TV using digital telephone lines (ISDN)

Descriptive Structure of the Artwork:

This work was active for 100 days in Germany. It was a computer-generated presentation mode, which had the ability to combine text, stills, video, computer animation, sound and music on for the TV screen. The user could access it directly from home using a touch-tone phone.

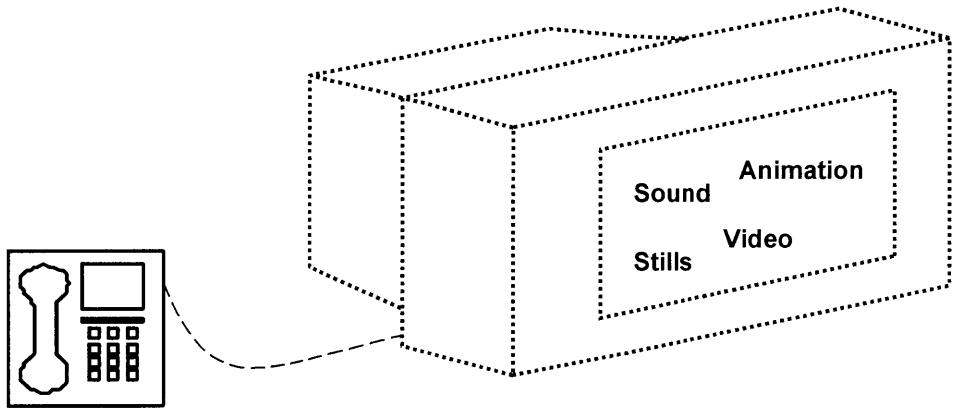


Figure 5.2: Sketch of 'Van Gogh TV – Piazza Virtuale'

[14] iPTV is stand for Internet Protocol Television (Wilson ,2008)

The Discussion

Do you think that the artistic intentions of 'Van Gogh TV – Piazza Virtuale' were specific to the time when it was created? Was the concept of the work reliant on this period of time?

Dudesek stated that there were many intentions for Piazza Virtuale driven out of technical and electronic interest. He was concerned with the challenge of designing a screen surface which could accommodate the fast changing input of images and sounds, as well as network feeds from many places, sources and countries.

Also, he clarified that there had been many social intentions in Van Gogh TV projects, such as those enabling the viewer a digital stage, and allowing for some type of barter, on the screen.

Dudesek said that the world needs Piazza Virtuale in 2008 and beyond as a feature which is embedded in the available media broadcasting infrastructure. He added that there is no need to change everything about television, but one out of more than a hundred channels should be similarly structured, and should be free of the 'Hollywood' impact, and the commercial broadcasting industry.

Dudesek thinks that making television in 1990s as well as today was either a government or commercial business and unless you were not part of what he called it the 'power-eco-system' of TV, it would be impossible to get a program on air.

Therefore, beside the aesthetic intentions of his artwork, there were political intentions as well, which come out of his aversion to and against mainstream TV. He thinks that is about basically serving up 'content' as a drag to keep the people quit.

Dudesek strongly believes that the technical evolution also needs a cultural, economic, social and political one. And it is ironic that in our present time we have all the mobility either in the input stage or the output stage and not to mention the

editing power. Nevertheless, the TV distribution and access is kept in similar isolation under censorship.

Dudesek declared that when we first proposed the concept of this artwork to the broadcasters, neither him nor his colleagues knew what would come out of the Van Gogh TV / Piazza Virtuale experiment.

He thinks that technical developments nowadays are pushing the envelope further and further, but with only a 'disconnected sense', as a solution for details. However, he thinks that is not the case for his artwork. And the process to develop Piazza Virtuale involved assembling and connecting all the available possibilities. Dudesek confirmed that this thing is barely done in our present day.

I think that the expression 'disconnected sense' is a little bit ambiguous, but I assume he is referring to the sense of there being one 'soul' in the artwork, especially that the recent artworks have lots of separate details and elements. One of the aesthetics is to make all of these different elements like one set, and with one spirit.

He gives an example of 'YouTube' and considers that the main difference between it and Van Gogh TV / Piazza Virtuale is that it was live and instant and it was free TV, which Dudesek considers it as a thing no one else has achieved. Also, he thinks that 'YouTube' has basically the same pre-digested content in a web 2.0[15] can, like video was. The only difference now is, that video is available online, as is video on demand.

Do you think that audiences are as integral to the concept of 'Van Gogh TV - Piazza Virtuale' today as they were when you first created the programme? Has the public's perceptions of the work changed since then?

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[15] The evolution of Web 2.0 includes the development of social networking sites (My Space.com, Facebook and LinkedIn) video and photo-sharing sites (including YouTube and Flickr), and collaborative Wiki platforms and products (such as Wikipedia and the Internet browser Mozilla Firefox). The common thread among all these strategies gets at the heart of what Web 2.0 defines as interaction, sharing, and community building (Enright, 2007, p.22).

Dudesek, when emphasising the 'user' role, said that 'the audience is the artist'. He also declared that the idea of 'user generated content' was first introduced extensively by Van Gogh TV in Piazza Virtuale. He insisted that all media needs an audience, and are produced for audiences, otherwise they do not make sense.

Also he considers that the creators should be responsible for how they use the technological tools in their relationship with the audience, and an ethical consideration must be taken in their account seriously.

Dudesek said that It was always important that we did not betray the audience with shiny and glossy artificial dream worlds. We did not promote the desire of industrially produced entertainment, which could have lead to an 'accelerated, and exiting live' Piazza Virtuale.

He raised the following question: 'For what reason are you using the chance to reach out via television?'

Dudesek stated that the audience or as he called them the 'viewers' in the time of his artwork were so enthusiastic to get involve in this singular experience, as he said that they hit the 1 million mark, and visitors came from all over Germany to visit Piazza Virtuale in person, just to experience the place of action. He explained that the reason for the viewer's enthusiasm is that they felt for the first time the burden of television.

Although, Dudesek admits that the viewer is sometimes literarily thrown into the anticipation of falling in to a black hole (real and live) of unedited and non-accelerated television. Dudesek thought there were times where the loneliness of the participant was surrounded by fear, of the many 'digital nowheres'.

Dudesek suggested that the viewer's experience with his artwork could be enhanced by sound or visual layers mixed in the program segment. This would be more entertaining for the viewers and cover up their amateurism.

Also he added that in our present time, the developments of Piazza Virtuale are ongoing, and he gives examples of net communities like: YouTube, Facebook, and

MySpace. He thinks that the only difference is that Van Gogh TV did not censor content, but completely handed over the censorship to the audience.

How has Interactive TV changed since your first television experiments as Van Gogh TV, and especially Piazza Virtuale in 1992? What do you think is the significance of your early pioneering work?

Dudasek thinks that the 'Piazza Virtuale' exhausted the technical and experimental interactive media possibilities which existed in 1992, and which have not changed much, even now

Dudasek is not encouraging the movement of 'iTV'[16], as he said that while 'Van Gogh TV' has not been adopted by mainstream television, the 'iTV' projects of the entertainment industry are torn between viewer numbers, production costs, legal obstacles, and therefore commercial viability.

He added that 'iTV' lost out on the potential to give a whole new role to TV audiences in two parallel lines:

- Participating and contributing to an ongoing process of developing the media.
- Creating a real community media.

However, I disagree with Dudasek in his early judgment over the iTV, because I believe that we only witnessed the initial version, and the coming generation of it could include more improved technology, which could have the potential to build a real community media. Not to mention that television did not play a major role in society in its early version, as every technological system needs time to be examined by audience and to become familiarised with it.

Also, the development of iTV could not be comprehensive if we just focused in the technical level. There is always the need for studies by scholars and scientists in new media and communication in order to enhance the user experience with this new technological system.

16 iTV: is stand for Interactive Television (Pennington,2008)

He defined the recent 'iTV' as video and advertising on demand more or less, and appears to be waiting for the next technological generation of the internet 'iPTV'.

At the technical level, he said that the segmented screen design made only a slight impact on broadcast formats, but was rapidly absorbed by early internet applications, in the 1990s.

At the conceptual level, Van Gogh TV's most important development and what Dudasek considers as a historical significant marker was its radical multi-framing of images, and the multi-layering of inputs (including sound and text).

Dudasek refers to the importance of studying the user's experience with multimedia or new media works, wherein the information could be divided into more than one layer, and with more than one type of form, like text, audio, or visuals. He said that this aspect is opening a new direction for researchers to understand how multiple screen information can be read and consumed by viewers.

He believed that the Piazza Virtuale broadcast was a patchwork of incoming information such as faxes, text messages, videos, pictures, sounds, noises and voices which created a vibrant surface. I understand from this that a new version of Piazza Virtuale in our present time could include extensive forms of information.

Moreover, he stated that his artwork still has no complete analogy from the recent technological phenomena. He said that mobile phones can create video sequences, and they can be sent immediately to a broadcaster and be seen without delay on TV.

Nevertheless, the diversity of modules which Van Gogh TV developed, like chat systems, video and ISDN phones and cameras in public entry points have only partially found their way into the commercial broadcasting shows of today. I believe that anybody could have noticed that this unique artwork made the TV play the role of the computer, and turn the phones into playing the role of a keyboard.

5.2.3 Paul Sermon (Telematic Dreaming)

'Telematic Dreaming' is rich in metaphor, meaning, and imaginings. It deals with the concept of ecstasy as coined by Jean Baudrillard in his essay 'The Ecstasy of Communication'. Sermon aims to make the process of communication among participants become the work itself. He surprised the users by turning the touch of the projected body into an intimate action: the sensual impression of the situation lets the hand and the eye fuse.

Artwork Name: Telematic Dreaming

Artist Name: Paul Sermon

Technological System Type: An installation that exists within the ISDN digital telephone network.

Descriptive Structure of the Artwork:

This artwork is based on video-conferencing systems that connect two different and separate locations. There is bed located within both locations, one in a blacked out space and the other in an illuminated space and it has a camera situated directly above it, sending a live video image of the bed and a person lying on it, to a video projector located above the other bed in the blacked out location (Sermon, 2007).

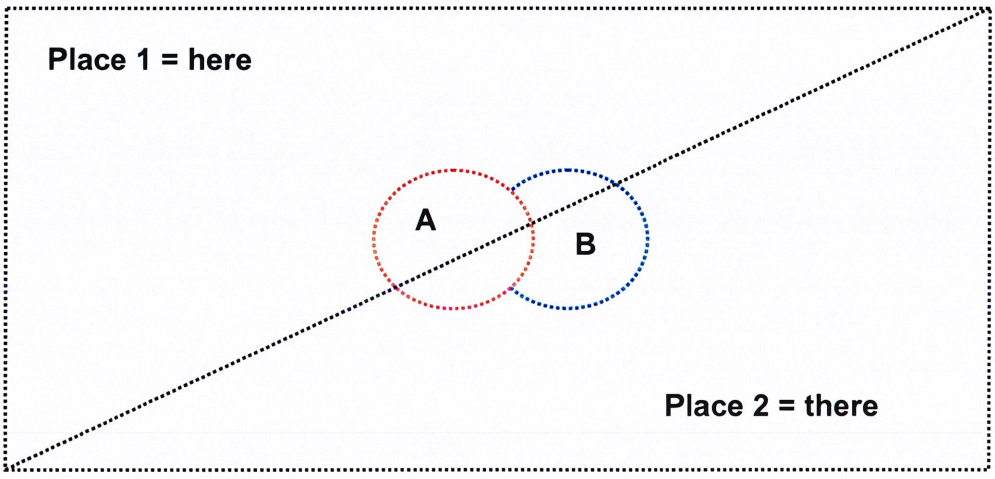


Figure 5.3: Sketch of 'Telematic Dreaming'

The Discussion

Do you think the artistic intentions of 'Telematic Dreaming' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

Sermon thinks that the artistic intention of 'Telematic Dreaming' is not specific to the time it was created, as he explained that his artwork was never tied to a specific software and technical shelf life.

He said that 'Telematic Dreaming' as a concept has continued to be exhibited, over 25 times around the world since its development. I think that this kind of artwork could be exhibited for long time because of its singular concept. it deals with two levels of communication. The first one is the communication with the self; when the user fuses the sense of touching and seeing. The second level of communication is when the user sends their feeling of touching to the other user.

Sermon declared that in 1992, the world was undergoing a major shift in technical perceptions. He gave examples of three important concepts: the Virtual Reality, the Cyberspace and Tele-presence. And he said that Telematic Dreaming was at the centre of all of that.

In my point of view, the users in our present time are more familiar and surrounded with technology than the users in the past. Sermon is aware of this issue, as he said that the audience's perceptions of the technology have probably changed, but the deeper understanding of his artwork, 'Telematic Dreaming' has remained at the forefront.

Do you think the audience are as integral to the concept of 'Telematic Dreaming' today as they were when you first created it? Have the public's perceptions of the work changed since then?

Sermon said that 'the audience is the artwork'. He considers that the audience have always and will continue to be, integral to the concept of Telematic Dreaming.

Sermon's point of view about the public's perceptions has changed since he created his artwork. On the one hand, videoconferencing as a technological system has become ubiquitous, and as Sermon called it, the 'wow' factor of the technology has settled. However, on the other hand, the content and potential for meaningful communication has become more important.

Although, I believed that people are always looking for meaningful communication, whether in the past or in the present time. The only difference between the past and the present is that people have become more familiar and more used to the new technology to the extent that it is hard to get their attention. But in the case of the 'Telematic Dreaming', the user (audience) will continue to be impressed about it, because it involves them with a very sensitive side of being human; the side of intimacy, the ability to touch what is far away, even if it is not a regular type of touch, and even if it is touching via the sense of seeing.

How has the significance of video conference changed since your first experiments with 'Telematic Dreaming', in 1992. Do you think this is in anyway a result of your early pioneering work?

Sermon declared that the technical world of videoconferencing has changed significantly since his first experiments in the early 90s, which existed as point to point systems using fixed connections over digital telephone lines (ISDN).

According to Sermon, In the early 90s there were only handfuls of commercial developers. They were usually: national telephone companies such as British Telecom, AT&T, and France Telecom etc. who all directed there sales towards business use.

However, in recent times, at consumer level the introduction of broadband internet connections has changed a lot of things. Sermon summarised the changes as follows:

- Firstly, Internet-based videoconferencing has brought the price down.

- Secondly, software is now sometimes freeware and the entire advertising pitch has shifted from business to consumer markets.

- Thirdly, Apple have marketed their 'iChat AV videoconferencing' software (this is free with their operating system OSX).

Sermon pointed out that the Apple company used the marketing model which has the image of grandparents talking to grandchildren on the other side of the world, because they target family use.

Sermon considers that his work has followed this technical development, which making it ever easier to produce, but he thinks that his technical methods have always been uniquely different to the commercial world.

Sermon believes that videoconferencing has shifted to address human values rather than economic ones, and he thinks that he may have played a part in that shift.

5.2.4 ART+COM (TerraVision)

The Vice President of the United States of America (from 1993–2001) Al Gore (1998) said in his speech that was given at the California Science Centre:

> Researchers have long known that we have trouble remembering more than seven pieces of data in our short-term memory. That's a low bit rate. On the other hand, we can absorb billions of bits of information instantly if they are arrayed in a recognisable pattern within which each bit gains meaning in relation to all the others — a human face, or a galaxy of stars. The tools we have most commonly used to interact with data, such as the 'desktop metaphor' employed by the Macintosh and Windows operating systems, are not really suited to this new challenge. I believe we need a 'Digital Earth'. A multi-resolution, three-dimensional representation of the planet, into which we can embed vast quantities of geo-referenced data.). (Gore,1998)

As early as 1995, ART+COM anticipated something of Al Gore's foresight, presenting 'TerraVision' artwork, which confirmed that artists are always predicting the future.

Artwork Name: TerraVision

Artist Name: ART+COM, 'Joachim Sauter' has answered the interview's questions on behave of ART+COM group

Technological System Type: Satellite technology with real-time rendering on SGI graphics workstation.

Descriptive Structure of the Artwork:

TerraVision was the first system to provide simple access to visualisation data by navigating on the targeted place of the Earth map. The system offers not only satellite images and aerial photos but also geographically referenced data of all types, e.g. topographical or architectural schematic representations. By means of a stylised globe, users can zoom in on any location in the world and obtain detailed pictures in every minute.

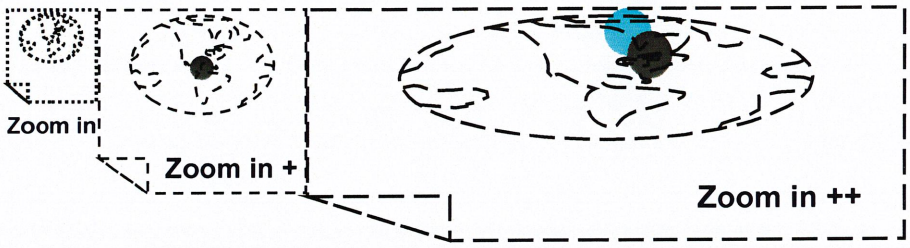


Figure 5.4: Sketch of 'TerraVision'

The Discussion

Do you think the artistic intentions of 'TerraVision' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

ART+COM think that their project was not an artistic project and it was only a design driven, development and research project. Also, they think that there is a connection between the project and the art world, because of its social and political relevance.

They consider that the concept of TerraVision was not reliant to the period of time it was created. It was a little bit too early and it was possible because of favourable conditions such as: expert people and suitable equipment.

Do you think the audience are as integral to the concept of 'TerraVision' today as they were when you first created it? Have the public's perceptions of the work changed since then?

They did not answer this question. They said TerraVision stopped the development end of the 20th Century. However, I think they were still able to answer this question partially, on other words, they could talk about the audience in the time they created the project.

How has the significance of satellite technology changed since your first experiments with 'TerraVision' in 1994, and do you think this is in anyway a result of your early pioneering work?

They did not mention the significance changes of satellite technology. However, They think that Google Earth is the best recent example of satellite technology. As they said that Google Earth is one of the most bespoken applications of the last year. Although, they think that Terravision was the initial motivation for that. They said they showed it in 1995 at Siggraph and exhibited it at the SGI showroom. Developers from SGI got motivated when they saw the project. They then created their own system and sold it to Google, and it became Goggle Earth.

