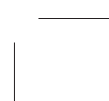


Actor-Spectator in a Virtual Reality Arts Play

*Towards new artistic experiences in between illusion and reality
in immersive virtual environments*



Actor-Spectator in a Virtual Reality Arts Play

*Towards new artistic experiences in between illusion and reality
in immersive virtual environments*

Magali Ljungar-Chapelon

School of Photography, Faculty of Fine, Applied and Performing Arts,
University of Gothenburg

Thesis for the degree of Doctor of Philosophy in Digital Representation at the
School of Photography, Faculty of Fine, Applied and Performing Arts,
University of Gothenburg

ArtMonitor series of publication from the Board for Artistic Research (NKU),
the Faculty of Fine, Applied and Performing Arts,
University of Gothenburg
Publisher: Johan Öberg
Address: ArtMonitor
University of Gothenburg
Konstnärliga fakultetskansliet
Box 141
405 30 Göteborg
www.konst.gu.se

Cover Photos: Sandra Andersson
Front cover: Picnic under the Golden Tree
Layout: Emma Corkhill (cover) and Lars-Anders Carlsson (text)
Printed by: Intellecta Infolog 2008
© Magali Ljungar-Chapelon 2008
ISBN: 978-91-977757-1-7

Pour Linnéa

Abstract

Title: Actor-Spectator in a Virtual Reality Arts Play: Towards new artistic experiences in between illusion and reality in immersive virtual environments

Language: English

Keywords: Artistic crossover, actor-spectator, Virtual Reality Art, VR-Cube, immersion, interactivity, experience of art, audience experience, play, metaphor, illusion, reality, Gestalt, metaphorical journey, social interaction, performing arts, visual arts, computer games, adventure games, entertainment

ISBN: 978-91-977757-1-7

This doctoral project brings to the fore the specificity of the artistic experience when the Virtual Reality Cube, a medium based on immersive virtual reality technology, is used as artistic virtual space, where the stage and the auditorium blend into one and spectators and actors no longer have distinctive roles. It consists of three integrated parts: a written thesis, a VR artwork and a DVD, which illustrates the text, the production process of the VR work, and which also presents an interpretation of the research results in filmic and photographic form. Gadamer's concepts of play and experience of art, Aristotle's conception of drama and Ricoeur's theory of metaphor are used as points of departure in order to coin the term *virtual reality arts play* or *VR arts play* that characterises this kind of immersive journey in between illusion and reality.

Empirical and theoretical functions interweave in a chorus of voices representing the experience of all actors involved: the audience, the production team and experts from several art fields, computer-games and media. Audience surveys show that all the respondents but one, children as well as adults, thought that this type of VR artwork opens up new ways for an artist to give shape to an artistic vision and for an audience to communicate with and experience an artwork from within. What appears as the most worthwhile and unique aspect of the experience is the opportunity to experience fictive, imaginary worlds and characters that cannot be represented by other means than through an immersive virtual reality medium, i.e. within a physical space where the audience becomes physically immersed and participant "on stage". The essence of such an experience is to be found in the notion of "play in between", at the crossover of several art forms and computer games, for audiences which consider themselves as both actor/participants and spectators. Research results, exposed and illuminated through semiotics and hermeneutics, show that such experiences may develop in the form of intimate experiences for a little group of spectators or within new social contexts for broader audiences and with several possible applications within the fields of art and entertainment.

Contents

ACKNOWLEDGEMENTS	XII
INTRODUCTION: WHAT, WHY, HOW?	1
What is the specificity of an immersive VR experience?	1
Research question	1
The VR-Cube, a virtual reality theatre and a new research space	3
Why? A new field of discovery	6
Between the stage and the auditorium	6
Immersive VR art with a performing arts lense	8
Illusion and reality in the VR-Cube	9
Working hypotheses	9
How? Artistic knowledge shaping	10
Emotional intelligence	11
Interweaving empirical and theoretical functions	12
Empirical material	13
▶ The VR arts play as a case study	13
▶ A logbook as memory aid	14
▶ Audience and production team surveys	14
▶ In-depth interviews	14
▶ Relevance and limits	15
Theoretical perspectives	16
▶ In between perspective for a crossover artwork	16
▶ Semiotics uncovering parts of the artistic process	17
▶ Hermeneutics of digital representation	18
▶ Theoretical key concepts	19
<i>Experience of art</i>	19
<i>Play, through Aristotle and Gadamer</i>	19
<i>Metaphor from Aristotle to Ricoeur</i>	20
▶ Art and new media-specific concepts	21
<i>Virtual Reality</i>	21
<i>Immersion</i>	22
<i>Interactivity</i>	22
<i>Artistic Crossover</i>	22
Film and photography as material for hermeneutics	22
Directions for use	24

PART I: RESEARCH CONTEXT	25
Background of the artistic researcher	25
Crossover identity	27
Art, digital media and science in the political agenda	28
Artistic crossover between various art forms	29
Historical perspective and literature	33
Panorama, one of the VR-Cube ancestors	34
Literature, a selective overview	35
Is there an aesthetic of immersive VR art?	38
Tracing emerging aesthetics for virtual spaces	38
Which virtual reality for immersive experiences?	40
Immersion and interactivity	41
User interface as a central parameter	42
What role for a spectator of immersive experiences?	44
VR illusionism against or towards a higher level of awareness	45
Dissolution of aesthetic distance and critical detachment	45
VR illusionism as a threat and a political issue	46
VR art redeeming our awareness of reality	46
PART II: PRODUCTION PROCESS OF A VR ARTS PLAY	49
Le Beau, le Laid, le Bon et le Mauvais	49
A multidisciplinary collaborative work	59
An artistic and technical challenge	60
The risks of the unknown	62
Institutional and financial factors	62
Time and technical factors	63
About the Open VR-version	64
Transgressing technical barriers	65
The hazard factor	66
Knowledge and mental-related factors	67
Mental barriers	67
Various backgrounds, various cognitive maps	68
Compromises upwards	69
Voices from the production team	70
Survey for the production team	70
The production process in 22 film sequences	74
Artistic results towards artistic aims	79
Summing up key features of the production process	82

PART III: ARTISTIC KNOWLEDGE SHAPING	83
Life-world perspective as an ontological foundation	83
The idea of in between	87
From semiotics towards hermeneutics	90
Semiotics applied	92
Another horizon of knowledge	96
Gadamer and the experience of art	97
Truth and Method	97
Aletheia	98
Erlebnisse and Erfahrung	99
Play as experience of art	100
A play in between	102
Play within the research process itself	104
Hermeneutical circle	104
Metaphor within play	105
Aristotle and the tragic play	105
Aristotelian categorisation in a VR arts play	107
Aletheia in the shaping process	108
A scientific and artistic metaphor about time	112
The rule of metaphor: tracing identity and difference	113
Example: La Dame au Lévrier	116
The space for new born significations	118
A chorus of voices towards artistic knowledge shaping	120
PART IV: VOICES FROM IN AND OUTSIDE THE CAVE	121
RESULTS OF THE AUDIENCE SURVEY	122
Audience profile	123
Medium-specific barriers	126
A medium for new experiences	127
Common features with other art forms and media	128
▶ Parallels with computer games?	129
▶ Parallels with visual and performing arts	134
Common features with other experiences	135
▶ An exploratory journey	135
▶ A meditative trip between dream and reality	135
▶ Flying and floating	137
▶ A variety of experiences	138

Immersion into imaginary worlds	140
Boundlessness and weightlessness	142
Interactivity through musical and visual impacts	143
The participative role of the audience	144
Actor/participant in the Cave	145
Social interaction as a benefit or an obstacle	147
Actor-spectator within a VR arts play	149
IN-DEPTH INTERVIEWS WITH EXPERTS	151
Computer game specialists	151
A film sociologist	158
A play director	163
A painter	170
MEDIA RECEPTION	175
New Rooms, design TV show	175
The Land of Science, science TV show	176
A journalist's metaphors	177
PART V: TOWARDS NEW REALITIES	179
New kinds of artistic experiences	179
Actor-spectator in fictive worlds	180
In between visual arts, performing arts and computer games	181
Key features of a VR arts play	182
▶ Immersive crossover in between illusion and reality	182
▶ A metaphorical personal and/or collective journey	183
Inhabiting virtual spaces with various artistic lenses	184
Perspectives of visual arts, performing arts and computer games	184
A Picnic under a virtual tree through a photographic 2D-lense	186
Metaphor as key of the experience	190
Actor-spectators performing metaphors within a play	190
Open play for protean transformations	192
A play in between, through the power of metaphor	193
Rules for a VR arts play – synthesis	194
First phase: intentionality and forgetfulness of consciousness	195
Second phase: metaphorical journey as mimêsis	195
Third phase: towards other forms of awareness	198
Open dynamics of play as the aesthetics of immersive VR art	199

Concluding discussion	200
Specificity of an immersive artistic experience	200
Vision for the future	203
▶ A political wager for art, entertainment and technology	203
▶ Art and entertainment in between illusion and reality	206
REFERENCES	209
1. Literature and Articles	209
2. Lectures, Seminars and Workshops	214
3. Works of art, installations and exhibitions within the visual and performing arts, digital art and VR art	214
4. Media Reception of my VR arts play and Research Project	216
5. Non-cited Works: Literature, lectures, artworks and other sources of inspiration	217
APPENDIX	219
1. The VR-Cube at Chalmers University of Technology	219
2. Production process	220
2.1 Production team –VR arts play	220
2.2 Folder – VR arts play (text only)	221
3. Manuscripts	222
3.1 The Labyrinth	222
3.2 The Pavilion	225
4. Survey for the production team	226
4.1 Survey material	226
4.2 A Chalmers student answers the survey	228
5. Visual and musical environments and interaction	230
5.1 Musical environments in the VR arts play	230
5.2 Time table for interaction in musical and visual environments	231
6. Audience survey	232
7. A journalist’s metaphors	237
8. Production team – DVD	241
9. List of interviews	242
10. List of pictures	242
11. List of models and charts	243

Acknowledgments

Artistic research cannot move forward as the work of isolated artists, no matter how high the motivation, how strong the artistic vision and my doctoral project could never have been fulfilled without the trust and support of colleagues and audiences, experts and layman, adults as well as children all of whom I want to thank for participating in this chorus of voices towards artistic knowledge shaping.

I would like to express my gratitude to my supervisor, Professor Sven Andersson, for his support and theoretical guidance through this exploratory journey. I also owe deep thanks to my co-supervisor during several years, PhD Karin Wagner for her accuracy during the redactional process and to both of them for ideas and intellectually stimulating discussions, where seriousness was always eased off by humour. I enjoyed playing my part in this trio. I want to give special thanks to two other co-advisors, during the earlier stage of my research: stage designer and Senior Lecturer Lena Selander from the School of Design and Crafts, shared generously her knowledge and experience with me during the production processes of both my VR arts play and the DVD-film and Professor Elsa Rosenblad from Chalmers University of Technology offered me a precious help in the interpretation of audience surveys during the empirical phase of my research process.

I am indebted to each of the twenty members of the production team of my VR arts play (see all the names on Appendix 2), without whose skills, interest and patience this artistic adventure had never been feasible. A special word of thanks goes to my colleague Josef Wideström, the VR and visualisation project leader, who supervised the whole production process in the VR-Cube. Associate Professor Odd Tullberg helped me with the concept of the Open VR version, provided expert contacts for the interviews and Michael Connell was the one who helped to run my VR arts play in the final and technically most critical phase of the project, allowing me to make the last interviews I needed for my research. Play director Wiveka Warendalk, film sociologist Lena Israel, interaction designer Henrik Mörck, computer game programmer Jonathan Jansson, painter Anders Sköld and VR and video artist Teresa Wennberg all generously gave me their time and provided me with expert knowledge.

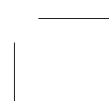
I would also like to pay homage to three colleagues of mine, without whose competence, generosity and engagement the DVD, i.e. an essential part of my research project, had never been produced: photographer Sandra Andersson, who witnessed the production process of my VR arts play, and with whom I realised the 10-minute-film *Om Le Beau, le Laid, le Bon et le Mauvais* and who furnished all the film and photographic material. System developer and interaction designer Magnus Axelsson from

Chalmers realised the DVD navigation structure and the graphical user interface and PhD student in Digital Representation Arne Kjell Vikhagen helped me with the film cuts. Three other persons, whose constructive criticism helped produce a better dissertation, are Monica Billger, Senior Lecturer in architecture, Cecilia Lagerström, play director and researcher and Professor Christine Räisänen, whose lectures in Academic writing helped me improve my text.

Colleagues and friends have been a great support and comfort. A special word of thanks goes to Kaja Buchanan, Michael Nystås, Thommy Eriksson, Sergei Muchin, David Crawford, Jean-Marc Orliaguet, Thomas Hansson and Marco Muñoz from the Faculty of Fine, Applied and Performing arts and from Chalmers, for their thoughtful and helpful suggestions.

Thanks, too, to the staff of Chalmers University of Technology, my workplace during the main period of my doctoral project, and to the staff of the School of Photography and of The Faculty of Fine, Applied and Performing Arts for their help over the years. A special word of thanks goes to Anna Frisk for her kind and accurate support and to Lars-Anders Carlsson for all help with the layout. Special thanks to Bo-Erik Gyberg, former head of the School of Film and Photography, to Lasse Lindkvist, head of the School of Photography, to Professor Johannes Landgren and to Johan Öberg for stimulating discussions in my mother tongue.

Finally, my deepest feelings and gratitude go to the two persons who mean most to me and stood by my side throughout the years it took for me to achieve my research project. I thank my husband and daughter for their unconditional support, their curiosity, trust and patience. Two other very important people during this period of my life were my father in law and my friend Anna Hermerén. Last but not least, Mahbub, my saluki was the one who lay by my feet and who taught me how to find a rhythm between writing and walking, mental and physical exercise.



INTRODUCTION

What, Why, How?

WHAT IS THE SPECIFICITY OF AN IMMERSIVE EXPERIENCE?

RESEARCH QUESTION

What is the specificity of the artistic experience when the Virtual Reality Cube (VR-Cube, also called CAVE) is used as a medium in order to create a work that abolishes the distance between stage and auditorium?

What I find fascinating at the dawn of the twenty-first century is to observe how digital media can cast a new light on the question of the floating borders in between illusion and reality. As we experiment in the Virtual Reality Cube (VR-Cube also called Cave), we are back to the ancient philosopher Plato's metaphor of the cave. Using the VR-Cube, we shape our time-cave in order to try to mirror the world through a virtual environment, where what we perceive are illusions of three-dimensional figures and human shadows created through computer modelling and animation.

The aim of my research is to examine what occurs, when a medium that is based on immersive virtual reality technology gets used as artistic virtual space, where the stage and the auditorium blend into one and actors/participants and spectators may no longer have distinctive roles.

INTRODUCTION

The questions I address are: Does the VR-Cube when used as an artistic medium enable new kinds of artistic experiences for the artists and the audience, i.e. new possibilities for the artists to create works of art and new ways for the audience to enter and experience a work of art? What is the specificity of the artistic and technical processes and what is the specificity of the audience experience when the spectator is given the opportunity to enter into a setting? In what ways do those experiences differ from or are similar to other kinds of experiences that are triggered by other art forms within the performing arts and visual arts and by computer games? How can those kinds of immersive experiences, artistic crossover experiences and/or play, based on virtual reality, be defined?

Hence, what I intend to do is to contribute to the development of artistic creation in immersive virtual environments using the VR-Cube, a digital medium based on advanced digital technologies in order to:

- Illustrate the problematics of the floating borders in between illusion and reality, by experimenting with the roles of spectator and performer/participant within an enclosed immersive VR space.
- Analyse how the various participants involved perceive their artistic experience. These participants include the artistic leader, the production team, the audience, experts from various art fields and a number of representatives from the media world. Another important group of “experts”, in that they have a natural relation to the new media that this dissertation targets, are Swedish children.
- Establish if, and in that case, how the use of an immersive virtual environment such as the VR-Cube allows for new kinds of artistic experiences in relation to the performing arts, visual arts and computer games.
- Launch definitions and develop theories about this new kind of artwork, by exploring its specificity, its meaning and discussing its artistic potential.

This doctoral project consists of three integrated parts: a written thesis, an artwork based on virtual reality, which I have come to define as **a virtual reality arts play** or **VR arts play** and a DVD,¹ which illustrates the text, the production process of my VR arts play and which also presents an interpretation of the VR artwork in filmic and photographic form. References to DVD film sequences and pictures are used from the very beginning of my thesis in order to introduce my project.

¹ Ljungar-Chapelon, Magali, 2006. *Om Le Beau, le Laid, le Bon et le Mauvais, (Det vackra, det Fula, det Goda och det Onda), Virtual Reality Arts Play av Magali Ljungar-Chapelon, Konstnärlig forskning i VR-kuben: DVD* produced by Chalmers University of Technology and the the Faculty of Fine, Applied and Performing Arts, University of Gothenburg.

THE VR-CUBE, A VIRTUAL REALITY THEATRE AND A NEW RESEARCH SPACE

The virtual reality Cube or VR-Cube has been developed within the Electronic Visualisation Laboratory at the University of Illinois in Chicago and was premiered at the ACM SIGGRAPH 1992 conference, where it was presented as a “virtual reality theatre”. This is a cube with sides which are three metres long. Inside the VR-Cube, the spectator uses polarised stereoscopic glasses which allow him/her to see three-dimensional images projected by extremely powerful computers on the four walls, the floor and even on the ceiling, if there is one. Unfortunately, the Chalmers VR-Cube I created my VR artwork for had no ceiling.



Figure 1. The VR-Cube at Chalmers University of Technology in Gothenburg

Sensors continuously register the position of the spectator and 3D graphics combined with music and sounds are updated continuously, following his/her movements in the VR-Cube. With a joystick, the spectator can choose his/her way through the virtual environment. If several people are in the VR-Cube at the same time, only one of them has the opportunity to steer with the joystick and the stereoscopic glasses. The others will follow the leader’s journey discovering what the latter chooses to discover. Beside the short introduction in Swedish under the root menu “VR-kuben på Chalmers”,

INTRODUCTION

two film sequences in the DVD are intended to show how the VR-Cube works on the inside and what it looks like from the outside² when it is working:



Figure 2. Spectator with the joystick and the stereoscopic glasses

The VR-Cube is a digital medium which has very seldom been used as an artistic medium and is still unknown to many artists and the greater part of the audience. VR-Cube technology is still very expensive, takes up a great deal of space and requires high technical skills in order to program and run its applications.³ This partly explains why only a small number of VR-Cubes are used in industrialised countries in the world today.

VR-Cube technology has not originally been developed for artistic means. The VR-Cube has primarily been launched as a new virtual reality scene for military purposes and also in order to run high-tech three-dimensional simulations in scientific and industrial fields. It has been used for military training, within spatial research as well as

² DVD, Title 18: "VR-kuben utifrån" (The VR-Cube from the outside) and Title 21: "Publiken lär sig att styra i kuben" (The audience learns to steer in the Cube)

³ For technical data regarding Chalmers VR-Cube, see Appendix 1.

for architectural and medical purposes. Consequently, VR-Cubes are not to be found in traditional cultural environments aimed for a broad audience (such as museums, art galleries, theatres etc.) but in high-tech settings. In Sweden, for example, during the first years of my doctoral studies, there were only two VR-Cubes in use: one at Chalmers University of Technology in Gothenburg⁴ and the other at the Royal University of Technology in Stockholm.⁵ Only a few artists get the chance to work with artistic research in the VR-Cube and the possibility for an audience to experience VR art in the VR-Cube is even more restricted. It is used for particular events such as, *Vetenskapsfestivalen*, the International Science Festival in Gothenburg, during which I showed my VR arts play in 2003, during conferences about art and new technology, or on open days. VR theoretician Oliver Grau⁶ describes the VR-Cube as follows:

[...] an almost hermetically enclosed space, where the walls and floor are projection screens and only the entrance side remains open. It admits several visitors at a time to experience the images that cover the walls. Seen through Liquid Crystal Glasses, these appear in 3-D immediately in front of the visitor in the CAVE. Data beamers outside this area back-project the real-time pictures onto Cave's semi translucent walls so that inside, the graphics flow seamlessly leaving no areas blank, which produces the effect of being physically present in the images. This fulfils the essential requirement of all virtual art: enclosure of the observer within the image space – here in CAVE – to elicit a greater or lesser feeling of immersion and separation from the outside world.

According to Gabriella Giannachi,⁷ the VR-Cube is also called CAVE, which stands for *CAVE Automatic Virtual Environment*, and this title is inspired by Plato's metaphor of the cave in *The Republic*. The Greek philosopher's metaphor mirrors his view of man's perception of the world. Human beings are like prisoners sitting in a cave with their backs to the entrance. Immobilised with bonds, the prisoners cannot turn their heads towards the entrance of the cave. They can only look at the cave's inner wall. Behind the prisoners is an enormous fire and, between the fire and the prisoners, there is a road above them, along which there is a wall built like the partitions puppet handlers are set in front of when they show puppets. Along the wall men carry statues of various animals, shapes of plants and all sorts of artefacts. The shapes cast shadows

⁴ Chalmers tekniska högskola

⁵ Kungliga tekniska högskolan

⁶ Grau, Oliver, 2003. *Virtual Art: from illusion to immersion*, Cambridge, Mass.: MIT, p. 238

⁷ Giannachi, Gabriella 2004. *Virtual theatres, an introduction*, London and New York: Routledge, p. 134, Gabriella Giannachi is lecturer in Theatre Studies at the Univeristy of Lancaster and a specialist in new technologies and performance.

INTRODUCTION

on the wall. What the prisoners see are merely shadows of images projected on the cave's wall. These shadows are the only reality the prisoners know – the only way human beings perceive the world as long as they are prisoners of the cave.

Even if I do not share Plato's dualistic philosophy of life about the world of perceptions and the world of ideas (seen by Plato as the only way for human beings to escape the illusionary existence of the world of perceptions), I find the metaphor of the cave a striking one. Using the VR-Cube as virtual reality theatre, artistic researchers are given the opportunity to create new artistic worlds in a contemporary time-cave, and through a virtual environment try to express something essential about life and the world. What the spectator in the cave perceives are merely shadows and illusions of three-dimensional figures and characters. The spectator is not a prisoner in the cave and is therefore able to relate to the outside world; however, he/she sometimes tends to perceive some of the virtual artefacts in the VR-Cube as "more real than real". To create an illusion of the world in order to express a kind of truth is the aim of artists (such as artistic leaders, filmmakers or play directors) when working within their respective artistic fields. Why was it interesting for me and relevant to artistic research to work within the specific context of virtual reality, choosing the VR-Cube as the medium through which I could examine my research question?

WHY? A NEW FIELD OF DISCOVERY

BETWEEN THE STAGE AND THE AUDITORIUM

The idea for my research was initiated by two performances I created for the city of Malmö in 1987 and in 1993 with a total of approximately seventy actors, dancers, musicians, circus-artists, cavaliers and a number of boats. Both *Tour de spectacle, Kanalfärd mellan dröm och verklighet*⁸ and *Norr om Söder*⁹ were performed during the night when the reflections of the city lights on the water and the shadows of the trees in the parks and on the canal banks created a scenography of their own. The audience was seated in the canal boats, floating theatres moving – like in Mussorgsky's musical composition *Pictures of an Exhibition* – between realistic scenes and dream pictures on the canals that wind through the parks and in the very centre of the town. It was also possible for the audience to choose different entrances into the performance by looking

⁸ Ljungar-Chapelon, Magali, 1987. *Tour de spectacle, Kanalfärd mellan dröm och verklighet* (Canal trip between Dream and Reality), Dance and Theatre Performance for the Malmö festival.

⁹ Ljungar-Chapelon, 1993. *Norr om Söder* (North of South), Dance and Theatre Performance for the Malmö Festival.

at the pictures from both the canal banks and the bridges, such that the distance between the audience and the performers was elastic. Sometimes, the distance was completely abolished when, for example, the actors performing on the boat addressed the audience. In other situations when, for instance, the actors vanished on a galloping horse into the night, the distance between the audience and the performing artists was much greater than for an audience looking at a performance on a traditional theatre stage. I discovered that this tightening and widening of the distance between the audience and the performers was a fascinating and creative artistic tool that I wanted to experiment with further.

At this point, I would like to clarify an issue that could maybe lead to misunderstandings: Experimenting with the tightening and widening of distance between the stage and the auditorium is by no means something new within the performing arts. It has been an artistic tool used by stage directors within the performing arts for centuries, in fact. Commedia dell' arte is only one example of this, as well as, for example, the work of the famous play director Arianne Mnouchkine at *Le Théâtre du Soleil* in Paris. However, what I identified here as something radically new was the use that artists and producers interested in the problematics of this tightening and widening of the distance between the stage and the auditorium might make of immersive virtual reality technology. I was interested in discovering whether immersive virtual reality could give me the opportunity to add a new dimension to the interplay between the stage and the auditorium, the performers and the spectators. Using the potential of interactivity in a virtual environment, I wanted to extend and deepen this interplay and create situations where it was no longer obvious to distinguish the auditorium from the stage, the audience from the performers.

Immersive virtual reality art is still relatively new. Research in the field has been going on for a short time only and is still in its infancy. Consequently, it is not yet possible to speak about a research tradition in the field. Neither is there a large amount of data and well established results which I could build my own research upon. It is a field of discovery where definitions are emerging and is therefore a particularly challenging one for an artistic researcher.

At the beginning of my research in 2001-2002, there were few artistic VR applications, a lack of research into fundamental questions concerning the impact that VR experiences generally might have on the audience, and even less research concerning the impact of VR artworks. I had read articles on two major immersive artworks *Osmose* (1995) and *Ephémère* (1998), created by the internationally renowned Canadian artist Char Davies¹⁰ but had not had the opportunity to experience those artworks myself.

¹⁰ Char Davies' homepage: <http://www.immersence.com>

INTRODUCTION

Harold Thwaites' study of the impact of those works on the audience was to be conducted and its results published many years later¹¹ and Davies' own doctorate dissertation¹² was not written yet. Laurie McRobert's multifaceted book¹³ about Davies' immersive artworks had not been written either and was to be published in 2007 when my thesis work was also to be completed. In 2002, I was invited by Swedish VR and video artist Teresa Wennberg to experience *Brainsongs – Welcome to my brain*,¹⁴ a fascinating VR artwork that she had created in the VR-Cube of the Royal Institute of Technology¹⁵ in Stockholm. Wennberg is, like Davies, an artist with a visual arts background.

Accordingly, when I started my dissertation there were only a few artists – and there are still only few – working with immersive virtual environments. Those I knew had a visual arts background and there was no published material on my specific research subject. Even today, there are to my knowing, no published research results from the perspective of the performing arts on this subject.

IMMERSIVE VR ART WITH A PERFORMING ARTS LENSE

For an artistic researcher like me, with a performing arts lense, exploring the particularity of the way illusion would work if I imagined a kind of play for a spectator-performer within an enclosed immersive virtual environment was a tremendous challenge. Barely knowing anything about immersive VR artworks created by artists with visual arts and computer art lenses, my curiosity was triggered. I thought that a medium like the VR-Cube could offer specific opportunities for artists within other artistic fields as well, and that artistic researchers with “performing skills” may be able to develop another approach of the medium. They could try to think of and apprehend the immersive space as a scene for a play on stage. I had not seen such a VR application before and there had not been, to my knowing, any VR artwork produced from this perspective in the VR-Cube. For this reason, I wanted to experiment on how to create such an artwork and analyse its impact on the audience.

¹¹ Thwaites, Harold “The Immersant Experience of Osmose and Ephémère” [PDF File] *Proceedings of the 2005 international conference on Augmented tele-existence ICAT '05. Christchurch, New Zealand (2005)*, pp. 148-155. <http://www.immersence.com>, Thwaites is Associate Professor in Communication Studies in Montreal.

¹² Davies, Char, 2005. *Landscapes of ephemeral Embrace: A painter's explanation of immersive virtual space as a medium for transforming perception*, (PhD dissertation), Plymouth university

¹³ McRobert, Laurie, 2007. *Char Davies' Immersive Virtual Art and the Essence of Spatiality*, Toronto: University of Toronto Press

¹⁴ Wennberg, Teresa, 2002. *Into the brain, Electronic works since 1978, a selection*, Ödeshög: Almlöfs edition: pp. 16-21. The book includes photographs of her VR work *Brainsongs – Welcome to my Brain* (2001)

¹⁵ Kungliga Tekniska Högskolan: The Royal University of Technology, Stockholm.

ILLUSION AND REALITY IN THE VR-CUBE

In the shaping of knowledge, why is it particularly interesting to focus on the problematics that arise between illusion and reality in relation to the audience experience in a medium such as the VR-Cube? The answer to this question is that the VR-Cube offers new opportunities to experiment on this problematics in that it is a most particular and unique context, where distance between the stage and the audience is abolished.

The question of the relationship between illusion and reality is a central issue for all artistic activities. There are underlying and silent rules of agreement between a work of art and its audience on how illusion works in both the visual and the performing arts. Looking at a theatre play, for instance, spectators know that they are real persons sitting in real chairs in the auditorium and that they are looking at an illusion interpreted by actors on the stage, in front of them. Even if a performance, on stage or on a filmscreen, may trigger strong physical reactions, such as goose pimples for example, the general rule of agreement is that the spectators have to remain seated in their chairs. They are not supposed to stand up, and begin to move, speak or act. They are drawn into the illusion and participate in it through the power of the play, but are not physically engaged with their whole “acting” body.

In the VR-Cube, the situation is completely different. Spectators are immersed in virtual environments that they are expected to move into; they even get the opportunity to interact with virtual animated objects and artefacts. When the distance between stage and auditorium is abolished and spectators are immersed into a virtual space (what is called VR immersion), the traditional rules of agreement are challenged. In the VR-Cube, I am not merely a “real person” looking at the representation of an illusion on stage, at a painting or photography on the wall or at a computer screen in front of me. In the VR-Cube, the physical, spatial borders determining where illusion starts in relation to my own body are erased. My own body becomes part of the physical space and part of the scene where the borders between illusion and reality operate. What the viewer/spectator becomes, that is the question.

WORKING HYPOTHESES

Summing up the above paragraphs, this was my first hypothesis:

I expected the VR-Cube, used as an artistic medium, to open for new modes of artistic expression i.e. new ways to express something essential about human beings in their relation to the world, not only for artists with a background within the visual arts and computer technology such as painters, computer art and video artists, but even for other artists, such as artistic leaders within the performing arts. I did not even think about the potential interest of immersive virtual art for computer games designers in this introductory phase of my work. This is an issue that I had to take into account

INTRODUCTION

much later, when I analysed the audience's reactions. My second and principal hypothesis was that this type of VR project could open for new ways for an audience to meet and communicate with a work of art that challenges the spectator's role. These were the working hypotheses I had to find ways to verify.

HOW? ARTISTIC KNOWLEDGE SHAPING

The aim of artistic research is to legitimise the knowledge of truth that occurs in the experience of art itself. I would like to call this process **artistic knowledge shaping**: It is the shaping of knowledge and creation of meaning through artistic means which includes the shaping process of new artistic worlds and artworks that, in combination with conceptual constructs, reflect the world we are living in. In order to bring the audience's voices from the Cave to the fore, I combined artistic production and scientific research in an attempt to proceed from artistic intuition to scientific analysis but also, and at the same time, to experiment with the reverse process by directly or indirectly trying to enrich my artistic work via scholarly work.

Asking reversed questions is the way artistic and scientific creative processes work. By looking up and down and reversing perspectives within their research field, artists, researchers, and, of course, artistic researchers try to come closer to a kind of truth about man's life in the world by scrutinising their theoretical and artistic tools from various angles. Yet, through my theoretical and practical work, I try to challenge French philosopher Henri Bergson's claim that it is only possible to proceed from intuition to analysis, but not the other way around:

Nous ne saurions trop le répéter: de l'intuition on peut passer à l'analyse, mais non pas de l'analyse à l'intuition.¹⁶

[We will never repeat this often enough: From intuition, one can proceed to analysis, but not from analysis to intuition.] (own translation)

I, however, argue that the reverse movement, i.e. from analysis to intuition, is at work through artistic knowledge shaping. What I mean is that when I, as an artistic researcher, used a relatively new digital medium in order to create a VR artwork in the VR-Cube, I engaged myself in an artistic and scientific process that led me into new fields of knowledge, by oscillating from intuition to scientific analysis and from scientific analysis to intuition. Theoretical choices came to reflect the artistic content and the artistic/technical process I had been engaged in while creating this VR artwork and

¹⁶ Bergson, Henri, 1903. "Introduction à la métaphysique", *Revue de Métaphysique et de Morale*, XI, p.19

parallel to this, my artistic choices reflected my ontological and theoretical perspectives in an ongoing interplay. In that sense, artistic knowledge shaping is linked to the idea of emotional intelligence, as developed by neurologists today.¹⁷

EMOTIONAL INTELLIGENCE

I consider the idea of emotional intelligence constructive for artistic research since it seems to bridge the gap of dichotomous thinking between emotions/feelings and rational/logical abilities. In his book, *The feeling of what happens: body and emotion in the making of consciousness*, neurologist and researcher Antonio R. Damasio writes:

I suggested that certain levels of emotion processing probably point us to the sector of the decision-making space where our reason can operate most efficiently.¹⁸

In my view, the idea of emotional intelligence illustrates the oscillation that occurs between intuition and analysis, between emotions/feelings and intellect/reason. Damasio's conception of how the levels of working out our emotions point towards the area of decision-making, where our reason works most efficiently, seems to me particularly constructive for artistic research which deals with works of art that appeal not only to intellectual or logical abilities, but also to the feelings of the artists and the audience, works of art which, in the case of immersive VR art, engage the whole body. Moreover, the idea of emotional intelligence opens for new ways of considering the essence of knowledge and, consequently, new ways of approaching research methods, which, in turn, broaden the mundane and predominant concept of knowledge from something truthful that is primarily reached by determined methods and empirical means to a wider definition based upon more flexible methods appealing to rational and logical skills but also to emotional skills engaging body and thought.

Hence, the reason why I briefly wanted to introduce the idea of emotional intelligence is not, of course, to go into any depth about neurological matters, but in order to expose my way of apprehending artistic knowledge shaping as an ongoing movement between emotions and intelligence, analysis and intuition. Such a conception had, of course, decisive implications on my choice of research methods.

¹⁷ In an article from Antoine Bechara, Antonio R. Damasio and Reuven Bar-On entitled "The Anatomy of Emotional Intelligence and Implications for Educating People to Be Emotionally Intelligent" (Reuven Bar-On, J.G. Maree, and Maurice Jesse Elias, eds. 2007. *Educating People to be Emotionally Intelligent*, Praeger, Westport, CT, chap. 19), the authors propose six factors that make up emotional intelligence: emotional self-awareness, emotional control, emotional expression, social awareness, social problem-solving, social interaction.

¹⁸ Damasio, Antonio R, 1999. *The feeling of what happens: body and emotion in the making of consciousness*, New York: Harcourt Brace, p. 42

INTERWEAVING EMPIRICAL AND THEORETICAL FUNCTIONS

In my working process, there is no clear distinction between empirical and theoretical methods. Rather than talking about distinct methods, it would probably be more accurate to use the term “interweaving theoretical and empirical functions”, i.e. two functions that are not hermetically separated from each other but that proceed on parallel tracks crossing each other, joining each other and affecting each other’s courses. When I use the word theory, theoretical functions or theoretical methods, I do not refer to a purely intellectual construct, but to a mainly theoretical function connected to a practice, and, the other way around: When I relate to empirical material, functions or empirical methods in a heading, the reader should assume that what I describe are mainly empirical functions, and not purely experimental facts disconnected from a theoretical content.

Even if the terminology of scientific research, which is often dualistic, is not unproblematic, systematically trying to avoid this vocabulary would be, in my view, contra-productive. I need words and concepts in order to expose my research process and even though artistic researchers ought to develop new creative concepts, to make these concepts understandable, they have to depart from established ones, established in the sense of recognisable. Only then, departing from a collective identifiable ground, will the creative process of reshaping concepts get, in my view, a fair chance to reach its complete meaning.

In this process, the challenge lies in extending definitions so that they do not become excessively positivistic nor isolate artistic research from other scientific research contexts. Personally, I do not apprehend the vocabulary of scientific research as a compendium of stratified terms that merely reflect a positivistic research view, but as evolutionary concepts to be reshaped within the timeframe of each research field they mirror. Therefore, I am not reluctant to use terms such as hypothesis, qualitative and quantitative methods, definitions and results. Those terms are, for me, highly operational as long as they are not misunderstood as being connected to a mechanistic, linear conception of knowledge and truth, where only empirical and theoretical methods applied to a research material in a specific way, and which lead to delimited, precise results and definitions confirming or negating a well-defined hypothesis would be considered as a legitimate form of research. The fact that I formulate hypotheses and make use of qualitative and quantitative methods does not imply that I share such a mechanistic view. Instead, the context, within which I test scientific terminology and try to further develop or launch concepts, is the context of artistic knowledge shaping that originates from an ongoing movement between analysis and intuition, intelligence and emotions. Thus, my way of using scientific vocabulary reflects an endeavour to consider concepts as evolutionary carriers of meaning, not as petrified univocal ones.

EMPIRICAL MATERIAL

In order to test my working hypothesis, I had to imagine how I would bring the characteristics of such an immersive artistic experience to the fore. My empirical approach can be summarised as follows:

- Creating a VR artwork as a case study, using a logbook as memory aid.
- Designing surveys and in-depth interviews for the production team and targeted and non-targeted audience-groups.

The VR arts play as a case study

The first step was to design a case study by creating a VR artwork that could be experienced in the VR-Cube. From my perspective as an artistic leader from the performing arts, with a passion for dance, theatre, music and sculpture, the VR artwork I created became a kind of play and a crossover between several art forms. Striving to express artistic content through means I could not possibly imagine using, if I worked with a theatre and dance performance was, if not a compulsory prerequisite, a permanent incitement. Since the artistic content of the art work was intended to open up paths of discovery for my research aims, I chose an artistic idea I had been pondering about for years: the theme of an inner dreamlike journey between illusion and reality, a kind of meditative trip between archetypes of life and death and the contrasting pairs: beautiful/ugly, good/bad. The title of my VR arts play was *Le Beau, le Laid, le Bon et le Mauvais*, which means “The Beautiful, the Ugly, the Good and the Bad”. Its artistic theme and content as well as the production process will be dealt with in detail in part II.

During the course of my research, when considering the empirical and theoretical material I gradually collected, I decided to designate the kind of VR artwork I had created as **virtual reality arts play** or **VR arts play**. Launching the term VR arts play in order to characterise this type of VR experience is a major result in regard to the research question. Hence, VR arts play is the term I have coined and argue for in this dissertation, in order to describe the kind of play I have created. It is a play within a virtual reality theatre, i.e. an immersive virtual space that engages the audience physically as well as mentally. In a VR arts play, the spectator is given the opportunity to become part of the play and interact with the environment which is built on a virtual scenography. The word “arts” used in its plural form indicates that elements from several art forms interweave: from theatre, film, photography, sculpture, digital drawing, music or even dance. Virtual reality software programming, 3D graphics and animation, sound design and music composition, among other disciplines, demand high professional skills. Therefore, such a VR artwork cannot be produced as the work of one single person. A collective teamwork is needed to implement the artistic leader’s vision within a multidisciplinary creative team. In that sense, it becomes a performance

INTRODUCTION

using highly professional technological and artistic skills, a play in between virtual reality technology and the arts.

A logbook as memory aid

As an artistic researcher, I had to keep a track of and ponder over my double role of insider-outsider as the artistic leader of a VR arts play and a PhD student in digital representation at the Faculty of Fine, Applied and Performing Arts. In other words, I had to find ways to listen to voices from both inside and outside the Cave. In order to remember, describe, and follow the creative process of my VR arts play, i.e. the interplay between the technical, scientific and artistic part of the work, I used a logbook as a diary. Besides my own reflections and the extracts of mails that I had sent to and received from the members of the production team, I also collected voices from outsiders such as colleagues who were not involved in the project or from people that I did not know who I had met in the train during my regular trips from Malmö to Gothenburg or on other occasions. What I did was to show them early outlines (in 2D) of the immersive environments I wanted to create, photos I had taken in order to test my artistic visions at an early stage of the process and see if their reactions seemed to be in line with my artistic aims or not. Looking back at extracts from my logbook, I could, for instance, reconstitute the production process and compare audience reactions with my own spontaneous observations regarding the first experiences I had in the VR-Cube. My logbook will not be the subject of a separate chapter. However, I have used it during the entire course of writing this dissertation since it has proved to be a hermeneutical tool for exposing and interpreting research results.

Audience and production team surveys

Treating my VR arts play as a case-study, I designed three surveys for targeted and non-targeted groups in order to bring various voices to the fore.

- A questionnaire for the members of the production team with subsequent interviews
- An audience survey for a non-targeted audience
- An audience survey for a group of nine-year-old children followed by an open discussion with the whole group

In-depth interviews

The questionnaire with the production team was followed up with interviews with several key members of the production team, whereas the audience survey was followed up with subsequent in-depth interviews with representatives from the performing arts, visual arts and computer games. Those interviews were designed to

highlight the specificity of such a VR arts play in relation to the performing arts, visual arts and computer games.

Relevance and limits

Here a critical reader may make a major objection concerning my choice of empirical methods in relation to the research question. He/she may object that it is not possible to give a truthful interpretation of survey results, stating that it is difficult to determine if it is the specific VR artwork or the VR-Cube as a medium that is the respective cause of the audience experience. One might then also logically criticise the more general value of such results for further artistic research, objecting that it is far too connected to a single VR artwork. Nevertheless, after having considered this problem, I would argue that I do not think that this objection is accurate. The reason for this is simple: the distinction medium/work of art is not pertinent. I agree that it is not possible to isolate elements as being VR and immersive-specific features of the VR-Cube when apprehended as a medium and exactly establish which element triggers which experience and audience-reaction by separating those elements from the content of the VR arts play itself because the audience experience is nothing but an interplay between the medium, the spectator and the VR artwork. However, from a methodological point of view, if I studied many immersive VR artworks instead of one single artwork, this would not change the problem and would therefore not automatically give more valuable results.

Thus, it is the potential of the VR-Cube as an immersive artistic medium, in order to further explore the relation between actor/participant and spectator which might be useful for other artists and for further research. And, even if connected to a single specific VR artwork, survey results showed this potential and revealed some general features of the audience experience of an immersive VR artwork which were not linked to the specific artistic content of my VR arts play.

When reflecting on the limits, I would like to emphasise the explorative character of my thesis. Delving into new kinds of artistic experiences meant that I used a VR-based medium in order to create a new kind of artwork that was also completely new to me. Using reception studies and theoretical tools, I analysed the voices of the production team and of the audience and, finally, “represented” these voices in collaboration with another artist by means of film and photographic material, in order to launch definitions about the VR artwork I had created.

The exploratory character of such a long journey within the limited timeframe of doctoral studies opens for extensive, more than systematic comparisons with artistic experiences within the performing arts, the visual arts and computer games. This means, for instance, that a detailed comparison between a specific computer game or a

INTRODUCTION

particular theatre performance and my VR arts play is beyond the scope of this doctoral project. However, a number of deeper issues regarding navigation and narrativity in computer games or performing mechanisms within theatre are discussed in relation to the VR arts play.

Within the framework of determined boundaries, I have sought to find particularly similar or contrasting elements that allow me to encircle the essence of a VR arts play experience i.e. to explore its wider artistic potential. To this purpose, I have designed the in-depth interviews for representatives from the visual arts, performing arts and computer games and engaged those “expert voices from the Cave” in a discussion concerning comparisons between their respective art field and my VR arts play. Results on this topic – obtained through an open qualified dialogue as well as through reflections of my own – are essentially qualitative, and not quantitative, in character, and aim to give the reader not a more detailed map of comparisons with each form of artistic expression, but an overview, i.e. a kind of aerial photograph that situates my VR arts play in relation to bordering art fields and computer games.

THEORETICAL PERSPECTIVES

In between perspective for a crossover artwork

My theoretical journey has not been pre-programmed or based on a determined ontological choice from the very beginning. Even if this adventure had an inner logic, its process very much reflected the artistic-technical process required to create my VR arts play – a discovery of several paths that led backwards, forwards, sideways or even to the middle of nowhere. Thus, it was in no way a linear progression. My journeying was more like a shadow whose contours gradually became more distinct during the course of my research studies.

In the theoretical chapter of this dissertation, I explain my theoretical journey in detail, a journey grounded on an ontological perspective, the life-world perspective. The life-world perspective launched by Edmund Husserl implicates a dependency between life and the world. Reality is more than merely material and mental properties. So, there is something in between, something between the subject and the world. It is within the idea of *in between* between intuition and analysis, emotion and intelligence, an idea that resists all dualistic perspective of life and the world in its opposition to “ism theories” that my artistic, intellectual journey is situated. Applying this perspective to a VR work based on an artistic crossover between several art forms is what I have done or rather, the other way around: This ontological perspective and my longing to explore the in between, between man and the world, explains my theoretical choices. Thus, this perspective combined with – or due to – my

interdisciplinary background as an artistic researcher and a political scientist and my crossover identity¹⁹ is the horizon of knowledge that imbues all my artistic and theoretical choices.

Summarising my theoretical approach, I would say that modern hermeneutics, i.e. the science of interpreting texts and artefacts is the main theoretical path this thesis is based on. Through works of the philosophers Aristotle, Hans-Georg Gadamer and Paul Ricoeur principally, I found a theoretical framework and key concepts upon which I could build my argumentation. Those major works are Aristotle's *Poetics*,²⁰ Gadamer's *Truth and Method*²¹ and Paul Ricoeur's *The Rule of Metaphor*.²² Even though hermeneutics is the theoretical framework the final research results of this dissertation are based upon, it is not the only path I have explored. Communication theories and semiotics, in particular, gave me a useful and practical framework during the first phase of the project.

Semiotics uncovering parts of the artistic process

Semiotics is a theory or system of signs that stresses the importance of communication as a way to produce and exchange meaning. Since semiotics implies a form of consensus about signs, it has been a theoretical experimental field for me, and offered precious guidelines during the shaping process of my VR arts play, when I tested the artistic material with potential audiences and when I constructed surveys, or prepared in-depth interviews.

The artistic idea of my VR arts play is built upon archetypes of life and death implying a form of consensus about signs: for instance, the pre-understanding an audience has about what a labyrinth symbolises: a place where human beings get lost. Prior to testing the artistic material with a potential audience, I had to make it clear to myself not only where in this immersive journey between illusion and reality a consensus about signs was my primary objective, but also where it was, on the contrary, opposite to my artistic aims, at places where ambiguity about signs was what I wanted to achieve in the first place. Sometimes ambiguity about signs was my intention, when I

¹⁹ What I exactly mean by "crossover identity" will be explained in the first chapter of Part I. It refers, among other things, to a cultural identity linked to my experiences of several countries.

²⁰ Aristotle, 350 BC. *Poetics* translated by S.H. Butcher, chapter V-VI. online version <http://libertyonline.hypermall.com/Aristotle/Poetics-Body.html>

²¹ Gadamer, Hans-Georg, 2004. *Truth and method*, Second, revised translation of Wahrheit und Methode by Joel Weinsheimer and Donald G. Marshall, New York and London: Continuum

²² Ricoeur, Paul 2003. *The Rule of Metaphor, The creation of meaning in language*, transl. of La métaphore vive by Robert Czerny with Kathleen McLaughlin and John Costello, SJ, London and New York: Routledge Classics

INTRODUCTION

wanted a virtual artefact, a roaring or pounding noise, the movement of the spectator triggering a new sound landscape or the sudden opening of a new world, to allow for several interpretations. In the theoretical chapter, I will explain how I experimented with semiotics in relation to the archetype of a mythical beast, the Minotaur, within *The Labyrinth*, one of the virtual worlds of my VR arts play. Reflecting on parts of the content of my VR artwork as artistic messages expressed by signs proved to be useful as well, when constructing audience surveys and taking into account technical, time and mental barriers which might weaken or strengthen the expression of artistic messages. Nevertheless semiotics did not enable me to disclose the entire core of the research question. Therefore I chose to step into the hermeneutics path.

Hermeneutics of digital representation

Why then did I choose to interpret an artwork/performance based on digital representation in the VR-Cube through a hermeneutical lense? For me, with regard to my research aims, the primary purpose of hermeneutics, the study of the general principal of interpretation, and of the artistic and scientific methods employed, was to discover, in a VR arts play, the essence and value of an experience of art for the artist and its audience, and the way it enables to extract new forms of knowledge about artistic and scientific processes. In a broader perspective, by entering the field of hermeneutics, I intended to come closer to the implications of what the idea of in between can reveal about mirroring the life-world, by means of a VR arts play. Accordingly, I wanted to find ways to interpret what was linked to communication processes within the shaping process of my VR arts play and the experiences it provides an audience with.

According to Professor Sven Andersson, theoretical scientist and head of the research program for Digital Representation²³ at the Faculty of Fine, Applied and Performing Arts in Gothenburg, using hermeneutics within the field of Digital Representation means finding ways to interpret the very act of artistic representation and trying to mirror it in a mirror of concepts.

What we are trying to do is to find ways to communicate the very act of artistic representation through reflection. This means that by creative reflection (mirroring a process in a conceptual medium) the artist may see the act of representation in a new and preferably more communicable light [...]²⁴

²³ *Digital Gestaltnig*, in Swedish

²⁴ Andersson, Sven, 2000. "Methodology", *Changing Photography, Photographic vision and the Digital evolution*, The School of Photography and Film, Göteborg University, Chalmers Medialab, Chalmers University of Technology, pp. 35-40

Here, the term “representation” is not fully accurate. It is the English translation of the Swedish term *Gestaltning* deriving from the German term *Gestalt* which has no equivalent in English. Gestalt has a broader meaning than representation. Gestalt means form, figure, representation, and being (human or not), all at the same time. Therefore, even if producing texts is one hermeneutical way of interpreting and mirroring artistic processes, choosing another medium than text (such as, for instance, photography and film in this case), in order to “give Gestalt” to the artistic process and the audience experience is another form of hermeneutic approach.

Theoretical key concepts

The three main theoretical key concepts used in this dissertation in order to explore the meaning of artistic experience as regards such an immersive VR artwork are Gadamer’s concept of *experience* in relation to art, the concept of *play* through Gadamer’s work and Aristotle’s study of the mechanism of drama in *Poetics*²⁵ and finally the concept of *metaphor*, mainly through the work of Ricoeur.

Experience of art

According to Gadamer, experience of art is to be understood, in the broad sense of the term experience which departs from the German concepts *Erlebnisse* and *Erfahrung*. In this sense, experience of art cannot be limited to merely sensory impressions nor to something exclusively derived from aesthetic consciousness. The experience of art is an experience of truth, an experience through which something is stepping forward, uncovered, a revelation as truth that transforms the person experiencing it. After discussing the definition of such an experience from the outside, I will then move into the inside of the experience and its inner dynamics, using the concept of play.

Play, through Aristotle and Gadamer

Choosing to depart from the Aristotelian theory of drama and tragedy was natural, since this is a tradition the Western performing arts is based upon and which artistic researchers with a background like mine cannot escape from. A tragedy is a play with a catharsis effect, which is one parallel to my VR arts play, which is thought as a meditative trip within the self with a kind of catharsis effect. Aristotle’s categories describing drama are a relevant point of departure for somebody trying to define and launch definitions about a new kind of immersive VR-based artwork/performance from the perspective of the performing arts. It was challenging to see if such categories could be relevant for the analysis of an artistic experience where the stage and the auditorium

²⁵ Aristotle, 350 BC. *Poetics*

INTRODUCTION

blend into one and when there is no professional actor on stage, but an audience apprehended by the artistic leader as spectator and actor/participant.

Gadamer's concept of play (*Spiel*) refers to the backward and forward movement that arises between a work of art and its audience, when both are viewed as players in the play. Play is what is happening between the players engaged. In relation to my digital artwork in the VR-Cube, play is what is happening between the following players engaged in the artistic process:

- The artistic researcher and artistic leader
- The production team
- Artistic/technical material during the shaping process
- The work of art
- The audience

In regard to my VR artwork, the essence of play will be explored in the relationship between the work of art and its audience when the audience is used as participant in the dramaturgy of the artistic leader and may become something else than a spectator looking at an artwork and/or a performance. Reflecting on Gadamer's concept of play was most constructive in order for me to find a definition and an appropriate name for the kind of artistic work I have created in the VR-Cube. From Gadamer's concept of play, I could explain and disclose my own concept of VR arts play as being a specific kind of play based on virtual reality, in other words, a virtual reality arts play with specific rules.

Metaphor, from Aristotle to Ricoeur

The term metaphor comes from the Greek *metaphora* and signifies transfer, transposition.²⁶ *Meta* means with/after and even has the sense of change, and *phero* means bear/carry. Reflecting on Aristotle's concept of metaphor and its function in a tragic play, I wondered if this could reveal something about Ricoeur's "rule of metaphor" in relation to my VR arts play. What is the function of metaphor within such a VR artwork? Can it be considered as the rule of play and, as such, as an essential constituent of the experience, as a key which gives the play its dynamics?

Science and art meet in their use of metaphor as a fundamental tool for argumentation, elocution, composition and the elevated expression of thought or feeling. Science and the arts meet in order to increase communication and contribute to human knowledge through works of art and research results (new ideas, concepts, analysis,

²⁶ Fowler (ed.by), 1956. *The Concise Oxford Dictionary of Current English*, Translation from: Ricoeur, 1996 *A key to Husserl's ideas I* translated and with a preface by Bond Harris & Jacqueline Bouchard Spurlock, edited, translation revised, and with an introduction by Pol Vandeveld, Milwaukee: Marquette University Press, pp. 42-43

models of structures and calculations). Artistic research uses metaphors that are communicated through written and spoken texts, pictures, or other artistic media.²⁷ Metaphors stimulate our mind and help us to shape new knowledge by recognising more than we knew before. In order to do so, an artist or researcher has to “enter” the material: ideas, gestures, objects, facts and scientific and artistic experiences (for instance the experience of a VR arts play). In this material, she has to orientate by tracing identities and differences with the help of former knowledge and experiences. I intentionally use the word “enter” and not “look at” the material because a researcher or an artist working with metaphors has to apprehend her relation to the material in the context of the social-time space²⁸ (Bourdieu’s *espace temps-social*) surrounding her and the material at stake, as a player engaged in a play. Only then can she exercise the gift of tracing identities and differences by expressing them through strong metaphors, giving shape/Gestalt to something new.

Summing up the above paragraphs, my endeavour was to achieve my own synthesis by exploring Gadamer’s concept of play (*Spiel*), the origins of dramaturgy as reflected in Aristotle’s *Poetics* and Ricoeur’s metaphor concept in *La métaphore vive*. I hoped that such a synthesis would allow me to unveil the specificity of the artistic experience for the type of VR artwork I had created in order to construct my own definition of a VR arts play.

Art and new media-specific concepts

Beside the theoretical key concepts, there are VR-Cube, new media and artistic-specific concepts that I will discuss during the course of the dissertation. The main ones are virtual reality, immersion, interactivity and artistic crossover. I do not intend to give any simplistic definition of each of those terms here but to introduce the reader to some general ideas, alternative proposals and questionings I used as a point of departure, when starting to reflect on these concepts in relation to immersive artistic experiences in the VR-Cube:

Virtual reality

Idea of illusion(s) made real, perceived as real, in the sense of truthful.

Something immaterial perceived as material.

Something real in effect but not in fact, in the sense of physical entity.

²⁷ Here I do not mean media in the restrictive sense of “new media” but as all means to communicate artistic expression (the performing arts, painting, film, photography, new media such as a VR arts play etc...)

²⁸ The idea of social-time space is explained in the chapter “The Rule of Metaphor: Tracing identity and difference”, Part III.

INTRODUCTION

Immersion

Situation where the spectator who steps into the VR-Cube positively and physically enters a virtual imaginary world. Like a diver plunging into the water or an astronaut floating in space, the spectator is enveloped by a virtual three dimensional world and becomes part of a virtual setting.

Interactivity

Activity in between the audience and a computer work.

A concept used to refer to and try to measure the amount, quality and level of exchange of computer-based information between man and the machine, in relation to all categories of computer works.

A technical computer term mainly and, as such, may be too narrow or medium-related for opening the best entrance from a performing arts perspective in order to study the interplay between a VR artwork and its audience, which goes far beyond the exchange of computer-based material.

Artistic crossover

A work of art located in between several art forms.

The above art and new-media specific concepts will be further discussed in the text in their relationship to the three theoretical key-concepts of experience, play and metaphor and to the empirical and theoretical framework in general.

FILM AND PHOTOGRAPHY AS MATERIAL FOR HERMENEUTICS

I have explained how I consider empirical and theoretical methods as interweaving functions within my research process. In order to exemplifying this, I decided to use film and photography as a method and as a representation of representation, in order to mirror the artistic, technical and theoretical process through another medium than VR art. With the help of Sandra Andersson, a professional photographer, who was at that time a third-year student at the School for Photography and Film at the University of Gothenburg,²⁹ I wanted the work to be seen through another artist's eyes. The creative process had to be made communicable to a reader and I did not consider written language as the only adequate language to present the integrality of my research results and make them understandable to an audience. In my view, an artistic researcher must, more than other scientists, be extremely careful to choose the most appropriate language to communicate himself to his audience (spectators and/or readers). Sometimes it will be written or spoken language, sometime visual, musical, theatrical language, etc.

²⁹ See Photographer Sandra Andersson's homepage: http://sandraandersson.nu/index_projects.html

In the case of a VR arts play, film and photography are appropriate media because, as visual media, they are, in my view, best suited to reflect VR art which mostly appeals to visual senses. Furthermore, and this has proven to be a crucial aspect that I was not aware of from the beginning, film and photography permit one to partly document and save tracks of VR artworks which, unfortunately, often cannot be saved over time considering the short lifetime and “best before” period of highly-sophisticated computer systems.

My collaboration with Andersson resulted in 34 hours of film material that followed the production process of my VR arts play. From this film-material I selected 65 minutes that I organised in 21 shorter film sequences, in order to communicate the essential features of the creative process by means of, among others, shorter interviews made by the photographer with the production team and a slide show. The result is the DVD I have mentioned before which is as an essential part of my PhD thesis.³⁰

Last but not least, I also wanted to collaborate with another artist in order to mirror my VR arts play and the main aspects of the audience’s survey through a shorter film. That is what Sandra Andersson and I did by producing the film *Om Le Beau, le Laid, le Bon et le Mauvais*³¹ which means “About ‘The Beautiful, the Ugly, the Good and the Bad’”. This ten minutes long film is to be understood as an interpretation and representation of my VR arts play in its meeting with the audience and not at all as a pedagogical and documentary film trying to express and communicate in filmic form the artistic content of the VR artwork itself. Thus, the film exemplifies how the criss-crossing of theoretical and empirical paths can be used in a reflective, creative process in order to produce artistic results. This film is, in that sense, to be understood as artistic re-interpretation, a concentrate in filmic form of both empirical and theoretical results. As such, it is my artistic and hermeneutical response to the main research question through the lense of another artist, a visual arts artist and through another artistic medium: film.

³⁰ The DVD structure with its menus and titles is explained in Part II, in the chapter: The production process in 22 film sequences, fig. 15 and fig. 16

The language used in this DVD had to be Swedish because my VR arts play has been created within a Swedish research context, with a Swedish production team and for a Swedish audience and there was unfortunately no time nor financial resources to translate all the film sequences, with discussions and interviews, into English.

However, I considered that it was essential for the understanding of my thesis by an international audience that the ten-minute film *Om Le Beau, le laid, le Bon et le Mauvais*, as an artistic interpretation of the research results had an English translation. Therefore the film has English subtitles.

³¹ DVD, Title 1: “Se filmen”(See the film) with English subtitles

DIRECTIONS FOR USE

This doctoral project, which comprises text and DVD material, is constructed with the idea of opening several entrances for the reader-spectator. “Several entrances” means several ways to apprehend the material: A linear way following the written text, probably the most logical and appropriate manner to apprehend the thesis in its integrality – if not the closest to the artistic researcher’s own process – but not the only way. There are several possible entrances into the thesis material depending on the specific interest and background of the reader: It is, for example possible to start by reading “Le Beau, le Laid, le Bon et le Mauvais” i.e. the introductory chapter to the production process in Part II which describes the artistic content of the VR arts play. Afterwards, the reader could, for example, look at the structure of the DVD (fig. 15 and fig. 16) and choose to select some specific film sequences before delving into one or another chapter in the written text.

In this respect, the structure of both the written material and the DVD mirror the structure of the VR arts play itself which also opened various options for a spectator leading his own artistic journey within the VR artwork. It is this same structure I enjoyed experimenting with already, when I created the dance and theatre performances and boat trips I have mentioned before. A spectator standing in the night on a canal bridge and waiting for one single scene: for instance for a dancing nymph who suddenly flew over the water, or an actor jumping into the boat had a different experience than another spectator sitting in a boat and experiencing the same scene from the water level as part of the whole journey. Thus, this is an attractive artistic structure that I wanted to experiment with further and that I tried to integrate within an academic process. Nevertheless, in written language, there is a disadvantage. A written text with several possible entrances implies unavoidable redundancy for a reader who opts for a linear lecture. I have tried to limit them as much as I could, but I could not avoid all of them. It is a deliberate choice of my part.

PART I

Research Context

It is important to me to firstly situate my research and the birth of my VR arts play in a personal context and then to locate it in a broader historical, political and artistic context before delving into the particular field of immersive VR art and the production process of the VR arts play. The reason for this is twofold:

1. In order to explain the framework of my references and the specific lense I chose when I plunged into the unknown field of immersive virtual art, I, in the role of artistic leader, will approach this study from a performing arts perspective and not from the perspective of a visual arts artist.
2. I will also approach this study from the perspective of the artistic researcher and political scientist, in order to explain why such a VR arts play is a child of its time i.e. what are the relationships between my VR arts play as crossover artwork and the academic, political and artistic time-frame it has been created within.

BACKGROUND OF THE ARTISTIC RESEARCHER

I entered into the artistic process of a VR arts play as an artistic leader from the performing arts and I had dance and theatre as my fields of work, a deep interest not only in music and visual arts but also in questions related to the borderlines that appear between illusion and reality. Furthermore, I wanted to experiment with the audience's role and also look for new ways to engage the audience more physically into the setting of a play. Giving some curriculum data to the reader seems important in order to explain the origin of the idea of this research project and its articulation.

As an artistic leader for dance and theatre performances and as a dancing teacher with a special interest in contemporary dance, my primary professional artistic identity is grounded in the domain of dance. I have always enjoyed working with

PART I

choreographies where I have combined several technical styles with elements from modern contemporary dance, classic Indian dance (Baratha Natyam), jazz and classical ballet. As a high school student, I had the chance to practice sculpture, which was another way for me, besides dance, to experiment with the human body. Theatre is a field of art I also have professional experience in, since I worked for many years as a producer and a director for a theatre in Sweden.³²

Since I am married to a musician, Western classical music is an art form that I am permanently immersed into, and that has gradually become an integrated part of my artistic identity, too. In the 1980s I organised concerts and music festivals in Sweden, Germany and France and completed my diploma in Dance with one in Musicology.

When I created dance and theatre performances for the city of Malmö, I got the opportunity to combine dance and theatre. It was then I began experimenting with the distance between stage and auditorium and also with decreasing or erasing the borderlines between illusion and reality. Both *Canaltrip between Dream and Reality* in 1987 and *North of South*³³ in 1993 were, as mentioned in the introduction, performed during the night for an audience that was sitting in canal boats. This was a floating theatre performance that took the spectators on a surrealistic journey. On the one hand, the stage where the performers acted was a life stage and not a theatre stage, since the canals in Malmö are situated in the centre of the city, at the base of its former fortifications. It means that the canal trip took the spectators in a circle around the very core of the city, where everyday life went on as usual. On the other hand, and at the same time, there were actors, dancers, acrobats and riders taking part; there were musical and lighting effects. The parks, bridges and canal banks of the city metamorphosed into a play setting, where the question of whether this was real life or artistic illusion was put into focus.³⁴

As Assistant Director for Arts Administration in Rueil-Malmaison/Paris, in the beginning of the 1990s, I had been given the opportunity to work with the performing arts (music, dance, sound and light performances) and the visual arts from a more reflective outsider's perspective. A collaborative project that I launched with Musée d'Art Moderne, at Georges Pompidou Centre in Paris, taught me a lot about children

³² Verksamhetsledare på Teater Sagohuset i Lund

³³ Ljungar-Chapelon, 1987. *Tour de spectacle, Kanalfärd mellan dröm och verklighet*. (Canal trip between dream and reality), Dance and Theatre Performance for the Malmö Festival. 1993. *Norr om Söder*, Dance and Theatre Performance for the Malmö Festival.

³⁴ Afterwards, I heard about the astonishing experiences of several Malmö inhabitants, who had ignored that there were performances taking place in the local parks but who had run across actors or dancers performing in the night. A man, who was on his last walk with his dog, told me that he first thought that he was dreaming and could hardly trust his eyes, when a dancing fairy suddenly appeared on top of a hill.

in their meeting with the visual arts and what kind of knowledge children were able to reveal to us adults about the arts. I was once astonished when a five-year-old girl, all by herself, had just discovered, a multi-coloured Delaunay painting of the Eiffel tower. She took my hand, without a word, and led me to one of the huge windows of the museum, where she suddenly squatted down and pointed her little finger towards something I could not even see. Squatting down to her level, I all at once got a glimpse of the real Eiffel tower far away behind all the Paris roofs. This anecdote shows why including children in my research about new artistic experiences was just a matter of course for me.

CROSSOVER IDENTITY

Besides my artistic background, I have a Master degree in European Politics and a B.A. in German. Since 1983 combining artistic and academic activities in the cultural fields in France, Germany and Sweden has made up my professional life, my crossover identity and the horizon of knowledge of the woman I am: a French citizen and a European married to a Swede and the mother of a Gallo-Viking daughter.

I have studied different languages and have lived in several countries, with their differing cultural heritages. I have explored various disciplines and art forms both as a reflective outsider and as a practitioner insider, which, in turn, influences the way I act and think. Hence as a researcher, my work is located within the borderlines of various:

- cultural heritages (Latin and Germanic) and languages (French, Swedish, English and German),
- disciplines (arts, political sciences, new technologies), and
- art forms (dance, theatre, VR art, music, visual arts).

I deliberately write “within the borderlines” and not “at the borderlines” because “at” could wrongly be interpreted as “outside everything” and “in the middle of nowhere”, whereas I firmly believe that at the intersection between various cultures, subjects and art forms, there are unknown spaces of knowledge to discover. The unexpected cross-overs that appear between art, science and digital media are mesmerising spaces of knowledge where an artistic researcher wants to be.

ART, DIGITAL MEDIA AND SCIENCE IN THE POLITICAL AGENDA

My VR arts play has been created at a time when politicians and decision-makers within the European Union added the combinations between new media, art and higher education into the political agenda. In, what post-modernist theorists call the knowledge and information society, and at a time of globalisation and internationalisation, decision makers stress the need for more interdisciplinary thinking and research, in order to maintain economic growth. Europeans are rediscovering the Aristotelian concept of *techné*, a concept that unites artistic and technical skills. In the ambition to maintain economic growth, decision makers at EU level have launched funding programmes that are often based on a rather instrumental view of culture as a means to solve economic and social problems.³⁵ During the last decades, knowledge, creativity, culture and communication have been used as keywords for political strategies at national and regional level throughout Western Europe. In 1993, Swedish economist Åke E. Andersson, director of the Institute for Futures Studies in Stockholm and Dane Christian Wichmann Matthiessen, member of the European Institute for Comparative Urban Research in Rotterdam, launched proposals about regional strategies for the Oresund region. In *Øresundsregionen - Kreativitet. Integration. Vækst*, a book they published together, the authors emphasised the keywords “creativity, knowledge, culture, and communication” for the development of a region.

Each region with creative ambitions ought to formulate a synergic strategy of development. This synergic strategy has to be drawn up in order to put focus on the strong reciprocal and dynamic interplay between the infrastructure of communication systems and knowledge and culture. (own translation)³⁶

As a result, subsidies and funds have been raised and centres have been established for art, scientific research and educational projects in digital media. Artists in the visual and performing arts, who, traditionally, have had difficulty in getting subsidies, as well

³⁵ Ljungar-Chapelon, 1997. *Culture in the European Arena between Romanticism and Economic Growth, A new challenge for the cultural sector in Scania?* M.A. Department of Political Science: University of Lund.

³⁶ Andersson, Åke E., Wichmann Matthiessen, Christian, 1993. *Øresundsregionen, Kreativitet. Integration. Vækst*, Copenhagen: Munksgaard/Rosinante, p. 127: "Enhver region med kreative ambitioner må formulere en synergetisk udviklingsstrategi. Denne synergetiske strategi skal frem for alt sigte på det stærke gensidige og dynamiske samspil mellem kommunikationssystemerne og kundskapens og kulturens infrastruktur."

as artists working with digital media, have benefited from these new institutional and financial channels.

In Sweden, for instance, the research programme for my PhD studies at the Faculty of Fine, Applied and Performing Arts at the University of Gothenburg was launched in 2001, and the Swedish name of my own department at Chalmers University of Technology was “Centrum för kunskapsbildning och kommunikation”³⁷ which literally means Centre of Knowledge Production and Communication and contains the above-named key concepts i.e. knowledge and communication. Another Swedish example is the School of Art and Communication that was founded in Malmö in 1998. For the inauguration of the school, Pelle Ehn (Professor and Director of Research and Development at that time) published a “Manifesto for a Digital Bauhaus”³⁸ to welcome the first students. His manifesto retraces what he considers to be the ideological heritage of the school. Referring to the Bauhaus project³⁹ as an early attempt to unite technology and the natural sciences with art, democracy and ethics, Ehn explained the creation of the school to the first students as a new attempt to work towards what C.P. Snow⁴⁰ calls “the third Culture”, which entails uniting hard and soft values in society, in other words an ideological project towards a more human society.⁴¹

So far, political measures have supported the establishment of new institutions that focus on artistic research and digital media. However, the reverse movement also exists simultaneously and the political measures are often nothing but manifestations and reflections of our Western social and cultural values. The interest decision makers show in multidisciplinary research and in the combinations that arise when art, science and digital media meet, reflects the development of crossover phenomena in society at large as well as within the artistic sector in particular.

ARTISTIC CROSSOVER BETWEEN VARIOUS ART FORMS

As mentioned before, my VR arts play is a digital work that takes shape on the borderline between several art forms and therefore does not belong to any of them. This is why I use the term “artistic crossover”, not only to characterise the work itself, but to define its multidisciplinary creation process. It is one of many among artistic crossover

³⁷ The official English name of the Department was: Centre for Digital Media and Higher Education.

³⁸ Ehn, Pelle 1998. “Manifesto for a Digital Bauhaus”, *Digital Creativity*, Vol.9, N° 4, pp. 207-216

³⁹ The Bauhaus School, founded by architect Walter Gropius in 1919 in Weimar, was forced to close as Nazism grew in Germany, but survived in exile.

⁴⁰ Snow, C.P., 1959. *The Two Cultures and the Scientific Revolution*, Cambridge: Cambridge University press

⁴¹ Ljungar-Chapelon, 1999. *Skiften, Rapport, Del 1*, Malmö högskola: Konst och Kommunikation, (Evaluation of the Shift project, Malmö University, Departement of Art and Communication) pp. 10-11

PART I

works of its time, a time when many artists look for new modes of expression by combining and contrasting various art forms and digital media.

Already in the first half of the 19th century, choreographers of contemporary dance explored the crossover between several art forms by employing both the performing and visual arts in their productions. For nearly sixty years, the American choreographer Alwin Nikolais (1912-1993)⁴² was a pioneer of multimedia in the field of modern dance.

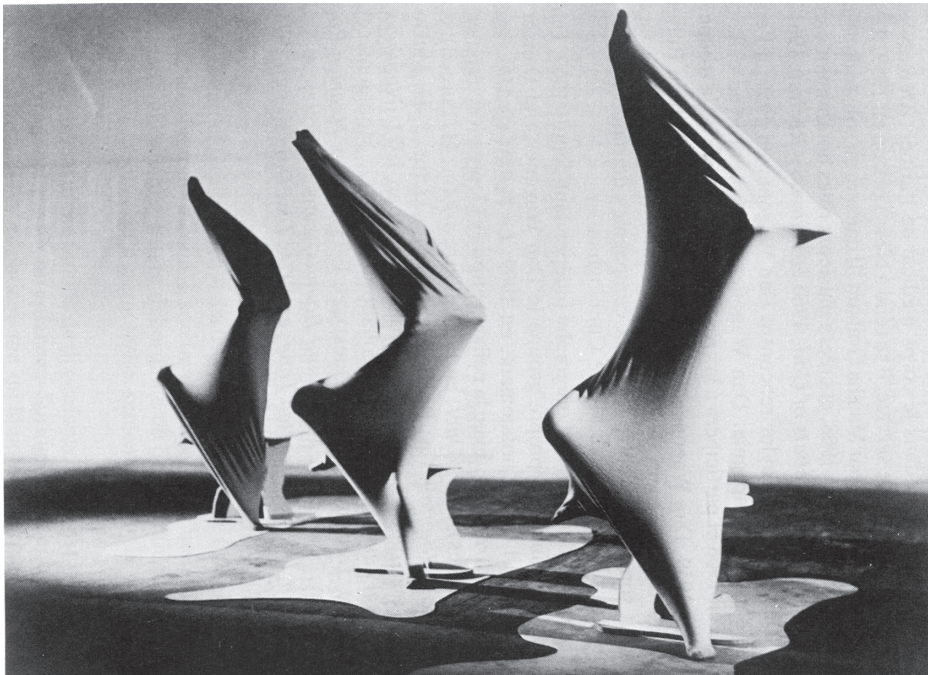


Figure 3. Nikolais Dance Theatre: *Noumenon*⁴³

He had worked with various artistic forms before dedicating his life to choreography. He performed musical improvisation for the silent cinema and also worked with theatre before he became fascinated with modern dance. Using sound collage and changing images that were projected onto the stage and the dancers, he developed a

⁴² Baril, Jacques, 1984. *La Danse Moderne (d'Isadora Duncan à Twyla Tharp)*, Paris: éditions Vigot, pp. 295-308, see also http://www.pbs.org/wnet/americanmasters/database/nikolais_a.html

⁴³ Ibid. p. 294

choreographic language that metamorphosed the human body. As a light magician, he reinvented the dancer's body as a light sculpture on stage.

The work of the German choreographer Pina Bausch explores the threshold between dance, theatre and mime, and can be seen as a typology of artistic crossovers. *Cafe Müller* is one example of her famous choreographies from the 1970s in which she employed aspects of both minimalism and the grotesque and combined mime and dance into theatrical and choreographic sequences that were both absurd and expressive, while still maintaining a deep sensitivity.⁴⁴ In an article about Bausch's *Fönsterputsare*, written in 1998 by Gunilla Jensen, the Swedish journalist reflects upon the German choreographer's crossovers and notices that they have influenced a whole generation of Swedish artists:

It is 14 years ago since Bausch and her ensemble came to Stockholm. At that time, Pina Bausch's blend of dance and theatre was something new that made a deep impression on Susanne Osten, Mats Ek or Birgitta Egerbladh, for example. Nowadays, those so-called crossovers are established [...] (own translation)⁴⁵

Many crossover choreographies by the French choreographer Maguy Marin⁴⁶, such as *Eden* (1988) or her burlesque *Les sept péchés capitaux* (1987), based upon Bertold Brecht's theatre play *Die Sieben Todsünden*, have fascinated me. I had the chance to see *Eden* – a choreography for two dancers: a man and a woman – during the international dance biennial at the "Auditorium" in Lyon. *Eden* was performed by one of the best dancers of the time: Sylvie Guillem,⁴⁷ prima ballerina from the Paris Opera. The woman's body gravitated and rolled around her partner's body and then disentangled from it in slow motion without ever touching the ground. The bodies of the man and woman slowly rotated in space like dancing, sculptural forms, not unlike

⁴⁴ Delahaye, Guy & De Gubernatis, Raphael & Bentivoglio, Leonetta, 1986. *Pina Bausch, Photographies de Delahaye, Textes de Raphael De Gubernatis et Leonetta Bentivoglio*, Malakoff: Les éditions Solins, pp. 90-103. See also: Ångström, Anna, Friday August 21st, 1998. "Pina Bausch talar känslornas språk", *Svenska Dagbladet, KULTUR*, p. 13

⁴⁵ Jensen, Gunilla, 23 August 1998. "Humour och svärta i klar koreografi", *Svenska Dagbladet, KULTUR*, p. 19: "Det är 14 år sedan Bausch och hennes ensemble gästade Stockholm. Då var Pina Bauschs blandning av teater och dans något nytt, som satte djupa avtryck i ex hos en Susanne Osten, en Mats Ek eller Birgitta Egerbladh. Idag är dessa s k cross-overs etablerade..."

⁴⁶ *III e BIENNALE INTERNATIONALE DE LA DANSE LYON/FRANCE, 13 sept-6 oct 1988. 4 Siècles de danse*: Programme-book from the Biennale published in Lyon by La Maison de la Danse, p. 89

⁴⁷ Sylvie Guillem also interpreted with Niklas Ek the famous choreography *Rök* (Smoke) from Mats Ek (1996) http://www.svd.se/kulturnoje/nyheter/artikel_89754.svd: Article "Dansen tar plats på internationell dag" from 29 April 2003, an article from *Svenska Dagbladet* by Anna Ångström

one of Alexander Calder's famous mobiles. It was no longer dance, neither was it sculpture. It was something else, something even more touching and beautiful.