In addition, they said that they learn their environment nowadays not only through moving through it horizontally but vertically as well. This means that they think that were more concerned with the development of the project at the technical and conceptual level (horizontally). However, in the present time they are also concerned about the relationship between this project and the society (vertical level), as they said TerraVision was the only application for a small community, and it had been a research project, not a product.

5.2.5 Bruce Damer (Avatars)

> Web surfing is like going to someone's house only to find that it is just a billboard and there is nobody home. As was once said about the Internet: 'there is no there'. All of that is now changing. The Internet is about to become a place for people, and it will be the biggest place in the world. With your copy of Avatars, you have booked a trip to Cyberspace with a human face. You will be getting a glimpse at what might become a whole new way we will communicate, learn, play, and work together in the 21st Century. (Damer, 1997, p.10).

'Avatars' is not just an artwork. It is a new approach in experiencing the life in a new sense of place and time.

Artwork Name: Avatars

Artist Name: Bruce Damer

Technological System Type: The Internet

Descriptive Structure of the Artwork:

It is a 3D digital society that enables the user to have a digital body, and interacts with other people who are using virtual identities in digital cities, which contain space stations, marketplaces, stages and weird places people are visiting these worlds: exploring, communicating and creating.

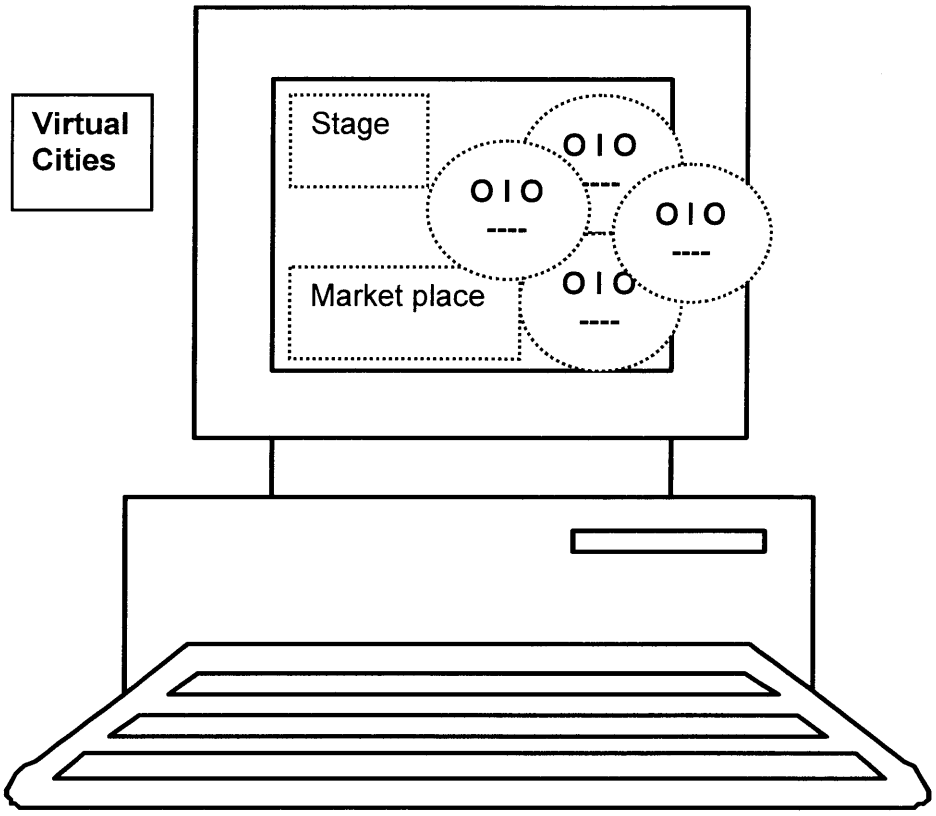


Figure 5.5: Sketch of 'Avatars'

Do you think the artistic intentions of 'Avatars' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

Damer considered that avatars have appeared on the scene multiple times and for multiple reasons (driven by the available technology). Avatars have a deeper history than the mid 1990s, having a presence in the Habitat Project at Lucas Film a decade earlier, and presaged by Maze War of the 1970s.

He give an example of the avatar 'Cambrian Explosion' of the mid 1990s which was particular to the availability of dial-up internet connections on personal computers capable of a decent resolution graphical interface and in some cases, 3D rendering. Therefore there is a richness of expression of these platforms at that time

Damer 's point of view is that today one could argue there is only an increment more artistic expression than a decade ago, and in the technical level, there is

much more resolution and animation capability with today's 3D graphics cards. However, the forms of expression tend to be not as flamboyantly different than in the mid 1990s.

Do you think the audience are as integral to the concept of 'Avatars' today as they were when you first created it? Have the public's perceptions of the work changed since then?

He considered that the audience is an integral part of the artwork's concept. He said that 'the audience is the platform', as he give an example of 'Social' virtual worlds as contrasted with 'Game Play', wherein the users create their own realities and act out roles in that reality. Also, this is true in the case of 'Second Life' today, as it was for 'Active Worlds' a decade ago.

The added that at the present time, the public's perceptions are positive towards avatars, as the audience are much more informed about them as well as the virtual worlds than ten years ago. He also thinks that the recent wave of publicity lead by Second Life has made 'avatar' a household term (at least in terms of its Cyberspace usage).

How has the significance of the Internet changed since your first experiments with 'Avatars' in 1996. Do you think this is in anyway a result of your early pioneering work?

Damer did not specify how the significance of Internet changed since his artwork 'Avatars in 1996', although he pointed out that avatars in1995-96 represented one of the only ways to have a real-time presence online (other than IRC) and preceded the emergence of instant messaging and other forms (first voice over IP). I think that the users in that time were looking for essential tools to build their Internet presence, to prove that they could impact as they effected their communication with the Internet.

Also, 'Avatars' have the ability to make the user free to change their personality, and communicate with a new world with a real sense of place and a social community.

In addition, he consider that avatars and virtual worlds also represented the first way to have a directed social network in the middle 1990s, and encouraged the development of community websites.

He stated that in the 1990s avatars and their worlds and communities presaged the development of today's social network technologies (Myspace, Facebook etc) as well as real time communications systems (IM, Skype, texting) and of course the 'second coming' of social virtual worlds (Second Life, There, IMVU, etc).

5.2.6 Rafael Lozano-Hemmer (Vectorial Elevation)

> Vectorial Elevation was conceived as a massive public participation project as well as a public spectacle. So, to facilitate access, free terminals were set up in public libraries and museums across the country were volunteers could explain to people how to use the site. In addition, the site received contribution from participants from ninety countries and all the reigns of Mexico. (Dewdney and Ride, 2006 p.197).

This artwork was made for public and was presented in the public space. The creator of this work believed that we have to trust that the public has a very sophisticated behaviour that will emerge, rather than treat them with paternalistic attitude. (Dewdney and Ride, 2006)

Artwork Name: Vectorial Elevation

Artist Name: Rafael Lozano-Hemmer

Technological System Type: The Internet

Descriptive Structure of the Artwork:

Vectorial Elevation is an interactive art project designed to celebrate the arrival of the year 2000. Mexico City's Zócalo Square was transformed by immense light sculptures created by participants on the Internet using a virtual reality program, which allowed thousands of people from 89 countries to direct 18 robotic searchlights.

This website featured a 3D Java interface which enabled the user to design enormous light sculptures in the sky over the city .The beams of light were visible at a distance of 15 kilometres; every fourteen seconds a new design was displayed as it arrived from the Internet.

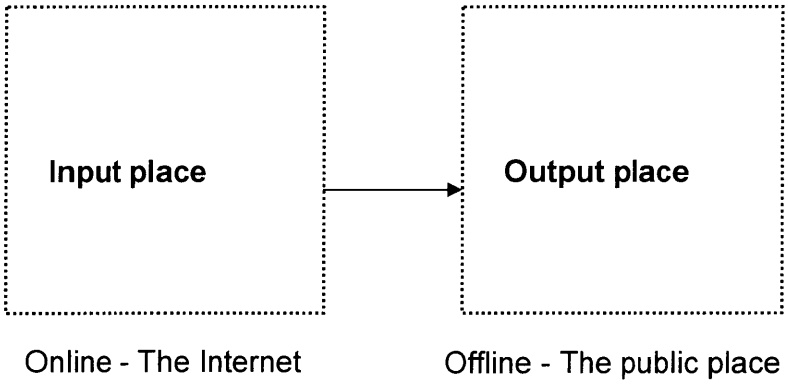


Figure 5.6: Sketch of 'Vectorial Elevation'

The Discussion

Do you think the artistic intentions of 'Vectorial Elevation' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

Lozano stated clearly that his art project is neither really specific nor reliant to the time, other than the fact that the technologies used to accomplish the project where readily available in 1999, like servo-motor control, GPS tracking, Java 3d applets, DMX control and webcams.

In addition, Lozano thinks that his project's concept is not dependant on specific technological tools, as he said that the result is not specific to the tools in this particular project. However, I think that this artwork cannot be present without the Internet, therefore it is dependant on Internet technology, and the output of this artwork will be different if it is presented by another kind of technology.

Do you think the audience are as integral to the concept of 'Vectorial Elevation' today as they were when you first created it? Have the public perceptions of the work changed since then?

He declared that the audience is still an integral part of the artwork, and that the user's participation is still absolutely necessary for Vectorial Elevation.

Lozano thinks that the chances for user's participation have increased in the present. He said that in 1999, only 1 per cent of Mexicans had Internet access, whereas today the number is closer to 30-40 per cent, so in that a sense access has become more widespread and projects that require net participation benefit from being considered less 'elitist'. He means the financial and/or technical elites.

I think that Lozano tends to present artwork which anybody could take part in, which should not be exclusive to a group of people. This tendency explains why he made his work available in a public space instead of in galleries or museums. Also, according to (Dewdney and Ride, 2006, p.200) Lozano said that:

> I don't think of working with electronic media really as a collective object, but it is more of a process or a dialogue. Museums or galleries did not seem to be the best place to experience that, but to work in a public space was the best way to get directness and dis-intermediation into work.

How has the significance of the Internet changed since your first experiments with 'Vectorial Elevation' in 1999, and do you think this is in anyway a result of your early pioneering work?

The Internet became more mainstream, and this thing has its advantages and disadvantages, as Lozano explained that the bright side of this is the explosion of the phenomenon of 'user-generated content'. The dark side of it is that corporate conglomerates and central governments found ways to 'monetise' the network, to censor it, and encourage massive consumption. Lozano considers that his artwork had very little effect on any of these developments.

5.2.7 Christa Sommerer and Laurent Mignonneau (The Living Web)

> 'The Living Web' is an interaction with image and sound data through a specifically designed tweezers interface. When users talk into their headset microphones, images that relate to their conversations are streamed from the Internet and displayed in 3D in such a way as to surround them. By grabbing one of the floating images, the user can retrieve more information about this specific image (for example its URL), place the icon in a 3D space to bookmark it, and sort the various selected icons as 3D bookmarks to create further links, weights of interests, and connections between the various selected topics. (Sommerer and Mignonneau, 2002, p.10)

This artwork is like a preparation for the idea of 3D internet, and the researchers should not neglect this serious and promising attempt to change the traditional perception of the Internet's interface.

Artwork Name: The Living Web

Artist Name: Christa Sommerer, Laurent Mignonneau

Technological System Type: The Internet

Descriptive Structure of the Artwork:

In 'The Living Web' users can explore by themselves physically and in 3D into the image and sound information streamed 'live' from the Internet. Microphones pick up the users' conversations and use them to generate and download corresponding images and sound files from the Web.

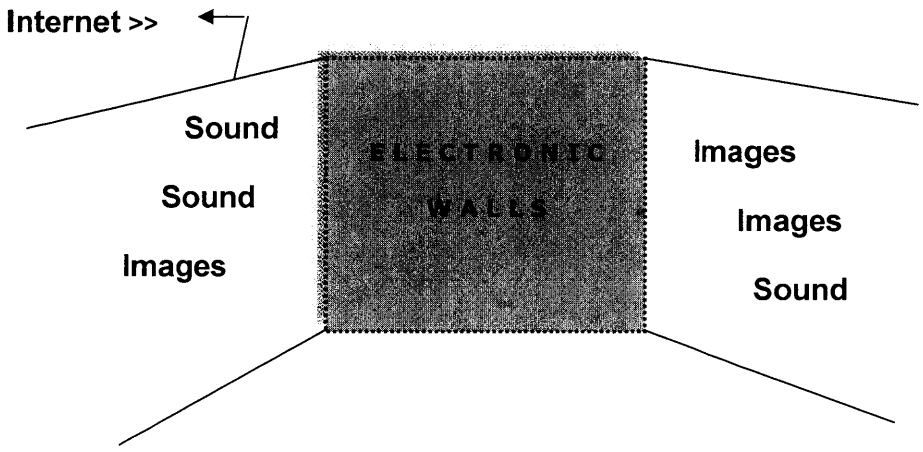


Figure 5.7: Sketch of 'The Living Web'

The Discussion

Do you think the artistic intentions of 'The Living Web' are specific to the time when it was created? Is the concept of the work reliant on this period of time?

Sommerer and Mignonneau declared that the main concept of 'The Living Web' was to provide a new and more intuitive and immersive way to browse the Internet through multi-modal interaction, speech recognition, and multi-touch systems.

Furthermore, they think that the artistic intention of their artwork is specific to the time it was created, as they said that in their previous works on innovative and intuitive interface design (Interactive Plant Growing 1992, A-Volve 1994, Phototropy 1995, etc). These helped them to come up with the ideas of designing systems that don't use the mouse-and-keyboard metaphor for interactions, but build new interaction scenarios where the user's interaction and data are more closely linked to open-ended and emerging image and sound structures.

Do you think the audience are as integral to the concept of 'The Living Web' today as they were when you first created it? Have the public's perceptions of the work changed since then?

Sommerer and Mignonneau confirmed that they consider the active audience is very important in all of their works. They explain that by giving three main characteristics to the audience: initiate, trigger, and they think they can direct all the interactions. They added that without the audience there would be no interaction, no images and no sounds.

They understand that the user should have more control on the objects, as they operate a 'wand' interface that lets the user control the virtual objects displayed in stereo on screen. (Sommerer and Mignonneau, 2002).

They did not indicate a change in the public's perception of the work, however, they said that 'The Living Web' is a totally open system where multi-modal interaction is a key element to experience the complexity of the Internet.

How has the significance of the Internet changed since your first experiments with 'The Living Web' in 2002. Do you think this is in anyway a result of your early pioneering work?

They think that there are not so many changes since 2000, as they said that we still use screens and keyboards to interact with the Internet. Only recently have multi-touch systems become popular, for example, the 'iPhone'. However, these ideas had been developed long ago, as they stated that they have a patent on multi-touch image browsing systems in Japan.

This led me to say that 'time' is a critical factor for technology, as I believe that despite the fact that technology is rapidly changing through time, it is not easy to get the public used to the new technology. Sometimes it takes a long time to make them accept it and become familiar with it.

They pointed out their artworks 'Riding the Net' (2000), 'The Living Room' (2001) and 'The Living Web' (2002) as they considered that all of them have proposed new and more intuitive way to browse the Internet.

Sommerer and Mignonneau shows that the theme (message) of their work was to develop the technological system (the Internet) in terms of the interface, although I think creating a system that could be an applicable alternative to the classical interface (the mouse and the keyboard) is a critical mission process. It might take a long time because it requires a continuing evaluation of the developing system.

They presented an example of the idea of 'Riding the Net' (2000) which uses speech recognition, intuitive image browsing and sound output to let users naturally browse the Internet through visualised conversations. After one year from presenting the artwork 'Riding the Net', the thriller and science fiction movie "Minority Report-2002", presented the main protagonists' interacting with projected images and sounds in a simulated multi-touch interactive web browsing system, extremely similar to what Sommerer and Mignonneau presented a year earlier.

In relation to the science fiction movie 'Minority Report' (2002), it is worth mentioning that the director of the movie, Steven Spielberg convened a three-day conference about what life will be like in the year 2054. He invited writers, urban planners, technological innovators and various other prognosticators, including several from MIT (Clarke, 2002).

He was searching for new idea to present the interface of computers, as he aimed to describe the future in 2054, as he said : 'Forget the keyboard and mouse and forget voice interaction, because we've been seeing that in science fiction for at least 30 years and everyone is used to it (Clarke, 2002).

In my point of view, cinema is playing an essential role in reshaping the public's attitudes towards the different issues in general like: political matters, social and public opinion, as for the science fiction particularly it shapes and effects the public imagination towards new technology.

Thus, this indicates that the artists could take advantage of inputting their artwork to be present in the movie, because it is like showing the theme of the work to the world instead of just few people who are specialised or interested into these kind of things. This represents a great opportunity to enable them to discover the user's impression about their artwork.

5.3 The Discussion of Online Questionnaire Results

I will discuss the online questionnaires' results for the research case studies, in order to identify the user relationships with the artwork, the technological system and the artist, for level (2) of the communication levels, according to my proposed communication model.

The general demographic attributes for participants in online questionnaires:

Age of Participants

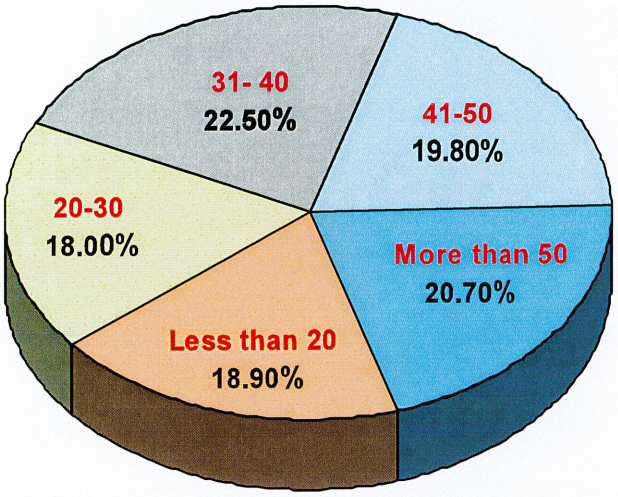


Figure 5-8 Age of Participants

Of the sample who answered the questionnaire totalling 111 persons, the age of less than 20 was 18.9%, the age range between 20 and 30 years was 18%, the range of 31 to 40 years was 22.5%, the range of 41 to 50 years was 19.8%, and the age of 50 plus was 20.7%.

It is clear from the percentages that the composition of the research sample group was nearly balanced in that it comprised almost equal numbers of percentages between the different age ranges.

Gender of Participants

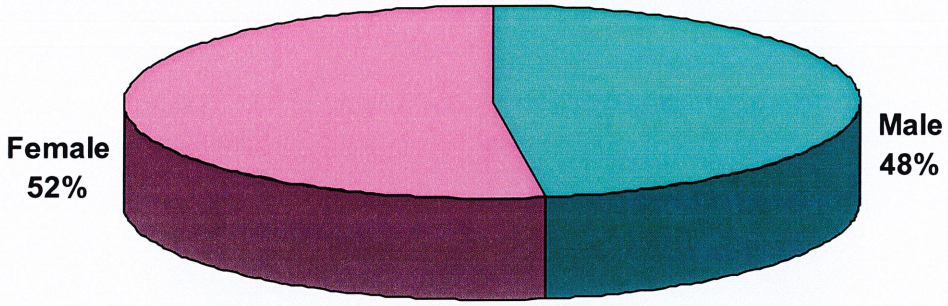


Figure 5-9 Gender of Participants

In relation to the gender of the participants 46.7% were male and 52.3% were female, so the numbers of males and females were almost equal.

Education of the Participants

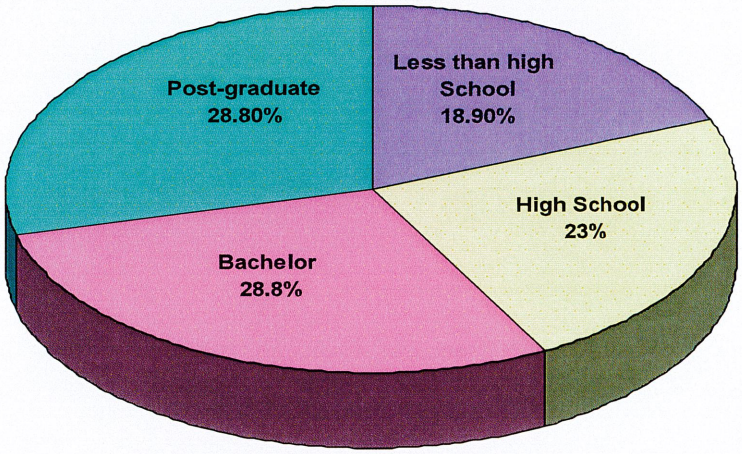


Figure 5-10 Education of Participants

In relation to the educational level of the participants, 18.9% had less than a high school level. High school level was 23.4%, bachelor degree level was 28.8% and postgraduate level was 28.8 %.

These percentages shows that the numbers of people that awarded a bachelor degree (28.8%) is the same number of people who are in the postgraduate level (28.8%), which means that the total numbers of both of them is 57.6%. This percentage indicates that just more than half the sample group was from the academic field. As for people who are awarded a high school level of education, the percentage was 23.4%, and the lowest percentage was 18.9% for people who had less than a high school level of education.

Question 4

Have you heard about these previous artworks (the research case studies) before?

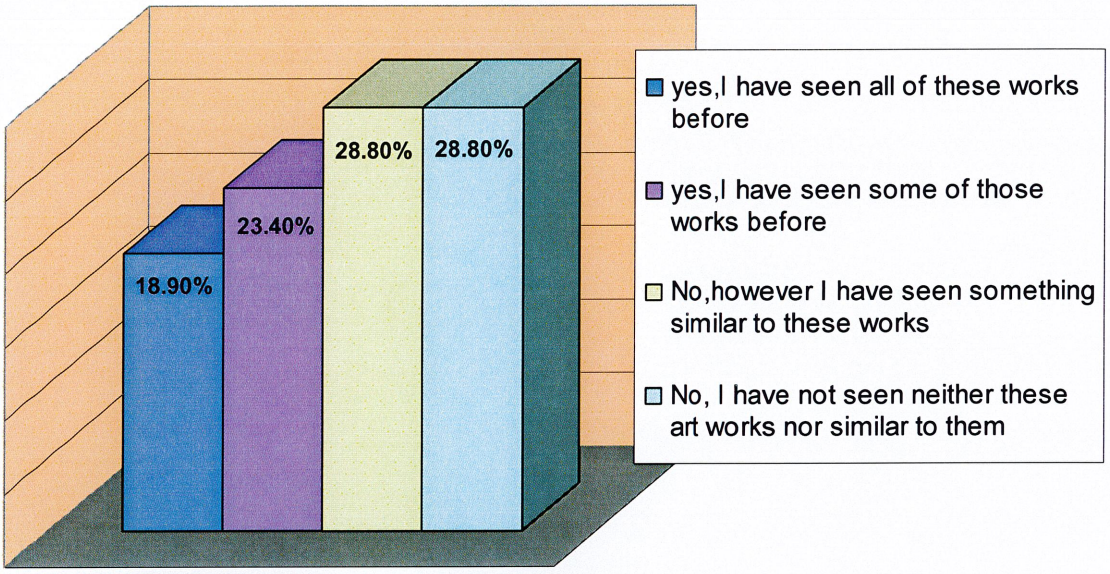


Figure 5-11 Online Questionnaire - Question 4

The aim of this question was to identify the participant's familiarity with the research case studies before they got involved with the questionnaire. These results shows that only 28.8% of the participants answered this question with '*No, I have not seen neither these art works nor similar to them*'. The other remaining participants (71.2%), who represented the vast majority of the participants, were familiar with the research case studies, and there answers were ranged between:

- Yes, I have seen all of these works before. (18.9%)
- Yes, I have seen some of those works before. (23.4%)
- No, however I have seen something similar to these works. (28.8%)

Of the participants answer this question with '*Yes, I have seen all of these works before*', there were 18.9%, and 23.4% answered with '*Yes, I have seen some of those works before*', so the total number of these two groups (participants who are either seen all or some of the works) is 42.3%. This percentage is nearly half of the participants. As for the remaining participants, 28.8% of them answered with '*No; however I have seen something similar to these works*'.

Question 5

Have you heard or seen any of the following online projects?

- Google Earth
- You Tube
- My Space
- Second Life

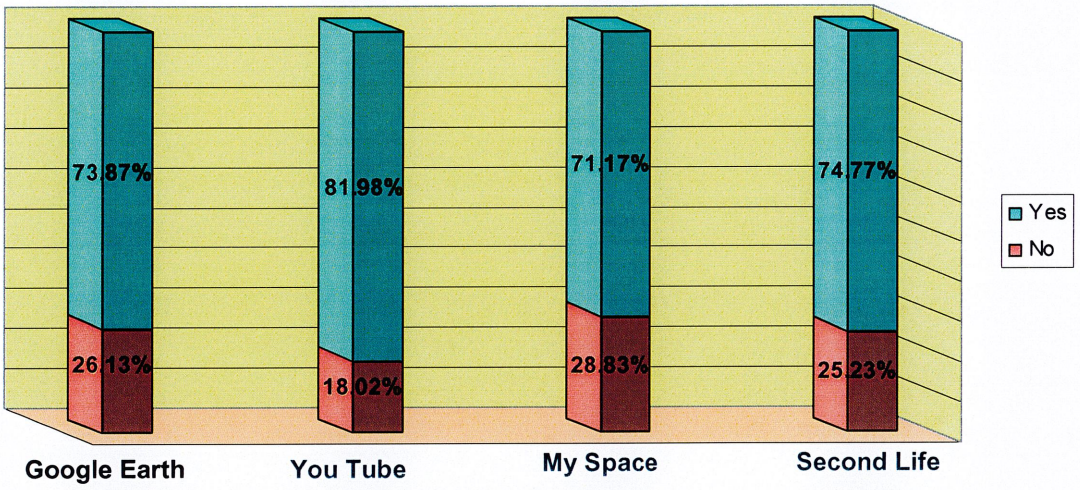


Figure 5-12 Online Questionnaire-Questions 5

The aim of this question was to identify the participant's awareness of the Internet communication technology's famous works: Google Earth, My Space, You Tube, and Second life.

The results show that the vast majority of the participants were familiar with these previously mentioned works, because all of the percentages of the participants who answered this question with 'Yes' are over 70 %. The highest percentage with 'Yes' was for the famous website 'You Tube' with 81.98%.

Question 6

Have you heard or read about any of the following artists before?

- **ART+COM**
- **Bruce Damer**
- **Karel Dudesek**
- **Paul Sermon**
- **Roy Ascott**
- **Rafael Lozano-Hemmer**
- **Christa Sommerer and Laurent Mignonneau**

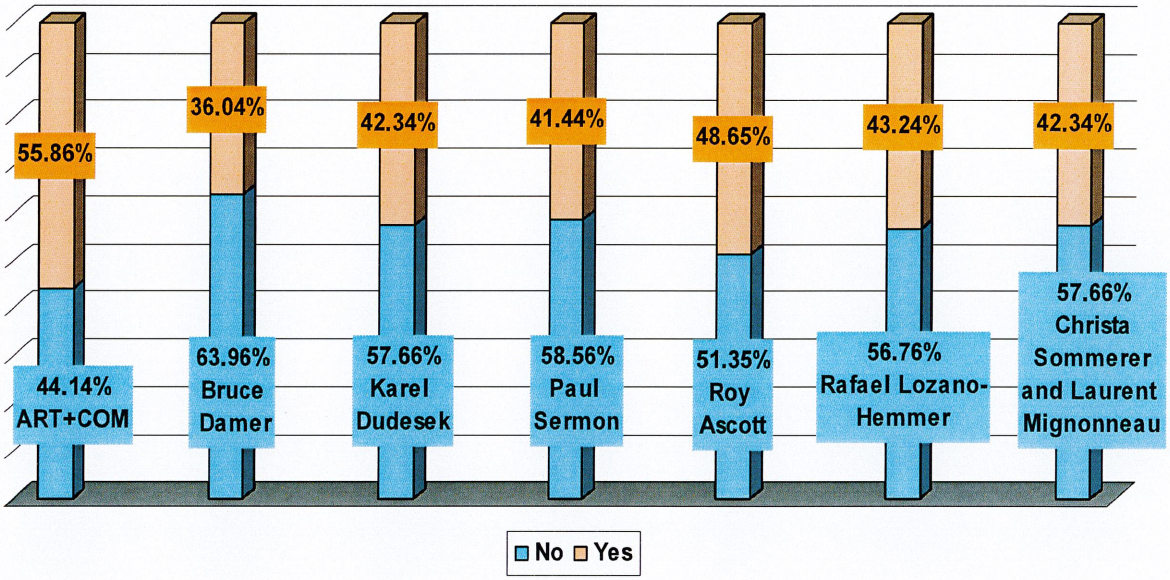


Figure 5-13 Online Questionnaire-Questions 6

The aim of this question was to identify the participant's familiarity with the artists' who created the research case studies before they got involved with the questionnaire. The results show that over 40 % of the participants are familiar with the artists, except in the case of the artist Bruce Damer, whose percentage is 36.04%.

In general I considered that the both percentages (40% and 36.04%), were high percentages, because I think that people often remember the artwork itself more than the name's of the artist who created it, especially in the case of Internet artworks, because this kind of art is not like the traditional kind of art. For instance, a painter puts their own signature prominently over their singular painting, while Internet artwork occupies more than one physical space where their mark is not always present or prominent.

Question 7

The artwork (research case study) is a unique ground breaking development in the communication technology field.

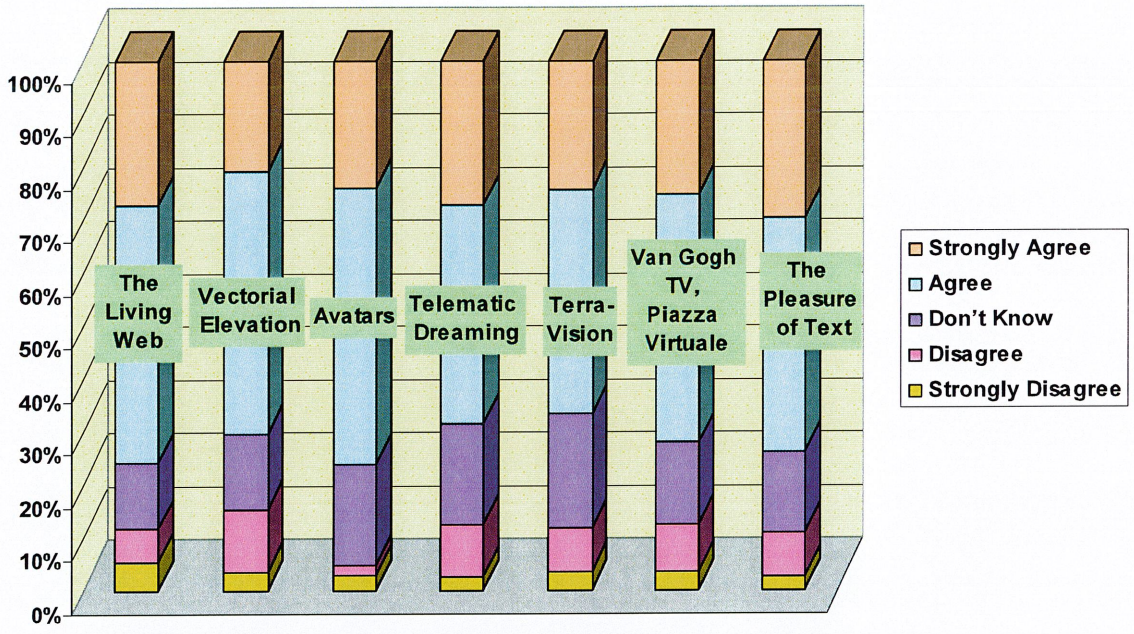


Figure 5-14 Online Questionnaire-Questions 7

The aim of this question was to explore if the participants considered these artworks to be a unique phenomenon in the communications technology field. The results show that the more than half of the participants found the previously mentioned artworks to be a unique phenomenon in the communications technology field, because it is clear from the table above that the percentage of the participants who answered with '*Agree*' was over 40%, while the percentage of the participants who answered with '*Strongly Agree*' was over 20%.

As a result, the total percentages of the participants who answered with '*Agree*' and '*Strongly Agree*' is more than 60%, while the other the answers of the remaining participant, were ranged between '*Don't Know*', '*Strongly Disagree*' ,and '*Disagree*'.

Question 8

The concept of this artwork (research case study) is embodied in the telecommunication technology it uses.

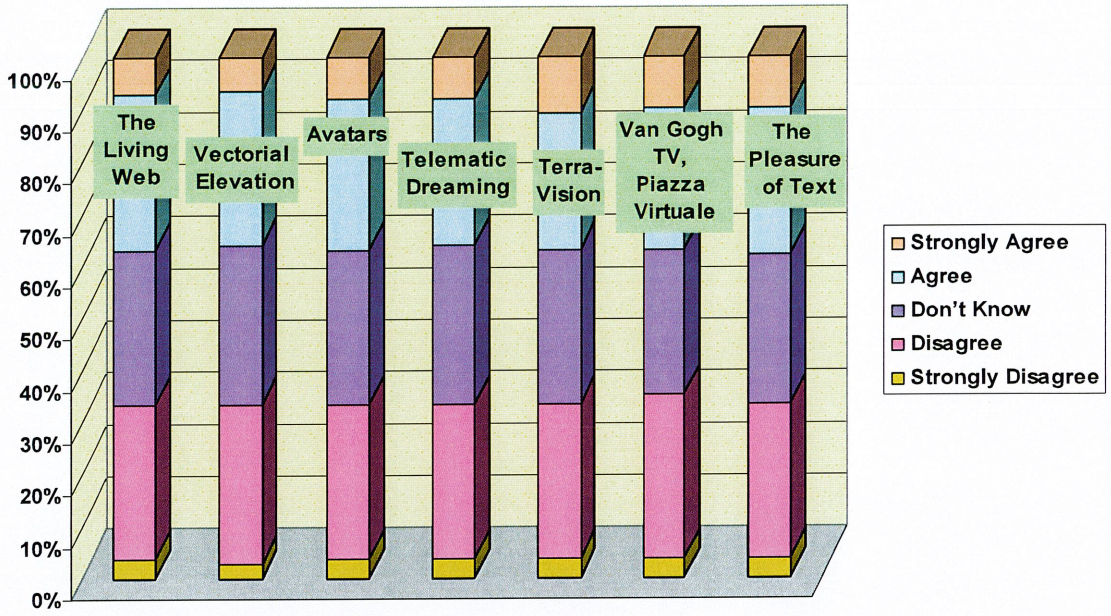


Figure 5-15 Online Questionnaire-Question 8

Question 9

The technology in this artwork (research case study) is considered as a tool and is not directly related to the content of the art work

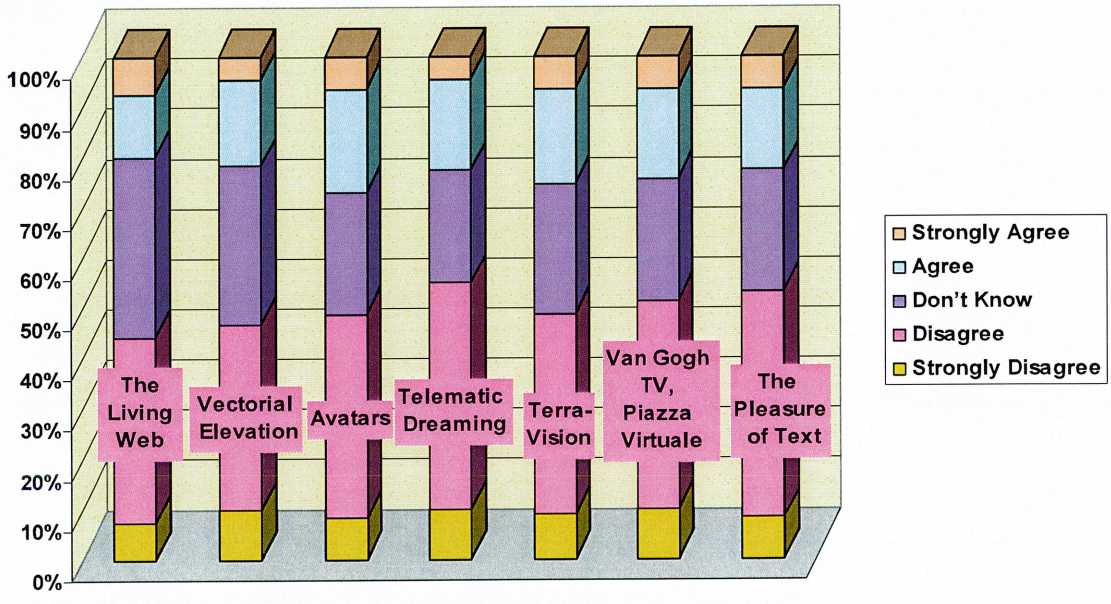


Figure 5-16 Online Questionnaire-Questions 9

The aim of both questions 8 and 9 is to explore if the participants are aware of the medium's technological role in representing the artwork. The reason of having two questions instead of one is because it's hard to identify the participants' awareness of the medium's technological role from one question only.