Merce Cunningham is another artist that experiments with crossovers for the digital age. Using the computer programme LifeForm, he has continued his choreographic explorations into the cyberworld. With the help of LifeForm, he has been able to create extreme movements thereby challenging both the limits of the human body in motion and the laws of gravity.⁴⁸ In 2000 and 2001, the dance company *Ballet Preljocaj* has performed choreographies for real dancers with their corresponding virtual avatars on stage.⁴⁹ In England, we have the example of Wayne McGregor and his *Random Dance Company* who use computer technology as a self-evident element in their creative choreographic work. In Sweden, Birgit Åkesson⁵⁰ has been a pioneer in modern dance and crossover art forms in her collaboration with renowned artists and poets such as Jean Cocteau. Birgit Cullberg⁵¹ has further extended the modern dance heritage and new generations of choreographers and researchers, such as Efva Lilja, contribute to further enriching and developing modern dance by combining choreographic work and artistic research.⁵² One more Swedish example is Åsa Unander-Scharin⁵³ who explores new forms of choreographic expression by combining the visual, performing and digital arts.

Hotel Proforma, a Danish group led by Kirsten Delholm, uses combinations such as dance and theatre, opera and installations. Their performances move across various public spaces such as theatres and museums, town halls and public buildings. Each production is the result of a close collaboration between artists from different disciplines: architecture, visual arts, dance, theatre, film, music, and digital media. *Hotel Proforma* also leads workshops for art and research schools across Scandinavia. During

⁴⁸ Giannachi, 2004. pp. 125-130. See also: Baril, 1984. pp. 228-258

⁴⁹ Preljocaj, Angelin and *Ballet Preljocaj*, 2000. *Portraits in Corpore* and 2001. *MC/22* (This is my body) and *Helikopter*, Dance performances. Angelin Preljocaj is the artistic leader of *Ballet Preljocaj*.
<http://www.preljocaj.org/angelin.preljocaj-1-0-en.html>

Kisselgoff, Anna, 30 July 2008. "DANCE, An Intellectual Who Follows Eros" *The New York Times* (first published April 22, 2001)

⁵⁰ Peter, Frank-Manuel, 1998. *Birgit Åkesson, Postmoderner Tanz aus Schweden, Postmodern Dance from Sweden, Postmoderna Dans från Sweden*, Deutsches Tanzarchiv Köln: Wienand Verlag

⁵¹ Riksteatern, 1999. *Cullberg Ballet, Stockholm: Riksteatern*

⁵² Lilja, Efva, 2004. *Danskonst i nöd och lust*, Stockholm: ELD

⁵³ One example would be *Navigation*, an interactive installation presented in 2004 at the Malmö Art Gallery (Malmö Konsthall) during the dance biennale in Malmö. <http://www.danstidningen.se/index.php?pagelid=11&sublid=44>

a research seminar at the University of Malmö, artistic director Kirsten Delholm⁵⁴ said that she was particularly interested in the five senses and ways of stimulating them. To do so, she uses high technology when she works with light and interferences in light, and she often uses simple patterns such as black vs. white. *Operation: Orfeo*, a visual opera in three movements using digital media, is an example of *Hotel Proforma's* work. It was performed at the Malmö City Theatre in November 1998 and was also shown to students at the department of Art and Communication at the University of Malmö. As we will see later, experimenting with the VR-Cube, a primarily visual medium, offers other creative ways of stimulating different senses, too.

Crossovers in contemporary art are also manifesting themselves at an educational level: The differences between the artworks produced at a school of photography or at an academy of art are not so obvious anymore. For example, many works created by young artist-photographers at the School of Photography in Gothenburg in recent years are not strictly photographic and could just as well have been produced at an art academy.

In her doctoral dissertation in 1999,⁵⁵ concluding an analysis of contemporary performances where she takes examples such as Pina Bausch's *Tantzteater*, Australian Susan Broadhurst stated that adequate theories capable of defining such performances were missing. Today, we are still looking for definitions and my choice of the expression "artistic crossover" and the theoretical approach I have chosen to use in order to define the kind of VR artwork I experiment with, is a step in that direction.

HISTORICAL PERSPECTIVE AND LITERATURE

The very idea of immersive art is probably, since time immemorial present in the human mind and tracing its origins is not within the scope of my research. However, in order to locate my research in a historical perspective, I would like to give the reader at least one example of what can be considered as an ancestor of the VR-Cube: the example of an ancestor with strong political and historical impact, and which has an important feature in common with the VR-Cube, the enclosed artistic space.

⁵⁴ Delholm, Kirsten & Krogh, Signe & Kongshaug, Jesper & Qvortrup, Lars, 26 Nov. 1998. Seminar at Malmö högskola, Konst och Kommunikation, Department of Art and Communication.

⁵⁵ Broadhurst, Susan, 1999. *Liminal Acts: A critical Overview of Contemporary Performance and Theory*, London: Cassell

PANORAMA, ONE OF THE VR-CUBE ANCESTORS

Panoramas, which are spectacular painted displays covering a circumference of 360°, and historical frescos of gigantic dimensions that depicted panoramic landscapes and famous battles, were invented at the end of the 18th century. They are historical examples of political endeavours to construct buildings in which a work of art could be experienced from within, i.e. in such a way that the spectator would feel that he/she was “immersed” in the work. In the middle of the 19th century and just before the birth of the cinema, panoramas attracted tremendous crowds of spectators.⁵⁶ To present those huge circular paintings that were approximately four metres high, architects had to build special cupola buildings. From various platforms in the centre of the cupola, spectators could experience the circular panoramas that covered the entire surface of the edifice. For example, the architect Jacques-Ignace Hittorff built a cupola in Paris: *La Rotonde de Hittorff aux Champs-Élysées*.⁵⁷

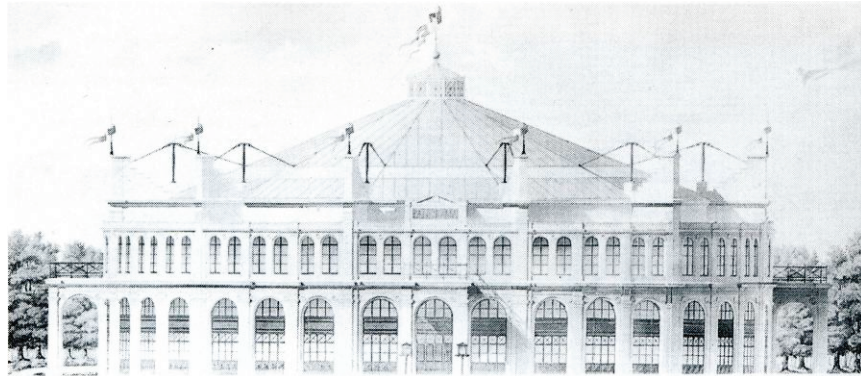
An outstanding personality of the time was Jean Charles Langlois, a soldier of Napoleon’s Empire and a painter of the Romantic era. Through his painting of famous battles from the first to the second Empire, such as the battle of Egypt in a work entitled *Panorama de la Bataille des pyramides* (1852) and through his drawing and photographs of panoramic landscapes, he strongly contributed to the grounding of the mythical image of Napoleon. In his book, *Le XIXe siècle des panoramas*,⁵⁸ Bernard Comment proposes a historical and theoretical approach to the new kind of experience that panoramas offered to an audience from the 19th century. It is striking to realise that the aesthetic debate of that time did not differ fundamentally from the debate regarding the use and impact of immersive VR media nearly two hundred years later. The central questions raised then were the same as the ones asked now, the question of the relation between illusion and reality and the question of how spectators experience the illusion produced by a new medium. In *Virtual Art: From Illusion to Immersion*,⁵⁹ in a chapter entitled “Historic Spaces of Illusion”, VR art theoretician Oliver Grau situates the birth of the panorama in its economical and political time context, and explains its international expansion. Discussing the renowned panorama of the Battle of Sedan, he analyses the width of the political impact of panoramas and exemplifies the power of illusion conveyed by one of the most famous ancestors of immersive VR art.

⁵⁶ Panorama-exhibition, 9 July-17 October 2005. *Jean -Charles Langlois (1789-1870). Le Spectacle de l’Histoire*, Musée des Beaux Arts de Caen.

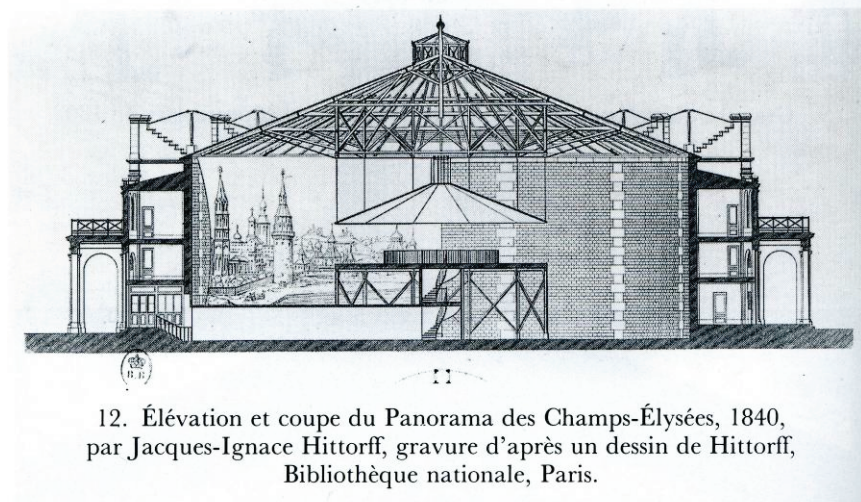
⁵⁷ Comment, Bernard, 1993. *Le XIXe siècle des panoramas*, Lonrai: Normandie Roto Impression s.a. p. 96

⁵⁸ Comment, 1993.

⁵⁹ Grau, 2003. *Virtual Art: from illusion to immersion*, Cambridge, Mass.: MIT, pp. 52-122



11. Vue extérieure du Panorama des Champs-Élysées, 1840, par Jacques-Ignace Hittorff, plume et aquarelle sur papier, 662 × 1382 cm Wallraf-Richartz Museum, Cologne (legs Hittorff).



12. Élévation et coupe du Panorama des Champs-Élysées, 1840, par Jacques-Ignace Hittorff, gravure d'après un dessin de Hittorff, Bibliothèque nationale, Paris.

Figure 4. Elevation and section-view of the Panorama from Champs Elysées, 1840, by Jacques-Ignace Hittorff, plate after a drawing of Hittorff, Bibliothèque Nationale, Paris

LITERATURE, A SELECTIVE OVERVIEW

There is, for the time being, more literature written about VR in general than about VR art, let alone immersive VR art. Therefore, in order to find relevant material and fruitful perspectives for locating my own artistic work in a VR-specific research context, I refer, in this thesis, not only to works by VR artists but also to other VR and new-media

theoreticians, who address VR-issues from various horizons of knowledge: scholars, thinkers and specialists within the arts, theatre studies, new technology, computer science, communication theory, cultural studies and philosophy. This overview is by no means exhaustive and does not necessarily reflect what I consider the most important literature in the field, but I have chosen to include authors and/or VR artists, whose contributions directly or indirectly open up fruitful angles that range across various media and art forms, and that hereby relate to my own doctoral project. The complete references of the works mentioned in this paragraph are to be found in the list of references. The overview is thematic and reflects my own approach to the field of immersive VR art.

One of the first choices for my study was not a book but an immersive artwork, *Brainsongs – Welcome to my Brain* (2001) by VR and video artist Teresa Wennberg, who is mentioned in the introduction. Choosing an entrance through one of Wennberg's artworks was an inspiring experience for me, since she exemplifies a visual artist's vision of this medium. Wennberg has created several immersive artworks in the VR-Cube and, in 2002, she published *Into the brain, electronic works since 1978*, a selection with photographs of her electronic works commented through poetical, reflective and theoretical essays by four authors: Olle Granath, Derrick de Kerckhove, Roy Ascott, and Martin Ingvar. Themes discussed are digital art and concepts such as consciousness, transcendence, digital intelligence and perception.

In *Virtual Art: From Illusion to Immersion* (2003), VR art theoretician Oliver Grau approaches the subject of Virtual Art from a theoretical and historical perspective. His contribution was most valuable to me because he discusses and situates central VR art issues in their historico-political context and, as a visual arts theoretician, offers contrasting angles of reflection for me as an artistic researcher with a performing arts perspective.

Gabriella Giannachi, another theoretician of immersive VR art, contributes to the field from another perspective, a performing arts perspective. In *Virtual theatres, an introduction* (2004), Giannachi who is a specialist within new technologies and performances and also a lecturer in theatre studies, presents a theoretical framework which acted as point of departure for reflection for me, as performing arts artist.

The perspective of new media theoreticians has provided a solid body of knowledge for my research. In *The Language of New Media* (2001), Lev Manovich, discusses, among other things, how artworks based on advanced technology create the illusion of reality, address the viewer and represent space. He presents and discusses major works of artists and designers on the subject of navigable spaces. In 2003, new media theoreticians Martin Lister, John Dovey, Seth Giddings, Iaian Gran and Kieran Kelly, published *New Media: A critical introduction*, another book that offers a theoretical base for discussions about art and new-media.

As for literature that combines both theoreticians' and artists'/practitioners' perspectives, and that also includes articles on specific artworks and performances, the digital media and the virtual environments, the following publications are particularly interesting:

- ▶ *Immersed in technology: art and virtual environments* (1995) by Mary Anne Moser, designer, who with architect Douglas Macleod, wrote and published this book which brings theoretical critical essays together with nine artists' projects. This study was realised within the frame of the Art and Virtual Environments Project and was conducted between the years 1992 and 1994 at the Banff Centre for the Arts in Canada. The project pioneered new approaches to cyberspace and opened up for a new genre of digital performances.

- ▶ *Digital Performance, anomalie digital_arts n. 2* (2002) by Emanuele Quinz, is one of the publications of the international magazine *anomalie digital_arts*, founded by the French-Italian cultural association *Anomos*, whose goal is to develop and promote research within the arts and new technologies. In a periodic collection of thematic books with articles written in several languages by a great number of international artists and collaborators the relationships between the arts and digital media are dealt with.

As mentioned in the introduction, there is one famous VR artist in particular, Char Davies, who is both a researcher and a theoretician of virtual art, whose artistic and theoretical contributions have been influential in developing, energising and defining the field of immersive VR art. In this context, she conveys artistic and theoretical perspectives in one and the same artist and author and, as a painter, also represents the perspective of an artistic researcher from the field of visual arts. She has inspired several authors, published several articles, which are available on her website, and has written a doctoral dissertation entitled *Landscapes of ephemeral Embrace: A Painter's explanation of immersive virtual space as a medium for transforming perception* (2005).

An example from a communication studies perspective is *The Immersant Experience of Osmose and Ephémère* (2005), which is an audience study, presented by Associate Professor in Communication Studies Harold Thwaites. The study reveals research results about Char Davies' immersive works. As audience study, it offered an interesting comparative material with regard to my own audience study.

Last but not least, there are several authors, who primarily represent a philosophical approach to the field. In 1993, Michael Heim, a lecturer in the humanities, published *The metaphysics of virtual reality*, where he addresses the question of virtual reality from a philosophical perspective. Laurie McRobert is another thinker of the digital age who, in 2007, published *Char Davies' immersive Virtual Art and the Essence of Spatiality*, in which she enters Davies' works from perspectives ranging across VR art, philosophy, brain wave theory, and where she also reflects on the audience's relation to space and time in immersive navigable spaces.

IS THERE AN AESTHETIC OF IMMERSIVE VR ART?

Immersive virtual art is a relatively new phenomenon and it is not yet possible to speak of a research tradition in the field but of an ongoing discussion that traces explorative aesthetical paths where definitions emerge. Since there is no established consensus on the question of qualitative criteria in the field, there are, to an artistic researcher in the field of digital representation today, no given criteria to relate to. In one sense, the lack of aesthetical criteria gives great freedom. When I created a VR artwork, I was not dependent on following an established code system. At the same time, this does not mean that rules do not exist, when the artistic process has to be communicated to the artistic and scientific community. This is both a creative and perilous task. Nevertheless, there are no explicit aesthetic rules that can be taught and applied in a systematic way and the concept of aesthetics seems to be evolving, in time, parallel to the character of the works of art. Without pre-established rules, each artistic researcher has to find his own method in order to make the artistic and scientific process understandable within the research field he/she belongs to. It seems therefore appropriate to me to try and trace emerging aesthetics for VR-based computer spaces, in general, before focusing on immersive artistic experiences in particular.

TRACING EMERGING AESTHETICS FOR VIRTUAL SPACES

The majority of works relating to VR-based computer-spaces use vocabulary from new media, information theory and the visual arts. In order to stage the context of immersive VR art, it is in my opinion important to take a brief look at some VR artworks of the three past decades, as analysed by Manovich, in order to see where aesthetics of VR art eventually might emerge from. In a chapter entitled “The Poetics of navigation”,⁶⁰ the media theoretician presents some major works from the period 1978 to 1999 created by artists, who he calls “designers of navigable spaces”. The works he refers to are:

- ▶ The project *Aspen Movie Map* (1978) by Nicholas Negroponte and the MIT group, the first interactive virtual navigable space which allowed the user to drive through a city with a joystick.
- ▶ *Legible City* (1988-91) by Jeffrey Shaw, which simulated riding a bicycle in an imaginary city made from 3-D letters representing the city’s buildings. Manovich states that, by doing so, Shaw staged “the fundamental problematics of new media and the computer-age as a whole - the relation between the virtual and the real”.⁶¹

⁶⁰ Manovich, Lev, 2001. *The Language of New Media*, London: The MIT Press, pp. 259-268

⁶¹ Ibid. p. 262

- ▶ *The forest* (1993) by Tamas Waliczky, which Manovich describes as a metafilm presenting “an alternative response to cinema’s classical age, which is now behind us”.⁶²
- ▶ *Osmose* (1994-95) by Char Davies and her development team at SoftImage, with its painterly aesthetic in a navigation modelled on a real-life experience, scuba-diving.
- ▶ *Transitional Spaces* (1999) by George Legrady, an interactive computer installation (realised at the Siemens headquarters building in Munich) which moved from the virtual to the physical through cinematic projections. What is important to note with regard to my own theoretical framework, is that in the description of his installation, Legrady himself used the concept of play:

The audience will have the opportunity to “play” the system, that is, engage consciously by interacting with the camera sensing to control the narrative flow of the installation.⁶³

In his discussion of the above works, Manovich presents ways of addressing navigability which he claims is a key feature of computer-space.

If I am right to claim that the key feature of computer-space is its navigability, we need to be able to address this feature theoretically.⁶⁴

Even if I consider navigability as a relevant concept for developing further knowledge on immersive artistic experiences, it seems to me that it is a concept that can primarily be used by theoreticians or artistic researchers that have a new-media and visual arts perspective as their point of departure. As for me, I prefer to use the concept of play, which, with its components of rhythm and dynamics of to and fro movement between the audience and an immersive VR artwork, opens up more exploratory paths for a dramaturgical focus.

According to Manovich, each of above-named computer spaces, from *Aspen Movie Map* to *Transitional Spaces*, established a distinct aesthetics of its own, a painterly aesthetics for *Osmose*, a film or metafilm aesthetics for *Forest*, an aesthetic grounded on the transition from one state to another for *Transitional Spaces*. But, when reflecting more generally on navigable computer spaces, he adds:

However, the majority of navigable spaces mimic existing physical reality without proposing any coherent aesthetic program.⁶⁵

⁶² Manovich, 2001. p. 261

⁶³ George Legrady quoted by Manovich, 2001. p. 263

⁶⁴ Manovich, 2001. p. 259

⁶⁵ Ibid. p. 264

In my opinion, the ambition to “mimic” physical reality impedes the emergence of what Manovich calls “a coherent aesthetic program”. Artists and designers have a lot to gain by distancing themselves from aesthetics that are too much dependent on physical reality. Personally, I would not use the expression “coherent program” that I find too mechanical. It could be misleading since, as I will explain later, I see the crossover and open character of immersive VR artworks as the core of the aesthetic potential of these works. However, I can agree with the author when he claims that, along with different architectural traditions, designers of navigable spaces can find a lot of inspiration in modern art. Furthermore, I fully agree with him when he claims that new media designers “often forget that what they are designing is not an object in itself but a viewer’s experience in time and space”.⁶⁶ That is the reason why my VR arts play and my dissertation as a whole is centred around the audience experience – an area which, I believe, will be most interesting for the development of an aesthetics for immersive VR art in the future.

WHICH VIRTUAL REALITY FOR IMMERSIVE EXPERIENCES?

In *The metaphysics of virtual reality*, Michael Heim gives the reader the following definition of VR: “Virtual Reality is an event or entity that is real in effect but not in fact”.⁶⁷ Heim’s definition directly set the focus on a central feature of the VR experience: it challenges the human perception. If we apply this to an immersive experience, it means that virtual reality draws the spectator into an illusion where what is perceived as real, what seems to be real, is not real in fact.

In their book *New Media: a critical introduction*, several media specialists offer the reader a summary of emerging digital communications’ media. The authors point out that “virtual reality” is a broad term that comprises a large range of digital media from simulated environments to fully representational spaces.⁶⁸ In a chapter entitled “Which virtual reality?” the authors write:

In the now extensive body of literature about VR there are two major but intertwined reference points: the immersive, interactive experiences provided by new forms of image and simulation technology, and the metaphorical “places” and “spaces” created by or within communications networks. Hence, while they are often discussed as if they were the same thing, the term “virtual reality” is used as label for two kinds of

⁶⁶ Manovich, 2001. p. 267

⁶⁷ Heim, Michael, 1993. *The metaphysics of virtual reality*, New York: Oxford University Press, p108

⁶⁸ Lister, Martin & Dovey, John & Giddings, Seth & Grant, Iain & Kelly, Kieran, 2003. *New Media: A Critical Introduction*, New York: Routledge, p. 13

technologically facilitated experiences and a number of new media genres. First, it is used to describe the experience of immersion in an environment constructed with computer graphics and digital video with which the “user” has some degree of interaction [...]

A second meaning is the space where participants in online communication feel themselves to be [...] ⁶⁹

Thus, immersion and interactivity are described as major features of the VR experience in general. They are, at the same time, also major features of immersive VR art, as we will see in the following paragraph. What I find particularly interesting is what the authors call “the metaphorical places and spaces”, and what they define as one of the intertwined reference points beside immersion and interactivity. In the VR-Cube, those metaphorical spaces are three-dimensional worlds that the spectator navigates within. Interactivity refers to the spectator’s ability to intervene in, play, experiment, choose within, explore, or modify the virtual environment he/she is immersed in. The spectator has to intervene in the metaphorical spaces in order to produce meaning. The way to explore a VR artwork will vary depending on the kind of work the participant will explore, whether it is a car model with the simulation of several air streams around the doors of the car and the corresponding mathematical and physical data, a visualisation of molecules or a work of art.

IMMERSION AND INTERACTIVITY

Specialists in the field of VR Art, such as Gabriella Giannachi,⁷⁰ Oliver Grau⁷¹ or VR artist Char Davies,⁷² all stress the fact that immersion and interactivity are unique characteristics of an artistic experience in the VR-Cube. These are also the two dimensions of VR art that are most often discussed in the literature in the field. I argue that they are the most obvious and spectacular dimensions of VR artworks in as far as immersion and interactivity do not exist in the same sense within traditional settings within the performing arts or visual arts. Through immersion, the distance between the stage and the audience is abolished. The artistic work is no longer in front of the spectator; it is to be experienced from within. The spectator’s perspective is not the same as for a spectator looking at a performance on stage in front of her or at a painting

⁶⁹ Lister & Dovey & Giddings & Grant & Kelly, 2003. p. 35

⁷⁰ Giannachi, 2004.

⁷¹ Grau, 2003.

⁷² Davies, 2003. “Landscape, Earth, Body, Being, Space and Time in the Immersive Virtual Environments Osmose and Ephémère”, *Woman, Art and Technology*, ed. by Judy Malloy, London: The MIT Press, pp. 322-337

on the wall. The spectator is located within an artistic work he is able to explore from the inside by interacting with three-dimensional virtual objects and characters moving around in the virtual environment.

Immersion and interactivity combined with the technical possibilities that are available due to highly sophisticated computer technology have a number of consequences. Imagining a work for the VR-Cube, an artist has the opportunity to use unusual artistic tools in order to build up dramatics. Grau enumerates a range of opportunities that are made possible through VR art:

- Sudden changes of surface and textures
- Spaces of gigantic and awesome proportions
- Vertiginous heights and depths
- Speeds that produce euphoria or paralysis⁷³

By using these tools, an artist gets the opportunity to challenge human perception. In this way, the VR-Cube becomes a new physical and mental environment where our body and our senses (sight and hearing) are deceived and stimulated in another way than they usually are.

So far, I propose that the term “virtual reality”, when applied to a VR arts play, refers to both the experience of immersion in three dimensional virtual environments and the metaphorical spaces created by the play per se, i.e. a play based on a certain level of interactivity. Thus immersion and interactivity are the two primary, most obvious and spectacular features of a VR art experience. However the essence of the experience and the challenge for body and mind this may represent for a spectator has to be looked for elsewhere, within the play itself.

USER INTERFACE AS A CENTRAL PARAMETER

Grau considers the user interface as a central parameter of virtual art and defines it as “the point of contact where humans and machines meet in order for exchange to take place”.⁷⁴ In the VR-Cube, the user interface is characterised by immersion in an enclosed cubic space and by the “vehicle” used in order to interact with the work: the stereoscopic glasses and the joystick. In the survey results, I will discuss how this user interface is perceived by the audience of a VR arts play. There are other types of user interface such as for instance the headmounted display or HMD, defined by VR theoretician Laurie McRobert the following:

⁷³ Grau, 2003. p 203

⁷⁴ Ibid. p. 198

a headmounted, wide angled, stereoscopic display system powered by a host computer and external hardware, such as graphics and sound synthesizing equipment, to create digitally immersive space⁷⁵

For the artworks *Osmose* and *Ephémère*, VR artist Char Davies has developed a specific type of user interface based on a headmounted display and a specially designed vest that coordinate the immersant's breathing with navigation in the virtual space. By breathing in, the immersant is able to float upward, by breathing out, he/she falls, and by altering the body's centre of balance, he/she changes direction. According to McRobert, Davies' use of the immersants' breathing and bodily movements in order to navigate in immersive virtual space, makes Davies' immersion technique unrivalled in the field. An interface that connects breathing, the human body's most vital function to the experience of motion in a virtual space seems to be a particularly appropriate tool for an artist working towards experiences of communion between the self and the world. Unfortunately, I never got the opportunity to experience this particular user interface myself. In *The Immersant Experience of Osmose and Ephémère*, a study published in 2005, Harold Thwaites presents audience surveys conducted in 1995 and 1998 with regard to these two works.⁷⁶ Results show that as many as 73% of the respondents found that using breath and balance for navigation contributed positively to the experience whereas only 23% found it had negative effects. However even if the breathing interface was appreciated by the overwhelming majority, many spectators reported that they found the HMD, i.e. the other part of the user interface, disturbing due to its heaviness. The user interface in a VR-Cube has other practical and technical barriers that impede the audience experience as we will see later when we examine audience surveys and therefore, more technologically suitable solutions concerning the user interface have to be explored. I agree with Grau when he claims that the user interface is a central parameter of virtual art. Nevertheless it does not mean that it is the central one. Computer technology is evolving extremely fast and technical barriers can be solved temporarily, if not totally discarded, thanks to constructive collaborative research between artists and computer engineers. Therefore, with a performing arts perspective as my starting point, the central issues are those that deal with the dramaturgy of a VR arts play. This approach will, in turn, determine the choice of a specific user interface, the level of interactivity, the rhythm of narrativity and the features of

⁷⁵ McRobert, 2007. *Char Davies' Immersive Virtual Art and the Essence of Spatiality*, Toronto: University of Toronto Press, p. 4

⁷⁶ <http://www.immersence.com/>
Thwaites, 2005. "The Immersant Experience of Osmose and Ephémère", [PDF File], *Proceedings of the 2005 international conference on augmented tele-existence ICAT '05, Christchurch, New Zealand*, pp. 148–155

the sound and visual environments, all of which will have impact on the role of the spectator and the specific character of the immersive experience.

WHAT ROLE FOR A SPECTATOR OF IMMERSIVE EXPERIENCES?

In immersive VR art, the spectator is no longer a spectator in the same sense as he/she is when viewing traditional settings within the performing and visual arts. When the physical distance between stage and audience is abolished, new terms have to be coined. The rich terminology used by various authors when they depict immersive experiences is typical of a new research field where diverse VR practices are taking place and new definitions are emerging. Davies uses the term *immersant*,⁷⁷ Giannachi uses the term *viewer*,⁷⁸ whereas Grau writes about the *observer*.⁷⁹ In the chapters entitled “The poetics of Navigation” and “The Navigator and the Explorer”,⁸⁰ Manovich uses terms such as *user*, *viewer*, *observer* and even *human dweller*, *immersant*, *navigator* and *explorer*, when he discusses VR-based works of designers of navigable spaces.

In an article from 2005 in *The Times* about *Horrible Histories*, the world’s first fully interactive stereovision theatre put up by *The Birmingham Stage Company*, Dalya Alberge describes the play, which had real actors on stage, in the following terms:

Historical figures and events are to be brought to life in stagings for children based on the horrible history books by Terry Deary. Audiences will see portraits of Henry VIII and Elizabeth I hover above their heads and find themselves dodging cannonballs and pieces of wood when a ship of Spanish Armada is struck. The objects come right at the audience, fooling the brain into believing they are real. At the trial in Darlington last week children were excitedly reaching out to grab them.⁸¹

She continues quoting Neal Foster, actor manager of *Birmingham Stage Company*

It dissolves the boundaries between stage and the audience. As a theatre person, the live element is crucial to me. Live theatre should be live.

Accordingly, thanks to virtual reality, new kinds of user interface are imagined and new situations are being created within the visual arts and even within the performing arts. These are situations where the spectator sitting in the auditorium is immersed

⁷⁷ Grau, 2003. p 19

⁷⁸ Giannachi, 2004. p.139

⁷⁹ Grau, 2003. p 203

⁸⁰ Manovich, 2001. pp. 259-273

⁸¹ Alberge, Dalaya, 12/9/2005. “Laptop illusions add a startling extra dimension to live theatre”, *The Times*

into the setting and may no longer be considered as merely a spectator. This new technology allows for new modes of theatre productions that challenge the traditional spectator's role. Shall a spectator sitting in a theatre auditorium, and who suddenly finds himself ducking when a giant, virtual cannonball comes towards him be apprehended as merely being a spectator or as spectator and actor/participant?

With regard to my own VR arts play, the audiences' surveys have shown interesting results, which not only refer to a number of possible roles and identities that a spectator of a VR arts play can adopt, but which also describe the experiences so as to enrichen and add to the metaphorical terminology mentioned above. Those results will be presented and discussed in part IV and V.

VR ILLUSIONISM AGAINST OR TOWARDS A HIGHER LEVEL OF AWARENESS

DISSOLUTION OF AESTHETIC DISTANCE AND CRITICAL DETACHMENT

What happens when the work of art can only be experienced from within? Is it possible to maintain a critical eye when examining the object of research? Reflecting on this issue Grau writes:

However, being enveloped in a cocoon of images imposes profound limitations on the ability for critical detachment, a decisive hallmark of modern thought that always played a central role in experience of and reflections of art⁸²

Grau continues by referring to Theodor Adorno's theory of aesthetics:

Distance is the primary condition for getting close to the content of a work. It is implicit in the Kantian notion of disinterestedness, which demands of the aesthetic stance that it should not seek to grasp the object [...] ⁸³

Grau adopts Adorno's theoretical perspective when he argues that "being enveloped in a cocoon of images imposes profound limitations on the ability for critical detachment". I disagree with him to a certain extent. In my view, analysing a work of art that only can be experienced from within does not necessarily impede the ability of critical detachment. A deeper analysis of this will be presented together with the empirical material, which will include voices from the audience. However, I find it important to

⁸² Grau, 2003. p 201

⁸³ Ibid. p 202, quoting Adorno, Theodor, W.1973. *Ästhetische Theorie*. Frankfurt am Main: Suhrkamp, p. 460

present arguments for such a discussion to the reader and position myself from the beginning.

VR ILLUSIONISM AS A THREAT AND A POLITICAL ISSUE

Through the dissolution of the user interface, is illusionism a threat to a participator's unconscious state and is it a political issue? For Grau, illusionism with the dissolution of interface is indeed a political issue:

Increasingly powerful computers increase the suggestive potential of virtuality, which, particularly through the ideology of a "natural interface", is beginning to unfold its full psychological and manipulative influence. Against the backdrop of virtual reality's illusionism, which targets all the senses for illusion, the dissolution of the interface is a political issue.⁸⁴

Personally, I think that manipulation through illusionism may operate in many artworks, not only in VR artworks. The illusion of being immersed in a work of art operates even through literature, theatre, music and painting. A good novel is political in the sense that it creates the illusion of a world the reader can identify himself with. VR art as an immersive experience of illusionism is not something new in the arts either. As I have already pointed out, for people of the 18th century, panorama paintings, an ancestor of the VR-Cube, were based on illusionism. Thus, immersive VR art is one among several art forms which may be apprehended as manipulating the spectator in the way that they appeal and move man's mind and senses.

Meanwhile, in an immersive VR environment, illusion does not operate through the power of imagination alone; it is a physical experience in which the body of the person is co-located within the virtual space. Therefore, Grau raises an unavoidable question that all artistic researchers working with immersive VR as an artistic medium have to deal with, and that is also an important contextual issue concerning VR art, i.e. the issue of the power of the identification process in immersive VR art.

VR ART REDEEMING OUR AWARENESS OF REALITY

If we admit that an artistic immersive VR experience might have a strong impact on an audience, how can we explain and qualify this impact? In her book about Char Davies' immersive art, Laurie McRobert launches her thesis with the following words:

⁸⁴ Grau, 2003. p 203

My thesis in this book is that immersive virtual art such as Davies' is fated to act positively and catalytically on the human psyche, to bring us face to face with an experience of space/time that we intuitively know but had no way of consciously accessing until now. I argue that being immersed in a virtual 3D spatiality allows us to grasp and understand as never before, the power of the *unconscious*. Immersive virtual art such as Davies' acts as a facilitating medium that allows us to appreciate something more than our mathematically conditioned, four dimensional experience of space and time and takes us deep into our DNA and an innate sense of an archaic/eternal space/time.⁸⁵

I can only appreciate McRobert's thesis in relation to immersive VR art in general and not with regard to the specific artworks that the author refers to. Even if I can agree with the general meaning of McRobert's thesis, I cannot subscribe to the idea that immersive virtual art allows us "to grasp and understand as never before the power of the unconscious". No art form can ever claim a supremacy concerning what it may reveal or not about ourselves, spectators, performers and/or artists and producers. What is unveiled depends on what happens in between an artwork and its audience and is, in my view, not dependent on a specific art form per se. In an interview to *Time Magazine*, filmmaker Ang Lee broaches the issue and conveys how film making is, to him, an art form that enables to him reach the truth about himself:

"I lead a very mundane, normal life," says the 53-year-old director. "I'm happily married. I'm a reasonable person. But in making a movie, I like to touch the unknown. Sometimes, you get to this scary truth about your own subconscious existence."⁸⁶

What McRobert refers to as "the power of the unconscious" is probably the same phenomenon as "this scary truth about your own subconscious existence" that filmmaker Ang Lee refers to above. Personally, I am reluctant to use terms like conscious and unconscious or subconscious in opposition to each other in order to interpret audience comments or research results. In the introduction, I referred to the idea of emotional intelligence that bridges the gap of dichotomous thinking. In my view, the latest research in neurology seems to indicate that it may not be as easy as it sounds for a layman to distinguish the conscious from the unconscious, since consciousness is often wrongly linked to the concepts of reason only, in contrast to unconsciousness, which is too often simplistically linked to feelings and emotions. As for me, as an

⁸⁵ McRobert, 2007. p. 10

⁸⁶ Ritter, Peter, 22 Oct. 2007. "Movies, Infernal Affair. In Ang Lee's latest elegy – a sultry World War II spy thriller – the bedroom is the battleground", *Time Magazine*, p. 54

PART I

artistic researcher, I do not want to venture into the fields of psychoanalysis or neurology. I can, however, subscribe to McRobert's assessment that immersive virtual art may act as a facilitating medium that allows us to appreciate something more than our experience of space and time and I do agree with VR theoretician Michael Heim's proposal discussing the essence and promise of VR illusionism as part of a global artistic vision when he writes:

Perhaps the essence of VR ultimately lies not in technology but in art, perhaps art of the highest order. Rather than control or escape or entertain or communicate, the ultimate promise of VR may be to transform, to redeem our awareness of reality – something that the highest art has attempted to do...⁸⁷

Having given the contextual setting of immersive VR art in relation to my own positioning in the field, let us now follow behind the stage and delve into the production process of my VR arts play.

⁸⁷ Heim, 1993. *The metaphysics of virtual reality*, New York: Oxford University Press, p.124

PART II

Production process of a VR arts play

LE BEAU, LE LAID, LE BON ET LE MAUVAIS

With my VR arts play,⁸⁸ I wanted to create a journey between illusion and reality to be experienced in the VR-Cube. This digital work dealt with the theme *Le Beau, le Laid, le Bon et le Mauvais* (The Beautiful, the Ugly, the Good and the Bad). My VR arts play was thought as a kind of initiating trip into imaginary environments that contained archetypes symbolising the Good, the Bad, the Ugly and the Beautiful. The underlying artistic idea was to explore the dualism between good and bad, and beautiful and ugly, and to show them as two sides of the same coin. These are contrasting pairs that have dominated our way of thinking and characterised myths since time immemorial. The connotation of the title to the famous western *The Good, the Bad and the Ugly* starring Clint Eastwood⁸⁹ was intended to remind both the audience, the production team and me about the importance of humour as a kind of mental gatekeeper, a *garde-fou*, when it was time to address the most serious existential issues. Humour is, in my view, an important quality for an artistic researcher. Without humour, it is not possible to maintain a kind, yet critical eye towards one's own artistic and scientific process.

⁸⁸ Ljungar-Chapelon, 2002-2003. *Le Beau, le Laid, le Bon et le Mauvais*, Virtual Reality Arts Play in the VR-CUBE first performed during the "Open Cube" days 10-12 December 2002 at Chalmers University of Technology and then during the International Science Festival in Gothenburg, in May 2003.

⁸⁹ Leone, Sergio, 1967. *The Good, the Bad and the Ugly*

PART II

What interested me here was to work with the relations and combinations between the oppositions mentioned above, as a metaphor for life itself. This initiating journey led the spectator through four main worlds. These worlds were *The Garden*, *The Twin Room for Life and Death*, *The Labyrinth*, and *The Pavilion*. This journey between illusion and reality followed its own “dream lines”, i.e. logical phases interrupted by unexpected and absurd events and characters such as a green, balloon-like fruit from the life and death tree. If the spectator tried to catch it, it did not fall down, but flew into space, rebounding with short, funny noises to finally disappear and be reborn as a new fruit over and over again. These dream lines guided the spectator between the four virtual worlds, linked together by a gigantic staircase climbing into the air.