In question 8 the results show that the participant's attitude is not decisive to determining if the concepts of the artworks are embodied in the telecommunication technology they use. The participants who answered with *'Agree'* is almost 30%, and the participant who answer with *'Disagree'* is almost 30% as well, and the same percentage is true for the participants who answered with *'Don't Know'.*

As for question 9, the results show that over 40% of the participants answered with 'Disagree' and *'Strongly Disagree'*. Also, the remaining participants, answered with *'Don't Know'*, with over 25%. Less than 25% of the participants answered with 'Agree' and *'Strongly Agree'*.

Hence, the half of the participant's attitude tends to believe that the technology in the artworks (research case studies) is not considered as a tool, and is directly related to the content of the artwork. This means that half of the participants approximately recognise the technological medium's true role; that it is not just a medium to convey the theme of the artwork.

Question 10

It is essential that the artist takes an interactive role during the public presentation of this work.

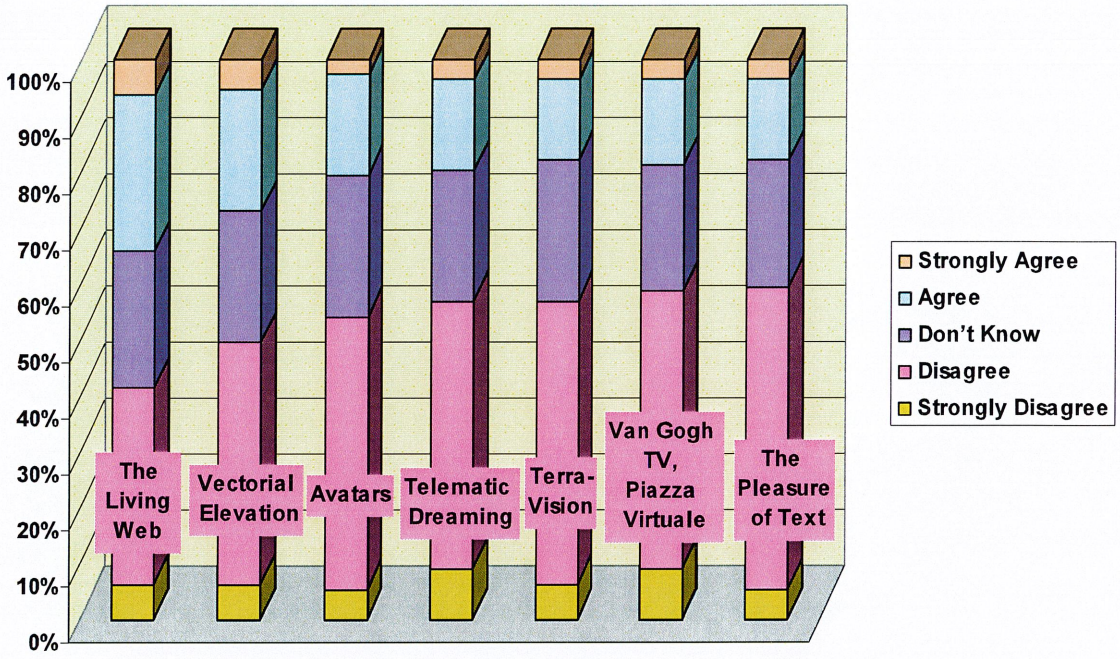


Figure 5-17 Online Questionnaire-Questions 10

The aim of this question was to explore if the participants consider if the artist (the original creator of the work) should engage in the artwork, as a part of the communication process with the artwork.

The results show that between 40% and 50% of the participants answered with '*Disagree*' and '*Strongly Disagree*'. The remaining participants answered '*Don't Know*' with less than '25%', and less than 25% of the participants answered with '*Agree*' and '*Strongly Agree*'.

Hence, the participant's attitudes tend to believe that the artist should not engage in the artwork, as a part of the communication process with the artwork.

Question 11

The artwork (research case study) involves the audience at a multi- sensory level (human physical sense).

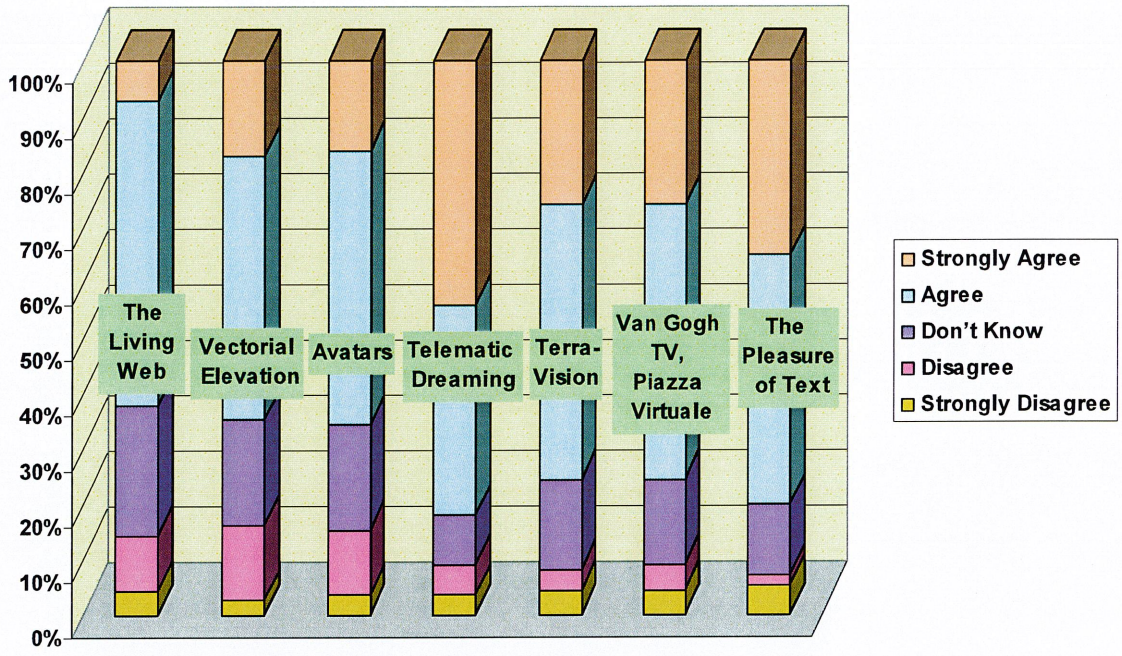


Figure 5-18 Online Questionnaire-Questions 11

The aim of this question was to explore if the participants think that this kind of artwork involves the physical senses of the user. The results show that the vast majority of the participants have the same opinion.

Over 60% of the participants answered with '*Agree*' and '*Strongly Agree*', while the remaining participants answered '*Don't Know*' (between 12 and 25%). Less than 10% of the participants answered with '*Disagree*' and '*Strongly Disagree*'.

Question 12

The theme and the content of the artwork (research case study) are clear to me.

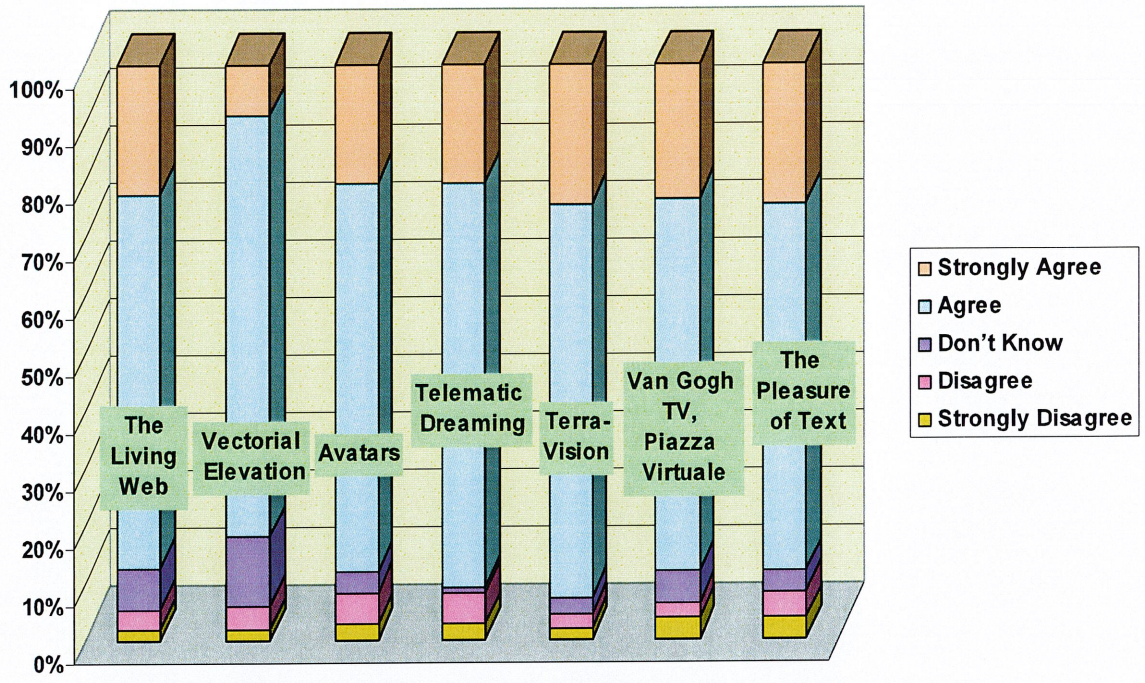


Figure 5-19 Online Questionnaire-Questions 12

The aim of this question was to identify if the participants think that they understand the idea of the artworks. The results show that the vast majority of the participants found the artworks to be clear to them.

Over 80% of the participants answer with either '*Agree*' or '*Strongly Agree*'. The remaining participants answered with '*Don't Know* (less than 11%), and less than 8% of the participants answered with '*Disagree*' or '*Strongly Disagree*'.

Question 13

There is a direct relationship between this artwork (research case study) and any one of the following recent internet protocol developments: Google Earth, YouTube, My Space, And Second Life).

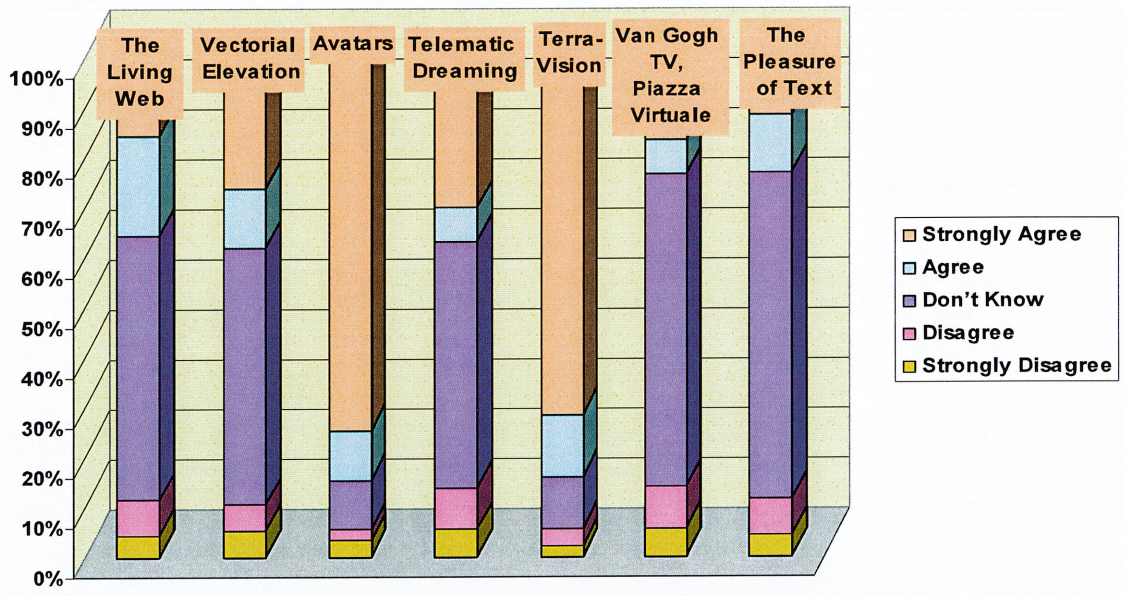


Figure 5-20 Online Questionnaire-Questions 13

The aim of this question was to identify if the users found any similarities between the research case studies and the recent internet protocol developments Google Earth, YouTube, My Space and Second Life.

The results show that the vas majority of the participants found that the artwork TerraVision, and the artwork 'Avatars' have similarities with some of Google Earth, You Tube, My Space and Second Life.

Over 80% of the participants over answered with either '*Agree*' or '*Strongly Agree*' for the artwork 'TerraVision'. Over 80% also answered with either '*Agree*' or '*Strongly Agree*' for the artwork 'Avatars'.

It is worth mentioning here that these results also indicate that the participants are aware of the clear and obvious relationship between the artwork 'TerraVision' and 'Google Earth', and the similarities between the artwork 'Avatars' and 'Second Life'.

Question 14

How would you describe your response, after having looked at the following artworks (research case study)?

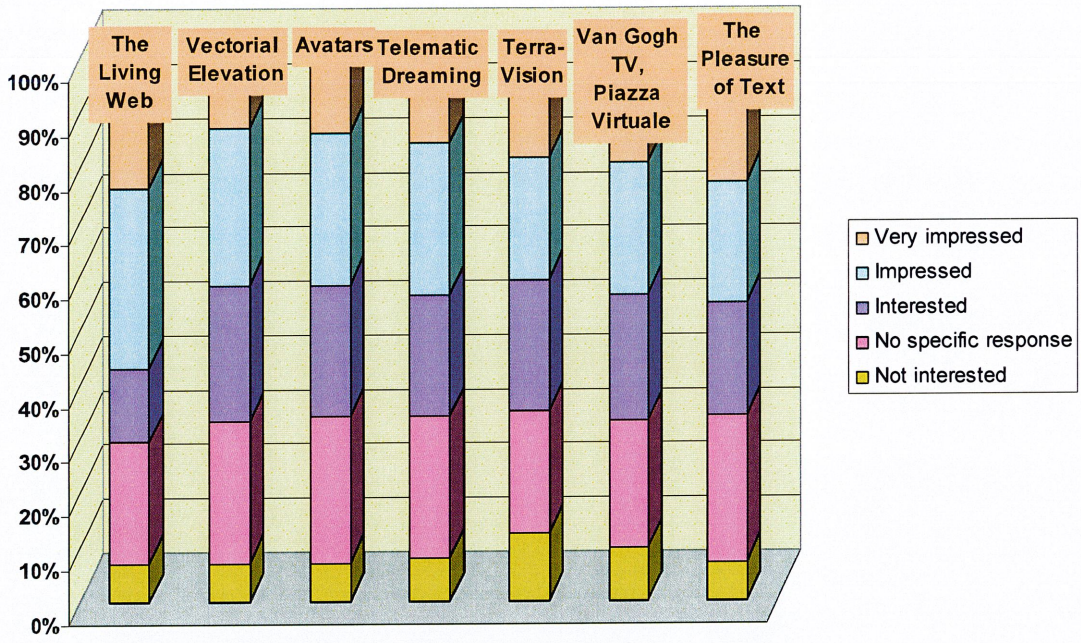


Figure 5-21 Online Questionnaire-Questions 14

The aim of this question was to explore how the participants described their reaction towards the artworks (research case studies). The results shows that the answers of the vast majority of the participants, at over 65%, ranged between '*Interested*', '*Impressed*' and '*Very impressed*'.

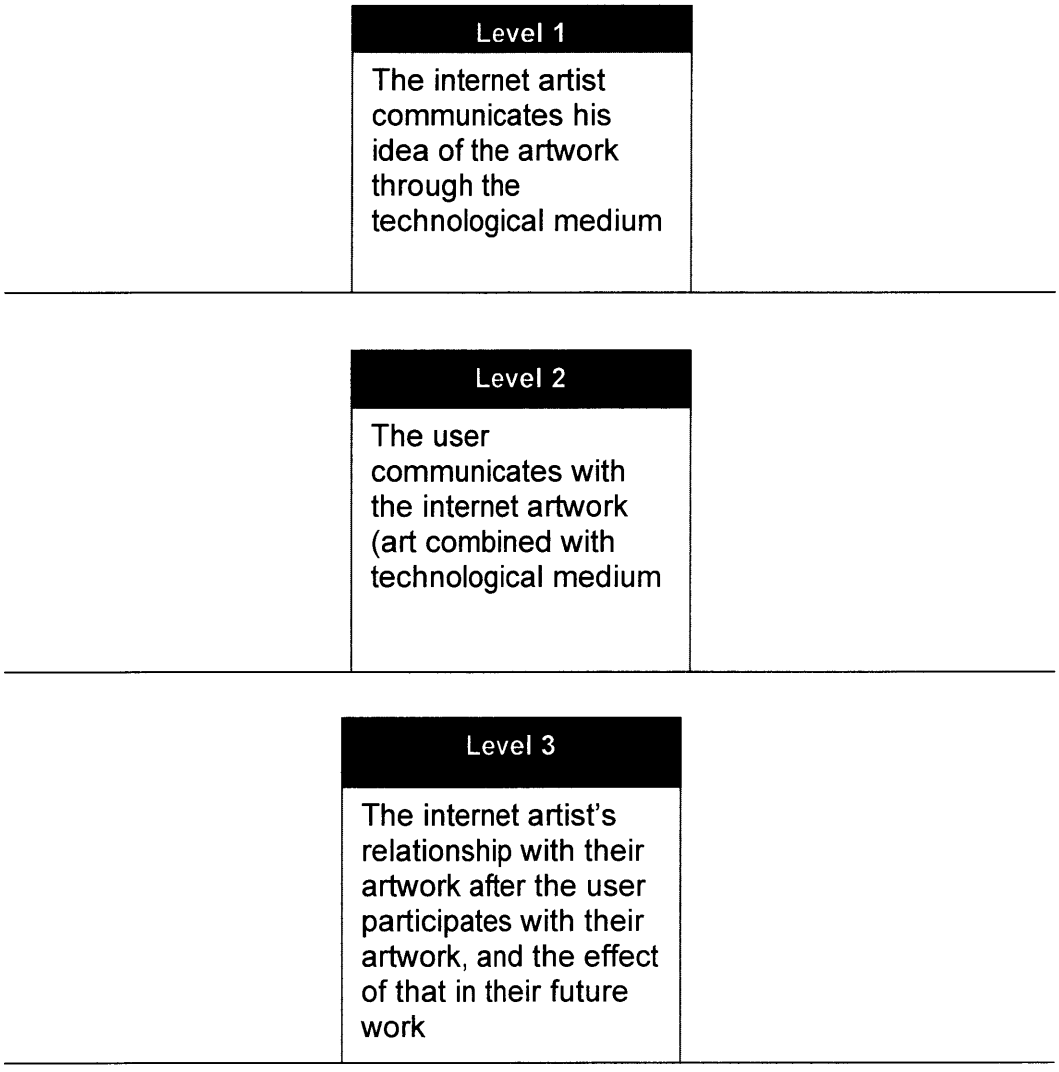
The percentage of the participants who answered with '*No specific response*' was between 22% and 27%, and the percentage of the participants who answered with '*Not interested*' was over 20%.