Stepping into the VR-Cube, the spectator entered the VR arts play through *The Garden*, i.e. a surrealistic floating garden with several layers of water surfaces, hanging vegetation, and translucent trees.⁹⁰

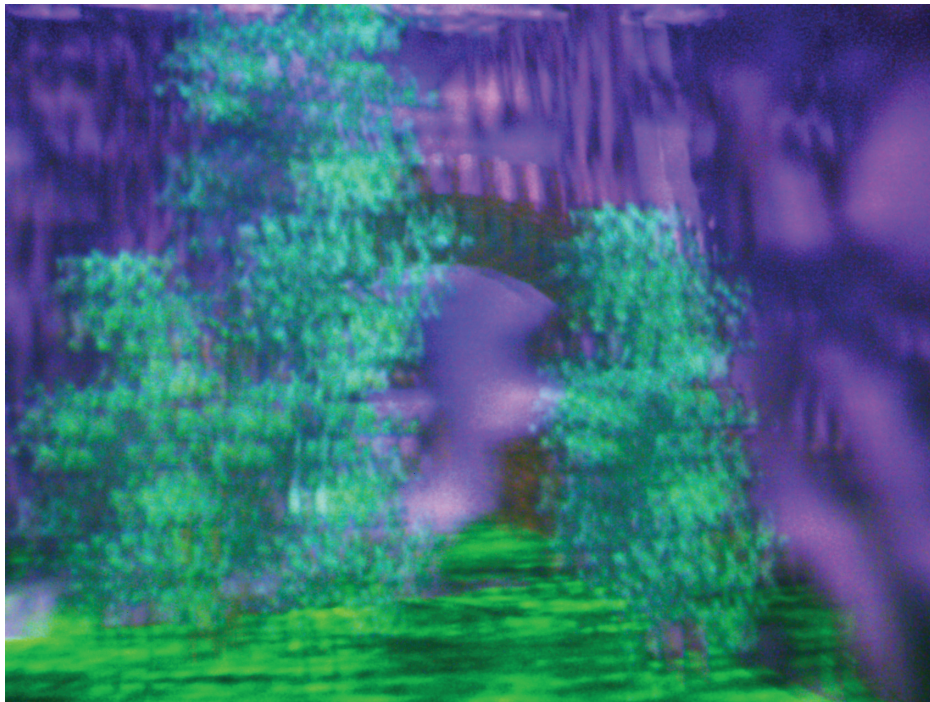


Figure 5. Into *The Garden*

⁹⁰ DVD, Title 1: “Se filmen” (See the Film) 0’50” - 2’00” and 9’24”-10’00”, time indications are indicated in minutes and seconds from the beginning of each film sequence.

Finding her way out of the garden through an arcade of leaves, she would discover a gigantic staircase of white marble hanging in space. Just like in a dream, the garden vanished, without explanation, as she left the arcade and she suddenly stood at the bottom of the stairs.

The staircase had several landings with a characteristic portal for each of the three worlds that had to be discovered. However, only one of the portals was visible and accessible for the spectator when she discovered the stairs the first time. This was the portal of *The Twin Room for Life and Death* which stood on the last landing at the very top of the stairs. When she reached the last landing, the stairs became much higher and narrower, whereas the white marble texture of the stairs gave way to a dichotomic texture of golden and black marble that divided the stairs into two sides corresponding to the life and death sides of the twin room's portal.⁹¹

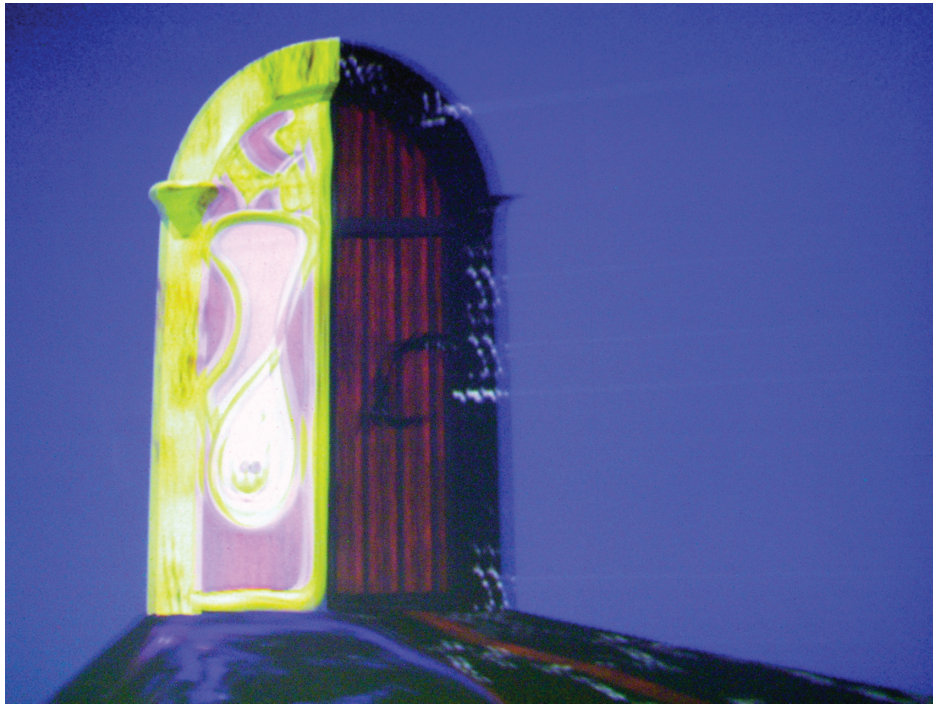


Figure 6. Portal to *The Twin Room for Life and Death*

⁹¹ DVD, Title 1: "Se filmen" (See the Film) 3'05''- 3'37'' This short sequence shows a child climbing up the stairs.

PART II

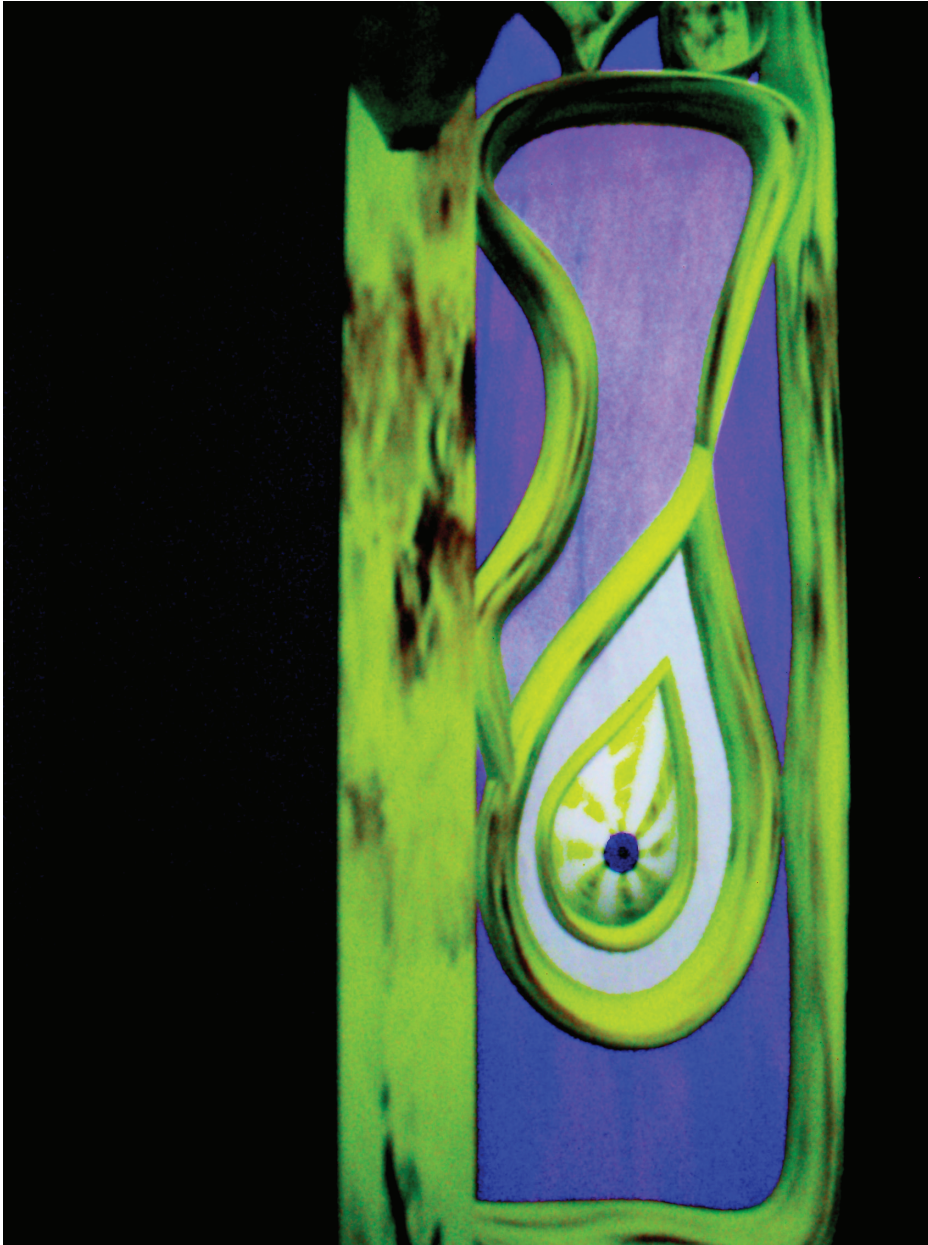


Figure 7. The life side of The Twin Room's portal with its blue eye



Figure 8. Two women on their journey inside the trunk of the life and death tree



Figure 9. Attempting to tame the snake-branches

PART II

Inside each world, the spectator had the opportunity to choose different paths, discover or not discover several other worlds, and interact or not interact with the environment, but could not avoid any of the paths completely. Why? The underlying artistic idea was that human beings have to dare and be willing to walk through the most threatening parts of the “life labyrinth” in order to be able to discover and fully enjoy the most luminous parts of life. Therefore, the metaphoric journey, represented by a steep staircase of a dizzying height, led the spectator to *The Twin Room for Life and Death* where the dualistic theme of the whole journey was then exposed, as in a sonata, through the apparition of the portal first, and of the life and death tree afterwards. The spectator was to enter the tree and discover some of its surprising fruits and inner worlds and interact with some of its characters.

The contrasting pairs “good and bad”, “ugly and beautiful”, did not seem to make sense any more. What, at first sight, seemed to be dangerous could reveal itself as something rather harmless, what seemed to promise a delightful experience sometimes revealed itself as a delightful experience, sometimes not.



Figure 10. The black claw and the golden eye on the portal to *The Twin Room for Life and Death*

The black claw of the portal could do no more harm than a roaring sound. However, if the spectator chose to grasp a red playful balloon-like fruit with the virtual hand, he got drawn into a vertiginous drop into a dark hole, accompanied by screaming human voices⁹².



Figure 11. Into The Dark Hole

⁹² DVD, Title 1 "Se filmen" (See the Film) 4'00"- 4'39'

PART II

Touching another very similar fruit triggered the ascension through a blue luminous space of falling golden particles to the sounds of a woman's seraphic voice (see the DVD).⁹³



Figure 12. *Woman in Blue*

Then, abruptly, this world would vanish and she would find herself in front of the labyrinth's portal on the first landing, a portal of black marble locked by black claws. Behind the black bars of the gate, she could see the red/yellow glimmer of fire. *The labyrinth*,⁹⁴ an archetypical symbol of human loneliness, and despair is the place where human beings get lost. In the labyrinth, you are in mortal danger. If you do not find the exit, you might be killed by the Minotaur, the mythical beast, half human – half bull, who is prisoner of the labyrinth. On the labyrinth's wall there were beautiful red and yellow eyes, burning eyes full of madness staring at the spectator.

⁹³ DVD, Title 18: "VR-kuben utifrån" (The VR-Cube from the outside) 0'54'' - 1'06''

⁹⁴ See the manuscript of *The Labyrinth*, on Appendix 3.1 (the Swedish text)



Figure 13. *Wild eyes on the wall inside The Labyrinth*

A young woman's weeping was soon covered by thunder and the sounds of an enormous fire; no one would ever find her. In my VR arts play, *The Labyrinth* symbolised destructive powers inside every human being, when anger, distress and fear make man blind. It became an armour of anguish the young woman was trapped in, and which suffocated her. Nobody but herself could help her to find the exit and escape the armour.⁹⁵

If the spectator entered the labyrinth and managed to find the exit by following the guiding sounds of rippling water, only then would the journey continue and a pavilion appear. *The Pavilion*, a radiant place, close to nature, symbolised a place where human beings find peace and harmony within themselves.⁹⁶ Hidden within a wood of white marble and golden columns floating in the blue space, the pavilion appeared like a lost

⁹⁵ See pictures of *The Labyrinth* in the theoretical chapter. DVD, Title 1: "Se Filmen" (See the film) 7'20''-8'27'' and Title 20: "Test i VR-kuben" (Test inside the VR-Cube) 0'00'' - 1'20''

⁹⁶ DVD, Title 21: "Publiken lär sig att att styra i kuben" (The audience learn to steer in the Cube) 0'00'' - 1'00'' and 1'33'' - 2'45'' or Title 1: "Se filmen" (See the Film): 4'50'' - 6'30'' and 10'05'' - 10'43''

PART II

cathedral in the sky floating in the star-cloud with its golden branches waving slowly in space and its green grass landing where the spectator could rest at last. In the pavilion, birds were singing, there were murmuring sounds of water and a woman voice whispered in several languages in the spectator's ear:

Cathédrale Engloutie,
Ma forêt d'étoiles,
Kristalkronan min,
Croisées éternelles,
Valv efter valv öppnar sig,
Oändligt,
Inom mig,
Croisées éternelles
Oändligt, inom mig...

The Sunken Cathedral,
My Forest of Stars,
Crystal Crown Mine
Eternal Arcades
Portal after Portal opens
Infinitely
Inside me,
Eternal Arcades
Infinitely, inside me...



Figure 14. Resting in The Pavilion

The pavilion's roof was the beautiful eye, the eye of the life and death tree and the eye of the golden portal.⁹⁷

However, it was not possible to stay in the pavilion for ever. After a while, the pavilion would disappear and the spectator came back to the twin room in front of the life and death tree. For a short time, she got the opportunity to pursue her exploration, before being suddenly moved once again to the bottom of the stairs. Only then, did the golden portal of the pavilion appear opposite to the labyrinth's portal, on the same landing. At last, the entrance to the pavilion was made visible and she could reenter if she wished or return to another world. Shortly after, as when we wake up from a dream, all the surrounding virtual worlds suddenly vanished and she found herself standing in a bare VR-Cube. The journey through the dream lines was over.

A MULTIDISCIPLINARY COLLABORATIVE PROJECT

The production process of *Le Beau, le Laid, le Bon et le Mauvais* was, as mentioned in the introduction, a collaborative and multidisciplinary team project involving twenty persons over time including myself, students and professionals with technical and/or artistic skills, several architects, a set designer, a sound designer, interaction programmers, students from the department of Interaction Design and Technical Communication from Chalmers University of Technology, one student from the School of Design and Crafts at the Faculty of Fine, Applied and Performing Arts at the University of Gothenburg, two freelance artists and musicians (see the complete production team on Appendix 2). Only a few of them had both an artistic and a technical background and had previously worked with the VR-Cube, among them Josef Wideström, the VR and visualisation project leader, who is both an architect and a stage designer and the music producer Karl McFaul, who was at that time working at Chalmers Medialab and was familiar with the VR-Cube as a medium.

In order to give the reader an insider perspective to the production process, I did not only look for what might or might not be relevant to the research question. I also thought of what might be fruitful for further artistic and technical research. Therefore I chose – more specifically – to bring light to aspects of the process that might be of particular interest to two specific target groups that I had in mind: artists, students and artistic researchers without experience from VR art, but who are interested in the potential of the VR medium or intend – as I did – to dive into the VR-field from the perspective of their own artistic field, for instance film, photography, dance or theatre. The other target group I had in mind were academic teachers, students and researchers in a technical

⁹⁷ See the manuscript of *The Pavilion*, on Appendix 3.2 (the Swedish text)

environment as well as VR specialists and researchers within industry and entertainment technology who work with 3D modelling, interaction's design and programming and who want to engage in collaborative projects with artists from various artistic fields in order to explore new means of developing VR technology and its fields of application.

To describe the specificity of this process, I will not only relate to my own experience as artistic leader but also bring out the perspective of the production team. By doing so, the analytical process will mirror my artistic intentions. I have created a VR artwork by opening the process to other strong and creative personalities stimulating them to interpret my artistic ideas and collaborate with me in the endeavour to create metaphors about life and death. Engaging others in my artistic process and inviting them to contribute to its analysis is in line with my view of artistic research, as a collective process of artistic knowledge shaping, far removed from the romantic conception of the lonely and untouchable artist, who creates a work whose process will never and can never be understood by others. Consequently, in the following, I will let the voices of the other team members be heard, but first I will start with my own reflections.

AN ARTISTIC AND TECHNICAL CHALLENGE

Getting the chance to experiment with VR dramaturgy was a tremendous artistic challenge that I could not resist. Taking the opportunity to explore the borders between illusion and reality, between the audience and the stage through an entirely new medium, I did what I had done several times in life before and what I love doing in order to discover something new: Once again, I jumped into the unknown when I created this VR artwork. This was not done with a naive and careless state of mind, and I was aware of the numerous barriers I would probably encounter. I did, in fact, expect some insurmountable ones. However I knew that it was worth the adventure and that it would be joyful and rewarding.

Actually, I found out that the production process of this VR artwork did not differ fundamentally from the production process of a theatre play or a dance performance I was familiar with. There were, of course, no actors and dancers to instruct but this work was replaced by an intense collaboration with 3D designers and interaction programmers, who had to be instructed about what to model and why. Instead of actors and dancers acting during a performance, there would be spectators, acting on stage inside the VR-Cube and I had to explain to the production team the meaning of the artefacts and the characteristics of each VR world the spectator was expected to experience. In order to do so, i.e. to explain the dramaturgy of the VR artwork, I wrote manuscripts about the main worlds of this VR journey (see Appendix 3).

Depending on the background of the team members, the character of the production process differed a great deal. Professional 3D designers who modelled specific VR

environments were given full freedom to develop their own artistic ideas within the frame of the main thread of this VR project, whereas I guided and instructed the students from the School of Design and Crafts and Chalmers University in a more directive way. With Josef Wideström, the VR and visualisation project leader, who created the 3D model of *The Labyrinth*, I worked in a way similar to what a play director and playwright does with a stage designer for a stage play. I wrote a manuscript describing what would be happening to the spectator entering the labyrinth, where I described the emotional mood of the journey in a chronological way with indications about the character of the rooms the spectator would be passing through and explanations about the sound landscape that would accompany these, but I did not make any specific drawing about the architecture of the labyrinth nor about the choice of textures and colour (see the manuscript on Appendix 3.1). I did so intentionally so as not to inhibit his creativity but to make this collaborative work rewarding for both of us. In the DVD (Title 8),⁹⁸ the project leader explains and comments himself on the role he played in this collaborative process.

The working process was not a continuous process. This VR project took more than two years to complete and was split up into several intensive working phases, revolving around the five main environments of the VR artwork and the creation of their respective musical surroundings. For this reason, all members of the production team were not active under the same period of time and the majority of them only had a deeper insight into one part of the VR artwork, i.e. the part they contributed to. Furthermore, none of the team members could dedicate themselves fulltime to this artistic project; all of them had several other activities they had to continue working with at the same time. Nearly all my colleagues from Chalmers worked on this project on a voluntary basis only because they found this project interesting. This meant that most of them were not remunerated for the extra work this collaboration implied and that it was not an easy task to find time to work on the project or have production meetings. From an artistic point of view, the discontinuity of this process permitted me to engage myself totally and focus on one VR world at the time which was, on the one hand, an advantage considering that the VR-Cube was an entirely new medium for me. My VR artwork grew little by little, and the pieces of this complicated puzzle began to fall into place. On the other hand, some members of the production team were only available during a short period of time, and it was difficult to go back and perform the final technical and artistic improvements that I judged necessary for the dramaturgical coherence of the work. The final adjustments within the last working phase of a dramaturgical project are of vital importance

⁹⁸ Ljungar-Chapelon, 2006. DVD *Om Le Beau, le Laid, le Bon et le Mauvais*, Title 8: "Rollen som projektledare för VR och visualisering" (The role as project leader for VR and visualisation)

for the artistic aims, and, unfortunately, we worked intensively, and in detail, on several improvements of my VR artwork that we did not have enough time to implement.

THE RISKS OF THE UNKNOWN

Taking risks is a condition *sine qua non* for interesting research situations where the researcher does not construct a case study that only can serve his/her working hypothesis and gently obey the theoretical construct. In my view, and in order to be fruitful, a case study should be constructed in such a way that it can “speak for itself”, i.e. that it can resist research hypotheses and theoretical constructs from the researcher. My VR artwork was definitively a risky enterprise and proved to be this kind of open case study that engaged the production team and the audience in multifaceted experiences, which also led to unexpected research results. Nevertheless, taking risks means that the production process was nothing like what I would call, in my mother tongue, *un long fleuve tranquille* (a cruise along a long, calm river). It was rather, as I had expected a joyful but often nerve wrecking chaotic cruise with plenty of stumbling blocks in the middle of the river and where experiencing a lot of bumps along the way put the patience of the production team members to the test.

Looking back at the production process of my VR artwork by means of my log-book, where I collected spontaneous and funny comments made by production members, extracts from e-mails and my own reflections about the creative process and also by examining survey results, I could identify several factors which stimulated and/or impeded it. These were institutional-, financial-, time-, knowledge- and technique-related factors and, not to be underestimated, mental factors.

INSTITUTIONAL AND FINANCIAL FACTORS

As a PhD student in digital representation I was employed by the Faculty of Fine and Applied and Performing Arts at the University of Gothenburg, but my workplace during the main period of my doctoral project was Chalmers University of Technology where I worked at “Chalmers Medialab” to then move to a new centre, the Centre for Digital Media and Higher Education in the building that housed the VR-Cube in its basement. This was, in fact, much more convenient for me.

On the one hand, institutional collaboration between two educational institutions was most rewarding because the realisation of such a VR project that engaged VR specialists and Chalmers students would have been too expensive and complicated, had it not been possible to organise the production work so that it was fully integrated into the Chalmers students’ courses. From this perspective, I had a unique chance to acquire access to VR technology and collaborate with VR specialists and students within a renowned university of technology.

On the other hand, however, being dependent on two major institutions with differing agendas can lead to hazardous research situations where conflicts of interest may occur and where research students may stand on insecure ground. I was at that time the only PhD student from the Faculty of Fine, Applied and Performing Arts with Chalmers as my working place, and who was also dependent on such an expensive technological device as the VR-Cube. Neither my supervisor nor I had expected, at the beginning of my doctoral studies that the VR-Cube would not still be running at the time of the public defence of my thesis. In a complex debate about the possible building of a new VR-Centre at Lindholmen in Gothenburg, the research of one PhD student in the particular field of immersive VR art had very little chance of influencing a decision making process that depended on sponsorship from industry and investments by several educational and political actors from the city of Gothenburg and the Swedish state. So, for financial reasons mainly, Chalmers made a decision to pack up the VR-Cube in June 2006.

TIME AND TECHNICAL FACTORS

Computer technology is developing extremely fast and systems have to be upgraded and replaced on a regular basis. So, working with VR-based technology implies – like all computer-based technology – working with a technology that becomes outdated very fast. This was a problem I was not fully aware of when I jumped into the unknown. Moreover, having my inherited French respect for elite schools and a non-technical background, I was blinded by a naïve and somewhat simplistic vision of Chalmers as “The Swedish high technology stronghold” where no computer based systems could ever fall apart or, at least, where all technical problems could be solved. Already at the beginning of the production process in the autumn of 2001, my beliefs were put to the test when Chalmers students encountered several tricky software- and hardware-related problems. During the years 2002 and 2003, when my VR artwork was created and met its audience for the first time, the application worked most of the time as it should, but we could never fully rely on the VR-Cube technique. Each VR journey was an adventure per se and I could never be certain that the application would work without anything unexpected happening.

One amazing detail is that, of all virtual places within the VR artwork, we got locked several times into the virtual labyrinth without being able to find the exit. Despite all VR expertise, we could not progress into the application any further, as if the technology itself had engaged in the content of the work and was playing around with us. There was surely a technical explanation for this, but the system managers never found out what had gone wrong. Once, in a humouristic intermezzo, reality made its eruptive entrance into the virtual worlds of my VR arts play when a group of spectators

and I were imprisoned in the virtual labyrinth. At this very moment, a Securitas guard suddenly opened the door to the VR studio and asked if anybody needed help. We all called out to him saying that we definitely did need help. He thought somebody was locked into the rest room and became very confused when he heard voices coming from the VR-Cube. Not even he was able to rescue us!

“DV Mockup” was the first platform used to run my VR artwork and already during 2004, the computer system did not respond as it should. To buy expensive spare parts to maintain the system was too expensive for a system that was becoming outdated considering that the Chalmers VR-Cube was mainly used for architectural, physical and mathematical visualisations and not for artistic purposes. During 2005-2006, the VR-Cube had no more maintenance and, despite great expertise, each time we tried to run my VR project, we never knew until the last minute if it would be possible or not and if vital parts of the application would be working or not. It was a long shot in the dark. By that time, I had done all the audience-related surveys, but I was running out of time. At the very last minute, I did the last in-depth interviews that I needed for my thesis. This was the day before the VR-Cube was packed away. The precariousness of VR-Cube technology and the uncertainty of not knowing if and when the Chalmers VR-Cube would be removed or replaced or not, had consequences for the production process of my VR arts play in particular, but also on the whole research process.

ABOUT THE OPEN VR-VERSION

In order to save my VR project, nearly 10,000 computer code-lines had to be transformed or reprogrammed into a new system: Open VR. During 2004, we engaged two former Chalmers students to help us with this time-consuming process. They were both VR programmers. At this time, we did not know that the VR-Cube would be removed. I soon realised that it was more or less an impossible mission. To translate and reprogramme such a complex VR project into a new platform without losing parts of its artistic content was all but easy. In the original version, the sound system Gigasampler and the visualisation system DV-Mockup ran parallel to each other as two separate systems and not as one single, integrated visualisation and sound system. That made it more difficult to save the work in case we would get the opportunity to recreate it with perfect timing between the sound and 3D environments. It was indeed technically possible to use some of the 3D models we already had and to reshape and reconstruct the detailed interaction between the visual and sound environments through the tracking system, but doing so meant creating a new version of the same VR arts play with different technical means, which can be compared with the work of a stage director directing a new version of a play or of an opera for new actors and singers and with a new production team within a new auditorium.

I had needed a new production team and it would have been a new project and a new artistic challenge. With Open VR, I had hoped to achieve some of the artistic improvements that could not be realised within the former platform i.e. a virtual choreography with dancing avatars but I had neither the time nor the financial means to fulfil such a project and it was, of course, practically impossible without a new VR-Cube. Studying how to enrich the artistic experience with the help of such a new platform as Open VR may be a subject for postdoctoral studies and further research for me. Anyway, my experience confirmed the unfinished and open quality of VR art, as well as the crucial problem of the conservation of VR art stressed by VR specialist Oliver Grau.⁹⁹

TRANSGRESSING TECHNICAL BARRIERS

Barriers, when they appeared, had to be transgressed. I was not aware of all the technical limits and problems, the knowledge of which had possibly inhibited my creative process in an unconscious tendency to serve the medium instead of being served by the medium. Had I known more exactly what was technically possible or not, I had saved time but I might have put several artistic ideas to one side and classified them as being completely unrealistic instead of giving them a fair chance. For example, I often wanted to make artefacts move with soft, elastic movements instead of with technically much simpler rotative or accordion-like motion patterns. In our endeavour to realise artistic ideas, the production team and I permanently had to work on the borderlines between what was feasible or not. To find solutions to apparently unsolvable technical problems, the Chalmers students, the VR specialists and I often transgressed the technical limits of the VR-Cube, which was meaningful for artistic and digital research.

An example of how one obstacle, due to technical barriers, could turn out to have a creative potential is the following: The last day before the first performance, I introduced a new feature that could be apprehended as acting and dancing. Since we did not manage to find a suitable technical solution to prevent the spectator from coming, by mistake, through the walls of the labyrinth and outside the application, I decided, at the last minute, to act as a guide and fylgia (a kind of guardian spirit) and lead the spectators through the labyrinth. To do so, I put on a long, white, golden silk tunic and with the help of improvised stylised gestures guided the spectators through the trickiest part of my VR arts play. In the DVD, a short film sequence¹⁰⁰ shows me testing the fylgia tunica in front of the golden portal of the pavilion in the VR-Cube.

⁹⁹ Grau, 2003. p 207

¹⁰⁰ DVD, Title 20: "Test i VR-Kuben" (Test inside the VR-Cube) 01'23'' - 01'45''

Artistically speaking, this was not, in my view, a well thought-out and appropriate solution to the technical obstacle that I encountered and I soon abandoned the role of the fylgia. However, this experiment happened to be useful for my research aims. What I had done in fact, without measuring the immediate impact of this solution, was to add a real actor to my VR arts play, whose gestures could be interpreted as stylised dance. It turned out to be most interesting, if we consider how social interaction works in the VR-Cube. Several spectators said to me that they felt secure, and very much appreciated having an “acting guide” in this new and unknown environment, whereas other spectators got disturbed by it, because this improvisation took too much space. Why was this? Acting as a fylgia at once emphasised my guiding role. Dressed in a silk tunic, I automatically became more than one member of the group. On our common stage inside the VR-Cube, I was suddenly given a predominant position as a living artefact within these virtual worlds. At first, a young girl thought that I was an avatar and that she could try to walk through my virtual body.

What does this experience tell an artistic leader, play director or choreographer? Artistic situations where the distance between reality and illusion is abolished can be re-created by introducing real performers (actors and dancers) within the VR-Cube or other immersive VR media. So, what these audience’s reactions above all revealed was what artistic potential and impact future VR works incorporating real actors and/or dancers might have on spectators.

THE HAZARD FACTOR

During the shaping process of a VR arts play, hazard was a parameter to deal with. Because the VR-Cube was still such a new medium and so seldom used for artistic purposes, we could not predict how all the animations would work. It was not possible to imagine exactly how three dimensional environments – which have to be modelled by a person sitting in front of a computer and looking at the models on a flat display – would appear when they had been exported to DV-Mockup, the computer programme which ran the animations for the Chalmers VR-Cube. Changes of light-effects, colours and textures might produce surprising effects that an artistic leader had to deal with. Occasionally, unexpected technical problems could be used artistically in order to enhance the artistic results, whereas sometimes unsolvable technical problems impeded the artistic results. This can be called the “chance-misfortune” factor or the hazard factor. This factor is not particular to immersive VR art but also exists to a certain extent in all forms of visual and performing arts. Nevertheless, the fact that a VR arts play like mine consisted of approximately 10,000 computer code-lines and depended on a complex computer-programme strengthened the hazard factor.

KNOWLEDGE AND MENTAL-RELATED FACTORS

As mentioned above, only two members of the production team had both an artistic and technical background. Neither the Chalmers students nor I were familiar with the VR-Cube as a technical and artistic medium. Coming from various horizons of knowledge requires time and patience in order to rule out misunderstandings. One Chalmers student, Charlotta Persson wrote:

Som tekniker är man van vid gränsdragningar och att det finns mycket som inte är realiserbart (eller i alla fall svårt att realisera), att överföra detta till det konstnärliga planet visade sig inte alltid vara helt lätt. Jag tror att man som tekniker måste vara utrustad med ett kreativt sinne och ett visst mått tålamod för att kunna ta till sig ett samarbete över gränsen konst/teknik.

[As a technician, one is used to setting limits and that there is a great deal that cannot be realised (or at least difficult to realise). To transfer this way of thinking to the artistic field was not always easy. I think that, as a technician, one has to be artistically minded and have a certain amount of patience to get the most of an interdisciplinary collaborative project that involves art and technology.]¹⁰¹

Fumbling at the beginning, our collaboration turned out to be successful only because all its members went into this process open-minded and were curious enough to try to understand one another's ways of thinking and working and to learn more about another field of knowledge.

MENTAL BARRIERS

The following misunderstanding that the Chalmers students and I had to obviate at the beginning of our collaboration is an instructive example of the mental barriers we had to overcome together in our meeting with one – for all of us – completely new medium. It had to do with a central feature of virtual reality: Virtual reality gives us the means to transgress the boundaries of the physical world. So within the four walls of the physical VR-Cube, one major characteristic of the VR experience is the opportunity to experience tremendous spaces or microscopic worlds. However, when the students saw the real VR-Cube in action, they were all misled. They went back to their computer screens and using the 3D modelling programme 3D-Studio, they directly began to model a virtual three dimensional cube with three-metre-long sides in order to be able to model a life and death tree the size of which would fit into the three cubic metres of the

¹⁰¹ See Appendix 4.2: A Chalmers student answers the survey (the whole text in Swedish)

real VR-Cube they had entered into. So, they thought that they could not model a virtual artefact higher and larger than three metres, which, of course, they could.

This misunderstanding arose because they first looked at the VR-Cube as an enclosed physical space determining the virtual boundaries for a VR artwork that had to fit into it. Therefore, their very first proposal was that of a tiny virtual room of exactly nine cubic metres that reproduced exactly the form and the size of the real VR-Cube. In this perfectly cubic room (a virtual cube to put into the real cube) they had modelled a kind of flower that looked like a cheap Halloween horror mask from a props shop. I was rather upset but tried hard not to give the show away. To be honest, I really wondered if and how it would be possible to reach good artistic results together. But we could!

VARIOUS BACKGROUNDS, VARIOUS COGNITIVE MAPS

At the very beginning, discovering the technical possibilities of the VR-Cube at the same time as the students, it was difficult for me to instruct and guide them, explaining my artistic aims in a way they could understand, and we were often reduced to use the trial and error method. All VR environments have to be planned, constructed and modelled logically and systematically. Otherwise the model does not function and the trial and error method, which is not a bad method, per se, for this type of collaborative work, is too time-consuming. When they had been assigned the task of starting to model a first outline of the life and death tree departing from an outline of mine¹⁰² and a 2D drawing of a student from the School of Design and Crafts, the Chalmers students started to work out this specific task using an approach based on technical problem solving. This was the usual way of solving the tasks they were assigned within the framework of their undergraduate studies in technical design and interaction design at Chalmers University of Technology.

From an artistic point of view and for an artistic leader, technical problem solving is indeed an important aspect of the production process but it is always subordinate to the final aim which is to find a solution that works artistically speaking. Consequently, a technically brilliant solution is of little interest if it does not work artistically. So, at the very beginning, both partners went through frustrating experiences. For students trained to find the most adequate technical solution, it was rather upsetting when I did not select some of the proposals that had taken them a lot of time to model and which represented an ingenious technical solution which they had every reason to be proud of. Furthermore, when I sometimes selected, among their model outlines, what they first

¹⁰² See outline of the life and death tree on DVD menu "Att skapa en VR arts play" (To create a VR arts play)

considered as side effects and technical failures, it was at first very confusing for them and I had to explain to them why and how those failures could be used and developed artistically. During the production process, working together, the students and I gradually developed “shared cognitive maps”, i.e. we managed to understand each other’s way of thinking and could use our various lenses in a creative way.

COMPROMISES UPWARDS

I learned a lot by following the Chalmers students’ logical way of solving a technical task and they learned about using their creativity in order to come up with much more than technical suitable solutions. When I later read the following comment written by a Chalmers student about what this collaboration had meant to her, I was touched. She wrote:

Att kunna bryta mina ”tekniska” studier emellanåt och gå ner till Medialab och sätta mig och arbeta med färg och form kändes för mig otroligt belönande och utvecklande. Att få tillgång till den konstnärliga, friare världen gjorde att jag återfann den kreativa delen av mig som i stort sett legat i dvala sedan jag började på Chalmers. Även om arbetet var frustrerande vid tillfällen då det kändes som om man inte kom någonstans, eller att ingenting fungerade som det var tänkt (teknikens under) lärde ja mig på nytt att söka efter de inte alltid så uppenbara lösningarna. Detta har jag haft bra nytta av nu i arbetet med mitt examensarbete.

[To get the opportunity to go from my “technical” studies at times and walk down to the Medialab and sit there working with colours and forms felt incredibly rewarding and inspiring. To get access to the greater freedom of the artistic world meant that I was able to rediscover the creative part of me that had practically lain dormant since the beginning of my Chalmers studies. Even if the work was sometimes frustrating when it felt as though we were getting nowhere or that nothing worked as planned (the wonders of technology), I learned once again to look for the solutions that were not always so obvious. It has been of great use to me now, when I have to do my degree project.]

What a Chalmers teacher told me afterwards was that when this student had finished her studies, what made the difference and qualified her for a job was her participation in this artistic and technical project. It did not surprise me since such multidisciplinary collaborative work means looking over one’s own artistic or technical horizon of knowledge. This open-minded attitude was the condition required in order to reach compromises upwards, in the form of successful technical and artistic experiences.

VOICES FROM THE PRODUCTION TEAM

As already mentioned, to keep track of the production process, I drew up a survey for the production team. Beside the logbook and the survey, I also asked photographer Sandra Andersson to carry out film-interviews with selected members of the team.

SURVEY FOR THE PRODUCTION TEAM

Since the production process was not a continuous process that engaged the whole production team over the same period of time, I could not wait until after the première if I intended to bring the key features of the artistic and technical experience of the production team to the fore. Had I done so, I would have taken the risk that the “on the spot” reactions that I was particularly interested in, had not been remembered by the team members over such a long period of time. Therefore, I made a specific net survey which was handed out in the middle of the process (see Appendix 4). This survey gave valuable results and was answered by the majority of the production team. Looking back, I think that this survey possibly included too many open questions, questions that took too much time to answer, considering the time pressure of the production process. In such a situation, it is not surprising that some of the team members concentrated on responding to my demands as an artistic leader by fulfilling their primary task within the VR project and then, did not answer the survey of the artistic researcher. However, some of them and two Chalmers students in particular wrote lively and informative texts relating their experiences (see Appendix 4.2).

In the survey, all respondents stressed what I have mentioned already: the necessity of being curious, open-minded, patient and, last but not least, the necessity of respecting the other’s field of knowledge as a condition for successful results. When asked about what could impede or benefit a collaborative project between artists and technicians, the sound interaction manager, (auralisation) designer wrote:

Intresse för varandras områden är mycket viktigt och ger också tålmod i kommunikationen mellan dessa parter. Om man bara ser den andra partens kunskap som någon sorts konsultkunskap som man inte behöver förstå utan bara hyra in så kommer det alltid att finnas en barriär mellan dessa parter.

[Interest in one another’s field is very important and this gives patience in the communication between these partners. If one only considers the other partner’s knowledge as being a kind of consultant skills which one only hires, without needing to understand them, then there will always be a barrier between these partners.]

According to several team members, the most difficult part of the collaboration between technicians and artists is to find adequate ways to give and interpret information: for an artistic leader to find ways to present and explain her vision so

that this vision is understandable to the technicians and, for the technicians to find ways to push the technical borders in order to realise as much as they can of this vision in a limited period of time. The interaction programmer crisply expressed that:

Det svåraste är att förmedla information, för konstnärerna att delge sin vision och för teknikerna att genomföra det så långt som tekniken tillåter. Möjligheterna i mediet är näst intill oändliga, så det som är svårigheten är att kunna genomföra något tillräckligt bra på tilldelad tid.

[The most difficult thing is to communicate information, for artists to give their vision and for technicians to realise them as long as technology makes it possible. The opportunities in the medium are almost unlimited, therefore the difficulty is being able to carry out something good enough in the given time.]

A rewarding and yet expected survey result was that all production members considered the VR-Cube as an interesting medium for artistic experiments. More significant was that all of them underlined the crucial importance of the musical environment and sound effects as a vital element, which, in its combination with the visual impact, reinforced the whole VR experience. The sound programmer and the interaction programmer described this as follows:

Sound programmer:

När man kombinerar de visuella miljöerna med ljud så tycker jag alltid att känslan av närvaro ökar väldigt mycket. Så de kub-applikationer som kombinerar bild och ljud påverkar en mycket starkare än de som bara är visuella.

[When one combines the visual environments with sound, I always think that the feeling of presence increases tremendously. Therefore, cube applications combining visual representation and sound have a much stronger impact than those which are merely visual.]

Interaction programmer:

Bild och ljud ger en upplevelse tillsammans som är större än de ingående delarna. Bara bild eller bara ljud ger inte samma effekt.

[Visual representation and sound together give an experience that is stronger than the addition of the parts. Only a visual experience or only a sound experience does not have the same effect.]

In one of the survey's question I asked the production members to give their opinion about the strengths and weaknesses of the VR-Cube when used as an artistic medium. The strong impact of the visual and sound correlation was analysed by all of them as one of the strengths, along with the fact that in the VR-Cube, people were put into a

PART II

new kind of world where they were not only spectators, but where they had the opportunity to influence their environment.

Regarding weaknesses, team members stressed various aspects they were particularly aware of, depending on their specific role in the project. The interaction's programmer, for instance, stressed the difficulty of representing various kinds of matters and differentiated movements, a barrier we had struggled to transgress on a number of occasions, whereas an interaction designer emphasised the low picture-resolution within the Chalmers VR-Cube. Two aspects mentioned by a few, were the threshold of learning the technical interface that a technician who wants to use the VR-Cube for the first time has to overcome and the adaptation time required for an audience who is not familiar with such a medium. One Chalmers student wrote a pertinent comment on what can be apprehended as a weakness of the user interface, i.e. the fact that the edges of the Cube were visible to the spectator and that the cubic form sometimes gave askew representations of some of the models:

Kubens kubighet kan göra representationen av modellerna lite skev, men jag tror att man som åskådare anstränger sig för att bortse från detta och istället koncentrera sig på hur man tror eller vill att det ska se ut.

[The Cube's "Cubicness" can make the representation of the models a bit askew but I think that, as a spectator, you make the effort not to pay attention to it and focus on how you think or want it to look like, instead.]

This comment reveals what conditions the spectator entering the VR-Cube has to agree about in order for the illusion to work. Distortions are not perceived as distortions if there is a suspension of disbelief.¹⁰³ As in other media, an agreement with the audience, about the way by which the illusion works is essential. Without this agreement, i.e. if the spectator only focuses on the fact that the edges inside the VR-Cube are visible, the cubic form impedes the VR experience.

One team member thought that haptic, tactile experiences were missing for the time being and he hoped that touching virtual objects could soon become an added component to such a VR experience. As we will see in Part IV, the painter, with whom I conducted an in-depth interview, thought that touching objects in the VR arts play gave him an almost tactile experience, which shows that suspension of disbelief worked already in this version of the VR-Cube. What I found interesting too was that several students mentioned a discrepancy between what they had achieved and the way other students, who were not involved in the project, experienced what they had

¹⁰³ This is confirmed by the results of the audience survey and in-depth interviews. This issue will be discussed in part IV and Part V.

achieved. Struggling with technical obstacles they had not expected the positive feedback they received from other “outsider students” when they showed the VR artwork to them.

As the survey had not been answered by the complete production team, I thought out an easier and less time-consuming way for some members of the production team to share their interpretation of the artistic and technical production process. Using digital film as a medium and asking another person to carry out short film interviews with key persons from the production team was the way I chose. Doing so, I targeted particularly those who had not answered the survey and asked photographer Sandra Andersson to carry out those interviews for me. Why didn't I do those interviews myself? I found it appropriate to let a third person carry out those interviews because I needed a kind of filter in order to keep apart my role of artistic leader and my role as artistic researcher in relation to the production team. Because the photographer had not been participating in the production process of my VR artwork, she could ask questions in a more neutral way than I. No matter how open I had tried to word the questions, had I, in my hierarchical position as an artistic leader, carried out those interviews by myself, directing a digital camera towards production members, the answers concerning a collaborative project engaging me to the highest degree would have possibly been less open, less truthful and less interesting for me as an artistic researcher. Even if I had instructed the photographer as to which questions needed to be addressed during the interviews, she was free to ask them in the order she wanted, and to express and reword them in her own spontaneous way. Choosing three key persons from the production team, I wanted to illustrate the research perspective and the artistic and technical perspectives through three different voices. Therefore, my DVD *Om Le Beau, le Laid, le Bon et le Mauvais* contains three longer interviews with:

- The Supervisor of the Research Programme in Digital Representation, Sven Andersson.¹⁰⁴
- The VR and visualisation project leader Josef Wideström.¹⁰⁵
- A Chalmers student from the department of technical communication: Niklas Björnberg.¹⁰⁶

¹⁰⁴ DVD, Title 6: interview with Sven Andersson about this project within research in digital representation and Title 19: “VR-kubens framtid”, his vision about the future of the VR-Cube.

¹⁰⁵ DVD, Title 8: “Rollen som projektledare för VR och visualisering” and Title 11, about interactivity in VR

¹⁰⁶ DVD, Title 14

THE PRODUCTION PROCESS IN 22 FILM SEQUENCES

Choosing film as a method was a way of letting team members speak without interfering into their presentation. Relating to the production process of the VR arts play, I could explain, in detail, the concept, design and layout of the DVD content, representing 75 minutes of film and photographic material, organised into 22 sequences. I prefer to let the material speak for itself since describing two important artistic, technical and organisational projects such as the production of a ten-minute film and a whole DVD production would take me too far from the core of the research question. Nevertheless, what should be said is that the DVD production was, like the production process of the VR arts play, a collaborative and multidisciplinary project engaging several professionals over time, the concept of which I designed and led (see Production Team DVD on Appendix 8 and Acknowledgments). The language used in the DVD is Swedish. Since I am writing this thesis in English, it would have been suitable to translate all this empiric material, which is to be considered as part and parcel of my thesis, into English. Unfortunately, time and financial resources made such a project unrealistic; the only practical solution was to add English subtitles to the ten-minute film (Title 1). However, looking at the following diagrams, which explain the structure of the DVD and the following text references to the root menus and titles numbers of the DVD, I hope that a non-Swedish reader, even if he/she does not understand the film sequences purely based on words and interviews may be able to follow the inner structure of the DVD and understand my approach as a whole.

The DVD is structured around five main menus containing 22 titles/film sequences:

- ▶ “Se Filmen” and “Bildspel” (See film and slide show) are representations of the VR arts play through two other media: film and photography.
- ▶ “VR-kuben på Chalmers” (Chalmers VR-Cube) deals with the VR-Cube as a medium per se, how it functions, how it looks like and its future.
- ▶ “Att skapa en VR arts play” (Creating a VR arts play) deals with the artistic idea within the research context and with major aspects of the production process through the voices of key members of the production team.
- ▶ “Film som medium för att gestalta en VR arts play” (Film as a medium to interpret, represent and “give Gestalt” to a VR arts play) deals with the collaboration between the photographer and the artistic leader as regards the film, i.e. with the production process of the film sequences (and not with the production process of the VR arts play).

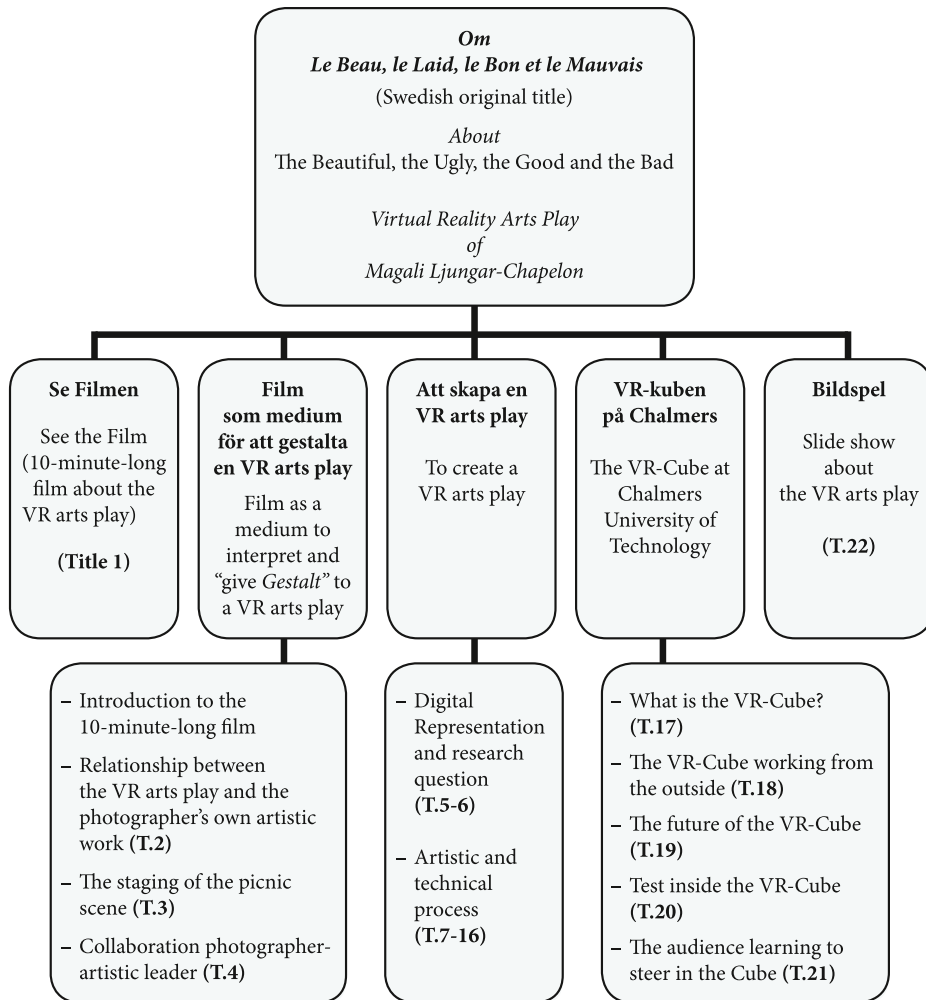


Figure 15. DVD Structure: main menu, root menus and titles

As shown in the above diagram, the DVD contains a film (Title 1) which is the filmmaker’s and my own interpretation of the most important features of the experience of this VR arts play. This film’s aim is not to document the content of the artwork, it is not at all a film version of my VR artwork or a reflective account of its production process. Neither is it a presentation of my VR arts play, but is a representation of it. The film’s aim is to give Gestalt to the main features of my VR arts play in relation to the audience experience. Hence, the film is an interpretation of the

PART II

results that incur when the VR artwork meets its audience inside the VR-Cube. One could say that it is, at a meta-level a representation of a representation, the VR arts play being the first level of representation of an artistic idea and the film being the interpretation of such a representation in its meeting with the audience, interpretation and, as such, another “independent” artwork and not an imitation and documentation of the very content of the VR arts play via another medium: film. That is what I explain with a Swedish text which serves as introduction to the film in the DVD in “Film as a medium to interpret and give Gestalt to a VR arts play”. As part of the same root menu, the photographer/film maker and I discuss our collaboration during the production process of the film and in particular the staging of its picnic scene *Pick-nick under Guldträdet* (Picnic under the Golden Tree).¹⁰⁷ This particular scene in the film was not an integrated part of my VR arts play; that is to say that not every spectator was given a picnic and a glass of wine during his/her VR journey! It was an added research experiment that we conducted as “vision for the future”, a vision that I take up in the last part of the dissertation (Part V), when I discuss the final results.

Title 2 in “Film as a medium to interpret and give Gestalt to a VR arts play” concerns what the photographer’s own artistic work outside this project and my artistic work have in common. Some readers may find this sequence particularly interesting, others may find it too long. I deliberately chose not to shorten this interview firstly in order not to risk transforming and adjusting its content to my own perspective and secondly since it indirectly reveals a vital part of our collaborative process which is based on the same artistic questioning that exists within various art forms. Both Sandra Andersson and I had already worked with the question of the borderlines between illusion and reality in our respective art fields; that is why we wanted to collaborate together.

The slide show (“Bildspel” in the title menu) is to be apprehended in the same way as the film as a representation of representation. It means that it is not a “documentary” slideshow explaining the content of the work. This DVD was produced before I knew that Chalmers VR-Cube would be removed and that I would not be able to show my VR arts play at the time of the public defence of my thesis. Had I known that before, it might have been suitable to add a sixth pedagogical and explanatory part to the main menu with annotated photographs in order to comment on the production process of each VR world and their corresponding VR journey in the chronology of my VR arts play. Meanwhile, as long as my VR arts play could speak for itself

¹⁰⁷ DVD, Title 3 and DVD Title1, 5'27"-7'08"

and be experienced by the audience, I considered such a sequence as not only unnecessary but even as a contra-productive filter, which would possibly impede the artistic experience of the audience, by giving a detailed interpretation of my own work, which I really wanted to avoid.

“VR-kuben på Chalmers” in the title menu presents facts about the VR-Cube as medium for virtual reality, shows how the Cube functions from the outside and from the inside and how the audience learnt to steer with the joystick. “Test i VR-kuben” shows what one test during the production process of such a VR arts play could look like.

In the meantime, the most important part from the title menu deals with the production process of my VR artwork. This part is entitled: “Att skapa en VR arts play” (To create a VR arts play) and is subdivided into two root menus and several sub menus as shown in the next figure:

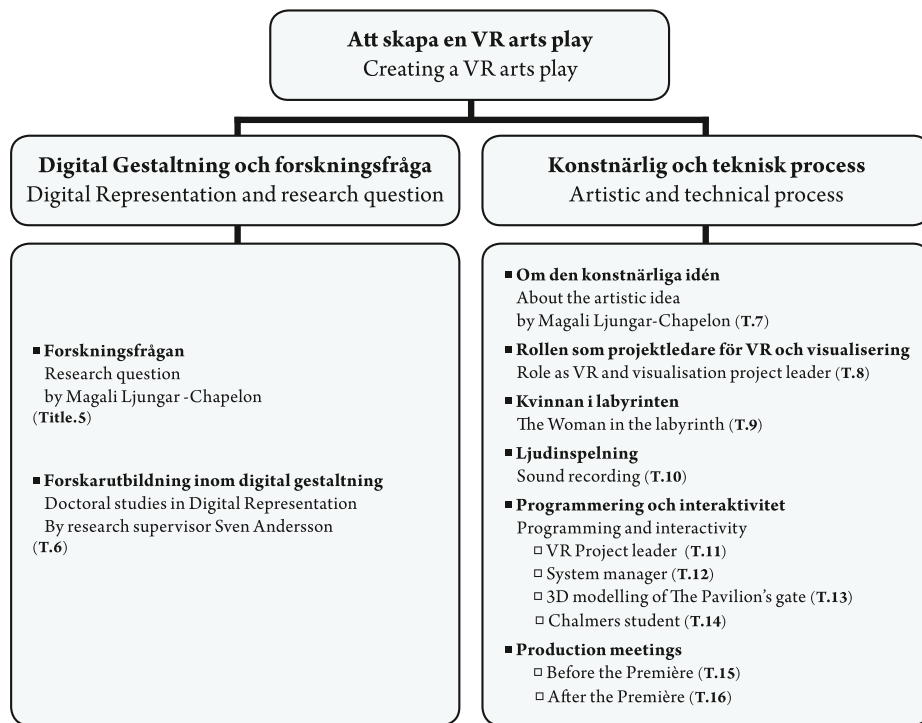


Figure 16. DVD Structure: Artistic and technical research process

The twenty-two titles on the DVD speak for themselves and give some inside perspective about the production process. Nevertheless, before leaving them to the reader, I

PART II

would like to make three comments. Among thirty-four hours of film, I made a harsh selection and chose the episodes that I considered as particularly interesting with regard to the creation process and the artistic experience of such a VR arts play. It is not, however, a completely personal version of the process, as I let several members of the production team express themselves directly and included some of the interviews in their integrity.

My second comment is that some readers may wonder why I selected some odd sequences, where one or several members of the production team joked and laughed and where the sound quality is rather poor (Titles 12 and 15). I deliberately chose those two excerpts in order to show how humour was a vital and indispensable part of the process, particularly when technical problems and time limits generated stressing situations. We could not have managed without a sense of humour. Furthermore, frustration about obstacles impeding the VR experience, expressed through jokes were the motor for searching and finding more adequate solutions (DVD, Title 12):

The VR-Cube is too sterile! Let us put cow's manure inside the Cube and fertilise the visual experience with evocative smells!

Unfortunately, with the device of Chalmers VR-Cube, we did not have the means to add fragrances this time but, with other devices, it would be possible to integrate more than visual and musical dimensions to such a VR experience. Research on experiences of smell within VR has been going on for several years. In San Diego, for instance, psychologist Brenda Wiederhold has collaborated with Phoenix-based Ferris Productions, the virtual Buick people, to add smell to vision in order to develop therapy treatments. In an article from 2001 entitled "Inside the headset, Virtual world meets reality", *Los Angeles Time's* staff writer Roy Rivenburg relates to such an immersive VR experience with a headset, i.e. another VR-device than the VR-Cube, in such terms:

As the car zooms past someone mowing a lawn, the scent of cut grass wafts toward your nose through tiny tubes in the headset. When a passenger offers you a mint, that odor fills the air.¹⁰⁸

My third comment concerns titles 5 and 7, where I explain the research question, the artistic idea and the methods. What I tell in front of the camera is not fully in phase with the final wording of the research question and the methods described in the text material. The reason is that the film sequences show a punctual dive into a creative process that was to undergo several modifications over time. One major modification

¹⁰⁸ Rivenburg, Roy, 6 Sept. 2001. "Inside the Headset, Virtual World Meets Reality; The gadgetry is being used to cure phobias, end flashbacks and enhance teaching", *Los Angeles Times*.

concerned the artistic crossover performance with real actors and dancers that I planned to produce in a real environment and on the same theme as the VR arts play and to compare with it. I wrote a complete manuscript, applied for funds, began getting in touch with other artists and even organised a first production meeting before abandoning the idea, when I realised that this would not be helpful in answering the research question. Taking the reader backstage, I chose to keep those two sequences in order to show the metamorphoses of a creative process.

ARTISTIC RESULTS TOWARDS ARTISTIC AIMS

In Part IV, where I comment on the audience experience of the VR arts play and in Part V, where the main results of this dissertation are recapitulated, I address the question of the artistic results towards the artistic aims, too, but in relation to particular aspects of my VR project. Therefore, I do not go into detail right now, but rather concentrate on more general aspects of the creative process. In view of the time limit, technical and financial barriers outlined earlier, I was more than satisfied with the artistic results and the way the VR arts play appealed to the audience. But this does not necessarily mean that the production team and I managed to fulfil all my artistic aims.

Some of my artistic ideas, even if technically realistic, happened to be too expensive or too time-consuming in the context of a doctoral project. In order to reinforce the acting role of the spectator and the feeling of belonging to the virtual world, I imagined, for example, how the spectator could have worn a tunic, which, with the help of ultraviolet light, would reflect the surrounding environment so as to reinforce the audience's feeling of immersion by including the spectators' clothing as an element of the scenography of the VR arts play.

Technical obstacles at times constrained my imagination. It happened that I had to simplify my artistic ideas and choose forms and textures that I considered as rather simplistic and too computer-generated compared with my original ideas, since the organic and waving forms of the artefacts I had imagined were too difficult to build as 3D models or made the application too heavy to run. Nevertheless, even if it was difficult to deal with these barriers, they were not negative for the artistic vision as a whole when I apprehended them as a "problem of translation" between two languages. Looking at my artistic vision as the original version or "mother tongue version", the production team and I sometimes had to figure out the proper translation in another language, pushing forward technical barriers without betraying the core of the artistic idea.

The best example of this kind is probably the shaping process of *The Pavilion* with architects Kasper Lennqvist and Björn Gross. My original idea was to model a forest with huge vertical columns (see Appendix 3.2). This was not realisable in a VR-Cube

that did not have a roof, and an application with so many columns was too heavy for the software. With the first outline of a golden oriental pavilion with columns shifting in warm colours and a waving roof as point of departure, we discussed “the problem of translation” and ended up with a more nature inspired pavilion with fewer columns, in a more sober, straight-lined and somehow more Nordic architectural design. This inspired me to choose other kinds of textures and colours-scales that were more luminous and less kaleidoscopic than those I had imagined from the beginning. Despite these changes, the core of my artistic idea regarding the pavilion remained intact. Thus, the translation was satisfactory in comparison to the first “mother tongue” version, even if there were huge visual differences between the first and final version.

Generally speaking, I was satisfied with the detailed musical and sound journey. The sound programmer and I had designed this together so that it was tightly linked, via the tracking system, to the progression of the spectator-performer into the virtual worlds.¹⁰⁹ It became, as I had expected, a central part of the experience. What I had wished to further experiment with and also to develop before we ran out of time, was the coordination between sounds and the progression of virtual artefacts in their relation to the spectator’s own progression into the virtual environments, for example, the growing sounds in the labyrinth following the progression of the Minotaur beast moving into the galleries of the labyrinth. By programming sounds coming from several directions through the loudspeakers and the Gigasampler sound-system, it had been potentially possible to trigger the audience feelings to make them believe that they were physically chased towards a climax. The dramatic effect on the audience may have been very strong, possibly too strong, and I had not necessarily kept it as a final artistic solution, but I would have liked to continue testing opportunities like these.

Virtual reality makes it possible to create artefacts based on visual illusions, i.e. artefacts that could never have been created through non-virtual means. New “morphing”, also called interpolation is one means of transgressing the borders between illusion and reality in an immersive VR environment. It can be defined as the shaping process of an in between form, which one can only extract by working in a virtual space and which can only be experienced within a virtual space. During a discussion with VR and video artist Teresa Wennberg, in 2002, after having seen her fascinating immersive VR artwork *Brainsongs, Welcome to my Brain* in the VR-Cube of the Royal Institute of Technology in Stockholm, she told me that she had worked a lot with new morphing, transforming, for instance, a rectangle into a spherical form or a peg into a triangle and trying to catch the form in between.

¹⁰⁹ See Appendix 5. Visual and musical environments and Interaction

The very idea of new morphing had fascinated me for a long time and I had reflected about how to “catch” and give shape to something in between the real and the unreal not only for the eyes but also for the ears, something that had never been seen or heard before. When I studied Dance in Paris in the early 1980’s, I once got the chance to witness the working process of German composer and organ player Johannes Kalizke at *IRCAM*,¹¹⁰ the famous institute for music/acoustic research and coordination, directed at that time by composer and conductor Pierre Boulez. Using organ and computer technology, i.e. organic sounds from the organ and high technology, what Kalizke had done, in a composition inspired by a tragic poem of Heinrich Heine, was to extract and amplify sounds that had never been experienced before by human ears. Through this mesmerizing experience, I gained insight into radically new dimensions of art. Therefore, the idea of making the imperceptible perceptible, not only for the eyes, but also for the ears was already familiar to me. It was in the claustrophobic atmosphere of the virtual labyrinth that I most wanted to create this effect. Even if we carried out several visual and musical experiments in the labyrinth, the Chalmers students and I did not completely achieve a challenging but technically too complicated objective concerning new morphing. Inspired by M.C. Escher’s lithograph *Relativity*,¹¹¹ we tried to figure out how to model three-dimensional daedalus of stairs, where the actor-spectator would get completely lost when trying to find his way in the darkest, most chaotic part of the labyrinth. Unfortunately, we did not manage to integrate this experiment into the final application.

My artistic aims were probably too ambitious in relation to the general context of doctoral studies. The exploration of the unknown entails never really knowing exactly how much time artistic and technical experiments will take. This is a fascinating enterprise where taking risks becomes a part of the process. Therefore, learning how to adapt my artistic ambition to the objectives of doctoral studies as a whole, in order to have enough time left for the written and theoretical part of the work, was anything but an easy task. Finally, the work with my VR arts play confirmed my vision of the strength of the VR-Cube as an artistic medium. Making what human beings cannot experience in real life perceptible in the VR-Cube was what provided the most rewarding artistic results.

¹¹⁰ Institut de Recherche et Coordination Acoustique/Musique

¹¹¹ Escher, M.C., 1953. *Relativity*, a lithograph, <http://www.mcescher.com/Gallery/back-bmp/LW389.jpg>

SUMMING UP KEY FEATURES OF THE PRODUCTION PROCESS

Summing up the knowledge gained by the production process of this VR arts play, the most general and significant features, which are not specific to this particular VR artwork and which all kinds of artists may encounter as well, are:

- The tremendous artistic challenge of such a VR medium in that it gives the opportunity to create virtual artefacts, fruits of our imagination, *Gestalten* and virtual worlds of huge or infinitesimal dimensions, which human beings would never be able to construct and experience in “real” physical environments.
- The importance of being interested in one another’s field of knowledge within a multidisciplinary production team (and for the artistic leader to know how to open up the creative process for other production members’ interpretation of the artistic vision) with humour as gate-keeper and the importance of never forgetting that, in high technological surroundings, one should always be served by the medium and not serve the medium.
- The open character of the dramaturgy, when the artistic idea consists in giving the spectator/performer the opportunity to choose his own paths within a planned journey, the result of which is the open character of the VR artwork itself.
- The hazard factor that has to be integrated within the dramaturgy from the beginning, when the artistic leader decides to open up several alternatives for a spectator/performer making each VR journey unique. This chance-misfortune factor appears also during the production process, when technical side effects are developed as artistic means.
- The extremely detailed programming which contrasts greatly with the open character of the VR artwork. The programming is based on logical, exact and detailed architectural calculations in order to construct and model each 3D-model, each virtual artefact. The interactive features of each artefact have to be thoroughly programmed in relation to the spectator’s progression within the VR arts play, second by second, by means of the visualisation and sound tracking systems.
- Opportunities and barriers of the VR-Cube used as an artistic medium, which concern both hardware and software components, the coordination between the sound and visualisation systems, the user interface as well as financial and time aspects.
- The crucial problem of the conserving of immersive VR artworks, due to the rapid development of computer technology and the high cost of maintaining computer systems, when technology becomes outdated after a relatively short period of time and the fact that computer systems cannot be upgraded or changed without affecting the whole content of a VR artwork.

PART III

Artistic knowledge shaping

LIFE-WORLD PERSPECTIVE AS AN ONTOLOGICAL FOUNDATION

I consider human beings as part of the world, living within the world and not as external agents with a licence to divide and classify the world in dichotomic categories such as good and bad, ugly and beautiful, objective and subjective, safe and unsafe. For that reason, I am attracted by the “life-world” perspective launched by Edmund Husserl, founder of the phenomenological movement. The life-world perspective considers -ism theories, such as the theory of dualism between physical and mental properties or materialism, together with their corresponding ideas about objectivity and subjectivity, as ontologies that reduces reality. In contrast, the concept of life-world establishes a dependency between life and the world. Reality is more than material and mental properties. Usability is, for instance, an important property in between material and mental properties which dualism does not take into account. Reflecting on Husserl’s life-world concept, through Paul Ricoeur, who represents modern hermeneutics, was a natural path for me to follow in order to find the hermeneutical approach my work is mainly based upon.

In his introduction to the book *Edmond Husserl: Idées Directrices pour une Phénoménologie, Traduction, Introduction et Notes*, which is entitled “Introduction du traducteur”, Ricoeur explains Husserl’s phenomenological approach of the world, which the life-world is a constituent part of, with the following:

Je pense que chacun est invité à retrouver en soi ce geste de dépassement: j’oserai ainsi esquisser pour moi-même le sens “existentiel” de la thèse du monde: je suis d’abord oublié, perdu dans le monde, perdu dans les choses, perdu dans les idées, perdu dans les plantes et les bêtes, perdu dans autrui, perdu dans les mathématiques; la présence (qui ne sera jamais reniée) est le lieu de la tentation, il y a dans le voir un piège, le piège de mon aliénation; je suis dehors, diverti. On comprend que le naturalisme soit le plus bas degré de l’attitude naturelle et comme le niveau où l’entraîne sa propre retombée; car si je me perds dans le monde, je suis déjà prêt à me traiter comme chose du monde. La thèse du monde est une sorte de cécité au sein même du voir; ce que j’appelle *vivre* c’est me cacher comme conscience naïve au creux de l’existence de toutes choses: “im natürlichen Dahinleben lebe ich immerfort in dieser Grundform alles aktuellen Lebens” (Ideen I, pp. 50-1). Ainsi l’ascèse phénoménologique est une vraie conversion du sens de l’intentionnalité qui est d’abord *oubli* de la conscience et se découvre ensuite comme *don*.

C’est pourquoi l’intentionnalité peut être décrite avant et après la réduction phénoménologique: avant, elle est rencontre; après, elle est une constitution. Elle reste le thème commun de la psychologie pré-phénoménologique et de la phénoménologie transcendantale. La réduction est le premier geste libre, parce qu’il est libérateur de l’illusion mondaine. Par lui je *perds* en apparence le monde que je *gagne* véritablement.¹¹²

[I think that everybody should discover in themselves this movement of going beyond oneself. Thus I will dare to outline the “existential” meaning of the thesis of the world. I am initially forgotten and lost in the world, lost in things, lost in ideas, lost among plants and animals, lost among other people, lost in mathematics. Presence (which will never be denied) is the place of temptation, there is, in the sight a trap, the trap of my alienation. I am outside, distracted. Naturalism is the lowest degree of the natural attitude and like the level into which it is dragged by its own folding back movement. For, if I lose myself in the world, I am already prepared to treat myself as a worldly thing. The thesis of the world is a sort of blindness in the very core of sight. What one calls *living* is a hiding as a naïve consciousness in the pit of the existence of things: “im

¹¹² Ricoeur, 1950. *Edmond Husserl: Idées Directrices pour une Phénoménologie, Traduction, Introduction et Notes, Thèse complémentaire présentée à la faculté des lettres de l’Université de Paris par Paul Ricoeur, agrégé de philosophie*, Paris: Gallimard, p XX

natürlichen Dahinleben lebe ich immerfort in dieser Grundform alles aktuellen Lebens” (Ideen I, pp. 50-1). Therefore, phenomenological asceticism is a true conversion of intentional meaning which is initially a *forgetfulness* of consciousness, but later shows itself to be a *gift*.

That is why *intentionality* can be described before and after phenomenological reduction. Before it, intentionality is an encounter, while, after it, it is a constitution. Thus, it remains the common theme of both pre-phenomenological psychology and transcendental phenomenology. Reduction is the first free act because it is the liberator from mundane illusion. By this act I apparently *lose* the world while truly *gaining* it.]¹¹³

The reason why I have chosen to quote the paragraph above in its entirety is that it explains the background of the life-world perspective that serves as my ontological basis. My intention is not to delve into phenomenology, but to enable the reader to follow my theoretical choices and make them understandable for him/her. The text above illustrates Ricoeur’s interpretation of Husserl’s theory of the world. So, Ricoeur succeeds in depicting in a lively and relatively simple manner the philosophical meaning and relation between key phenomenological concepts. The meaning of *intentionality* is clarified in the last sentence of the first paragraph:

Therefore, phenomenological asceticism is a true conversion of intentional meaning which is initially a *forgetfulness* of consciousness, but later shows itself to be a *gift*.

Intentionality is first a “forgetfulness of consciousness, but later shows itself to be a gift”. So, intentionality is to accept the loss of one’s pre-understanding of the world in order to be able to gain a greater understanding of the world. In that sense, losing becomes a gift. I would argue that in order to express something new about the world, many artists and artistic researchers more or less consciously use a phenomenological approach. In order to shape something new, they forget for a moment what they already know; instead, they often choose to use a well known concept or artefact in a totally different manner which then reveals something unknown, unexpected and meaningful about the world we are living in.

During a conference, organised by the University of Malmö for the Shift project,¹¹⁴ architect and designer François Scali presented several projects on the occasion of festivities related to the coming of the second millennium. He cut the shape of the

¹¹³ Ricoeur, 1996. *A key to Husserl’s ideas I*, translated and with a preface by Bond Harris & Jacqueline Bouchardeau Spurlock, edited, translation revised, and with an introduction by Pol Vandeveldt, Milwaukee: Marquette University Press, pp. 42-43

¹¹⁴ Scali, François, 5 Oct. 1998. *Shiftlecture 5: SCALES*, Stadsbiblioteket i Malmö in collaboration with BO-01 City of Tomorrow. http://www.mah.se/templates/Page____20468.aspx

PART III

Mediterranean out of a map and positioned it in new contexts. Without the surrounding countries, the sea became a shape extracted from its natural environment and therefore removed from its original meaning. Without its geo-political environment the Mediterranean became a new entity and was not recognisable as a sea any more. It was an interesting experience and a kind of phenomenological questioning about the meaning of man's environment. The human presence stated through the countries around the sea on the map had disappeared. It showed how strong the meaning of the idea of the Mediterranean relied on the link between the sea and the people in the surrounding countries.

Another key concept in regard to the life-world perspective is "Intuition". Ricoeur uses this complex concept in his interpretation and translation of Husserl's original work *Ideen zu einer reinen Phaenomenologie und phaenomenologischen Philosophie*. But what does intuition mean for Husserl? In fact, Husserl does not use the German term *Intuition*, he uses the term *Anschauung* in the expression *originär gebende Anschauung* and Ricoeur translates it into French as *intuition*, in the expression *l'intuition donatrice orginaire*, which is the exact philosophical translation of Husserl's expression. Ricoeur explains as follows:

Husserl appelle l'intuition qui peut « légitimer » toute signification visée par la conscience: originär gebende Anschauung.

[Husserl calls intuition, which can "legitimate" every meaning intended by consciousness, "an intuition that gives in original" (originär gebende Anschauung)]¹¹⁵

This translation is nevertheless a contraction of the German expression *originär gebende Anschauung*. As a Germanist, I found it interesting to go back to the original German expression, and look at the classical Wahrig dictionary¹¹⁶ in order to see how the term *Anschauung* is explained. What I found was: *Betrachtungsweise, Vorstellung, Meinung, Auffassung (Welt), innere Versenkung*. I would translate those words into English by "the manner of looking at, representation, opinion, interpretation/perception and understanding (of the world), and introspection in the sense of self-criticism and self-understanding. In that sense *originär gebende Anschauung* refers to an original ability, given to man, to look at the world, apprehend and understand it. Speculating about the reason why Husserl did not use the German term *Intuition*¹¹⁷

¹¹⁵ Ricoeur, 1950. p XIX, English translation in: Ricoeur, 1996. p 42

¹¹⁶ Wahrig, Gerhard, 1980. *Wahrig Deutsches Wörterbuch*, Mosaik verlag GMBH

¹¹⁷ Ibid. According to the classical Wahrig lexicon, the German signification of the word *Intuition* is "unmittelbare Anschauung ohne Wissenschaft. Erkenntnis; Fähigkeit, verwickelte Vorgänge sofort richtig zu erfassen."

coming from the latin term *intuitio*¹¹⁸ and instead decided to choose the expression *originär gebende Anschauung*, would lead me far beyond the scope of my research question. Nevertheless, this parenthesis underlines the extreme difficulty of translation of intricate philosophical thoughts and the impossibility to use the term intuition, a term which has crossed centuries, without referring to the author using it in order to specify the meaning of the word for this particular author in a specific time-context.

The reason why I find the Husserlian expression *originär gebende Anschauung* so interesting for my theoretical approach is that, in my view, these three German words contain both the ideas of intuition and analysis and a dynamics that arises as a result of the interplay between these ideas. *Originär* means original, originary, in person. *Anschauung* is, partly, an analytical process while *gebende* underlines a movement, a dynamics taking place inside and around the subject in its relation to the surrounding world. This is a subject that I apprehend as an artistic researcher within the framework of my thesis, and in relation to my VR arts play, as a spectator-performer.

In *Sammanflätningar*, Jan Bengtsson, Professor of Philosophy of Education from the University of Gothenburg explains how the French philosopher Maurice Merleau-Ponty, when developing the concept of life-world, introduces a new dimension to the interplay between the subject and the world, between subjectivism and objectivism. Bengtsson calls this interplay *en slags tredje dimension* (a kind of third dimension):

Under alla förhållanden är livsvärlden en slags tredje dimension, där ett cirkulärt förhållande råder mellan värld och subjekt: subjektet präglas av världen och världen av subjektet. Denna cirkularitet får emellertid inte förstås som en felaktig cirkel, den har egentligen inget med logik att beskaffa, utan den är ett grundläggande kännetecken hos livsvärlden.¹¹⁹

[In all circumstances, life-world is a kind of third dimension, where there is a circular relationship between world and subject: the subject is imprinted by the world and the world by the subject. However this circularity should not be understood as an erroneous circle, it has actually nothing to do with logic, it is a basic characteristic of the life-world.] (own translation)

¹¹⁸ *Intuitio* comes from *intueri* which means "regarder attentivement", "looking attentively", according to: Robert, Paul, 1981. *Dictionnaire alphabétique et analogue de la langue française*, Paris: Le Robert

¹¹⁹ Bengtsson, Jan, 1988. *Sammanflätningar. Fenomenologi från Husserl till Merleau-Ponty*, Göteborg: Daidalos, p. 71

THE IDEA OF IN BETWEEN

Merleau-Ponty develops the idea of something *in between* the subject and the world in a fascinating way. There is no distinction between outer and inner world, but a world in between, where one's history is linked with one's perceptions and behaviour in the world. Merleau-Ponty uses two concepts that illustrate this in-between-world: *corps vivant* and *corps propre*, translated by Colin Smith as objective and phenomenal bodies.¹²⁰ *Corps vivant* signifies the human body in its physico-chemical components as described in medicine, in contrast to *corps propre*, the seeing and acting body. For Merleau-Ponty, it is not possible to study reality by making abstraction of *corps vivant* and *corps propre*. He considers the body as man's means of belonging to and acting in the world.

As an artistic leader of dance and theatre performances and a dancing teacher, being trained to express myself through and listen to my own and other's bodies, I find Merleau-Ponty's in between perspective very interesting. I personally believe that ontologies grounded on too sharp a distinction between our outer and inner world generate reductionism and have to be questioned. A reductionist approach has negative implications for the manner in which one apprehends art and science and their relation to life in the world. If one regards objectivity and subjectivity as respective characteristics of science and art, this dichotomisation results in over-simplifications. Various forms of knowledge contribute to a deeper understanding of life in the world as a significant contribution for mankind and the specific aim of artistic research is, in my view, to attempt to catch and bring to the forefront this realm in between life and the world. The life-world ontology is the ontological basis, which seems closest to my conception of artistic processes in life, and upon which my theoretical work rests. Ricoeur's interpretation of Husserl's concept "life-world" and phenomenological approach strengthens my postulate about the existence of an ongoing movement from intuition to analysis and from analysis to intuition, in other words, an interplay between intuition and analysis which I consider as an in between, between life and the world. In his foreword to *Edmond Husserl: Idées directrices pour une phénoménologie*, Ricoeur writes:

Si l'intuition doit être le dernier mot de toute constitution, il faut donc aussi que la "thèse du monde" soit quelque altération de l'intuition même.