5.4 The Communication Model for Internet Arts

This part is the most important part of my research, as I will establish in it the basic structure of a new communication model for internet arts, as the picture of that model became clearer in this stage of the research. It is worth mentioning that this model will be presented, based on combining the output of the interviews and the questionnaire.

Model of levels:

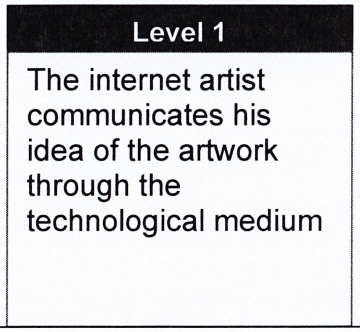
Figure 5.22 The Model of Levels



I called this the 'Model of Levels' because I suggested that the communication process in this kind of artwork should occur at three levels, as I believe that the communication process between the artist and the user does not start when the

user's participate with the artwork. Instead, it starts earlier than this level. It starts once the artist think of the artwork and how is they are going to create it, how is they are going to present it. And when they are making it ready for the user's participation. I called this level, Level (1).

Figure 5.23 Communication model - level 1



The description of this level is based on what I already suggested earlier in my research, though, further understanding will be presented according to the Interviews' finding.

The main elements: refer to the communication elements that appear in this level (1). (These are the Internet artist, the Internet artwork's concept, and the technological system).

The characteristics: refer to the main attributes that explain the communication in this particular level; (where in the artist communicates with their artwork's concept).

I suggested that identifying the following concerns will help in understanding the communication in this stage:

1. What are the artist's intentions towards their artwork project?
2. Is the artist aware of the of the technological system's role in representing their artwork?
3. What does the artist think of their audience? Are they an integral part?

I will demonstrate the answers of these questions in the following elements:

1. The artist's intentions towards their artwork

In the first place, it is important to define what I exactly meant by the 'Artist's Intentions'. It means, 'what is the theme that the artist wants to convey?' It also means, 'how this theme is shaping his/her artwork?'. I believe that understanding this will lead to understand how the artist communicates their ideas throughout the artwork.

The interview results show that the artists can be classified into three groups, although before I present these three groups it is worth mentioning that this classification is according to the particular artwork and does not mean that the artist is always classified in this group. For instance, the artist who could be classified in the first group because one their particular artwork could also be classified in the second group, based on another artwork that they made.

The first group: These are the artists who have a meaning or theme and want to convey it to the user to participate with it. The examples of this group are the following:

- Roy Ascott in his artwork 'The Pleasure of Text'.
  This artwork is including two notions; the idea of nonlinear narrative and also distributed authorship. Ascott did not intended to improve the 'ARTEX'; the technological system that he used in his artwork, as he declared that 'ARTEX' is an electronic-mail program for artists on the worldwide web. It was initiated as ARTBOX in 1980 by the famous artist Robert Adrian X, and he used it as a technological medium to present his artwork.

The second group: These are the artists who have not decided to convey a certain meaning to the user. However, they want to improve the technological system (the medium), to enhance the user's experience and make them more involved with the artwork in the communication perspective. The examples of this group are as follows:

- ART+COM in their artwork 'TerraVision', as the intention of this artwork is basically to develop a technological system that provides an easy access to visualisation data, by navigating on the targeted place of the earth map.

- Bruce Damer in his artwork 'Avatars', as the intention of this artwork is to develop a theological system that enables the user to be the core element of it, as Damer said: "the audience is the platform" (in the social virtual place).

- Rafael Lozano-Hemmer in his artwork 'Vectorial Elevation', as this artwork was created originally to enable the user to celebrate the arrival of the year 2000 in Mexico City's Zócalo Square, whether the user was online globally, or in the public space (Zócalo Square).

- Christa Sommerer and Laurent Mignonneau in their artwork 'The Living Web, as the intention of this artwork was to develop a new and more Intuitive way to browse the Internet through multi-modal interaction, speech recognition, and multi-touch systems.

The third group: These are the artists who have a meaning or theme and want to convey it to the user to participate with it. At the same time, they want to improve the technological system (the medium), and so to enhance the user's experience of it. The examples of this group as follows:

- Karel Dudesek in his artwork 'Van Gogh TV/Piazza Virtuale'.
  Dudesek stated that he was concerned with the challenge to design a screen surface which could accommodate the fast changing inputs of images and sounds, as well as network feeds from many places, sources and countries. He also said that there have been many social intentions in Van Gogh TV projects, such as enabling the viewer to have a digital stage, and allow for some type of barter, on the screen.

- Paul Sermon in his artwork 'Telematic Dreaming'.
  In relation to the theme of the artwork, Sermon said in his statement of 'Telematic Dreaming', that Jean Baudrillard's essay 'Xerox and Infinity', presents the starting point for his installation. This essay talks about the role

of technology in bringing the 'Telematic Man' who gives himself the spectacle of his fantasies, and turns the screen into an interface and as Baudrillard shows (1987, cited by Sermon, 2007) 'The secret of the interface is that the other is within it, virtually the same - otherness being surreptitiously confiscated by the machine'.

As for improving the technology to enhance the user's experience of it, Sermon believes that the intended use of technology is not always its best one, and the artist sometimes reinvents the technological system or as he called it the 'media object' throughout the artworks (Kimbell, 2004).

According to Kimbell (2004), Sermon argued that the telematic way is not really about a proxy simulation of the real thing, but rather the telematic technology is about adding a new experience and emotions to human interactions based on cause and effect.

2. The artist's awareness of the of the technological system's role in representing the artwork

All the artists show a strong awareness of the technological system's role in presenting their artwork. Ascot was highly aware of the 'ARTEX' system's potential and possibilities. He found it was the most appropriate system for the theme of his artwork 'Pleasure of the text'.

Dudesek made the technological system according to his artwork concern, which was to design a screen surface which could accommodate the fast changing input of images and sounds, as well as network feeds from many places.

ART+COM also made a technological system based on the artwork's requirements, which was to enable the user to navigate the different places of the world through an electronic representation of an Earth map.

Sermon reinvents the usage of the video. He turns the screen into a tool for touching and presents an early version of the webcam, as the 'Telematic Dreaming' artwork, which enables the user to participate with their whole body.

Damer extended the use of the 3D digital techniques to be the user's presence in virtual social places.

Lozano turned a website featuring a 3D Java interface into a technological system that enabled the user to design enormous light sculptures in the sky over the city.

Sommerer and Mignonneau developed a technological system to enhance the user's experience in accessing the Internet in a singular way.

3. The audience as an integral part of the artwork

All of the artists in my research case studies considered the audience as an integral part of their artworks, except 'ART+COM', who did not specify this point particularly.

Ascott (2005) declared that the role of the artist had changed from the traditional role of producing content as a 'context maker', to providing a field of operations in which the user could become actively involved in the creation of meaning.

Also, Ascott considered the user or as he calls it the 'viewer' to be an integral part of the concept of the 'Pleasure of the Text'. The artwork was incomplete and always awaiting the intervention and constructive collaboration of the viewer. (Ascott, 2003).

Dudesek was emphasising the 'user' role when he said that: 'The audience is the artist'. He declared that the idea of 'user generated content' was first introduced extensively by Van Gogh TV in Piazza Virtuale.

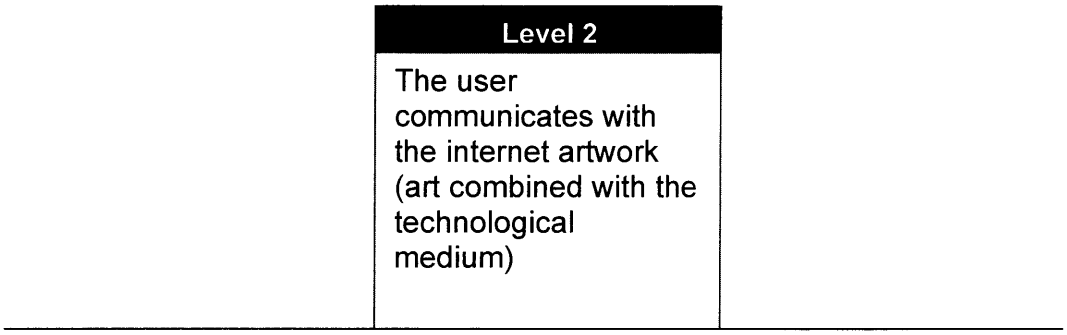
Sermon said that: 'The audience are the artwork'. He considers that the audience have always and will continue to be, integral to the concept of Telematic Dreaming.

Damer considered that the audience is an integral part of his artwork's concept. He said that 'the audience is the platform'.

Lozano declared that the audience is still an integral part of his artwork, and that the user's participation is still absolutely necessary for Vectorial Elevation.

Sommerer and Mignonneau confirmed that they consider the active audience to be very important in all of their works. They added that without the audience, there would be no interaction, no images, and no sounds.

Figure 5.24: Communication model - level 2



The description of this level is based on what I already suggested earlier in my research, although further understanding will be presented according to the online questionnaires' findings.

The main elements: refers to the communication elements that appear in level (2) (These are: the user and the Internet artwork combined with the technological system).

The characteristics: refers to the main attributes that explain the communication in this particular level; (where in the user communicates with the artwork).

1. The user's understanding of the artwork project

In this aspect particularly, there were many questions that explored the user's understanding of the artwork from many angels. These were: their opinion of the artworks, their ability to judge if these artworks were involved with multiple human senses, their evaluation of themselves about the clearance of the content, their abilities to find similarities between the artworks and other works, and their evaluation of their direct impression of the artworks.

Question (7) -The Questionnaire: 'The artwork (research case study) is a unique ground breaking development in the communication technology field'.

The results show that the more than half of the participants found that the previous mentioned artworks to be a unique phenomenon in communication technology field, because its clear from the table above that the percentage of the participants

who answered with *'Agree' was* over 40%, and the percentage of the participants who answered with *'Strongly Agree'* was over 20%.

As a result, the total percentages of the participants who answered with *'Agree'* or *'Strongly Agree' was* more than 60%, while the other answers of the remaining participant ranged between *'Don't Know'*, *'Strongly Disagree'*, and *'Disagree'*.

Question (11) -The Questionnaire: 'The artwork (research case studies) involves the audience at a multi- sensory level (human physical sense)'.

The results show that vast majority of the participants believe that (research case studies) involves the audience at a multi- sensory level (human physical sense). Over 60% of the participants answered with *'Agree'* or *'Strongly Agree'.* Of the remaining participants, between 12 and 25% answered with *'Don't Know'* and less than 10% of the participants answered with *'Disagree'* or *'Strongly Disagree'*.

Question (12) -The Questionnaire: 'The theme and the content of the artwork (research case study) are clear to me.'

The results show that the vast majority of the participants found the artworks clear to them, as over 80% of the participants answered with *'Agree'* or *'Strongly Agree'*, while the remaining participants answer with *'Don't Know'* (less than 11%), and *'Disagree'* and *'Strongly Disagree'* together scored less than 8%.

Question (13) -The Questionnaire: 'There is a direct relationship between this art work (research case study) and any one of the following recent internet protocol developments: (Google Earth, YouTube, My Space and Second Life)'.

The results showed that the vast majority of the participants found that the artworks 'TerraVision' and 'Avatars' had similarities with some of: Google Earth, YouTube, My Space and Second Life.

This was because over 80% of the participants answered with *'Agree'* or *'Strongly Agree'* for the artwork 'TerraVision'. Over 80% also answered with *'Agree'* or *'Strongly Agree'* for the artwork 'Avatars'.

It is worth mentioning here that these results also indicated that the participants were aware of the clear and obvious relationship between the artworks 'Terravision' and 'Google Earth', and also between the artwork 'Avatars' and 'Second Life'.

Question (14) -The Questionnaire: 'How would you describe your response, after having looked at to the following artworks (research case study)?'

The results shows that the answers of the vast majority of the participants, at over 65% ranged between '*Interested*', '*Impressed*' and '*Very Impressed*'.

The percentage of the participants who answered with '*No Specific Response*' was between 22 and 27%, and the percentage of the participants who answered with 'Not Interested' was over 20%.

2. The user's awareness of the technological system's role in representing the artwork.

Question (8) -The Questionnaire: 'The concept of this artwork (research case study) is embodied in the telecommunication technology it uses'

The results show that the participant's attitude is not decisive in determining if the concepts of the artworks are embodied within the telecommunication technology it uses. The participants who answered with *'Agree'* was almost 30%, and the participants who answered with *'Disagree'* was almost 30% as well. The percentage for the participants who answer with *'Don't Know' was also about the same..*

Question (9) -The Questionnaire): "The Technology in this artwork (research case study) is considered as a tool and is not directly related to the content of the artwork."

The results show that over 40% of the participants answered with *'Disagree'* and *'Strongly Disagree'*. Also, the remaining participants, answered with *'Don't Know'*, at over 25%, and less than 25% of the participants answered with 'Agree' and *'Strongly Agree'*.

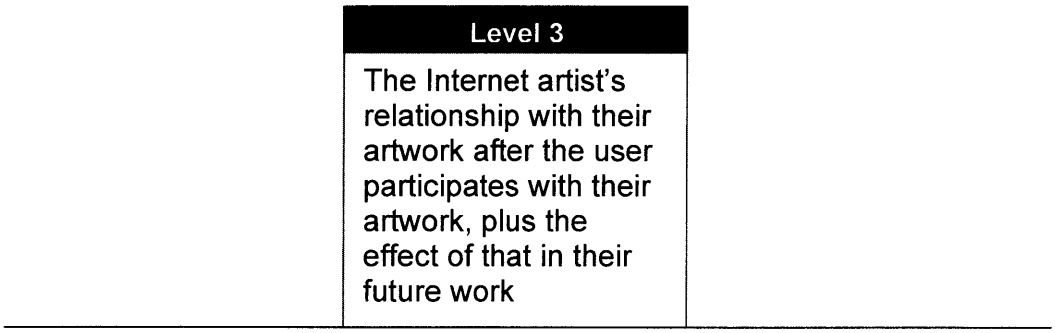
Hence, the half of the participant's attitudes tend to believe that the technological system in the artworks are not considered to be a tool, and it is directly related to the content of the artwork. This means that half of the participants approximately recognise the technological medium true role, and it is not just a medium to convey the theme of the artwork.

3. The user's understandings of the artist's role in presenting their work.

In question (10) the statement was: 'It is essential that the artist takes an interactive role during the public presentation?'

The results show that between 40 and 50% of the participants answered with *'Disagree'* and *'Strongly Disagree'*. The remaining participants answered with *'Don't know'* at less than 25%, and less than 25% of the participants answered with *'Agree'* or *'Strongly Agree'*. Hence, the participant's attitudes tend to believe that the artist should not engage in the artwork as part of the communication process with the artwork.

Figure 5.25 Communication model - level 3



The description of this level is based on what I already suggested earlier in my research, although, further understanding will be presented according to the interviews' findings.

The main elements: refers to the communication elements that appear in level (3). (These are the Internet artist and the artwork)

The characteristics: refers to the main attributes that explain the communication in this particular level, which are: the Internet artist relationship with their artwork after the user has participate with it, plus the effect of that on their future works.

In my research, I suggested that exploring the following concerns will help in understanding the communication in this stage:

1. Is the concept of the artist's recent artwork related with their early network art project?

2. Is the artist aware of the technological system changes, and are these changes a result of their early artwork?

3. How does the artist think about users? Are they an integral part in their future work as in their early work?

I will demonstrate the answers to these questions in the following elements:

1. The artwork's concept: in the past and the present time.

The artworks in my research include different concepts. Therefore, every artwork concept has its own private situation within the time factor. Some of these artwork's concepts remain the same through time, and some of them are specific only for the time that the artwork was created in it.

The LPDT artwork includes two notions: the idea of the nonlinear narrative, and 'distributed authorship'. These two concepts are still relayed in our present time: for example, with online narrative and interactive narrative.

This means that Ascott's artistic intentions for his artwork are not only specific to the time it was created, and the concept of distributed authorship could be applied for now as for the past.

Dudesek said that the world needs 'Piazza Virtuale' in 2008 and beyond as a feature which is embedded in the available media broadcasting infrastructure, which means that his artwork concept does not relay only in the time it was created.

Sermon thinks that the artistic intention of 'Telematic Dreaming' is not specific to the time it was created, as he explained that his artwork was never tied to a specific software and technical shelf life. He said that 'Telematic Dreaming' as a concept has continued to be exhibited over 25 times around the world since its development.

ART+COM consider that the concept of TerraVision was not reliant on the period of time it was created. It was a little bit too early. As for the time being, they did mot mention if the concept of the artwork was applied or not.

Damer considered that, avatars have appeared on the scene multiple times and for different reasons (driven by the available technology). Avatars have a deeper history than the mid-90s, having a presence in the 'Habitat' project' at Lucas Film a decade earlier, and presaged by Maze War of the 1970s. The 'Avatar' concept is still exists in the present.