¹²⁰ Merleau-Ponty, Maurice. 1962 (reprinted 2000). *Phenomenology of Perception*, translated by Colin Smith, London: Routledge

[If intuition must be the last word of all constitution, it is therefore also necessary that the thesis of the world be some modification of intuition itself.]¹²¹

Moreover, in his introduction to the English translation of Ricoeur's book, editor Pol Vanderveelde explains Ricoeur's interpretation of Husserl's life-world in these terms:

The life-world is both originary as the basis for all activities and originary in the sense of an operation that can be recovered through a questioning-back (*Rückfrage*), once the scientific level has been reached. In the first case, originary means at the origin of all scientific activity and, in the second case, what only scientific activity can discover and recover [...]¹²²

The idea of a "questioning-back" (*Rückfrage*), makes clear that an analytical process (a method) is taking place in order to posit and discover the life-world. Later on Vanderveelde writes:

[...] the life-world is not a world from which one wishes to withdraw, but rather a methodological step, a detour, a questioning in order to correct the concept of sciences we have and recover an authentic science, an authentic rationality. However, the idea of science as source of all legitimation does not derive from the life-world. The life-world, epistemologically, enters into play only as a contrast. On the ontological side, however, the life-world is the ultimate reference of objective science [...]¹²³

The idea of a questioning-back is linked to the meaning of intentionality explained before. The questioning-back is only possible through distanciation. Without distanciation, Ricoeur claims, there is no coming back to oneself and no understanding of oneself. Scientific and artistic works allow authors to understand themselves by creating a distanciation between the work and its author. As Pol Vanderveelde expresses, quoting Ricoeur, in his foreword to *A key to Husserl's ideas*:

Against romantic hermeneutics, and against Dilthey, Ricoeur firmly states that distanciation "is not only what understanding can overcome, but also what conditions understanding".¹²⁴

Delving deeper into Ricoeur's work shows that his thought is grounded on a philosophical overlap between phenomenological and semiotical approaches towards modern

¹²¹ Ricoeur, 1950. p. XIX, Translation in Ricoeur, 1996 p. 42

¹²² Ricoeur, 1996. pp. 22-23

¹²³ Ibid.

¹²⁴ Ibid. p. 112

hermeneutics in order to apprehend, explain and understand the world. As Vanvelde underlines:

Yet, he has constantly maintained that three motives pervade and unify his whole work: the Cartesian conviction of the unifying role of the Cogito, the phenomenological discovery of the role of intentionality, and the hermeneutic emphasis on a semiotic and interpretive mediation.¹²⁵

Thus, following Ricoeur, it was a natural step for me to enter the semiotic path of communication theories and see if it could bring light on my own creative process prior to going deeper into modern hermeneutics.

FROM SEMIOTICS TOWARDS HERMENEUTICS

There is no self-understanding which is not mediated through signs, symbols and texts.¹²⁶

In order to start the analysis of my own creative process, and prior to focusing on semiotics and hermeneutics, it seemed meaningful to me to briefly outline the general aim of communication theories. Communication theories deal with the way content is transmitted between the various actors involved, when a message is transmitted from a sender to a receiver. A work of art can indeed be apprehended as an artistic message communicated from the artist to its audience through visual and musical means, symbols and texts.

In the received view about the performing arts and visual arts, the artistic message is traditionally communicated through a performance on a stage or through an exhibition in front of the audience, and the message is transmitted in a linear way from the artist as sender to the audience as receiver through the work of art.

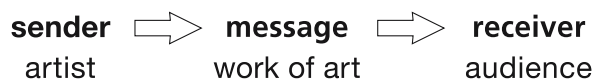


Figure 17. Transmission of an artistic message in the received view

It was obvious to me that such a simplistic linear model was not relevant to many works of art and definitely not to my VR arts play, since there the audience is itself on

¹²⁵ Ricoeur, 1996, p. 7

¹²⁶ Ricoeur, 1991. (e.1986). *From text to action*, transl. by K. Blamey and J.Thompson. Evanston: Northwestern University press, 1991, p. 29

stage and immersed in the play. However, it proved productive to start from the received view, since this made me examine whether there was a sender, a message and a receiver for such a VR arts play and what the relations between them actually looked like. I recognised myself in Umberto Eco's conception of a work of art:

Like a large labyrinthine garden, a work of art permits one to take many different routes whose number is increased by the criss-cross of its paths.¹²⁷

The question was to what extent communication theories would be able to clarify this crisscross of paths in my VR arts play. Did those theories, as applied to an artwork using virtual reality, have specific limitations? If so, what part of the garden would remain obscure even if I tried to use those theoretical tools?

When I studied the communication theory of semiotics, I thought this would enable me to start to illustrate the structure of the relation between the work of art (object with a signification) and the audience as well as the artist (the interpreters). Semiotics is a theory or system of signs and “semiosis” the process of sign production. The American philosopher and semiotician Charles Sanders Peirce gave the following definition of the notion of a sign: “something, which stands for something else in some respects or capacity.”¹²⁸ Peirce constructed a model explaining the sign relation. His model is based on the triadic relation of a sign/representamen, its object, and its interpretant – this three-way relation not being in anyway resolvable into actions between pairs. Peirce called it a “genuine triad”.

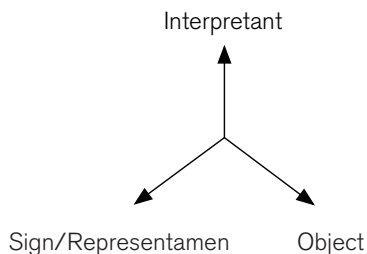


Figure 18. Peirce's Genuine Triad

In the case of my VR arts play, the audience had an active role in decoding a message. This message (the artistic expression) was intimately linked to the medium it was sent

¹²⁷ Eco, Umberto, 1979. *A theory of semiotics*, Bloomington: Indiana University Press, p. 275

¹²⁸ Eco, 1979. p. 15

through. In the VR-Cube, the artistic message was transmitted in the form of symbols and signs: three-dimensional virtual forms and figures, sounds, music and voices. I conducted an “experiment” trying to apply Peirce’s model to the mythical creature of the Minotaur referred to in my VR arts play. In order to make my experience understandable, I will first explain what my artistic intention was, when creating the Minotaur as a character in the VR arts play.

SEMIOTICS APPLIED

The Minotaur is an archetype for evil that fascinates me. In my VR arts play I have sought to evoke the Minotaur in his labyrinth. Rather than giving a visual appearance of the beast from the beginning, I wanted to suggest his presence in the virtual labyrinth through sound effects. In my imagination, the Minotaur is not only an element of danger coming from the outside-world; it represents the destructive powers inside every human being, when anger, distress and fear manage to make man blind. When the Minotaur catches you, you are trapped and become imprisoned in the labyrinth and in yourself, your own body and mind. You are a prisoner in this armour of destruction and can no longer escape from your own labyrinth. On the walls of the labyrinth, spectators distinguish stylised eyes, in warm red and yellow colours and also burning and beautiful eyes full of madness (fig. 13). There is then a dramaturgical progression, a crescendo built up through sounds, music, and voices in the virtual labyrinth. When the spectator enters the labyrinth he/she first hears the weeping of a young woman, without ever being able to recognize, where the weeping is coming from. Then the sounds of an enormous fire and thunder stifle the weeping and, from the fifth room inside the labyrinth, a woman’s voice madly repeats the following words like an incantation:

Blind, blind i rustningen	Blind, blind in the armour
Minotaurus, Minotaurus min	Minotaur, Minotaur, mine
Vilse, blind, fast i rustningen	Lost, blind, prisoner of the armour,
Det stora Mörkret inom mig,	The huge darkness inside me,
Blind, vilse-blind, fast i rustningen!	Lost, blind, prisoner of the armour!
Det stora Mörkret inom mig	The huge darkness inside me

Afterwards, in one of the inner rooms, tracking-sounds followed by a heart-rending woman’s scream echo through the labyrinth. Is it the running steps of the woman and the pounding of the beast’s hoofs when catching his victim or is it something else?

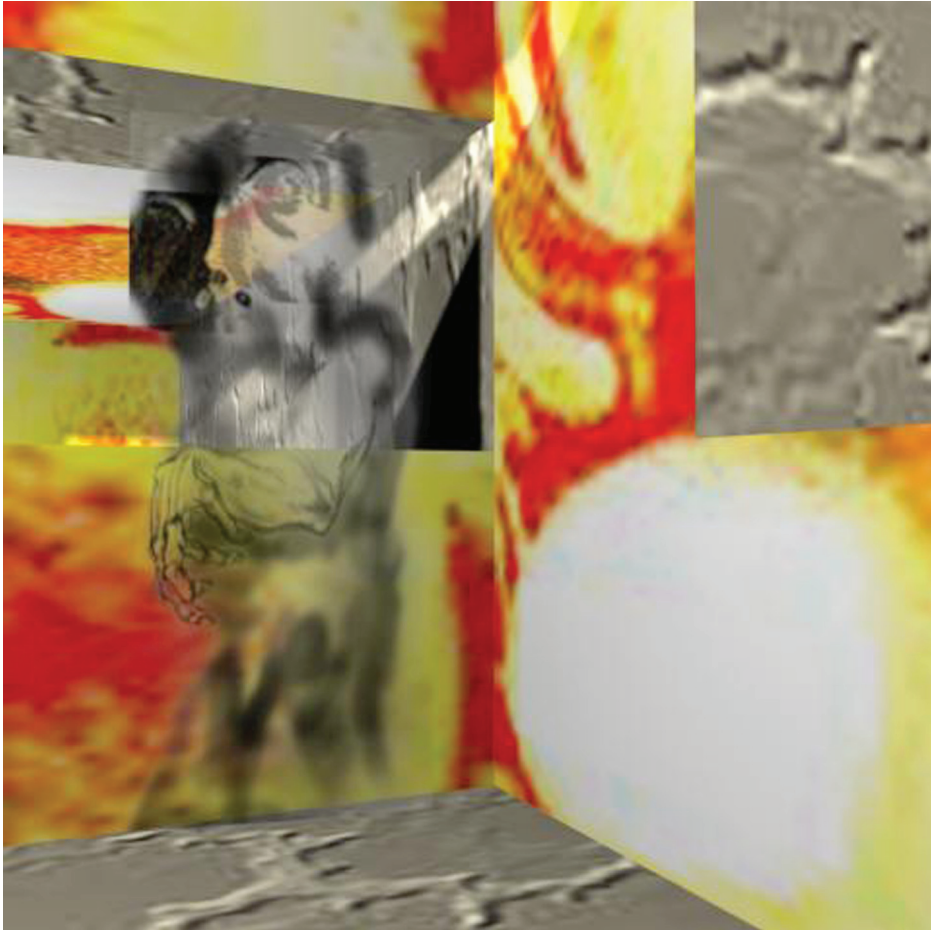


Figure 19. The Minotaur in The Labyrinth

Going now back to Peirce's theory, the Minotaur could be represented by means of a model of binary relationships linking together sign, object, and interpretant corresponding to alarming noises in the labyrinth revealing the beast's approach with the representation of a creature half human – half bull and the idea of a furious mythical beast.

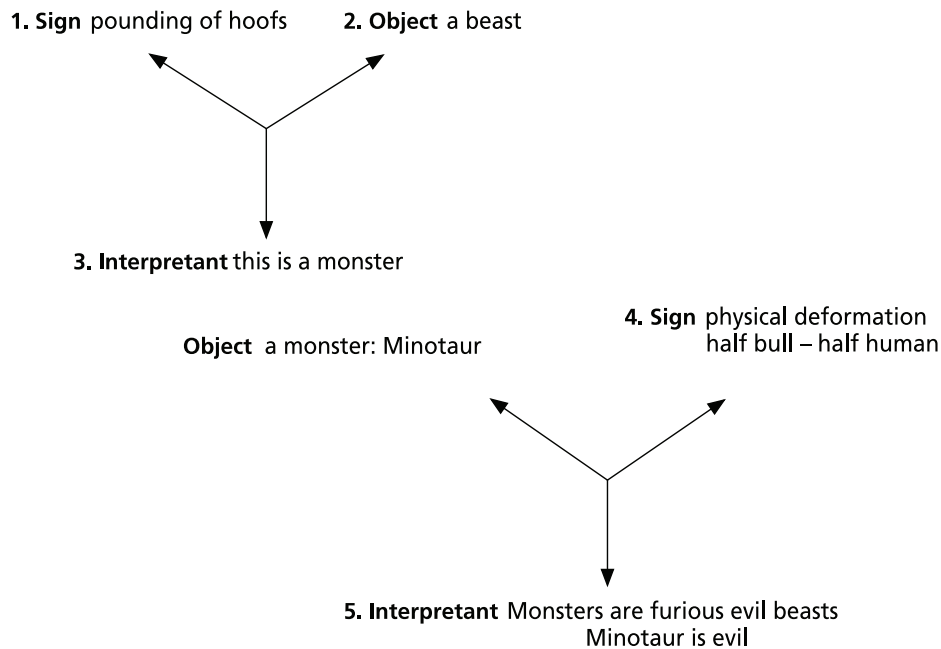


Figure 20. Minotaur in my VR arts play apprehended through Peirce's model

I could have continued the building of chains of signification and connected the furious evil beast with the idea of man's uppermost state of human distress and loneliness. Nevertheless, even if I found this kind of experience intellectually stimulating, I was not satisfied with this model. I soon realised why. What this model actually represents is the interpretation of the VR arts play by its artistic leader with regard to her artistic intention. What, if I as the author of my VR arts play did not only have the Minotaur in mind, when I used the mythical beast in my VR arts play? What, if I did not necessarily want the audience to think about the Minotaur? In that case, which is actually the way it is, the model above was not operational as a general recapitulative model to evaluate the audience experience. My artistic intention was that the labyrinth would allow several kinds of interpretation for the audience, and that these interpretations would be connected with experiences of human loneliness and distraction, beauty and fear. I definitely did not want to be too figurative and serve one single and definitive solution to the audience. There had to be several ways to experience the labyrinth. Some people would never interpret the sounds they heard in the labyrinth as a pounding of hoofs, but maybe as a rumbling or growling sound. Nine-year-old children would probably not connect the word Minotaur, which they hear in the labyrinth, to the beast of Greek mythology. They would not expect a creature half human – half bull but maybe some

other kind of science-fiction figure or monster. Discussions with children who had seen the VR arts play showed that some of them actually expected a monster. I wanted to allow for several interpretations of the word Minotaur, either as a magic word, a threatening word connected with madness, or even a poetic word as in a kind of incantation.

Gradually, it became obvious to me that this model would differ for each person experiencing my VR arts play. So, rather than the interpretation of an audience being considered as a homogeneous entity, it could illuminate each spectator's interpretation of the work. Therefore, at first look, communication theories seemed particularly useful to artists considering their artworks as sign systems that have to communicate a precise message to the audience. These sign systems may work like this for some artworks but only partly like this for the majority of them. In fact, artists often use calculated ambiguity as an artistic means and this was what I had done in my VR arts play. Umberto Eco expresses this possibility clearly:

The artist can speculate upon the overlapping of possible readings or paths whose programmed intertwining constitutes an aesthetic achievement.¹²⁹

Here, Eco means that the relation between signs is not given and code-systems are challenged. If this is the case, then the model I had constructed for the example about the Minotaur pointed to one among many interpretative scenarios that took place in a situation, where there was no consensus about signs. Accordingly, an analytical semiological approach to my VR artwork could be applied in order to establish if artistic results were in phase with my artistic aims or not in two situations:

1. The simplest case was when I, as an artistic leader, had expected a specific reading of musical or visual signs communicating a specific message to the audience.
2. The more complex situation was when the audience's interpretation of the signs should be multifaceted and give way to several possible readings. In both cases, semiological models could help to appreciate whether my artistic message had reached the major part of the audience or not.

However, in the second situation, there was a major problem. Theoretical limits lay in the extreme complexity of the models and a contradiction between a theoretical method tending to clarify a system of signs and my artistic aims, which, on the contrary, sought to challenge any attempt to a more systematic interpretation of those signs. In other words, trying to apply a semiological method in order to interpret a complex artistic material presented the danger of serving the method instead of being served by the method. By so doing, I ran the risk of losing the track of the research question.

¹²⁹ Eco, 1979. p. 114

Of less importance, but a problem too, was the underlying philosophical conception characterising semiotics, a conception that, in my view, attributes too important a role to the human being by placing him, in a central position as the origin of all signs. Hence the human being (artist or spectator) becomes a kind of central processing unit apprehending the world by establishing relations between signs and classifying them in order to shape meaning. So it seemed to me that semiotics emphasised analytical processes and outdistance in regard to the research object more than the in between ontological perspective grounded on the interplay between intuition and analysis that I sought to embrace. Instead, I wanted to apprehend human beings, generally, and a spectator, in particular as an actor and player beside other players engaged in the virtual world: characters, artefacts, other spectators, musical landscapes, and not in a central position in relation to all of them. Therefore, little by little, it became clear to me that a theoretical approach based on semiotics collided, at least partly, with my ontological choices.

Nevertheless, this journey through communication theories and semiotics in particular had been fruitful. My experience of models had provided valuable results by showing that semiotics used as a kind of microscope could contribute to enlighten the relationship between artistic results and artistic aims concerning particular dramaturgical moments in specific sequences of my VR arts play. Furthermore, it had brought a central issue to my attention: If an artistic message is to be transmitted to an audience in the VR-Cube, I would have to study not only the practical, technical barriers which can disturb the transmission of the message, but also the mental barriers that arise when the artwork is created for and inside a new medium that is unknown to the audience and even to the artist, relatively speaking. This was an issue that I worked on intensively when constructing audience surveys followed by in-depth interviews.

ANOTHER HORIZON OF KNOWLEDGE

Thus far, I had definitively dissociated myself from the received linear view of art and communication and realised that there were some discrepancies between my own artistic and reflective work and the ontological basis of communication theories and that this theoretical framework was not sufficient. In the endeavour to reach the core of my research question, while avoiding the traps of serving a method, I embraced a wider horizon of knowledge which was more in line with my own ontological positioning. I had to try to position myself so as not to classify the world from an outside-and- above perspective only, but to try to understand its mechanisms from within, in order to get an in between perspective. I had to reconsider the question of an artistic experience with other theoretical tools. For this reason, I followed philosophers Gadamer and Ricoeur into modern hermeneutics, the study of the general principal of

interpretation, in order to explore which kind of truth and knowledge is revealed to the audience by an experience of art. Even if one might object that hermeneutics is a theoretical approach also centred on man's interpretation of the surrounding world, I would argue that Gadamer's existential hermeneutics with his idea of a "horizon of knowledge" (*Verstehenshorizont*)¹³⁰, and his concept of play (*Spiel*) offers a wider, more flexible framework that does not underline the central positioning of human beings in the same way as semiotics, as a theory of signs, does. Gadamer's *Verstehenshorizont* lies, I would say at the origin of the idea of in between that I try to illustrate through the experience of a VR arts play. Each human being within a historical context develops his own understanding of life in the world, i.e. his/her own horizon of knowledge grounded in his/her experience of the world. It is with this pre-understanding that each of us enters, integrates and understands new experiences in general and new artistic experiences in particular. It is in this in between, between a work of art and each spectator's *Verstehenshorizont* that new artistic knowledge is shaped, which also transforms the spectator's awareness of reality, leading him/her to wider horizons.

Thus, as stated in the introduction, by opting for a hermeneutical approach, what I sought to achieve was a synthesis between the idea of in between, Gadamer's concept of artistic experience and its explanation through the concept of play, Aristotle's theory about drama and Ricoeur's "rule of metaphor", in order to construct my own definition of a VR arts play. It is appropriate to take a closer look at Gadamer's work at this stage.

GADAMER AND THE EXPERIENCE OF ART

TRUTH AND METHOD

The major reference for this chapter's theoretical framework is Gadamer's *Truth and Method*, one of the most important works of this 20th century on the philosophy of human studies.¹³¹ As underlined by Gadamer in the introduction, human sciences (*Geisteswissenschaften*) are connected to modes of experiences "in which a truth is communicated that cannot be verified by the methodological means proper to science (*Wissenschaft*)".¹³² Consequently, what Gadamer calls "the experience of art" (*die*

¹³⁰ Gadamer, 1990. (first ed. 1960) *Hermeneutik I, Wahrheit und Methode, Grundzüge einer philosophischen Hermeneutik*, Tübingen: Mohr p. 312. Verstehen means understand/understanding.

¹³¹ Gadamer, 2004. *Truth and method*, Second, revised translation of *Wahrheit und Methode* (first published 1975) by Joel Weinsheimer and Donald G. Marshall, New York and London: Continuum

¹³² Ibid. pp. xxi. All the German original concepts within parenthesis in this paragraph will be found in the German original version: Gadamer, Hans-Georg, 1990. (first ed. 1960) *Hermeneutik I, Wahrheit und Methode, Grundzüge einer philosophischen Hermeneutik*, Tübingen: Mohr, pp. 1-5

Erfahrung der Kunst) can not be replaced and surpassed by scholarly research within the “science of art” (*die Wissenschaft von der Kunst*). Gadamer goes even further, he writes:

Together with the experience of philosophy, the experience of art is the most insistent admonition to scientific consciousness to acknowledge its own limits.¹³³

Gadamer’s criticism of the concept of method as set by modern science (*Methodenbegriff der modernen Wissenschaft*) and positivism is directed against the assertion that it is those methods that produce and establish truth. He defends himself against the idea that there is an objective truth to reach through empiricism which would, moreover, be an absolute truth within a whole coherent knowledge-system.

ALETHEIA

According to Gadamer, it is not the method that produces truth. In Greek philosophy, the concept of *aletheia* means “truth”. Etymologically, *aletheia* is the state of not being hidden, the state of being evident. In that sense, the concept of *aletheia* Gadamer uses, means that there is something stepping forward as truth. It is the truth that emerges, when something is seen, uncovered and revealed: a “revelation as truth”. For Gadamer, the method can become an obstacle in order to reach truth if the method does not commit to describing this truth. What this “something stepping forward and revealing itself” is, is the question. Then, what tools can we use within artistic research in order to gain knowledge about the experience of truth revealed through a work of art?

Gadamer develops a conception of knowledge and of truth corresponding to the whole of our hermeneutic experience, together with our entire experience of the world. Accordingly, the work of art is to be understood through the experience of art itself and is not to be reduced to aesthetic theory linked to a scientific conception of knowledge:

Hence the following investigation starts with a critique of aesthetic consciousness in order to defend the experience of truth that comes to us through the work of art against the aesthetic theory that lets itself be restricted to a scientific conception of truth.¹³⁴

So, according to Gadamer, the experience of art is to be understood in a broader sense. It goes far beyond a merely sensory experience or an experience derived from our aesthetic consciousness. Two German terms are used by Gadamer, when discussing and defining the experience of art: *Erlebnisse* and *Erfahrung*.

¹³³ Gadamer, 2004. Introduction pp. xxii

¹³⁴ Ibid.

ERLEBNISSE AND ERFAHRUNG

Erlebnisse, the plural form of the German word for experience, translated as “experiences” in the English translation of Gadamer’s work, has a double meaning. It refers mostly to the immediacy, with which something real is grasped, but also to the character of immediacy which precedes all interpretation. However, at the same time, *Erlebnisse* also means the permanent content of what is taken out of the continuity of life and experienced. Hence, those immediate units of experience are also units of meaning. Meanwhile, what is experienced in this way is always what one has experienced oneself and therefore belongs to the unity of this self and contains a relation to the whole of this one life. Therefore Gadamer tells us:

Thus, essential to an experience is that it cannot be exhausted in what can be said of it or grasped as its meaning.¹³⁵

Erfahrung or “art of experience” or “art based on experience” refers to a human process that depends on the historical context and the cultural tradition in which the work of art is realised and experienced. As Joel Weinsheimer and Donald G. Marshall, the translators of Gadamer’s book, write in their preface:

This kind of “experience” is not the residue of isolated moments, but an ongoing integrative process in which what we encounter widens our horizon, but only by overturning an existing perspective, which we can then perceive was erroneous or at least narrow.¹³⁶

Furthermore, according to Gadamer, the main feature of *Erfahrung* is not merely that it is an experience that widens the horizon of knowledge, but even one that transforms the person experiencing it. According to the philosopher, the experience of art is *Verwandlung ins Gebilde* translated by the English translators as “transformation into structure”. This means that something with a shape or structure manifests itself in this experience of art, and transformation occurs, when the person experiencing it recognises something of the truth of the world that he had not been aware of before. It is in that sense that the experience of art becomes an event of meaning, and transforms the person who participates in it.

Consequently, what I have coined “artistic knowledge shaping” is not truly possible without integrating the audience experience and it is not sufficient to only include the artist’s own perspective in order to gain knowledge within the realm of artistic research. What an artist can do is to follow, document and reflect on her own

¹³⁵ Gadamer, 2004. p. 58

¹³⁶ *Ibid.* Introduction p. xiii

process in relation to the artistic aims and artistic results, in order to make this process partly transparent to a reader, but there it stops. The artist may find the main rules for a work in this kind of knowledge shaping process, but in order to be truly experienced, and for the process to be more distinctly defined, the work has to meet its audience. The experience of my VR arts play can be apprehended from various angles reflecting several realities. These are the perspectives of:

- the artistic leader and the production team,
- non-targeted audiences, i.e. audiences that have not been selected according to specific criteria,
- targeted audiences, selected according to specific criteria, as for instance, a group of children or groups of experts from the field of culture, representing various art forms and computer games.

As we have seen, Gadamer is critical to “aesthetic consciousness”, if one pretends that it is the only valuable starting point leading to a scientific approach, in order to gain more knowledge and truth with regard to the experience of art. And why is this? Because the experience of art transcends the aesthetic dimension. But this does not mean that aesthetic consciousness per se is not valuable, and that it is not interesting to ask experts from various art fields to describe a new kind of artistic experience that they are exposed to, in relation to the artistic knowledge of their own working field. I personally see aesthetic consciousness as one valuable way, among others, to reach more knowledge about artistic experience. Therefore, it was enriching to ask an audience consisting of experts from specific art fields how they experienced my VR artwork. Nothing indicated that they would automatically fall into a tendency of subjectivisation, i.e. that they would behave as subjects, looking at my VR arts play as an object and only be capable of relating what they experienced, to the subjectivity of the aesthetic consciousness within the specific art field they represented. In other words, aesthetic consciousness neither automatically impedes nor strengthens an experience of art, but naturally influences and colours it. Hence, in my view, this is not to be seen as a condition for, but as a means of experiencing art, and, as such, it is valuable for artistic research. In order to enlighten the mode of being of the work of art and the hermeneutic significance of the experience of art, Gadamer uses a concept that has played a major role in aesthetics: the concept of “play”: *Spiel* in German.

PLAY AS EXPERIENCE OF ART

Originally, the word *Spiel* meant “dance”. In order to introduce the concept of play, Gadamer concentrates on its metaphorical senses giving us examples like “the play of light, the play of the waves, the play of gears, of forces and a play on words”. He explains

that what is intended here is a “to and fro movement, not tied to any goal that would bring it to an end”.¹³⁷ According to him, the movement backward and forward is so central to the definition of play, that it makes no difference what or who performs or participates to this movement. Then, considering the experience of art, how do we interpret this movement? Explaining how “play” is essential to the experience of art, Gadamer states right away:

When we speak of play in reference to the experience of art, this means neither the orientation nor even the state of mind of the creator or of those enjoying the work of art, nor the freedom of a subjectivity engaged in play, but the mode of being of the work of art itself.¹³⁸

So, what is made clear at once by the philosopher is that focus is not to be put on the creator of the work of art, nor on the audience, but on this to and fro movement, a movement that he defines as “the mode of being of the work of art itself”. Later on, he explains that play is not to be understood as a relationship between the artist and the audience considered as subjects towards the work of art considered as an object:

The mode of being of play does not allow the player to behave toward play as if toward an object... the work of art is not an object that stands over against a subject for itself... The “subject” of the experience of art, that which remains and endures, is not the subjectivity of the person who experiences it but the work itself.¹³⁹

Here one might argue that if the player’s subjective reflection does not give us an answer about the nature of play, my endeavour to try to define the experience of my VR arts play by means of audience surveys or in-depth interviews is worthless. Nevertheless, it would be omitting the fact that I am an artistic researcher and do not share the same objectives as a philosopher looking for the true being of the work of art. If a true artistic experience has the ability to change the person who experiences it, tracking this change, beyond subjectivisation, through audience surveys, might be a difficult task but not an impossible one, as long as my own perspective is not a philosopher’s one. Hence my proposal is not to explain with words “the true mode of being” of the VR arts play, which can only be revealed through the artistic experience itself, the play itself inside the VR-Cube, but to bring to the fore the specificity and conditions, for this kind of VR arts play, to be perceived as a rewarding artistic experience for the audience and other future

¹³⁷ Gadamer, 2004. p. 104

¹³⁸ *Ibid.* p. 102

¹³⁹ *Ibid.* p. 103

PART III

potential players engaged: creators, artistic researchers, audiences etc. Therefore the players' experiences are essential for my research. So far, I will argue that neither the addition nor the intersection of their subjective experiences reveals and exhausts the whole essence of play but that the summing-up of those individual experiences definitely embodies it.

A PLAY IN BETWEEN

But most important the being of the work of art is connected with the medial sense of play (*Spiel*: also, game and drama).¹⁴⁰

When Gadamer tells us about a play as drama, he refers to the presentation of a myth in a play, a stage setting where there is a physical distance between the audience and the actors being the players on stage, and not to a situation like in the VR-Cube, where the audience is immersed on stage. Even so, with this physical distance, he argues that the play is not only what is happening on stage and that openness toward the audience completes what the play as such is:

The players play their roles as in any game, and thus the play is represented, but the play itself is the whole, comprising players and spectators.¹⁴¹

Therefore he defines play as a medial process, something happening "in between":

This point shows the importance of defining play as a process that takes place "in between".¹⁴²

When the spectator gets absorbed into the play, a complete change takes place that puts him in the place of the player on stage:

He – and not the player – is the person for and in whom the play is played...artistic presentation, by its nature, exists for someone, even if there is no one there who merely listens or watches...Basically the difference between the player and the spectator is here suspended.¹⁴³

¹⁴⁰ Gadamer, 2004. p. 105

¹⁴¹ Ibid. p. 109

¹⁴² Ibid. In the original text: Gadamer, Hans-Georg, 1990. (first publ. 1960) *Wahrheit und Methode, Grundzüge einer philosophischen Hermeneutic, Band 1*, Tübingen: Mohr, p. 115: "Das ist der Punkt, an dem sich die Bestimmung des Spieles als eines medialen Vorgangs in seiner Wichtigkeit erweist".

¹⁴³ Gadamer, 2004. pp. 109-110

So, in a traditional performance where there is a distance between stage and auditorium, physical boundaries is not an obstacle for the spectator to get so mentally involved in the play that it puts him in the place of the player on stage. Now, in my VR arts play, the physical rules of play are transformed. The change that Gadamer refers to above is a precondition of the play, when the roles of performer and spectator are not delimited by a physical distance between stage and auditorium anymore. Nevertheless, even if this distance does not exist, I will argue that, in one sense, the nature of play is similar to a traditional theatre play, since, even there, the spectator has to get absorbed into the play in order to get the play truly played. Being drawn as participant in the play entails taking a more active role than merely that of a spectator. In Gadamer's words:

The being of the spectator is determined by his "being here present" (*Dabeisein*). Being present does not simply mean being there along with something else that is there at the same time. To be present means to participate.¹⁴⁴

If the spectator, for instance, is only superficially curious to watch how the technology of virtual reality operates and not the least interested in the content of the work, this person will certainly not get absorbed into the play. If the play is of doubtful quality, the to and fro movement of play will not operate either. Furthermore, in the VR-Cube, there is not any actor as intermediary in charge who could be able to save a poorer play by means of his professional skills. So, in such a VR arts play, the structure of the work must be of such a quality that it engages the spectator's attention as a player in the play. Applying Gadamer's idea of a play as a medial process I will now draw two conclusions:

- ▶ First that, in a traditional stage drama, the play develops in between the play director, the script, the playwright and the stage designer, the setting, the actors and the audience; whereas in a VR arts play, the play takes place between the artistic leader and playwright, the production team, the VR-Cube as a medium and the audience, all being players in the play.
- ▶ Second, that one major feature for such a VR arts play to become a rewarding artistic experience for the audience is its ability to get the spectator to be "there present" (*Dabeisein*) i.e. to feel as a participant in the play.

Hence, what I have tried to explain so far is why Gadamer's concept of play is a key concept, in order to find definitions and characterise the type of VR artwork I have been working with, and why I have launched the term VR arts play. But the philosopher's concept is useful at a higher level too and can be used to mirror the whole research process.

¹⁴⁴ Gadamer, 2004. p. 121

PLAY WITHIN THE RESEARCH PROCESS ITSELF

Gadamer's concept of play is to be applied on a broader level and in a wider meaning. The concept of play seeps in through my entire thesis work not merely defining my artwork, but even reflecting the entire research process. How?

Regarding my role as an artistic researcher, a main characteristic of this research work is the persistent endeavour to open the reflective, analytical and artistic work towards other voices than my own. All the time, I have been trying to confront my own approach towards other voices representing various audiences, artistic fields, professional skills, age-groups – not to forget children – and, bringing all these voices to the stage, has been central to this doctoral project as a whole. Implementing the idea of the play in between all those voices has meant letting the to and fro movement of play orientate the research process itself through continuous readjustments between various voices and other empiric and theoretical material. Childrens' reactions and audience surveys indicated, for instance, that I ought to make in-depth interviews with computer games experts, which was not at all my intention from the beginning. Another example would be the unexpected strong impact of social interaction in the VR-Cube revealed by means of audience surveys, i.e. an empirical result with both artistic and theoretical implications. This drove me to redefine the rules of play within my VR arts play, by being cautious to let children enter the VR-Cube with their friends and not with other classmates that they disliked too much. Afterwards, I further investigated social interaction through in-depth interviews and brought up its impact in the theoretical discussion as one of the parametres influencing the immersive artistic experience as a whole. Thus, it is in this sense that Gadamer's concept of play, as a play between artistic material and theoretical and empirical interweaving functions seeps in through my entire doctoral project. Shaping the conditions for a rewarding and hopefully truthful play in between interesting voices and horizons of knowledge is the flexible strategy I have purposefully chosen towards the collective process of artistic knowledge shaping.

HERMENEUTICAL CIRCLE

Artistic knowledge shaping through play corresponds to the very idea of hermeneutical circle, a circle leading in various phases, and in a constant pendulum between part and totality to higher and higher levels of understanding. The hermeneutical circle moves between the VR arts play taken as a part and the research process taken as a whole. This movement or play is orchestrated by the artistic researcher and is articulated around the research question. The first level of play unfolds in between the artistic leader, the production team, the work of art and the audience engaged as actor-spectator into the play. The second level is the level in between the VR arts play, the research process and the PhD education seen as a whole, in its particular educational and personal context. This is

a play that has engaged several voices, voices from within and outside the cave, i.e. voices from other artistic and media fields but all related to my specific research context.

On the metalevel, the hermeneutical circle encompasses the entire field of immersive VR art in its political, historical and artistic context, in an ongoing to and fro movement of play in between the specific field of immersive VR art and other bordering fields with their respective actors and players within the visual arts, performing arts and new media. Further, there are also the media (the television as well as the press), institutions for research and education, the political scene and the entertainment industry.

METAPHOR WITHIN PLAY

The question concerning how a VR arts play becomes a fruitful artistic experience, i.e. the question of the mechanism of play brought me back to Aristotle's conception of drama seen through the lense of Ricoeur's modern hermeneutics.

ARISTOTLE AND THE TRAGIC PLAY

As briefly mentioned in the introduction the Aristotelian theory of drama is a tradition that artistic researchers working with performing arts cannot escape. During Antiquity, a tragic play or tragedy was considered the highest form of dramatic art. One parallel between a tragedy and my own VR arts play – constructed as a meditative journey within oneself – is that both are thought to have a catharsis effect. So, by studying Aristotle's theory of drama, I wanted to see if there were more parallels and if the philosopher's categorisation system could help me to define a VR arts play more precisely.

For Aristotle a tragic play is a tragic poem constituted by six parts. Ricoeur enumerates those parts:¹⁴⁵ a fable or Plot (*Muthos*), Characters (*êthê*), Diction (*lexis*), Thought (*dianoia*), Spectacle (*opsis*), and Melody (*mélôpoia*). *Muthos* has a very important function since it gives coherence to the tragic play. It refers to the construction of myth or *mimêsis*, i.e. the construction of the six parts of the tragic play. According to Ricoeur, Aristotle's concept of *mimêsis* is often misunderstood and wrongly translated by the term "imitation", with the reductive sense of a "copy" of nature. But *mimêsis* implies the creation of a play. Ricoeur underlines that a work of creation can only result in something singular, therefore a theatre play like a tragedy defined by Aristotle as the imitation of human action, can never be just a copy of nature. Misunderstandings of the term *mimêsis* probably result from anachronisms due to the difficulty to translate concepts used centuries ago in another form of society. In Antiquity, tragedy was a *mimêsis* of

¹⁴⁵ Ricoeur, 1997. *The Rule of Metaphor, Multi-disciplinary studies of the creation of meaning in language*, transl. by Robert Czerny of *La métaphore vive*, first publ. 1975, London: Routledge, pp. 39-40

nature. But nature was in Antiquity – as well as now – to be mirrored through the human mind in order to be played by actors on stage. Thus *mimêsis* could not possibly mean that tragedy was a mere “copy” of nature. *Mimêsis* of nature meant that the audience recognised something about the essence of nature.

In order to be successful as a play – be it a tragic play, a comedy or another kind of performance – the play has to reveal something new to the audience, something that the audience often feel they know beforehand without being able to express it. A good play gives this vague thought or feeling a communicable form, through a verbal, visual or musical *Gestalt*.¹⁴⁶ How then does a good play communicate something new to the audience?

A central part of the answer is to be found in the movement forward and backward of play through which the functions of metaphor operate between the work and its audience. Those two functions are, according to Aristotle, the rhetoric and the poetic. For Aristotle, rhetoric covers three areas: a theory of argumentation (*inventio*), a theory of style (*elocutio*) and finally a theory of composition (*compositio*).¹⁴⁷ Rhetoric was originally an oratorical technique; its aim was to know how to persuade, whereas poetics, the art of composing poems, principally tragic poems, was not oratory in its character. Poetry should rather purge the feelings of pity and fear. Ricoeur quotes Aristotle’s definition of a metaphor in *Poetics*:

Metaphor consists in giving the thing a name that belongs to something else; the transference being either from genus to species, or from species to genus, or from species to species, or on grounds of analogy.¹⁴⁸

An example often used in literature is “Achille is a lion” which is a metaphor whereas “Achille is as a lion” or “Achille combates like a lion” is merely a comparison without the powerful transfer of meaning expressed through the metaphor. In a tragic play, metaphor belongs to the part of a play that Aristotle defines through the word “lexis” which refers to the composition of the verses. Lexis is linked to *dianoia* or “thought” (what a character says in arguing or justifying his actions). Used by the poet or playwright, metaphor is a powerful way to communicate this kind of revelation to the audience. A poet/playwright is the one able to create metaphors and write poetry/plays reaching a kind of clarification, a transparency raising itself to the level of universal truth. For Aristotle to master metaphor is a sign of genius:

¹⁴⁶ Here I use the German term *Gestalt*, which I briefly defined in the introduction.