Lozano stated clearly that his art project is neither really specific nor reliant on the time it was created, other than the fact that the technologies used to accomplish the project were those which were readily available in 1999. As for the present, he did not mention if the concept of the artwork was still applied or not.

Sommerer and Mignonneau they think that the concept of their artwork is specific to the time it was created. Their artwork concept was to build new interaction scenarios, where the users interaction data was more closely linked to open-ended and emerging image and sound structures.

2. **The artists' awareness of the technological system's changes in their artwork. Have these changes came about as a result of their early artwork?**

All the artists show that they aware of the technological changes in their artwork:

- Ascot declared that the 'ARTEX' technological system ended in 1984

- Dudasek thinks that the 'Piazza Virtuale' exhausted the technical and experimental interactive media possibilities which existed in 1992, and which have not changed much, even now. He is aware of the new generation of digital television; the 'iTV' and the 'iPTV'.

- He added that in our present time, the developments of Piazza Virtuale are ongoing, and he gives examples of net communities like: YouTube, Facebook, and My Space.

- Sermon declared that the technical world of videoconferencing has changed significantly since his first experiments in the early 1990s, and he specifies some changes such as Internet-based videoconferencing, and the availability of the free software to the user.

He also believes that videoconferencing has shifted to address human values rather than economic ones, and he thinks that he may have played a part in that shift.

- ART+COM think that he thinks that Google Earth is the best recent example of the latest satellite technology, as he said that its one of the most bespoken applications of the last year. They think that TerraVision was the initial motivation for that.

- Damer did not specify how the significance of the Internet has changed since his artwork was created. However, he stated that in the 1990s avatars presaged the development of today's social network technologies (My Space, Facebook etc) as well as real time communications systems (IM, Skype, texting), and of course the 'second coming' of social virtual worlds (Second Life, There, IMVU, etc).

- Lozano considers the main changes in the Internet since it became more mainstream, and that the most advantageous of this is the emergence of the phenomenon of 'user-generated content'. He considers that the disadvantage of it is that the central governments have found ways to 'monetise' the network and to censor it. Lozano considers that his artwork had very little effect on any of these developments

- Sommerer and Mignonneau think that there are not so many changes since 2000, as they said that we still use screens and keyboards to interact with the Internet. Only recently have multi-touch systems become popular.

3. **The audience as an integral part of the artwork in the past as well as the present.**

All of the artists in my research case studies consider the audience to be an integral part of their artwork; in the past as well as in the present. I already clarified this point in the third ingredient of level one, as the artists declared their opinion using the verbs for the past and for the present to confirm their opinion in considering the user as an integral part of their artworks.

5.5 Summary

In this chapter I analysed the results of the online questionnaire and the online interviews, which were applied over several case studies. Then I used these outcomes to demonstrate the final version of the proposed communication model of internet artworks.

The online interviews' outputs were very essential to elaborate more in-depth data about level (1) and level (3) of my research communication model. The online questionnaire was useful to help understand level (2) of my model. Hence, the total picture of the communication model of internet artworks is now complete.

In the next chapter I will present a review of my research and how the primary research data, as well as the secondary research data enables me to reach my main research aim.

6 Summary and Conclusion

I present in this chapter a brief, focused review of my research via the following elements.

Firstly, I present the research question and aims and its relationship to the previous studies. ***Secondly,*** I state the methodology and methods used in the research. ***Thirdly***, I describe how the research's output helped me to answer the research question. ***Fourthly***, I explain the research's limitations and the contribution of my research to knowledge of the field. ***Fifthly***, I give the conclusion and implications of the research. ***Finally***, I specify recommendations and future studies.

6.1 The Review of the study

My research is concerned with communication with internet artworks. In other words, the emulation and experimentation of communication on the Internet by the works of internet artists, that results in new and unexpected communication paradigms. The study asks: what is the communication model that describes this new dynamic communication process for internet artworks?

More decisively, **what is the appropriate analogy that defines unexpected creative hybrid models of communication?** The main aim of this research is to identify the communication model that has the ability to express the communication process with internet artworks. Hence, this PhD enquiry is broken down into the following analytical sub-questions:

- How does the internet artist think about their work? What are their intentions (concept)?

- How does the internet artist think about the technological system's potential in relation to their work?

- How does the internet artist think of the users' responses towards the internet artwork?

- Does the user think that they understand the idea (concept) of the internet artwork?

- Does the user think that the internet artist should be part of the process of communication with the artwork?

- Is the user aware of the effectiveness of the Internet (the technological system) in their communication with the work?

The first essential step in my research is to review the current literature to provide a critical summary and an assessment of the current state of knowledge in my research area, which is situated in the new media field and the communication field.

I found that the recent communication models are not adequate to describe the process of communication with internet artworks. However, I found a theoretical notion from the famous scientist and one of the world's pre-eminent thinkers on media and communication, Marshall McLuhan, which states: 'The medium is the message', which was introduced in Marshall McLuhan's most widely-known book, 'Understanding Media: The Extensions of Man', published in 1964, which concluded that there was significant potential for establishing a new communication model.

The reason for this is that internet artworks are based on the Internet as a technological system (medium). This system has singular attributes that must be considered by the artist such as: the ability to link data in multiple layers, the ability to present different kinds of media forms (text, audios, visuals) and, most importantly, the ability to display the artwork to different geographical places at different times.

Therefore, the artwork should be created with regard to all of the previous elements and, hence, artists should think of the attributes of the technological system (medium) before they create the artwork. Also, the question which suggests itself here is: does this mean that the technological system is part of the artwork theme or is it sometimes the artwork itself?

The second theoretical notion by which my research is influenced is 'The Death of The Author' (1967) - an essay by the French literary critic Roland Barthes. His core point of view is that readers must separate a literary work from its author and he criticizes the tendency of readers to think about characteristics of the author's personality or identity, like their religion, ethnicity, political beliefs or other attributes.

In the case of internet artwork, the questions that arise are: (a) could we consider that the artist (author) is a dead person, like Barthes's concept? and (b) does the user wonder who the author is?

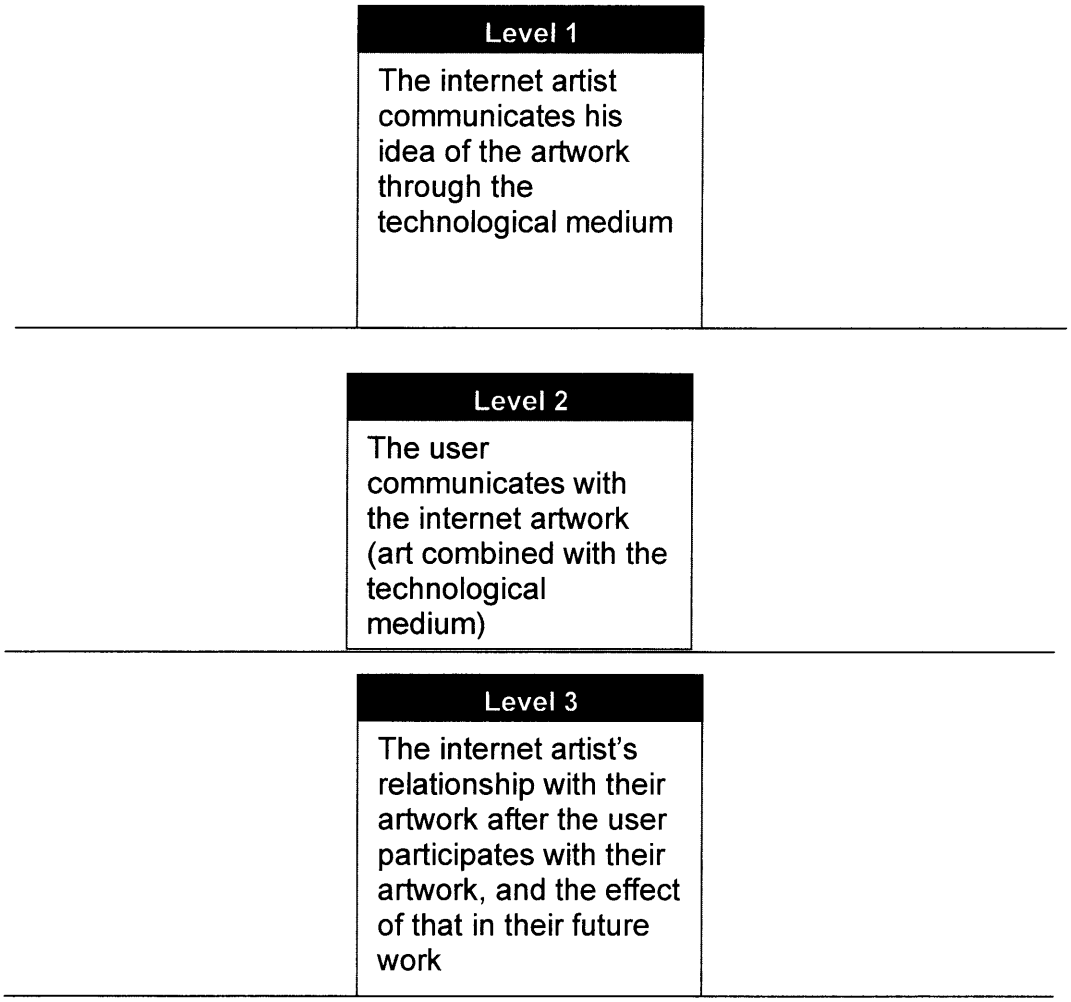
I held these theoretical notions in my mind, and I decided to explore more about them in reality. Therefore, I planned the second step of my research, which was choosing the methodical approach.

However, before that I decided to make a pilot case study before I began collecting the primary data of my research because I wanted to derive benefit from the pilot study's findings, to assist me in building my initial communication model before I conducted the actual case studies.

Then, I chose the Case Study Methodology as it is the most appropriate methodologies for the nature of my research. (I discussed the rationale for this choice in detail in the Methodology Chapter). I decided to apply this methodology over seven case studies (seven artworks), using two methods: the online questionnaire and the online interviews. (The aims of using these particular methods and the reasons for choosing the seven artworks are also discussed in detail in the Methodology Chapter).

After that, I gathered the results and started analysing them, based on the secondary data and by combining them with the proposed research communication model, to formulate the final version of this model.

Figure 6.1: The Final Version of Model of Levels



I called it the 'Model of Levels' because I suggested that the communication process in this kind of artwork occurs at different times. The process of communication is not a linear process that starts at one point and continues working until it reaches the end point. It is a process that has three levels, where each level is separated from the others.

In Level 1, the artist is still in the process of creating their artwork. This level, unfortunately, has been neglected by the traditional communication models. Nevertheless, this level is important because it indicates how the artist is communicating via their ideas for the artwork, and how they are going to make the artwork suitable for the user's participation. In particular, the internet artist should

be aware of the capabilities and potential of the technological system (medium) before creating the artwork.

In Level 2, the users participate in the artwork combined with the technological system in order to explore the theme of the work. It is important to know whether or not the users could discern the role of the technological system (medium) in the presentation of the artwork. Also, whether the user was expecting that the artist would participate with them through the artwork.

In Level 3, the concern is about how the artist thinks of their artwork after the users have finished participating in it, and how that will affect their future artwork.

The figure below shows the timeline of the communication levels of internet artworks.

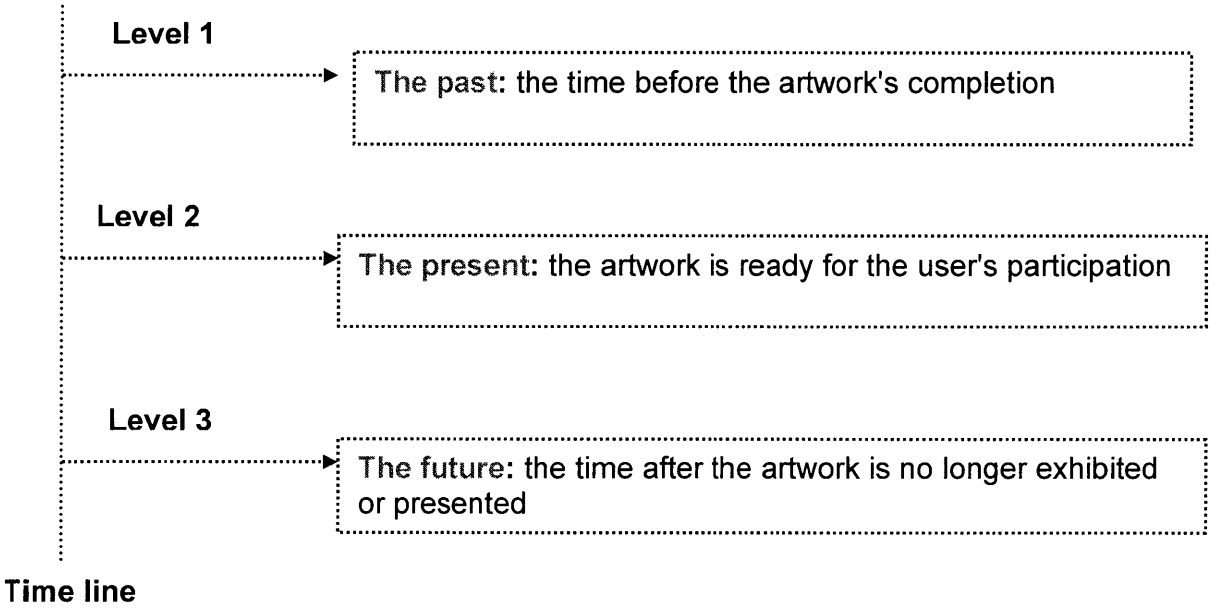


Figure 6.2: The Communication Levels' Time Line

According to my research's output, I found that in Level 1 the artists, in their relationships with their artworks, could be classified in three groups.

- ***The first group***: Artists who have a certain meaning or theme and want to convey it to the user.
- ***The second group***: Artists who have not decided to convey a certain meaning to the user. However, they want to improve their experience of the technological system (the medium) and make themselves more involved with the artwork from the communications perspective.
- ***The third group***: Artists who want to do both. They have a certain meaning or theme and want to convey it to the user and at the same time they want to improve the technological system.

This means that the McLuhan aphorism 'The medium is the message' is true in a lot of the internet artworks, as the technological system is a part of the artwork's theme or, sometimes, it is the artwork itself.

As for the artist's relationship with the user, all of the artists in my research case studies in general consider the audience to be an integral part of their artworks. In addition, all of the artists show a strong awareness of the technological system's role in presenting their artwork.

In Level 2, the user shows a positive attitude towards:

- their opinion of the internet artworks,
- their ability to judge if these artworks involves themselves with human senses,
- the users' evaluation of themselves concerning the clarity of the content,
- their abilities to find similarities between the artworks and other works, and
- their evaluation of their direct impression of the artworks.

Also, half of the participants' attitudes show a tendency to believe that the technological system in the artworks (research case studies) is not considered as a tool, and is directly related to the content of the artwork. This means that a good percentage of participants recognise the technological medium's true role, and that it is not just a medium to convey the theme of the artwork.

As for the users' understanding of the artist's role in presenting their artwork, the participants' tend to believe that the artist should not engage with the artwork as part of the communication process with it. This is because approximately 50% of the participants agreed with that opinion. Approximately 25% made no decision as to whether to agree or not, and less than 25% of participants disagreed.

This means that I could not say that all users considered the artist as a 'dead person', as in Barthes's concept of the 'The Death of The Author'. Nevertheless, I could say that a large group of people did not expect the author to take part with them while they participated in the artworks.

In Level 3, every artwork concept has its own private situation within the time factor. Some of these artworks' concepts remain constant throughout time, whereas some of the concepts are specific only to the time during which the artwork was created.

Also, as for the artist's relationship with the technological system throughout time, all the artists show that they are aware of the technological changes in their artwork, and all of them considered the audience to be an integral part of their artworks in the past as well as in the present.

Hence, I could say now that the total picture is complete for the internet artwork communication model. This means that I have attained the research aim and answered the major research question. The following table clarifies the relationship between the communication model's ingredients and the research questions and objectives.

Table 39 : The Relationship between the Research Questions and Objectives, and the Communication Model.

The Research Questions	The Objectives	The Communication Model for Internet Artworks (Model of Levels)
• How does the internet artist think of their work? What are their intentions (concept)? • How does the internet artist think of the technological system's potentials in relation to their work? • How does the internet artist think of the user's responses to the internet artwork?	Identify the relationship between the internet artist and: • The internet artwork (concept) • The Internet (technological system) • The user	**Level 1** What are the artist's intentions for their artwork project? Is the artist aware of the of the technological system's role in representing their artwork? How does the artist think of their audience? Are they an integral part? **Level 3** Is the concept of the artist's recent artwork related to their early network art project? Is the artist aware of the of the technological system's changes, and have these changes come about as a result of their early artwork? How does the artist think of the users? Are they as integral a part of their future work as of their early work?
• Does the user think that they understand the idea (concept) of the internet artwork? • Does the user think that the internet artist should be part of the process of communication with the artwork? • Is the user aware of the effectiveness of the internet (technological system) in their communication with the work?	Identify the relationship between the user and: • The internet artwork (concept) • The Internet (technological system) • The internet artist	**Level (2)** The user's understanding of the artwork project The user's awareness of the technological system's role in representing the artwork. The user's understanding of the artist's role in presenting their work.

6.2 The Limitation of the research

The main limitation of this study is that I intended to carry out semi-structured, online Interviews with the artists as a feasible choice because this kind of interview results in more information to interpret.

My plan was to send the artists the most important questions in the first e-mail and then ask other questions (resulting from their answers, in the second e-mail). However, and unfortunately, most of them were very busy. Some of them replied within two weeks and another one after nearly six months.

Therefore, my research interviews appeared as structured interviews rather than semi-structured. However, I acquired a satisfactory amount of data from the interviews, which enabled me to answer the research questions.

6.3 Contribution of the study to knowledge of the field

As I stated earlier in the Introduction Chapter, my research will fill the theoretical gap in the communication field, as communication scholars have declared that the current classical communication models are not suitable for reflecting the communication process within the field of new media. Hence, as internet artworks are part of this new media field, so these older models are not sufficient to reflect the communication process within them very well. Therefore, a new communication model is needed.