¹⁴⁷ Ricoeur, 2003. *The Rule of Metaphor, The creation of meaning in language*, transl. by Robert Czerny with Kathleen McLaughlin and John Costello, SJ, London and New York: Routledge Classics, pp. 8-9

¹⁴⁸ Ricoeur, 2003. pp. 2-13

But the greatest thing by far is to be a master of metaphor. It is the one thing that cannot be learnt from others; and it is also a sign of genius, since a good metaphor implies an intuitive perception of the similarity and dissimilar.¹⁴⁹

ARISTOTELIAN CATEGORISATION IN A VR ARTS PLAY

Going back to Aristotle's parts of a tragic play – Plot, Characters, Diction, Thought, Spectacle, Melody – I argue that the great philosopher's categories are not relevant only in relation to performing arts on stage but that those categories also have relevance in order to apprehend a VR arts play in the VR-Cube. Performing arts (i.e. theatre, dance, music as "plays" performed on a stage, in front of the audience) are based on a manuscript/story, characters, composition in verses or the prose for theatre, precision of gestures in dance, articulation in music, "thought", spectacle with scenography, light, scenic effects, musical composition and rhythm.

Similar to the performing arts, or a tragic play, my VR arts play *Le Beau, le Laid, le Bon et le Mauvais* is based on a kind of manuscript or plot about the play, i.e. a document trying to figure out what kind of geographical and emotional journey the players might be able to experience by following both compulsory tracks as well as choosing their own paths within the play. Characters are virtual three-dimensional artefacts in my VR arts play. The Minotaur, mentioned before, is one of them. The life and death tree in *The Twin Room for Life and Death*, which looks like a floating sculpture in a limitless space, can be apprehended as a character too, inhabited itself by several other characters like the snake-branches, the golden eye or the roaring "claw-branch" that begins to roar when the spectator comes too close to it and which opens the gate of the twin room (fig. 10).

In a VR arts play, the spectator has the opportunity to behave as a performer "on stage" in the virtual world he is immersed into. She becomes in that sense, a real character that interacts with other virtual three-dimensional characters in the play and as such a major character whose role influences the whole play. Thus, in a VR arts play, the traditional Aristotelian parts of a play become a manuscript opening diverse interpretations and opportunities for a performer/spectator, virtual and real characters, virtual scenography with virtual artefacts and animations, musical composition, and poetical elements (spoken words and virtual pictures). What I propose as characteristic for a VR arts play is the existence of several dimensions that did not exist in the same way in a traditional Aristotelian play:

¹⁴⁹ Ricoeur, 1997. *The Rule of Metaphor, Multi-disciplinary studies of the creation of meaning in language*, transl. by Robert Czerny, London: Routledge p. 223 (Aristotle quoted by Ricoeur)

- Immersion inside the play because physical distance between stage and audience is abolished.
- Interactivity because the spectator/player has the opportunity to interact physically with characters and artefacts.
- Social interaction between spectators-performers entering the VR-Cube together to experience the same “journey” in the VR-Cube.

So far, I will argue that the Aristotelian categories are still operational and relevant today in order to understand the specificity of such VR arts play. I do not think that the three specific dimensions listed above are added parts to the Aristotelian system but rather that they might be considered as added dimensions within the philosopher’s system of categories. These dimensions are, in turn, dependent on two factors particular to a VR arts play:

- The challenge of ordinary human perception: when the body is “the stage” where borders between illusion and reality are continuously drawn and redrawn.
- The element of hazard: the potentials and barriers created, when the spectator-performer influence the argument of the play.

If we admit that Aristotle’s categorisation still can be used what happens to the metaphorical functions if we now look at a VR arts play instead of a tragic play? In a tragic play, the rhetoric and the poetic reveal themselves mostly in the text of the plot and the way the actors present it by acting on stage. In a VR arts play, where visual stimuli are the strongest (along with musical composition), the metaphorical functions should be mainly triggered by visual elements, i.e. simulations and animations with virtual characters and scenography combined with text/poetry and musical compositions. Thus, the functions of metaphor do not principally operate through verbal means and word compositions. In other words, the main function of metaphor is probably not to be found in the triad of rhetoric-proof-persuasion but rather in the triad of *poiêsis-mimêsis-catharsis* influencing the artistic experience of the audience. It is in this triad that *aletheia*, the function of metaphor as revelation of truth operates.

ALETHEIA IN THE SHAPING PROCESS

In order to explain how metaphor can work during the shaping process of a VR arts play, I have chosen a specific example: an image pointed out by stage designer Josef Wideström (J.W.) who designed *The Labyrinth* in my VR arts play. I had written a manuscript about what will be happening in the labyrinth, where a woman loses herself and is threatened by the Minotaur, the fabulous monster, half bull – half man, fed with human flesh (see Appendix 3.1). In the play, the mythological beast symbolised the destructive power of her own mind and the threats from the outside world. The stage designer chose five pictures of the labyrinth in order to show me how he intended to construct the three-dimensional

virtual labyrinth, and to give me a first impression of the atmosphere created by the walls and rooms inside the labyrinth. One of the pictures caught my attention at once.

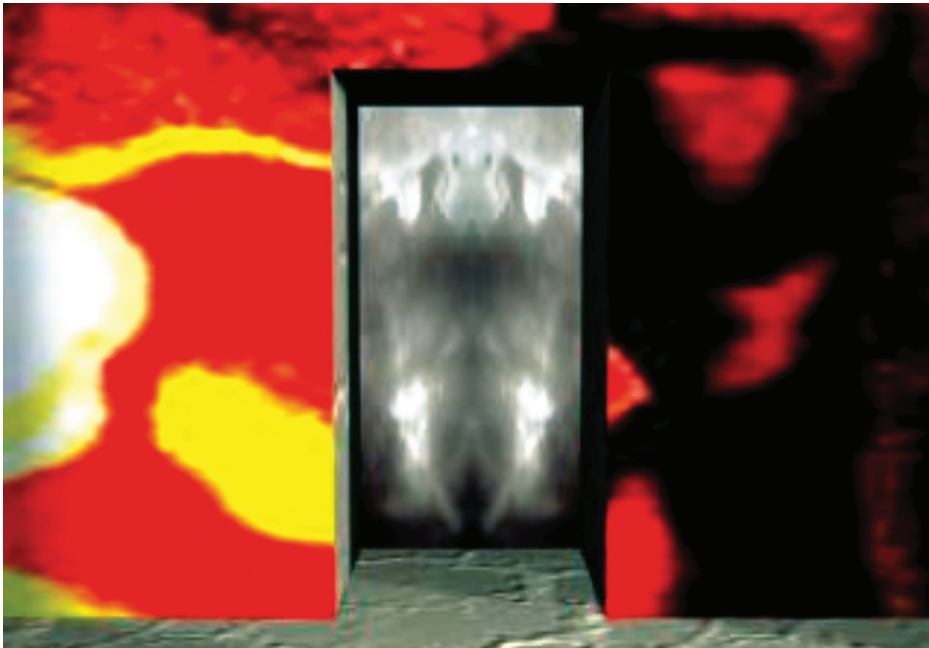


Figure 21. View of The Labyrinth

I immediately saw a skull, the threatening skull of The Minotaur looking at me behind the door's threshold. Afterwards, I asked J.W. about the picture. He did not talk about The Minotaur but said that there was a woman in the sky. I looked for her but I could not discover her. I just saw the threatening skull of the beast in the labyrinth. Asking several persons afterwards what they saw in this picture, it turned out that each of them came with a different proposal. The common denominator was that what they saw had a symbolic content about life or/and death, good, bad, ugly, beautiful. From a few colleagues and university students, I got the following answers:

- ▶ The open jaw of a lion as a demonstration of strength that threatens and fascinates at the same time. It raises a question: Will you be brave enough to throw yourself in the jaws of the lion or will you be too afraid? It is tempting!
- ▶ The angel of death
- ▶ Two loving pigeons
- ▶ The devil's face
- ▶ A dog
- ▶ A warrior
- ▶ A goddess of life
- ▶ Nothing special, more like a Rorschach's test



Figure 22. Two loving pigeons

I interviewed the stage designer in order to know where “the woman in the sky” was to be found on the original picture, what this woman represented for him, how he had composed the picture and why he had selected it. He explained that what he saw in the picture was a woman with a strong positive life-power or a witch rising up from flames and smoke. He had not intended to shape such a woman from the beginning. What he had done was to duplicate the reverse picture of clouds in the sky and to put the two pictures together. He knew that interesting motives expressing a kind of tension often appear at the junction between mirrored pictures. He tested mirroring the clouds until he found a texture expressing the tension he was looking for. What happened then was that he saw a woman’s body appearing at the junction of the two pictures. He knew that hardly anybody would notice the woman rapidly floating away into the clouds during the VR arts play. But he liked this picture, the idea of this woman both angel and witch and decided to select the clouds as texture for the sky outside the labyrinth.



Figure 23.

The skull of The Minotaur

Woman in the sky

*The Minotaur and his victim
Angel or Witch?*

A majority of the people asked about the picture had seen my VR arts play. It certainly influenced their interpretations of the picture towards the dualistic ideas of life and death. This example gives an inkling of how the metaphoric function of visual arts operate by revealing different truths to different persons in a specific context. We also see how we get influenced by each other and together shape other truths through powerful metaphors. When the stage designer had shown me the woman in the sky, I suddenly saw The Minotaur catching his victim in the labyrinth. For both of us, the clouds became charged with the symbolic meaning of a sacrifice.

This example illustrates how I envisage artistic research in the specific context of a VR arts play, a play that engages through the power of metaphor. Visual pictures stimulate our mind and we shape our own metaphors, borrowing from each other in order to express a meaning by identifying what we see as truth. Here I want to underline that “metaphor-shaping” is a process that goes far beyond the simple fact of seeing contours of a figure in a sky-formation, an abstract picture or an ink stain as in the

Rorschach's test. Inspired by C. G. Jung, psychiatric specialist Hermann Rorschach¹⁵⁰ published in 1921 his well-known test based on this kind of mental exercise. Rorschach's ink-blot test consists of 10 pictures. Those pictures were presented to a patient who was asked what he saw in them. His answers were then interpreted by a psychiatric therapist in order to analyse the patient's personality and detect psychiatric problems. It is clear that what Aristotle sees as a sign of genius is not the ability to see a form/figure in a picture like those used during a Rorschach's test. To shape powerful metaphors goes far beyond this kind of mental exercise. To identify or perceive a form or figure is for an artist/writer/researcher just the first step. Then this form has to be far more than just a form. Only a naked form dressed in a both meaningful and truthful costume becomes *Gestalt* with strong metaphorical power.

Within the VR arts play, I will argue that the metaphorical function of poetic operate far beyond a mundane process of attribution of meaning given by a spectator to a picture, a word, a sound or a musical landscape. The metaphorical function operate in between the perception of each spectator, her horizon of knowledge and her imagination. It is in this *in between* that powerful metaphors are born, when a visual artefact, a sound landscape or a sound become more than a visual or musical impact. What occurs is a transformation into Gestalt contrasting with the bare perceptual stimuli through the imagination of each spectator. The abstract floating sculpture in space becomes a character, human being, tree for life and death etc. Since the spectator is not merely spectator but is even given the opportunity of taking the role of actor/participant, this transformation into Gestalt has implications on the spectator's further interactive choices determining her whole immersive journey, and consequently on the overall understanding of the work. Thus the power of metaphor operates in the contrast between the visual, musical impacts and the interpretative imagination of the audience.

A SCIENTIFIC AND ARTISTIC METAPHOR ABOUT TIME

In 2003, Sergei Muchin, a former colleague of mine at Chalmers University of Technology, held a lecture.¹⁵¹ He gave a book to the audience. It was a book by Lennart Grebelius entitled "Twenty Billion Years". This volume was part of a series of two thousand identical books. I looked at the first page in the book, a white page covered with lines of black dots. All pages in the book were similar. One page contained 20,000 dots. Each dot represented a year. The author's intention was to give a visual understanding of twenty billion years, which is the estimated number of years from the birth

¹⁵⁰ *Nationalencyklopedin multimedia*, vers.2.0, CD-ROM, Malmö: Bra Böcker AB

¹⁵¹ Muchin, Sergei, 22 Oct. 2003. *Digital Media som redskap för lärande*, lecture at CKK, Chalmers.

of our universe in the Big Bang, until after the collapse of our sun system, about five billion years from now. I immediately thought that the book was a much better visual metaphor than a mathematical graph helping me to get a kind of understanding about what a tremendously long period of time that was. This book worked as a visual metaphor about time, but I could not imagine, how two thousand volumes gathered in one room would look together. In order to understand, I would have needed to see all those books in a real room or a virtual representation of the room with all those books in the VR-Cube. Then, a woman in the audience expressed what I thought was both a very interesting and revealing question. She had taken a look at the book and said: “Is it Science or is it Art?” She did not develop her question further. I thought that the question revealed something about our “rational” way of thinking, pushing us to categorise reality in order to apprehend the surrounding world.

As citizens of Western countries, we are trained from the very beginning to classify visual metaphors in relation to established code-systems. Why then, is it surprising that we almost automatically identify a visual representation of time through a book with black spots as art whereas we automatically classify diagrams and graphic illustrations of time as scientific representations? Both representations are visual metaphors and I wonder if classification of visual metaphors into scientific and artistic domains does not impede our search for knowledge instead of developing our understanding of the world. Who indeed can draw a strict borderline between scientific and artistic metaphors?

THE RULE OF METAPHOR: TRACING IDENTITY AND DIFFERENCE

To have the gift of metaphor and know how to handle its power of revelation for shaping something radically new is the mark of genius. In the next figure called “Artistic and Scientific Knowledge-Shaping through Metaphor”, I try to represent how artistic and scientific metaphors might take form. What we see is that metaphor enables us to reduce the distance between a mental representation that Ricoeur calls *language virtuelle*¹⁵² and Robert Czerny translates as virtual language – in the sense of a language to be, a language that has not reached its final form yet and not in the sense of virtual reality-language! – and the language in its final “real” form, what Ricoeur calls *language réel*, and Czerny translates as “real language”.¹⁵³ The mental representation of the artistic researcher is the point of departure. It is this potential language, i.e. this language

¹⁵² Ricoeur, 1975. *La métaphore vive*, Paris: Editions du Seuil, p. 178

¹⁵³ Ricoeur, 2003. p. 162

in gestation that has not taken its proper form yet. The final results of artistic and scientific knowledge shaping through metaphor are artistic and scientific Gestalten. Constructing metaphors is an act of transfer which implies the transgression of conceptual borders. The transfer operates by tracing identities and differences within the selected material. Rhetoric and poetic, the Aristotelian functions of metaphor, are at work in the selection and through the process of dissociation and reorganisation of identities and differences. The creative act operates through the assemblage of specifically selected identities that will give birth to a new Gestalt thanks to the metaphoric function “seeing as” (*le voir comme*)¹⁵⁴: an act-experience. What happens is a reduction of the distance between virtual and real language.

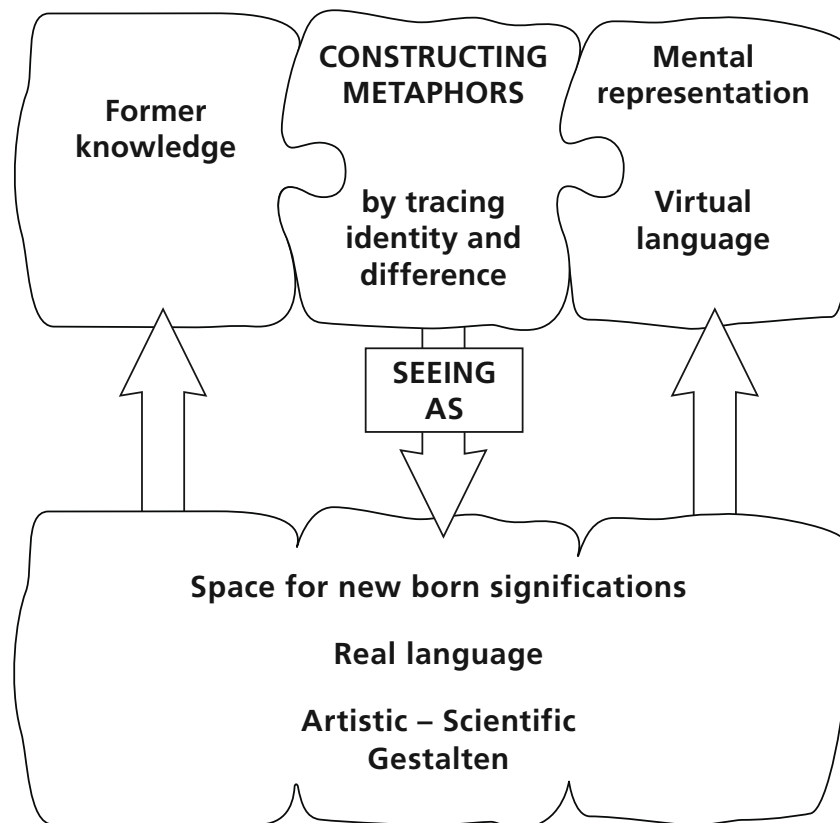


Figure 24. Artistic and scientific knowledge shaping through metaphor

¹⁵⁴ Ricoeur, 1975. pp. 268-269

This model illustrates that shaping metaphors consists in shaping new knowledge by reducing the distance between virtual and real language by tracing identity and difference in order to build something new. Therefore, I have drawn a figure representing a puzzle with various pieces that have to fit together in order for new scientific and artistic languages to be created. Former knowledge is one of the puzzle pieces used (consciously or not) within the process. It is the personal context around the artistic researcher and her historical environment, what Pierre Bourdieu calls *espace temps-social* (social-time space).¹⁵⁵ Those contexts determine the horizon of knowledge of the artist or scientist based on former experiences in the sense of Gadamer's concepts of *Erlebnisse* and *Erfahrung*.

- Personal context
 - Rhetorical/poetical gift
 - Conception of life
 - Intuition, feelings
 - Socio-cultural background
 - Lived experiences
 - Learned knowledge (for instance: The Minotaur is a mythical creature half human – half bull)
- Social-time space, Bourdieu's *espace temps-social*
 - Socio-historical context, scientific environment

The initial mental representation, called *language virtuel* by Ricoeur is a language in gestation, a language to be based on sensuous, conceptual imagery

- before the final form
- before the final figure
- before the final word or concept

This virtual language is nourished by former knowledge and starts with the selection of pertinent material. The selection operates within similar but not identical representations in the sense of figures, forms, concepts, objects, beings, and artefacts. Constructing metaphors is a process of dissociation and restructuring of the selected material. The selected material has to be deconstructed and reconstructed in another shape in order to be reborn as something new. By tracing identities and differences between similar but not identical representations, a new material in a new puzzle-form will be assembled so as to produce meaning. How? Through “the seeing as”, an act-experience explained in the following way by Ricoeur:

¹⁵⁵ Bourdieu, 1992. *Les règles de l'art, Genèse et structure du champ littéraire*, Paris: Seuil, p. 291

PART III

Mais voir comme ... est un acte-expérience de caractère intuitif, par lequel on choisit, dans le flot quasi sensoriel de l'imaginaire que l'on a en lisant la métaphore, les aspects appropriés de cet imaginaire.¹⁵⁶

[Seeing as is an intuitive experience-act by which one selects from the quasi-sensory mass of imagery one has on reading metaphor the relevant aspects of such imagery.]¹⁵⁷

Ainsi le "voir comme" joue très exactement le rôle du schème qui unit le concept *vide* et l'impression *aveugle*; par son caractère de demi-pensée et de demi-expérience, il joint la lumière du sens à la plénitude de l'image. Le non-verbal et le verbal sont ainsi étroitement unis au sein de la fonction imageante du langage.¹⁵⁸

[Thus 'seeing as' quite precisely plays the role of the schema that unites the *empty* concept to the *blind* impression; thanks to its character as half thought and half experience, it joins the light of sense with the fullness of the image. In this way, the non-verbal and the verbal are firmly united at the core of the image-ing function of language.]¹⁵⁹

The result is a space for newborn significations (artistic and scientific), when the potential language assumes it has got its artistic or scientific final representation/Gestalt to be communicated through. The space of new born significations will, in its turn, complement the puzzle piece of former knowledge and, consciously or not, be used by the artistic researcher as former knowledge for other mental representations in the future in order to construct other metaphors and the meaning-chain will go on.

EXAMPLE: LA DAME AU LÉVRIER

Let us here take an example, an experiment of a metaphorical construction that I built up and which clarifies how the meaning-chain goes on, when an artistic researcher, starting from the own artwork and another work of art, imagines a new artwork. It illustrates the rule of metaphor, the process of recognising, disassembling and reassembling artistic material in order to shape something new. The final result in the space for new born significations was, in this particular case, an artistic Gestalt, a photograph representing an allegory of the sense of sight in our time entitled *La Dame au Lévrier* (Lady with the Saluki).

¹⁵⁶ Ricoeur, 1975. *La métaphore vive*, p. 270 (Ricoeur is here defining "the seeing as" by quoting Marcus B. Hester)

¹⁵⁷ Ricoeur, 2003. p. 252 (Ricoeur is here quoting Marcus B. Hester in 1967. *The Meaning of Poetic Metaphor*, la Haye: Mouton).

¹⁵⁸ Ricoeur, 1975. p. 270

¹⁵⁹ Ricoeur, 2003. p. 253

I conducted this experiment within *The Pavilion*, i.e. the virtual place symbolising peace and harmony with oneself and the world within my VR arts play. Thinking of the famous 15th Century Flemish tapestry *La Dame à la Licorne* (Lady and the Unicorn) of Hôtel de Cluny in Paris, a series of six tapestries representing the human senses and staging a young woman in an enclosed allegoric space, delimited by an oval shaped grassy carpet in company with a unicorn, this fabulous creature of man's fantasy, a grey hound and other exotic animals. I departed from the one representing the sense of sight,¹⁶⁰ in which the unicorn looks at her reflection in the mirror, entered the VR-Cube with a long white dress, a mirror and accompanied by a Persian saluki dog in order to stage my own allegory of the sense of sight in modern time, five centuries after *La Dame à la Licorne*. The principal sense stimulated in an immersive virtual environment is the sense of sight, something a saluki dog embodies. Those dogs are formidable hunters (and killers), hunting principally by sight in the deserts. Salukis are since centuries creatures symbolising beauty, nobility, communion with nature, wilderness as well as extreme speed and perfection (what high technology might achieve) and in that sense, for me, the life-world idea of a communion between the contrasting pairs good-bad, ugly-beautiful, between nature and culture and between life and the world. With the dog, I stepped into the VR-Cube and entered the green carpet of the enclosed intimate space of the virtual pavilion, where I wanted the dog to sit down beside me, put out its paw, and look into the mirror. The dog was still a puppy, and staging such a scene with a frisky participant in order to get good photographic results proved to be difficult within the few square metres of the VR-Cube. Not the least afraid of this unusual environment but rather curious and stimulated, the puppy acted a lot on her own and, despite the photographer's and my joined efforts, the photographic result, was not what I had hoped for. The final visual representation is a photograph representing *La Dame au Lévrier* that I do not consider artistically good enough to be presented for the reader here and that I leave to his imagination.

Looking back at figure 24. (Artistic and scientific knowledge shaping through metaphor), what can be said is that even if the result of this particular experiment is not accomplished in form of a good artistic Gestalt using photographic language in the space for new born significations, the experiment was valuable in order to uncover the power of metaphor and its mechanism in tracing identities and differences, taking the real into the unreal in a chain of meaning, what I see as artistic knowledge shaping within immersive VR environments.

¹⁶⁰ See Lady and the Unicorn, <http://www.superstock.co.uk/resultsframe.asp>

THE SPACE FOR NEW BORN SIGNIFICATIONS

The next figure presents the contents of the space for new-born significations within artistic research. Here I use Pierre Bourdieu's concept of *champ*¹⁶¹(field) as developed in *Les règles de l'art*. New artistic fields emerge and find their proper form and legitimation within a specific time-context depending on artistic, social, political and economical factors. New fields become reality in the space for newborn significations. The distance between a original vision as a potential language and a figurative language is abolished in the space for new significations.

In *La métaphore vive*, Ricoeur discusses the concept of *écart*,¹⁶² translated by the English authors by "deviation",¹⁶³ a deviation from an established norm. It is a process of dissociation, where a former structure is taken apart. But a metaphor would not be successful if it only was a transgression of an established norm. This *écart*, which in French contains the idea of a slighter distanciation from the established norms, has then to be reduced again in order to shape something new and meaningful, something partly recognisable, but in a new shape. It is the process of restructuring. Ricoeur's degree zero (*degré zero*), is the signification defined by identity of information between the mental and the figurative language.

What I propose in my figure is that Masterpieces, or revolutionary scientific discoveries can be seen as metaphoric constructions, where the artist departs from a powerful mental representation and entirely succeeds in reducing this deviation/*écart* (what Ricoeur calls *écart zero absolu*, i.e. "absolute degree zero"¹⁶⁴) so that he/she discovers new knowledge by bringing to the fore something extremely meaningful for humanity. For good scientific results and works of art in general, the deviation is not completed (what Ricoeur calls *écart zero relatif*, i.e. "relative degree zero") the process of restructuring is not entirely successful. In the experiment of *La Dame au Lévrier*, the photographer and I did not manage to reduce this deviation/*écart*, whereas in another experiment untitled *Picnic under the Golden Tree* (photo front cover), illustrating the research results in the last chapter of the dissertation, we will see how the deviation/*écart* got reduced.

¹⁶¹ Bourdieu, Pierre 1992. *Les règles de l'art, Genèse et structure du champ littéraire*, Paris: Seuil, pp. 189-197. English translation by Susan Emanuel: Bourdieu, 1996. *The Rules of Art, Genesis and Structure of the Literary Field*, Stanford: Stanford University press, p. 279.

¹⁶² Ricoeur, 1975. pp. 177-184

¹⁶³ Ricoeur, 2003. pp. 161-168

¹⁶⁴ Ibid. p. 164: Robert Czerny translates *écart zero absolu* by "absolute degree zero" and *écart zero relatif* by "relative degree zero".

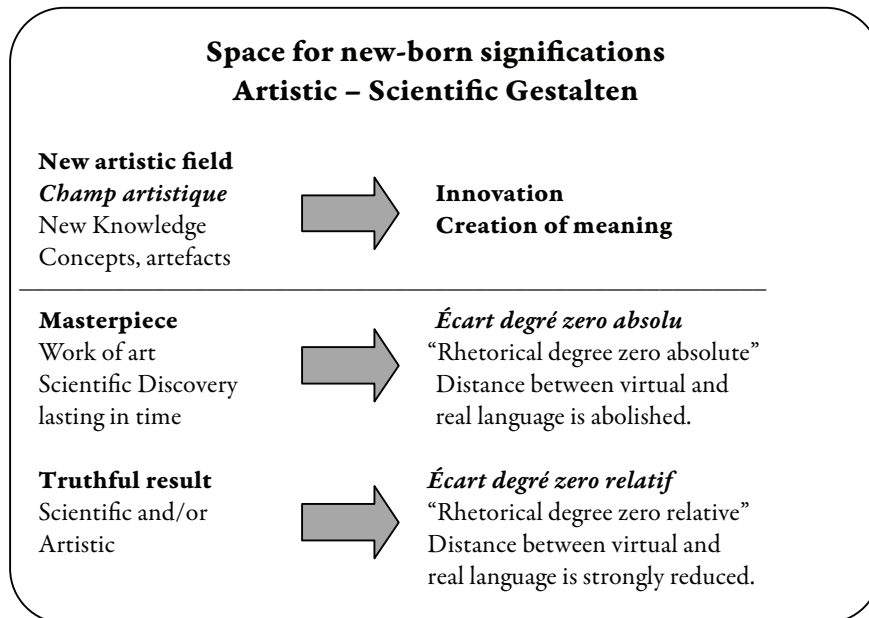


Figure 25. *Space for new-born significations*

In other words, reintroducing Gadamer’s concept of play, I would argue that only in the case of masterpieces and scientific discovery lasting “forever”, transparency of play is entirely achieved through intelligibility, coherence and genius. In the case of scientific and artistic results in general, transparency of play is partly achieved and the level of intelligibility and coherence is lower. Thus, the best results in the space for new born significations are masterpieces of scientific and artistic language: works of art, lasting forever as fantastic metaphors about human life and revolutionary scientific discoveries opening human life to new dimensions and experiences.

A CHORUS OF VOICES TOWARDS ARTISTIC KNOWLEDGE SHAPING

As explained earlier, I see my artistic research as artistic knowledge shaping through play, a play in between artistic, technical, medium-related and theoretical material, a play between an artistic researcher and the social-time space and research context she is working within, a play with the audience. The play becomes meaningful, when it stimulates all the players engaged to discover and work with their own metaphors about life and death during the shaping process outside the VR-Cube as well as during the VR arts play itself inside the VR-Cube. So far then, I have tried to trace and describe the dynamics of metaphor through the example of the shaping process of a VR arts play and within artistic and scientific knowledge shaping more generally.

I will go on exemplifying the mechanism of metaphor within play in the last part of this thesis, in relation to my VR arts play, showing how theory meets practice in relation to audience reactions. The reason why I do not continue the explanation right away is that it would anticipate the research results which cannot be exposed without an understanding of the audience's voices. This chorus of voices is vital to my research. In fact, this VR arts play cannot be considered as complete without its audience since it absolutely needs a participating audience to be fulfilled as VR artwork, an audience concretely, physically – and not only mentally – participating by travelling into the VR worlds, walking and interacting with one another and with virtual artefacts. Without its performing audience, the play cannot be played and the VR arts play does not really exist. Before the VR artwork has met its audience, visual Gestalt and VR artefacts are like props behind stage, props without actors, they are not alive, they can only be given meaning through the performance in their meeting with the audience, in their interplay with spectators-performers inside the VR-Cube. Their meaning, created through the mechanism of metaphor, can only be uncovered within play. So, the metaphorical effect does not rely on a visual Gestalt per se. Instead, the rule of metaphor manifests its power in what happens between a visual Gestalt in the VR-Cube and the horizon of knowledge and consciousness of the spectator (Gadamer's *Verstehenshorizont*). It is in those dynamics in between that the play is played, which will be exemplified through two particular voices, the photographer's and my own voice in Part V, where theory is revealed through practice. Now, time has come to focus on the next link, the audience experience of a VR arts play listening to voices from the Cave, to see if they are in harmony with the theoretical framework exposed above.

PART IV

Voices from in and outside the Cave

Prior to reporting the results of the survey, I would like to briefly outline my empirical approach. When I studied political sciences in the eighties in France, I chose sport sociology as a subject and drew up my first sociological survey. A few years before I started my PhD, I was an evaluator of the Shift Project at the University of Malmö (1998-1999).¹⁶⁵ I worked with audience surveys assessing public lectures and various artistic and cultural events, as well as with student questionnaires and interviews with teachers about how cultural and artistic events were used and integrated within undergraduate studies. The latter experience was particularly valuable since it gave me expert knowledge that I could partly rely upon when I constructed surveys concerning my VR arts play, met my audience and prepared in-depth interviews in a, if not similar, at least comparable educational context. Concerning literature about research methods, the main work, I used, once again, was *Forskningsmetodik, Om kvalitativa och kvantitativa metoder*¹⁶⁶ by Idar Magne Holme and Bernt Krohn Solvang. Last but

¹⁶⁵ Evaluator of the Shift project (1999-2000) for the department "Art, Culture and Communication" at the University of Malmö (Malmö högskola, K3): a pedagogical and artistic project about changes in time, how people perceive the changes and how they are conceived and reflected in arts and new media. The evaluation of the Shift project took into account different perspectives such as the links to basic education and the surrounding society. http://www.mah.se/templates/Page____5478.aspx

¹⁶⁶ Holme, Idar Magne and Solvang, Bernt Krohn, 2000. *Forskningsmetodik, Om kvalitativa och kvantitativa metoder*, Översättning Björn Nilsson, (first ed. 1986, original title: *Metovalg og metodebruk*), Lund: Studentlitteratur

not least, the most precious help during this empirical phase of my dissertation was provided by discussions with Professor Elsa Rosenblad,¹⁶⁷ a specialist in the field.

RESULTS OF THE AUDIENCE SURVEY

My VR project was presented for the first time at Chalmers University of Technology during the “Open Cube Days” in December 2002. During the Open Cube Days, spectators got the opportunity to experience several VR projects in the VR-Cube and to listen to seminars about VR and visualisation. I held a seminar about the artistic and technical shaping process of my VR arts play *Le Beau, le Laid, le Bon et le Mauvais*, which was the only artistic work presented on this occasion. The audience survey was conducted in the following way: small groups of between one and four spectators at a time were accompanied by me into the VR-Cube or by one of my colleagues. I handed them the survey in person directly after their experience in the VR-Cube. It was possible to fill in a web version of the survey later and to mail it back to me but only a few stray spectators made use of this opportunity. Nearly all spectators, fifty of fifty three, i.e. 94% of the persons asked to answer the survey did so.

In order not to tire out the respondents, I had been cautious to construct the survey with a limited number of questions, sixteen in all. To get statistically and qualitatively manageable results, I used mostly multiple choice questions and only a few open questions, all but one related to the multiple choice alternatives. That way, it was always possible for the audience to answer by adding another alternative than those proposed in the multiple choice options or to add personal comments. In the appendices (Appendix 6), the reader will find the detailed survey form in Swedish. It also includes the exact percentage of the audience’s answers to multiple choice questions.

The survey material was in Swedish. The results were to be communicated in English. This is the way I solved the problem of translation when reporting the answers of the surveys and the in-depth interviews. Since this thesis is realised in a Swedish context and will probably be read principally by Swedes, I have chosen to write down the answers I have received from my audience and other interlocutors in their original Swedish language each time I do not consider the translation completely obvious, to then put my own English translation afterwards or the other way around, depending

¹⁶⁷ Professor Elsa Rosenblad from the Design Unit at the Department of Product and Production Development and Human Factors Engineering at Chalmers University of Technology, supervised this empirical phase of my research process, gave me feedback and precious advice on the wording and construction of questionnaires, and most significantly, about how to handle results concerning open questions, in order to shape a valid qualitative categorisation system.

on the structure of the text. This way a Swedish reader gets the original material more directly, misunderstandings are avoided and interpretative mistakes are reduced. Even if I have tried to avoid using two languages too often, it may at times be heavy going for non-Swedish readers. This was the only solution that worked when facing this intricate problem of translation.

AUDIENCE PROFILE

The first questions in the survey were aimed at receiving information about the gender, age, educational or professional background of the spectators as well as an overview of their former artistic experiences. The gender repartition among the respondents – exactly 50% women and 50% men – happened to be totally balanced. The age repartition also happened to be a rather balanced one with 48% of the audience younger than 30 years and 52% older than 30 years.

As an artistic leader and researcher, I had neither the time nor the resources to work as a producer for my own VR project. The media were invited by the Chalmers administration to a press conference but no journalist showed up this time. Thus, the audience, because my VR arts play was created within the context of a university of high technology and not within the framework of an artistic institution was, for better or for worse, not the audience I would have got if my VR work had been created for an art gallery, a theatre or a museum and produced and promoted as an artwork within such an institution. The background of the spectators might have been different as well if the survey had been conducted during the International Science Festival “*Vetenskapsfestivalen*” in Gothenburg where my VR artwork was presented in May 2003. The context in which a work is presented attracts persons with various kinds of interests. The “*Open Cube Days*” were not meant to target a specific group, nevertheless 44% of all spectators in the survey turned out to be students, teachers or staff from Chalmers University of Technology. So, on the one hand, one could argue that the spectators closely connected to Chalmers are overrepresented in this survey but, on the other hand, one could just as well argue that the traditional art consumer would be overrepresented if my VR project had been presented within the framework of an artistic institution. However, with regard to my research aim, I consider it was rather an advantage than a disadvantage to meet a majority of spectators who experienced what they saw as a VR project without being forced from the beginning, as a result of the surrounding context of an artistic institution, to consider what they would experience as an artwork. In my view, this resulted in a more unconditional approach to such a VR experience.

At the same time, the artistic community was well represented, too. 36% of this survey’s audience were professionals active within several artistic fields within the

PART IV

visual and the performing arts: design, painting, scenography, film, theatre and music. Such an artistic audience did not share the same unconditional approach and they directly apprehended my VR work as an artwork. There were, for instance, theatre directors, a concert pianist, a concert flutist, a painter and several other artists and designers. Six of the artists were at the same time PhD students from several universities and artistic fields. In a way, the artistic community is overrepresented in this survey. As far as my research aim includes launching definitions for this kind of VR artwork in relation to other artistic fields, I consider this overrepresentation as something positive and necessary in relation to the research objectives. Some of these artists were able to put their thoughts into words, giving useful comments and critique in relation to the deep knowledge they had of their specific art form. If the artistic community had been underrepresented instead, I would have had to find a way to solve this problem.

An interesting feature concerning the audience as a whole is that it was characterised, in the great majority of cases, by a multi-disciplinary background with work experience within the fields of arts, research, culture, communication, new media and technology. People working with technical design, innovative design and architecture, film-scenography, musical research, technical acoustics, researchers within the field of technical, product development and society, administrators for such museums as the Museum of World Culture,¹⁶⁸ a television reporter are just some examples. It is hardly a coincidence that such a VR project attracts the curiosity of those who are themselves, like me, working in between various disciplines, knowing that borderlines often possess a potential of creativity and discovery.

In order to get an overview about the cultural habits and former artistic experiences of the spectators, I asked them what kinds of art forms and activities they practiced or were familiar with.