This new communication model will contribute effectively to the development of the internet art field as it will assist in the understanding of internet artwork in a deeper and more comprehensive manner. This will happen through the insights that the communication model will provide into the communication process of internet artworks.

Furthermore, this model will assist organisations to improve their communication strategies and develop their websites, their internet software and the installation of internet art or any kind of art production that is involved with the Internet.

6.4 Conclusion and implications of the research

The communication perspective that the 'Model of Levels' sets out adds new insights into the understanding of internet artworks. The reason for that is because this model includes three levels: Level 1 which is prior to the artwork's completion, Level 2 wherein the artwork is completed by the user's participation in it, and Level 3 wherein the artwork is no longer exhibited.

These three levels show the lifecycle of the artwork. Level 1 presents how the artist thinks of the artwork's theme and how they think of those capabilities of the technological system which could be useful in presenting their concept of the artwork. In Level 2, the artwork is ready for the user's participation, and while the user communicates with the artwork the artwork becomes complete. In Level 3, the artwork is not active, and the artist regards the artwork either as a concept that will remain hidden in their future artworks, or as a theme that is specific only to a certain period of time.

Hence, the implication of the research could be:

- Increase the internet artists' awareness of the communication aspect of the artwork. This will enable them to improve their future artwork.

- The art critics could apply 'The Model of Levels' as a guideline to analyse the artworks.

- The developers of software for the Internet could use 'The Model of Levels' as a structure to create as well as evaluate their products.

6.5 Recommendations

I recommend that scientists and scholars in the communication field pay serious attention to studying the communication perspective of the other types of artworks in new media fields. As my research takes the first step by constructing a communication model for internet artworks, this could be considered the beginning of a *rapprochement* between the communication and new media fields.

Also, I recommend that governments and major companies in the private sector, particularly the technology companies, play a role in funding internet artworks, because this, on the one hand, will improve and support artists' performance and experimentation, and on the other, will enable these companies to develop artists' creative ideas regarding future technological systems.

Moreover, I recommend that film producers, especially science fiction movie companies, cooperate with the internet artists (as I mentioned earlier in the Analysis Chapter).

The artists could derive great benefits from presenting their artwork themes in the movies because it is like showing their ideas to the world instead of just those few people who are specialists or interested in their artworks.

This represents a great opportunity to for artists to discover the users' impressions of their artwork as well as the specialist cinema critics. At the same time, the movie will be rich with the valuable content of the artists' creative concepts and themes.

6.6 Future studies

There are many kinds of future studies that could emerge from my research, and I will mention two types:

1. Future work based on applying my research model, the 'Model of Levels'

- Future work could be done to examine the research communication model (model of levels) by using different questions, like 'How and Why', using the grounded theory strategy. This would be in order to develop the communication model into a communication theory.

- Further work could be done to explore what kinds of factors will appears if we apply the research communication model (model of levels) to different cultures, using the ethnography methodology.

- .Also, it would be a remarkable study to apply the Model of Levels to other kinds of new media arts, for instance, to analyse the online narrative based on the Model of Levels' components, especially because this unique kind of literature and art is based on the Internet.

2. Future work based on studying different angles of communication in internet artworks

- The focus of my research was to identify the communication model that has the ability to express the communication process with internet artworks. However, further research could be done involving studying the artwork's 'interactivity' and how that impacts upon the user's communication pattern.

- Studying the non-verbal communication that occurs while the user participates in the internet artworks.

- Studying the user's communication attitudes towards a particular element of internet artwork, such as audio, text and visuals.

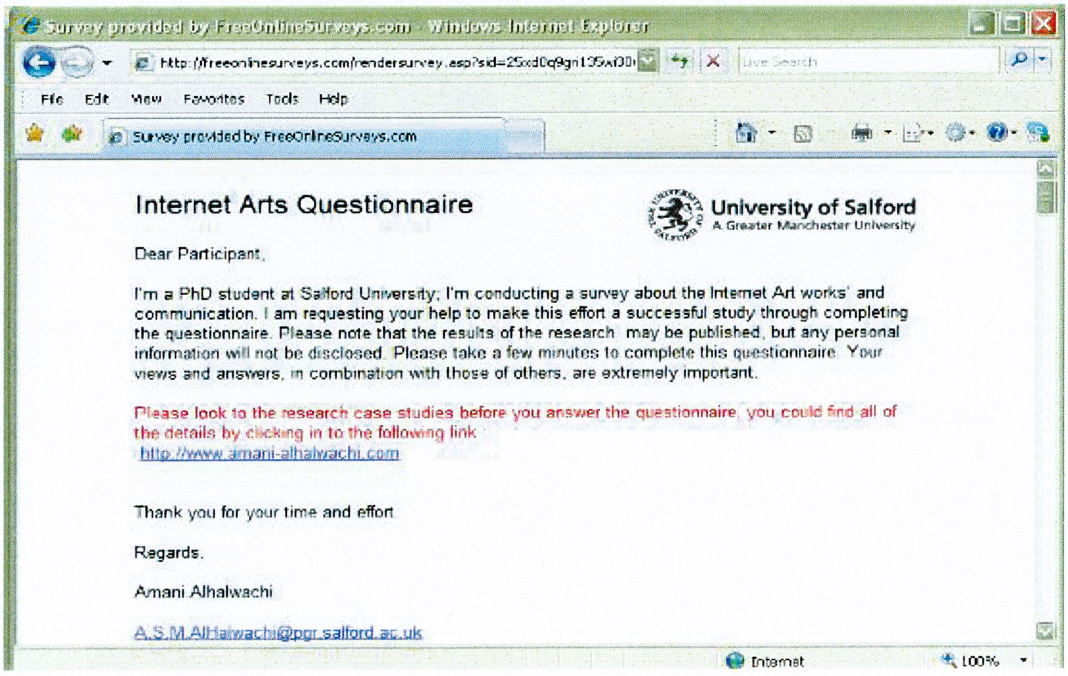
Appendix

The Online Questionnaire Electronic Form

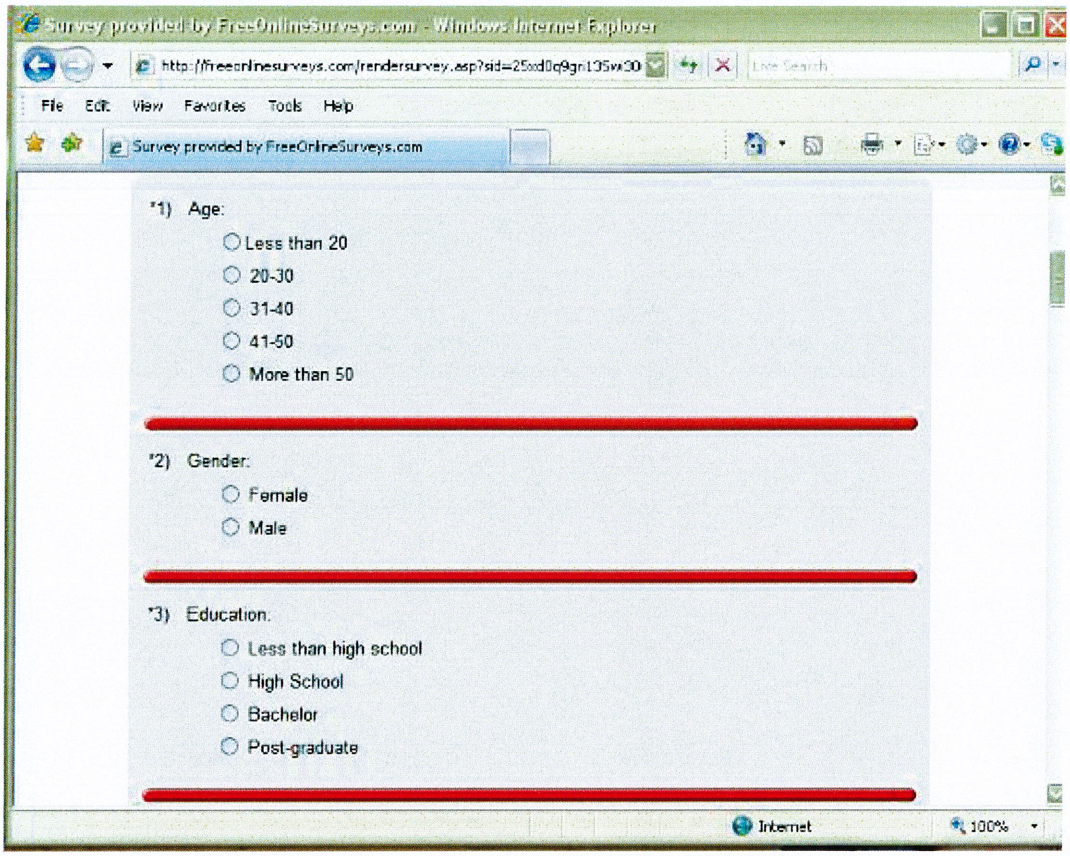
The online questionnaire is currently available on the following URL:
http://freeonlinesurveys.com/rendersurvey.asp?sid=25xd0q9gri135wi306511
It might now be removed for technical reasons, as I have now finished using it.

Hence, the aim of this appendix is to provide visual pictures for the online questionnaire's electronic form in case it has been removed. I am demonstrating the questions of the online questionnaire using the following pictures using the (print screen) technique.

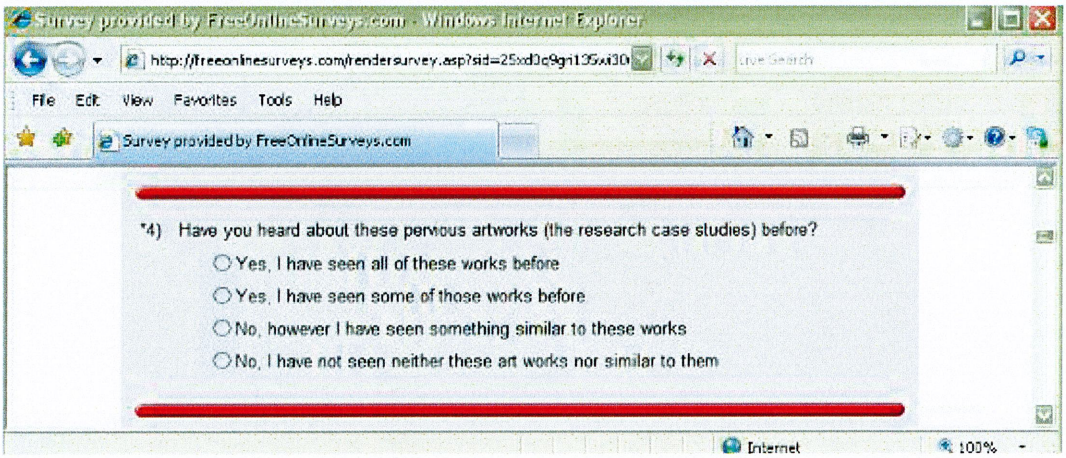
Picture of the Questionnaire's Introduction



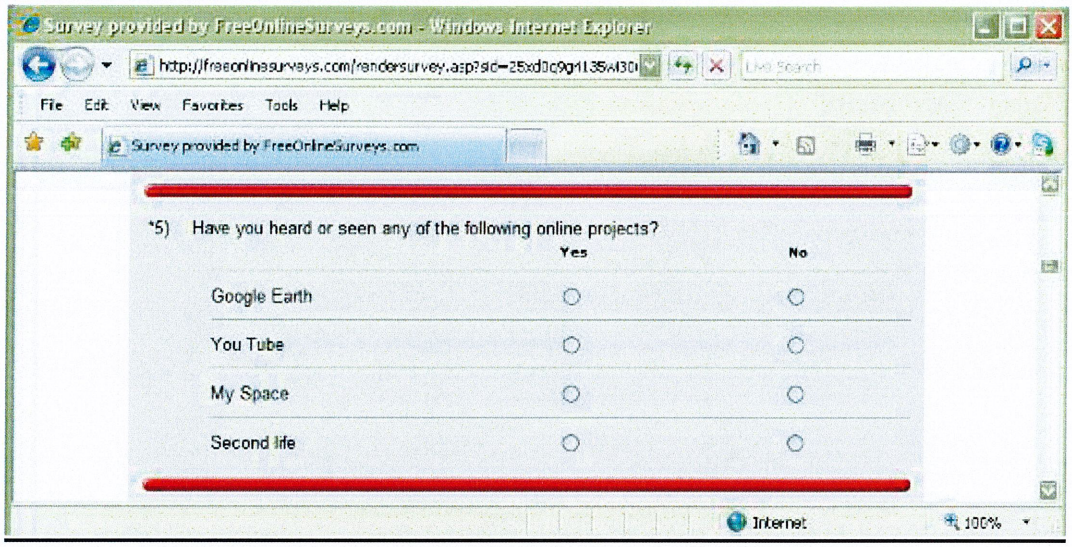
Picture of the General Demographics Questions



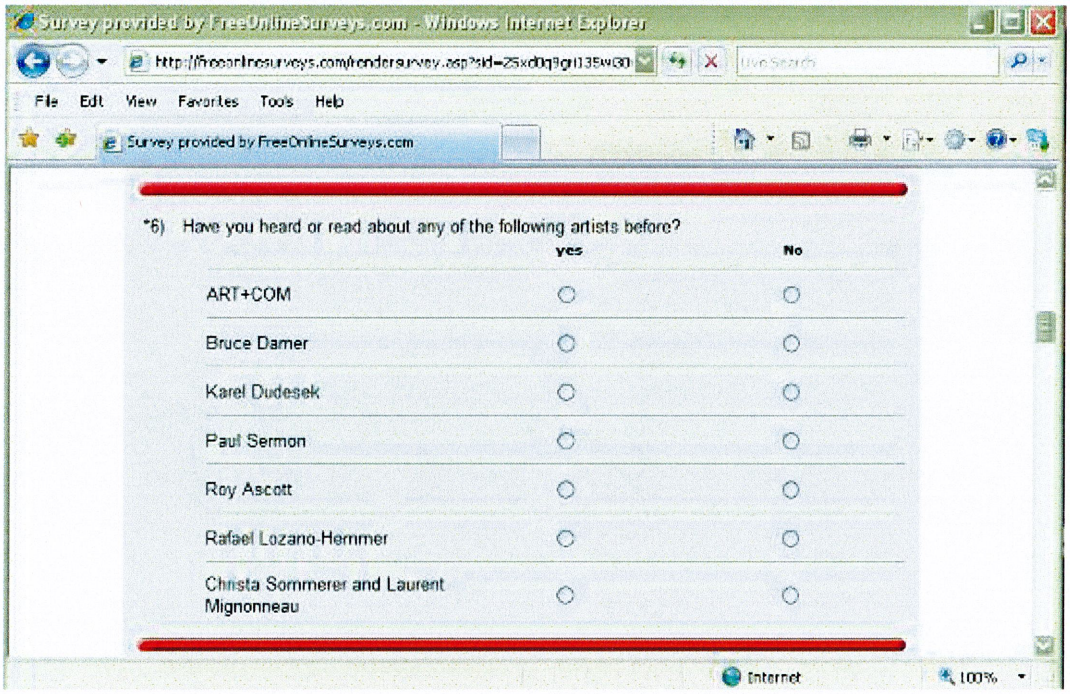
Picture of Question (4)



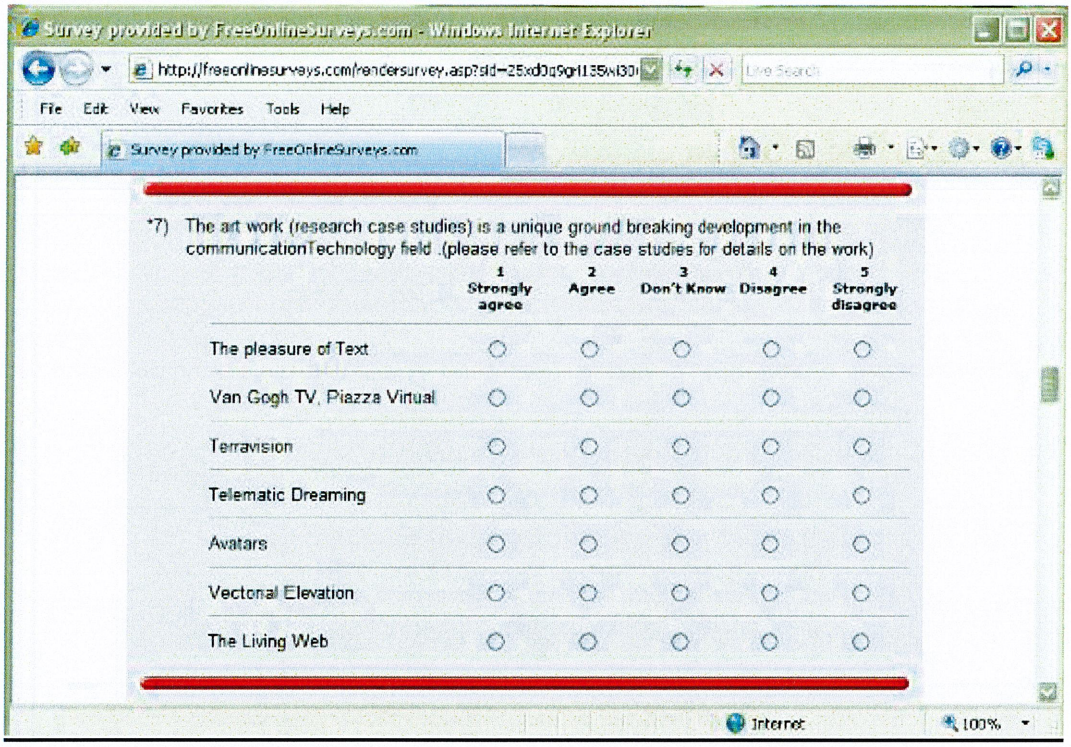
Picture of Question (5)



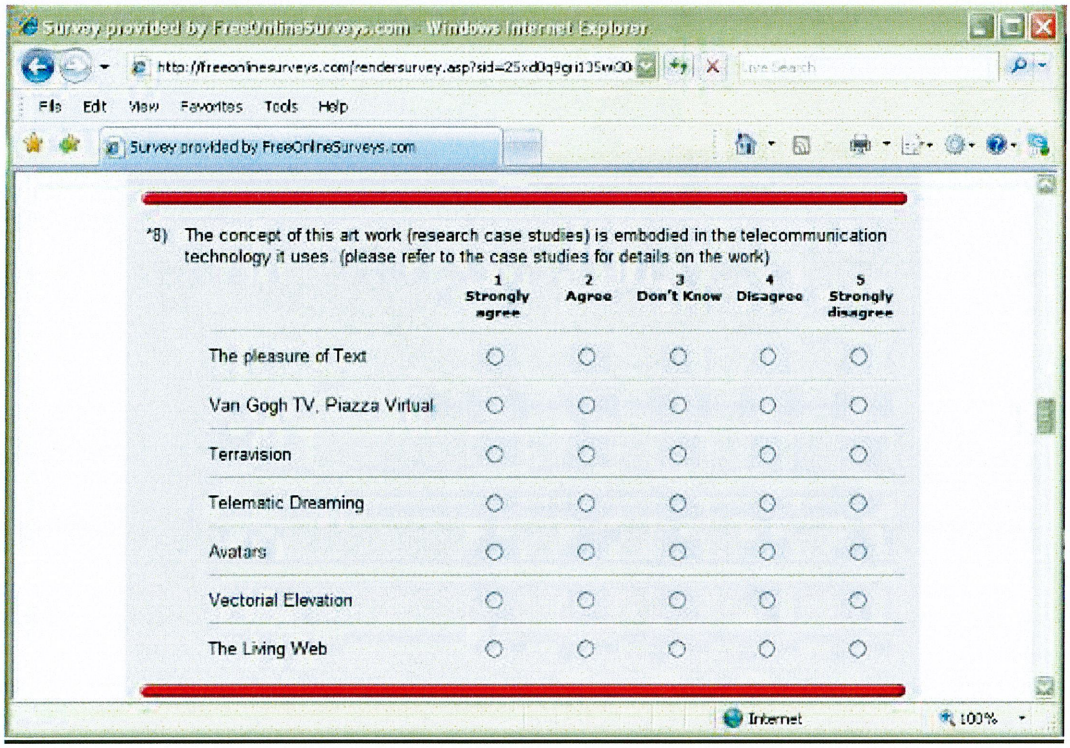
Picture of Question (6)



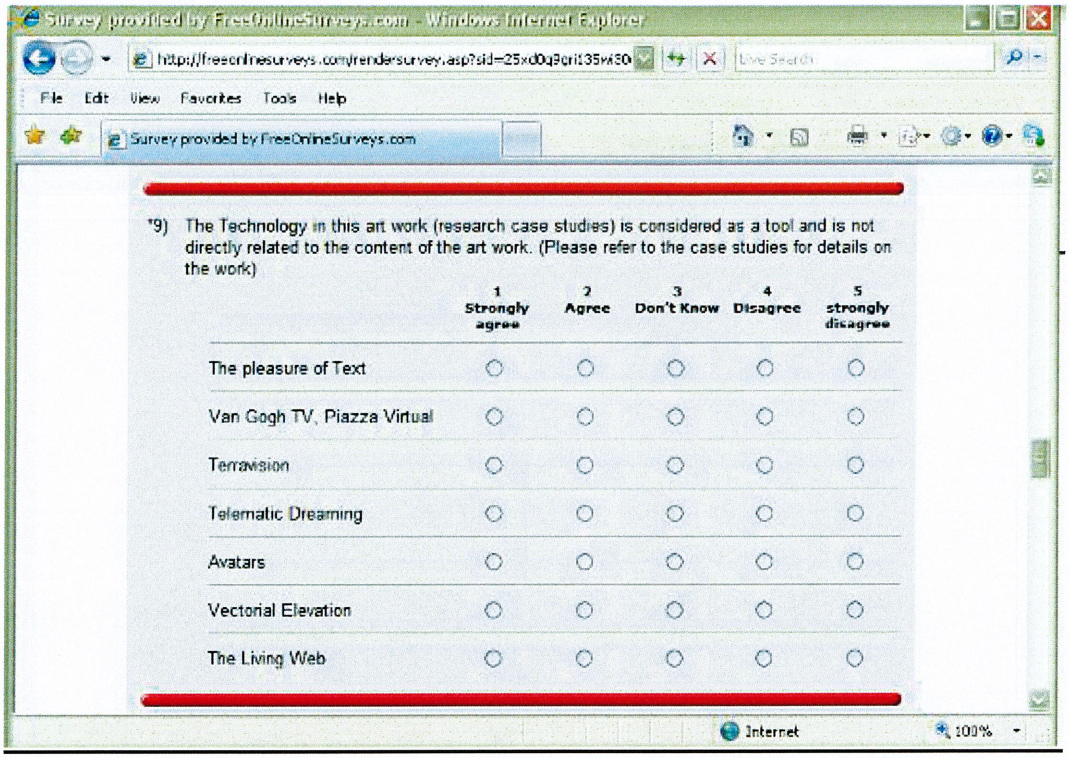
Picture of Question (7)



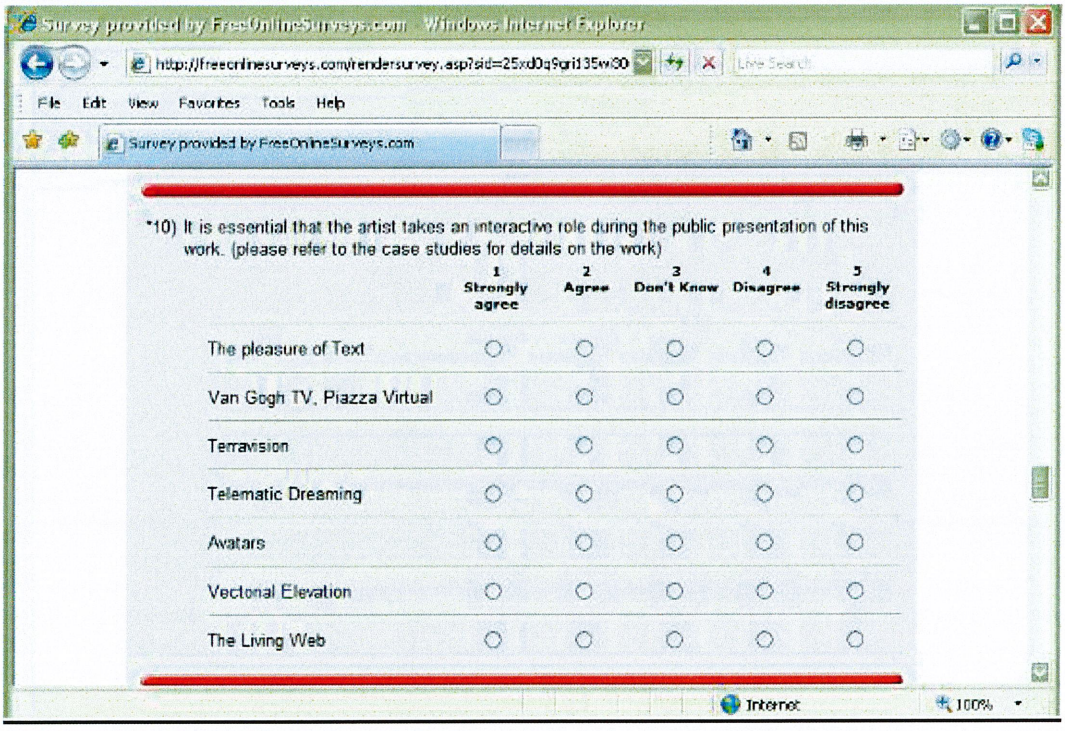
Picture of Question (8)



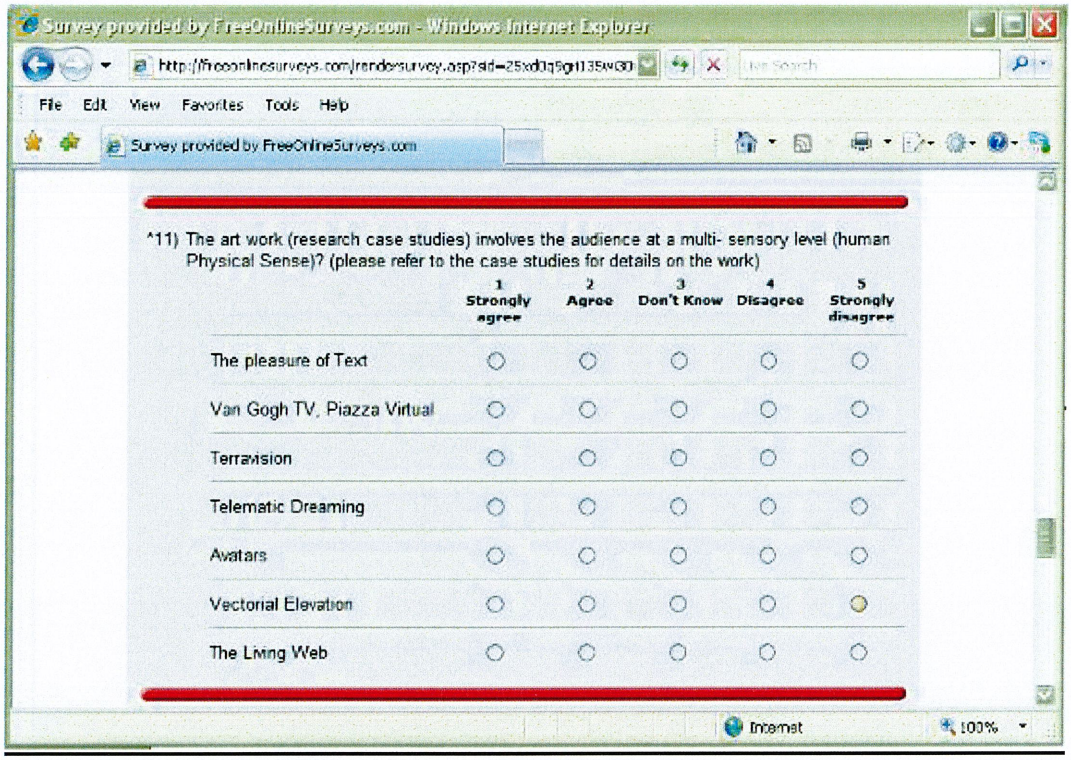
Picture of Question (9)



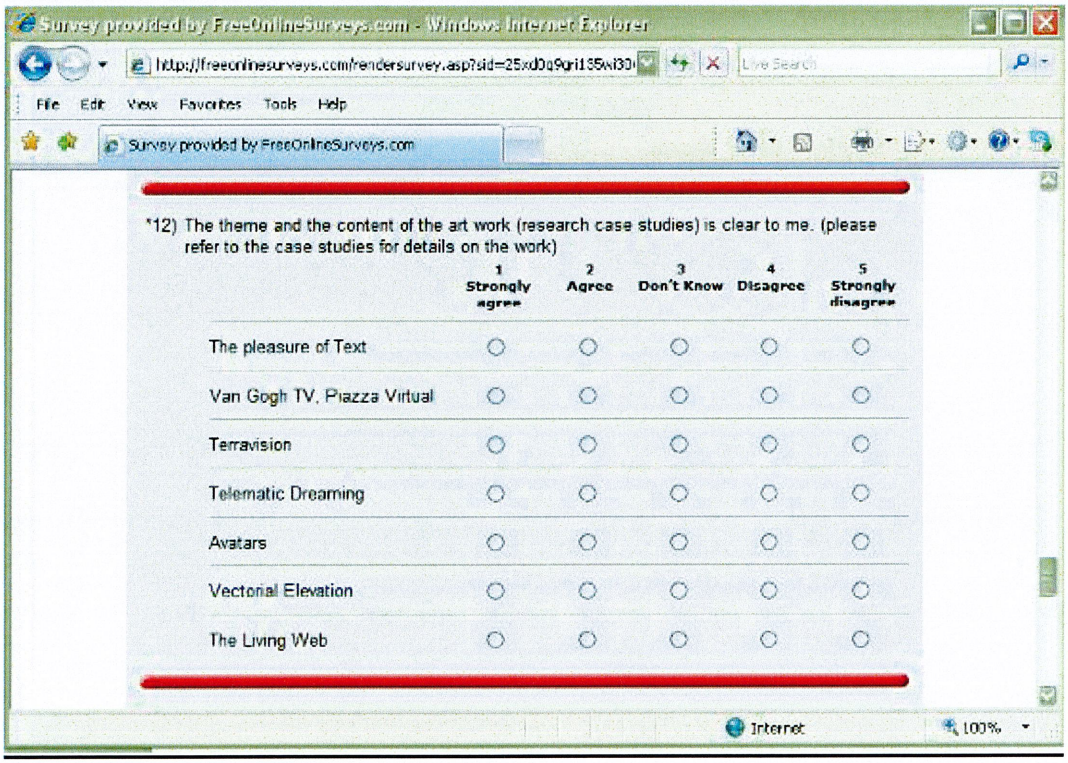
Picture of Question (10)



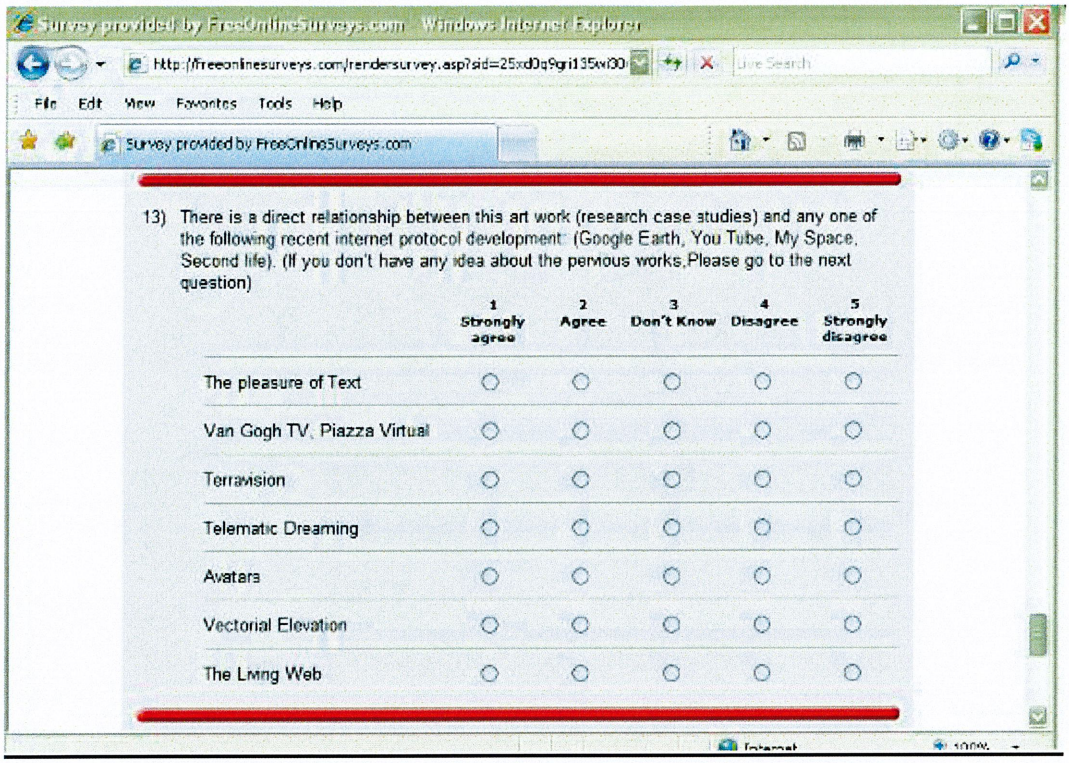
Picture of Question (11)



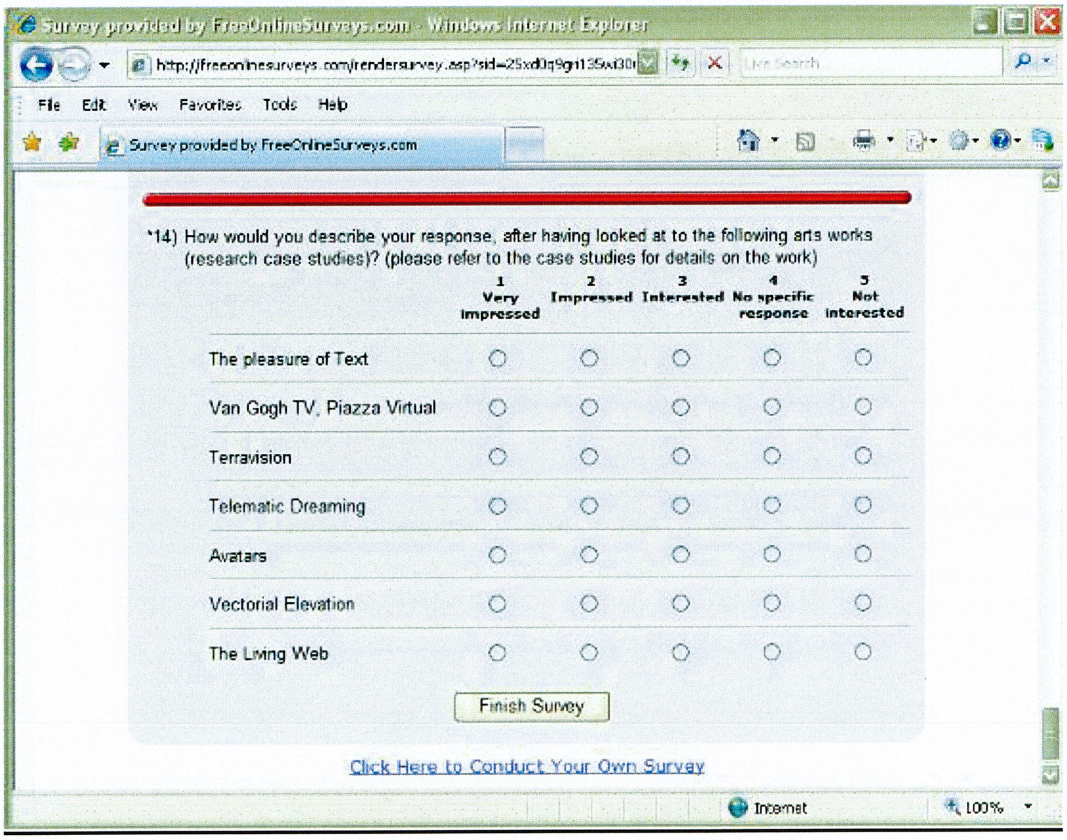
Picture of Question (12)



Picture of Question (13)



Picture of Question 14



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