¹⁶⁸ Världskulturmuseet i Göteborg

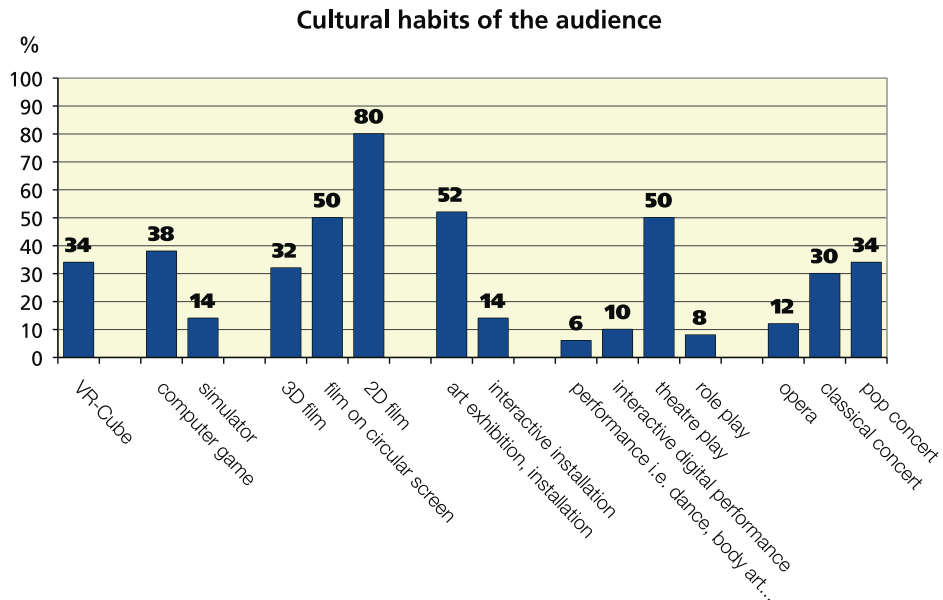


Figure 26. *Cultural habits of the audience (Chart 1)*

As much as one third of the spectators had experienced the VR-Cube before and seen another work than my own. These projects were in most cases not artistic ones but technical and architectural visualisations. Almost four of ten used to play computer games. Cinema was by far the most popular activity (80%). One spectator in two had even experienced two-dimensional films projected on a huge hemispheric screen such as *La Geode* in Paris; one third of the spectators had already experienced three-dimensional film (at, for example, the cinema auditorium *Maxima*, at *Universeum* in Gothenburg). I considered the fact that a third of the audience were already familiar with the VR-Cube as positive for a simple reason: confronting an audience with a totally new medium, the risk is that some people get so amazed by the novelty of the medium itself that they tend to be blinded by technical finesses and distracted from the very content of the work. To have as much as a third of the audience being able to transcend the character of novelty of the VR-Cube was more likely to give valuable results than if all spectators had stepped into the VR-Cube for the very first time.

Half of the survey's interlocutors also used to go to art exhibitions and theatre performances (52% and 50% respectively) and a third used to go to popular and classical concerts, 22% to dance performances and 12% to opera. So among the survey's spectators, the interest in artistic activities such as theatre and art exhibitions showed to be rather high, even if the *Open Cube Days* did not target a specific group. Furthermore,

the great majority of the survey's interlocutors were interested in several artistic activities. Thus, they could relate to personal experiences of other art forms.

A question of vital importance with regard to a survey is, of course, its level of representativeness in relation to the survey's aims. Considering the above analysis of the multidisciplinary background of the audience and their cultural habits combined with a balanced gender and age repartition, I think that one can assess that this survey's audience was representative in relation to my research aims. That 10% of the audience were PhD students from diverse artistic fields was something positive, for the results, too. I had not targeted a specific group but, on the whole, it happened to be a group of spectators with a broad "horizon of knowledge", to borrow, once again the words of philosopher Gadamer. Such an audience prepared the ground for interesting results.

To begin with, I would like to bring up the major technical and medium-related barriers acknowledged by the audience. I will not go deeper into these issues since the focus of this thesis is not on the VR-Cube as an immersive medium per se, but on the potential of immersive VR for future artistic experiences. Furthermore, considering the extremely rapid development of computer technology, the user interfaces will most likely be improved in the future. Nevertheless, those barriers are to be kept in the back of our minds when looking at further survey results in order to figure out what impact these barriers or their removal might have had on specific features of the audience experience.

MEDIUM-SPECIFIC BARRIERS

Here are the factors that the audience considered had a negative impact on their artistic experience:

- Chalmers VR-Cube's lack of a roof (58% of the audience)
- The image resolution was not good enough (48%)

Beside the lack of a roof and the low image resolution, there were other less significant results concerning what I, as an artistic leader, had imagined as negative factors for the VR experience as a whole:

- too artificial /sterile computer generated graphics (32%)
- too difficult for the spectator to steer with the joystick (20%)
- feeling of dizziness (18%)
- tiredness, feeling of being shut in such a room (14%)
- other alternatives (18%)

I had sometimes felt myself forced to reduce or simplify my artistic ideas when choosing forms and textures that I considered as much more simplistic than my original ideas and as such, too "computer-generated" and sterile, but barely one spectator in

three shared my opinion on this point. The majority of the spectators did not, which was rather encouraging. Only one spectator in five had difficulty steering with the joystick, and I was rather surprised to see that only 18% of the audience found it disturbing, when the joystick's cables all too often coiled up around their and my own feet, inhibiting and sometimes preventing our movements. 18% of the audience felt a bit dizzy, which unfortunately, is, for the time being, a common problem in immersive VR environments but, surprisingly, among all the spectators who saw my VR arts play, during my thesis work, I only met one spectator who had to interrupt her VR journey because of dizziness. More often, feelings of dizziness seemed to decrease after a while and even if I proposed that the spectators could interrupt their journey, they refused. Some spectators thought that the VR-Cube was too small a room for such an experience, they would have liked more physical space in order to move more freely in the virtual worlds, whereas others really appreciated the limited space of the VR-Cube, which they apprehended as secure and intimate.

When asked about other alternatives than the multiple choice factors I had listed, some spectators wrote that the fact that the VR-Cube was a cubic room was disturbing because the edges of the cube were visible and they suggested a spherical space. However, some of them stated that it was only a problem at the very beginning, when they entered the VR-Cube, since they soon forgot about its edges during their virtual journey. The fact that the graphics did not always run smoothly and sometimes became jerky in places, where the model was particularly heavy, was also considered as an impeding factor, by a few spectators.

A MEDIUM FOR NEW EXPERIENCES

Considering the multidisciplinary background of the respondents and the relative breadth of their cultural habits, one of the most significant and rewarding results of the survey was that when asked whether the VR-Cube opens up for new kinds of artistic experiences, 96% of the audience responded in the affirmative. The two spectators, who did not do so, did not give any categorical negative answers either. One of them even wrote that his negative answer was due to technical obstacles such as image quality which he did not think was satisfactory for the time being. He added that with future technical improvement, immersive VR art projects could open for new kinds of artistic experiences. The other person who answered in the negative did it in relation to his specific field of work, classical music, and not more generally, as the question was meant. He wrote that he did not think that this kind of VR experience could help to develop classical music experiences, but he did not express himself about artistic experiences in general. Here are some comments written by spectators that illustrate why they considered this VR work as a new kind of artistic experience:

PART IV

Nya möjligheter för gestaltning.

[New opportunities for representation/creative productions.]

Upplevelser utanför fysiska möjligheter i verkligheten.

[Experiences beyond the physical constraints of reality.]

Människornas vardagsupplevelse gäller inte.

[People's everyday life experience is no longer relevant.]

Man kan laborera med att beskriva en annan dimension och komplexa sammanhang.

[One gets the opportunity to experiment with the description of another dimension and complex contexts.]

Accordingly, the fact that all the survey spectators but one, after having seen this VR artwork, were of the opinion that the VR-Cube as an artistic medium opens up for new kinds of artistic experiences indicates that there are specific features of such artistic experiences which are worth further investigation. In other words, this is a major result, since it legitimises the underlying hypothesis of my research question, which is to postulate the specificity and interest of an artistic experience in the VR-Cube, when the Cave is used as an artistic medium in order to create a work that abolishes the distance between stage and auditorium. What these audience reactions actually warrant is that looking for what this specificity consists of is indeed to be considered as a relevant research question and that it is appropriate to try to bring the particularity and qualities of such artistic experiences to the fore.

COMMON FEATURES WITH OTHER ART FORMS AND MEDIA

Asking the audience to relate to other art forms and media that they are familiar with is one way I have used to try to unfold the particularity of such a VR experience. When asked to mark, in a multiple choice list, which other art forms and media this VR experience had something in common with, the spectators answers were as follows:

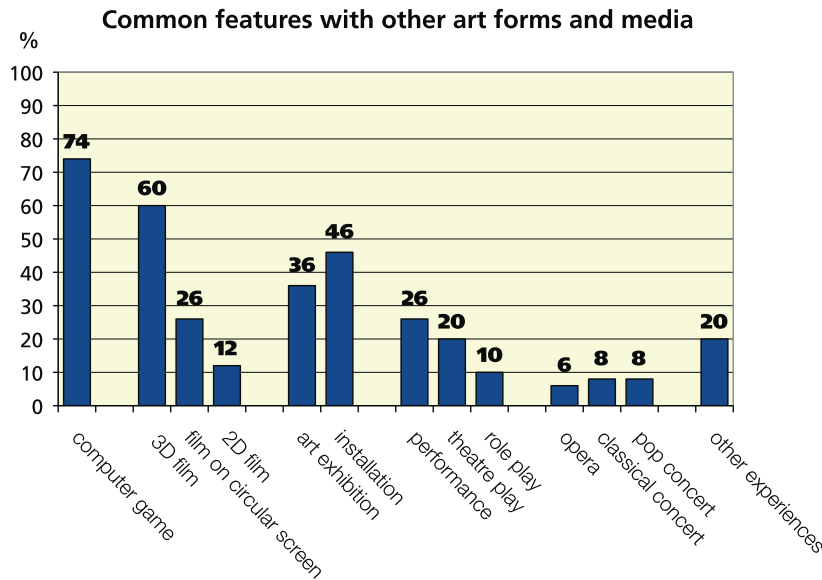


Figure 27. Common features with other art forms and media (Chart 2)

As many as three quarters of the audience were of the opinion that their VR experience had something in common with computer games. 60%, which is a very high percentage rate, saw parallels with 3D film or, to be more exact, what some spectators imagined a 3D film experience was likely to be like because, as a matter of fact, only a third of the audience had experienced 3D film before. Almost half the audience thought that it had features in common with an installation whereas 20% found parallels with a theatre play. Some spectators thought that there were also parallels with pop concerts, classical concerts and opera and as much as one in five mentioned other kinds of experiences.

Parallels with computer games?

Accordingly, what the diagram, combined with other survey results, reveals is that beside computer games, the audience recognised parallels with four categories of art forms extending from the visual arts to the performing arts: film, sculpture, painting, photography, theatre, music and also dance (mentioned within the scope of “other kinds of experiences”). Similarities with various kinds of artistic practices within those art forms were detected: exhibitions, installations, performances, concerts, theatre plays. This crossover between several art forms was worded by a spectator as follows:

Spännande innehåll, gränsöverskridande och utmanande av vad som går att göra.

[Interesting content, crossover and challenging character of what is possible to achieve.]

In the multiple choice alternatives, I did not write “dance performance” as an alternative because we had not managed to technically add the choreographic moments that I had originally planned to insert in my VR artwork, in the form of an incantatory dance performed by human avatars in the labyrinth. Nevertheless, even if dance was not used as an artistic means in this VR project and was not mentioned in the survey, some spectators among those who chose the alternative “common features with other kinds of experiences”, wrote comments related to dance. One of them thought that dance could be used as an artistic means within a VR artwork and another would have liked to have had the opportunity of dancing herself in the virtual worlds, had not the floor of the VR-Cube been limited to a couple of square metres.

I did not mention the word “computer art” as an alternative in the survey. I chose to use “computer game” since this refers to a larger computer practice, because I did not want to induce an automatic connection to the arts. I would have possibly got more precise results if I had used both the terms computer games and computer art as alternatives. Nevertheless, nearly all the spectators who put a mark on computer game (81% of them) even put marks on other alternatives connected to similarities with artistic activities. Therefore, without overinterpreting the above results, one can assess that the greater part of the respondents identified a connection between this VR work and a kind of “artistic computer game” or, one might also say, with some kind of immersive computer game practiced within an artistic context. Several spectators wrote, for instance, that they found features in common with 3D computer programmes such as 3D-studio Max, and one spectator specified that it was a similar kind of experience to building in 3D-studio Max, and was more intense than the experience in front of a computer screen, whereas others identified parallels with the computer game *MYST*.

One of the explanations that were given by in-depth interviews had, to a greater degree, to do with the medium itself and its interface than with the content and storyline of the work. Spectators familiar with computer games directly saw a parallel between the mouse of a computer and the joystick inside the VR-Cube. With help of the mouse, a computer game player navigates and acts within an environment selecting and drawing artefacts on a computer screen. In a similar way the spectator inside the VR-Cube navigated inside a virtual environment holding a joystick in his hand with which he could select and interact with particular artefacts. So the first explanation is of a physical nature: holding a computer mouse or holding a joystick in one’s hand is a similar kind of motoric experience, which also produces similar effects. *MYST*, for instance, the popular computer game that some spectators referred to is not an action

game but a so-called “first person adventure-puzzle-game”. It is played, from the first person point of view, by a player who navigates by means of an onscreen cursor (a parallel to the joystick function in the VR-Cube); it follows a storyline and involves solving problems (the puzzle function) by interacting and examining artefacts such as symbols, patterns and secret codes hidden throughout the game in order to fulfil some goal. So, a common feature between my VR arts play and this category of computer games is that, in both cases, the computer game player and the VR-Cube audience have to interact with the environment, find out different things and pass through various thresholds in order to discover and progress through the virtual worlds of the work.

Being neither particularly interested in nor familiar with computer games myself, I must confess that the large amount of spectators who found some parallels between my VR artwork and computer games surprised me at first. Considering that only half of them used to play computer games, this result is to be taken with some caution. I personally had difficulty in identifying parallels right away. Therefore, I became extremely interested in the vivid and spontaneous discussion that was taking place in a class of nine-year-old children who had just experienced my VR arts play. This discussion confirmed what I thought would be so interesting, when I decided to select a group of children. Having worked for many years as a theatre producer in Sweden and as an assistant director on the Cultural Board of Rueil-Malmaison/Paris, organising artistic activities for children, I knew that nine-year-old children would be a particular interesting target group for my research. Children in this age are used to and not blinded by technical finesses and new media. Furthermore, they are verbal enough to express themselves explicitly and are, at the same time, not old enough to disguise what they really think in order to please somebody. They usually say, right away, if they like or dislike a performance or if they find it exciting or boring to death...

This spontaneous discussion dealt with, to what extent, this VR work was an artwork or a computer game and how this kind of work could be developed in the future. The discussion confirmed the results of the children’s survey and showed that all of the children thought that one should continue to create and develop such VR projects in the future; the question was not if, but how. When one boy suggested to me to add several monsters as in a computer game, in order to make this VR experience more exciting, other children began to strongly protest. A boy replied that this VR work was not to be misunderstood as a computer game, that it was an artwork and that it would not be the right way to further develop such VR projects. No matter how real the environments in a computer game look, those environments are nonetheless only images/pictures, he said (*Hur reella sådana dataspel som är nu verkar, så är bilden*

ändå bara en bild liksom).¹⁶⁹ What the boy clearly expressed was that being inside the virtual environment itself and not only in front of a screen was the reason why he enjoyed his experience in the VR-Cube so much. For the same reason, he did not think that my VR arts play should be compared with computer games. He got support from several children, who added that computer games were to be played at home in front of a computer screen and that this VR work was something else.

Thus, a group of children thought one should concentrate on developing other artistic immersive VR projects in the future and not in using the VR-Cube to develop immersive computer games. But another group of children thought that it would indeed be a very good idea to use the VR-Cube in order to develop immersive computer games. The boy who wanted to meet monsters and experience a VR arts play with more action referred to a Christmas television series from 1996 called “The Mystery at Greveholm’s Manor”¹⁷⁰ where the main characters, two children, among them a boy of a similar age, meet two ghosts in an old castle and take part in a fabulous treasure hunt. This Swedish television series had also been developed as a computer game. What the boy actually imagined and told us during the discussion was how a film or a computer game built upon a similar storyline as *Mysteriet på Greveholm* could be experienced in an immersive way thanks to the VR-Cube or another immersive VR medium. He imagined himself being a character/player in the story, imitating the ghosts in the film by flying through the walls of the castle in order to follow the main characters and actively, i.e. physically, participate in the treasure hunt. Actually, what this boy imagined was no less than a proposal for how 3D film or immersive computer games could be developed in the future.

Artistically speaking, it was with admiration that I once again witnessed how pertinent children’s judgment could be. The children who felt that something was missing and had wanted to meet monsters were in fact more right than they imagined, they had actually hit the hammer right on the nail. The production team and I had not managed technically to realise the animation of the threatening shadow of the Minotaur, in order to create the dramatic climax I had intended to confront the audience with at the very centre of the labyrinth. Had we succeeded, the boy would have met his monster, as he had longed to. Beside, in *The Twin Room for Life and Death*, I had also experimented with and chosen huge changes of textures and colours of the life and death tree and its surrounding environments. However, we never had time to implement these before the computer-programme became obsolete. Those improvements would have added the

¹⁶⁹ Unfortunately, I cannot write down the complete wordings of the children because of a technical problem that I had with the tape-recorder at this precise moment.

¹⁷⁰ 1996. *Mysteriet på Greveholm*: (Julkalender), http://sv.wikipedia.org/wiki/Mysteriet_p%C3%A5_Greveholm

strong dramatic impact I and some of the children with me had lacked in the present version of my VR arts play.

What I also found interesting in this boy's and other children's reactions was that they did not seem to reflect on which medium this was all taking place in, whether it was a computer game, a film or a VR-Cube application. Actually, those children did not seem to draw as sharp borderlines between several media as adults often do. What was important for them was primarily the content and aim of this VR work, if it was to be understood as an immersive artwork or an immersive game, what they could or could not feel and do, how they could play or interact with it, more than the medium per se. What was capturing the children's attention and made some children associate my VR arts play with a computer game was, I am convinced, the form of the storyline. Just like the adults, who had found, in this VR artwork, some similarities to certain categories of computer games, the children also recognised a narrative they were familiar with, when they had to pass through several thresholds in order to find the entrance and open the gate to new virtual worlds they wanted to discover. It was the storyline of tales and legends, where the hero has to overcome a series of obstacles, in order to achieve his goal that children instinctively recognised and that they could identify with directly. Progressing from one level of game to another by solving intricate problems is the narrative concept most computer games are built upon. Even if the storyline of my VR arts play was not really linear and the progression into the work was more a programmed progression led by trial and error, and was triggered by visual impacts and feelings, rather than a progression dependent on the resolution of practical and intellectual problems, one cannot deny some kinds of similarities between the narrative of this VR work and those of legends and adventure computer games.

As we see the children's reactions were partly in line with the adults' survey and revealed what features the VR arts play had or had not in common with computer games. The fascinating discussion with the children pointed towards what expectations the younger generations have of future immersive VR experiences. One spectator's comment (an adult) illustrates the discussion particularly well:

Åskådare inne i ett dataspel men med annat syfte.

[Spectator inside a computer game but with another purpose.]

The discussion that took place with the children has long-reaching implications as we gradually will discover when we take a look at further survey results, implications that have to do with the core of the research question and the role a person immersed in such a VR artwork takes on. Is a participant a spectator, an actor, a player or does a participant play a number of roles?

Parallels with visual and performing arts

What do answers to the questions about what features the VR experience and other art forms and media experiences have in common tell us? Not surprisingly, the second chart (fig. 27) shows that most spectators found common denominators between this VR artwork and other visual arts' experiences such as 3D film, art exhibitions and installations. The VR-Cube is, indeed, and, above all, a visual medium, but the chart shows that only few spectators identified parallels with 2D films, which is a visual but not an immersive experience, whereas more than one in four saw parallels with the performing arts in the form of performances. One in five, saw parallels with a theatre play even if such an experience usually implies a distance between the auditorium and real actors on stage, actor/performers, who did not exist, in their traditional form, in my VR artwork. Hence, I will argue that the second chart already points towards a tendency that is later clarified by further results: it shows that the parallels with the performing arts that were identified by the audience cannot be a result of visual effects only and that the reason for this parallel has to be found somewhere else. They are due to how the audience positions itself in relation to the work and the possible performing role a member of the audience may identify with or take on during such a VR arts play.

More generally, the audience's reactions and their identifying of parallels with such a wide range of art forms, within both the visual and the performing arts confirmed my own vision and understanding of the VR-Cube as being a medium that enables crossover experiences between several art forms. Therefore, these are results of great importance for me in my double role as an artistic leader and as an artistic researcher. So far then, one might assert that the kind of experience triggered by this VR work has something in common with the artistic experience of several art forms, as well as with the experiences of computer games.

Another particularly interesting result showed in the second chart (fig. 27) is the fact that 20% of the audience thought that this VR work had features in common with other types of experiences than those listed in the multiple choice question. The respondents put these experiences into words. Let us now go into detail and look what they meant by "other types of experiences". We can do this by taking into account not only the answers related to the specific question of the features this VR artwork and other art forms had in common but also by looking at the comments to the open questions that were written by the audience throughout the whole survey. In order to get valuable results to these kinds of open questions, I listed all the survey material, i.e. the fifty survey-forms and selected those containing comments to open questions. I wrote down those answers in a large table. This way, I could compare the answers, appreciate their relative frequency and gradually establish a suitable categorisation system by grouping answers relating to the same topic together. Concerning

the specific question of what features this VR experience had in common with other types of experiences than those from the visual and the performing arts and computer games, there were, of course, several types of answers, but I found out that nearly all of them were connected with a main idea, the idea of an exploratory journey.

COMMON FEATURES WITH OTHER EXPERIENCES

An exploratory journey

A large part of the audience related to their VR experience as being a kind of exploratory journey in a new and unknown environment apprehended as outer space, another planet or another world. Here are some recurrent words and expressions used by the respondents in order to depict what they associated this journey to:

Vandring

[Walk]

Upplevelse som någon resenär, upptäckresande.

[Experience as some kind of traveller, explorer]

Navigatör

[Navigator]

Utflykt i någon okänd miljö både förutsägbar och som förvånar.

[Excursion/trip into an unknown environment both foreseeable and surprising.]

Som en utställning i rymden.

[As an exhibition in space.]

En gestaltning av rymden.

[A representation of space.]

The journey into the twin room with its life and death tree as a gigantic sculpture floating in space was apprehended by several spectators as an exhibition in space and compared by one of them to an excursion into a gigantic playground (en gigantisk lekplats) reviving one's childish joy and memories.

A meditative trip between dream and reality

Several spectators perceived and described this journey as a journey in an inner world in the psychological sense of a journey within oneself or a kind of meditative trip. One of them used the word "art meditation". This was fully in line with my artistic intention and my own apprehension of this VR artwork as a kind of initiating journey within oneself and one's inner worlds. I thought that this VR artwork originally created

PART IV

by a woman (myself) as her inner journey (not only, however) would possibly be easier to be interpreted as such by women than by men. I was curious about this gender aspect and expected female spectators to be able to identify more easily with and recognise the background of the artistic content. This was not completely wrong and the answers that several of the women wrote, seemed to corroborate my supposition. Not being a gender researcher myself, I am cautious with interpretations and one cannot rule out that some men and women possibly experienced their trip as an inner journey without clearly putting it into words. Therefore, I do not think that the results of this survey should definitively confirm or negate my supposition. Anyway, it was extremely interesting and served as positive feed-back for me, as an artistic leader, to read what one male spectator wrote about his inner journey:

Resenär, besökare, betraktare av inre upplevelser vilka är materialiserade.

[Traveller, visitor, observer of inner experiences that are materialised.]

Sätt att materialisera emotioner, upplevelser som traditionella konstarter p.g.a. materia-
rens tröghet inte tillåter.

[Way to materialise emotions and experiences that traditional art forms do not allow
because of the inertia of materials.]

Tillståndet mellan uppvaknande/sömn, insomnande/sömn. mycket intensivt emotio-
nellt "utspelet".

[State between waking up/sleeping, falling to sleep/sleeping. Very intense emotional
"outburst".]

Two female spectators wrote:

Dröm, hallucinera.

[Dream, hallucinating.]

En surrealistisk känsla av det omedvetna, att "förlora sig".

[A surrealist feeling of the unconscious about "losing oneself".]

The last comments have resonance in *Woman in Blue*,¹⁷¹ one of the favorite pictures of photographer Sandra Andersson, as far as it represents a woman floating in between dream and reality. The following comment, written by a teenager particularly struck me:

Man var inte sig själv. Jag är inte nyfiken men det blev man automatiskt.

[One was not oneself. I am not curious but one became automatically curious.]

¹⁷¹ Fig. 12 and DVD, Title 4: 7'53''

Answering another question, she even wrote:

I början trodde jag att jag inte skulle förstå eller se men det gick utmärkt.

[In the beginning, I thought that I would not be able to understand or see but it went perfectly well.]

Without being a psychologist, having a short conversation with this girl and her friend in the VR-Cube and afterwards; it was not difficult to guess that this sensitive girl actually was curious, but did not have enough self-confidence to be aware of it. Not feeling as her usual self during the course of the VR arts play, she could suddenly overcome the prejudices she had about herself and discover other traits of her personality. She probably felt what another spectator had already expressed by writing, “everyday-life experience is not relevant anymore”. Even if I had hoped that some spectators would understand and enjoy their virtual trip as an inner journey, some of the reactions went far beyond my artistic expectations. I had not foreseen that this VR artwork could have such a powerful effect on a spectator. In this particular case, the effect on the girl was a positive one but I wondered if another VR artwork would have had a strong negative impact on her too. This girl’s reaction and other audience’s comments made me more aware of the powerfulness of the VR-Cube used as an artistic medium, a powerfulness intimately linked with the content of a VR artwork and to the personality of each spectator.

Flying and floating

A major characteristic of this exploratory journey often underlined in the survey material were the sensations of flying and/or floating. The two verbs flying and floating came back in expressions used to depict this kind of journey:

Det kändes som om jag flög genom en annan värld.

[It felt as though I was flying through another world.]

Det var som att flyga på en flygande matta

[It was like flying on a magic carpet]

Sitta i flygplan

[Sitting in an aeroplane]

Det går att skapa världar där man kan röra sig på ett fritt svävande sätt.

[It is possible to create worlds where one is able to move in a free floating manner.]

Rather than flying, one spectator wrote about his floating experience by comparing his sensation with sitting in a canoe:

PART IV

Känsla att vara i en kajak, man sitter nära vattnet.

[Feeling of being in a canoe, one is sitting close to the water.]

This journey raised various kinds of associations within the audience depending on the character of the specific virtual worlds the spectator entered and their respective soundtrack and musical environment. The last rooms of the labyrinth with their soundtracks of dropping water gave, for instance, one spectator associations to an excursion into a dripstone cave. The association to a walk in a garden was often connected with the first world of an imaginary garden the spectator entered into or to the water-like vegetation at the end of the labyrinth.

The floating sensation expressed by my own audience is not to be considered as a specific characteristic only related to this particular artistic work in the VR-Cube, it is rather to be apprehended as result of a VR specific artistic tool that I have used in order to achieve my artistic aims. In an article from 1999 relating to her experience of *Ephémère*, the major VR artwork and interactive installation created in 1999 by VR artist Char Davies, integrating full body immersion, interactive 3D digital imagery, sound, and navigation via a breathing interface, art historian and curator Jennifer Fisher writes: “[...] but with practice one begins to float effortlessly through space.”, and in the same paragraph, “One begins the journey floating disembodied through starry outer space”.¹⁷² Thus, the floating sensation is not to be considered as specific to the VR-Cube only. I would argue that it is a VR feature specifically connected with immersion. Besides the fact that she expresses this feeling of floating, what strikes me in Fisher’s comment is that she, as naturally as the audience of my own VR artwork, writes about a “journey”.

A variety of experiences

An essential aspect of these empirical results is the variety of the spectators’ answers, all reflecting a variety of experiences. This manifoldness of experiences is partly due to the open character of this specific VR work and is in phase with my artistic intentions to open up the work for several levels of interpretations. But it is not only due to this. It is, I am convinced, even due to the character of the VR-Cube as an artistic medium per se. The empiric results will gradually indicate this. Asked to characterise their experiences of this VR artwork/performance in the VR-Cube (Vilka av följande upplevelser fick Du under föreställningen i kuben?), the audience answered as follows:

¹⁷² Fischer, Jennifer, 1999. Char Davies. *Parachute*, #94 (April, May, June 1999), pp. 53-54
<http://www.immersence.com/publications/1999-JFisher-N.html>

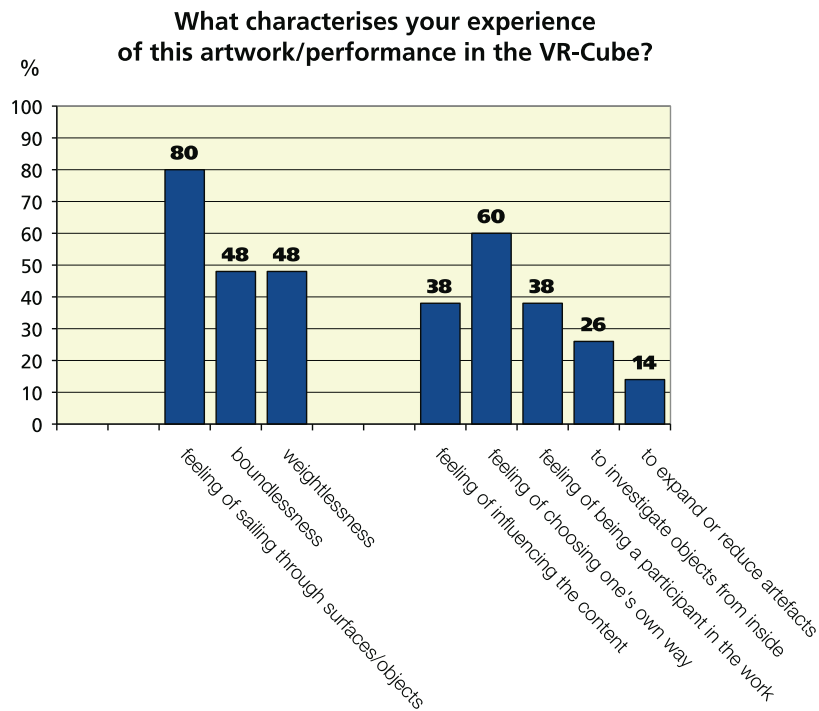


Figure 28. Characteristics of the audience experience (Chart 3)

Here are the complete column headings of the multiple choice answers presented in this chart followed by their original Swedish text in brackets:

- ▶ feeling of sailing through surfaces/objects/figures (känslan av att sväva igenom ytor/object/Gestalten)
- ▶ boundlessness (gränslöshet)
- ▶ weightlessness (tyngdlöshet)
- ▶ feeling of being able to influence the content of the work through own choices (känslan att kunna påverka verkets innehåll genom egna val)
- ▶ feeling of being able to choose one's own way when one is steering (känslan att själv kunna välja sin väg i verket när man styr)
- ▶ feeling of being a participant in the work (känslan att vara en "aktör" i verket)
- ▶ freedom to discover/investigate objects from the inside (friheten att kunna upptäcka/undersöka objekt inifrån)
- ▶ freedom to significantly increase or decrease the size of objects/artefacts (friheten att avsevärt kunna förstora eller förminska vissa objekt)

IMMERSION INTO IMAGINARY WORLDS

The results below are to be apprehended in relation to the next survey question, “What makes such an experience in the VR-Cube unique and what is most worthwhile for you?” (Vad är det som gör kuben unik och är mest givande för Dig?). The results are presented in the next chart (fig. 29/Chart 4), which contains nearly the same categories as the third chart (fig. 28/Chart 3). Since almost all the column headings of both charts correspond to each other, it is very easy to compare them. This comparison enables us firstly, to see what the audience considers as characteristics of the experience, and, secondly which of those characteristics are considered as unique and most worthwhile.

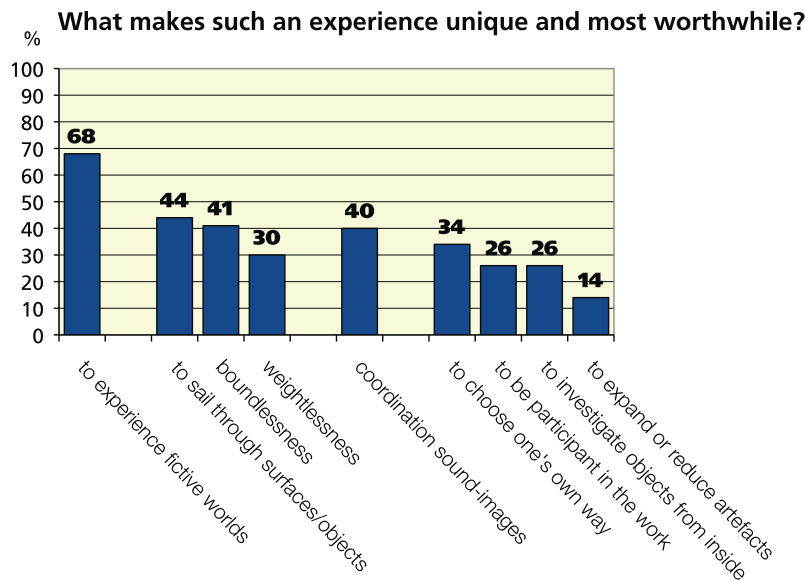


Figure 29. Unique and most worthwhile aspects of the experience (Chart 4)

Here follows the headings of the two columns that differ from the previous chart (followed by the Swedish original text in brackets).

- ▶ to experience fictive worlds, figures and characters that cannot be represented by other means than virtual ones (uppleva fantasivärldar, former, gestalter som inte går att gestalta annars än virtuellt)
- ▶ the coordination between sound and images (samverkan ljud-bild)

What a first look and a comparison of these two previous charts directly reveals, is that there is not one single, but several characteristics chosen by the spectators in order to

qualify and verbalise their experiences. It corroborates the manifoldness of the nature of the audience experiences commented on previously. Furthermore, among those characteristics chosen by the spectators, not only one but many of them were identified as characteristics that made their experience unique.

Frida, a nine-year-old Swedish girl, exclaimed when she came out of the VR-Cube, after having taken part in this VR arts play:

Det var som en känsla att inte väga någonting
 Och att flyga omkring
 Det var som en flygande matta
 Som man kunde styra med blicken
 Det var liksom bortom fantasin!
 [It was like a feeling of not weighing anything
 It was like flying around
 On a magic carpet
 That you could steer with your eyes
 It was like being beyond your imagination!]

What this remarkably verbal young girl spontaneously expressed in a few sentences is, as we will see, a concentrated version of the spectators' answers, when they were asked about what makes such an experience unique and most worthwhile for them. Putting what "unique" meant for her into words, another spectator wrote:

Möjlighet att se miljöer man alltid velat se men inte kunnat.
 [Having the opportunity to see environments that one always wanted to see without getting the chance to do so.]

Thus, the great majority of the audience i.e. 68% thought that what made their artistic experience in the VR-Cube unique was the opportunity to experience something that they could not have experienced in any other way than in a virtual environment, and this was thanks to such a VR medium. For this reason, they considered their experience of these virtual artistic worlds with their figures and characters as unique.

As we see, the last chart's results shed light on what the audience thought was unique about the virtual worlds they discovered and further clarified what some spectators in previous answers meant by "another kind of experience" and "an exploratory journey". The three most significant aspects of the experience, shown by the grouping of the chart's columns, are then:

1. its flying and floating character expressed by: sailing through the surface of objects, boundlessness and weightlessness.

2. the specificity of the synchronisation between musical and visual impacts enabling interactivity
3. the participative role of the audience: to choose one's own way, to be participant into the work and the opportunity to discover/investigate objects from the inside.

BOUNDLESSNESS AND WEIGHTLESSNESS

80% of the audience had the feeling of sailing through the surface of three-dimensional artefacts; at the same time, 70% had the feeling of getting objects in their face. That is surely one reason why this sailing experience was not pointed out as a positive feature by all of them but by approximately half of them.

Almost half of the audience identified boundlessness (gränslöshet) and weightlessness (tyngdlöshet) as specific characteristics of their experience and the majority of them, considered that boundlessness and weightlessness were two of the factors making this experience unique for them. In other words, the floating and flying character of the experience, which had already been expressed spontaneously by spectators in an open question about the similarity of this experience to other kinds of experiences than specifically artistic ones, was confirmed by a significant part of the audience. Boundlessness was experienced as unique, as long as the dimensions of the virtual worlds created in a VR artwork were not dependent on the actual dimensions of the VR-Cube. The conclusion we can draw from this is that it is not the actual space, but the boundlessness of the virtual space that makes a strong impact on the spectator.

An interesting result of the survey is the fact that more than half of the audience (54%) had difficulty in orientating themselves. Even if this is partly due to the novelty of the experience of a new medium, particularly for those who have never been in the VR-Cube before, this difficulty is, I would argue, connected with the experience of boundlessness and weightlessness. Some spectators felt uncomfortable if they did not manage to orientate themselves, a few of them even felt dizzy whereas, others enjoyed losing their sense of orientation. In this perspective, the reactions of some spectators, in a group of architect students, were revealing. A few members of the group noticed straight away that they were not able to orientate themselves in the virtual environments of this VR artwork and said that it was a strange and unfamiliar feeling for them, since they used to be able to orientate themselves perfectly well in a real environment. Not being able to figure out right away what was up or down, North, South, East or West, in relation to their position in the virtual space made some of them feel uneasy, at least in the beginning.

Therefore, it is understandable that boundlessness and weightlessness can be identified as most worthwhile by a significant part of the audience, although only a part of it. Furthermore, even if half of the audience identified those two features as characteristics

of their experience, the other half did not do so. Even if I do not have a definite explanation for this result, I suppose that the reason why the audience's answers differ so much on this issue is partly due to the fact that the concept of boundlessness can be apprehended at a physical level as well as at a mental level. By boundlessness, one spectator might understand the freedom to move wherever he wants, when he moves within the physical virtual space, whereas another might mostly think about his psychological state of mind that could vary depending on the character of the virtual worlds he walked within. When they, for instance, discovered *The Pavilion* of light after their long trip inside *The Labyrinth*, some spectators mentioned that they felt free and at peace when they came to this particular place in the VR arts play, a feeling which can be apprehended as a mental kind of boundlessness.

Another explanation is, of course, the manifoldness of the audience experiences which seems to run like a red thread through the survey's results. Whether boundlessness and weightlessness were identified as a characteristic of this VR arts play or not depended on several factors such as, for instance, the specific trip made by each group of spectators entering the VR-Cube, their previous experience of the VR-Cube as a medium, the personalities of the group's members and social interaction within the group. One spectator's reactions, for instance, clearly illustrated the fact that physical boundlessness was not to be automatically connected with mental boundlessness. This spectator mentioned that she felt the boundaries of her own body "dissolving" during her experience in the VR-Cube, but stressed, at the same time, that she did not feel free and boundless at all on a mental level.

INTERACTIVITY THROUGH MUSICAL AND VISUAL IMPACTS

I was pleased to discover that the combination between sounds, music and visual impacts, and also the timing of these, which had been an essential and extremely time-consuming and demanding part of the artistic work, was perceived as something unique by many spectators. To have good timing between sounds, music, images or scenery, is not something unique per se. It is merely a general characteristic of and condition for good films, successful theatre performances, installations and so on. So, what the audience apprehended here as unique is hardly to be understood as the general kind of synchronisation that occurs between visual and musical impacts, even if lots of spectators commented, in expressive, positive terms, on the musical content of the work.

What was apprehended as unique resides, in my view, in the combination of the very precise timing of musical and visual impacts, which was directed by the tracking system and aided by the process of interactivity. Interactivity intervened here because sounds and music were not only dependent on the visual impacts, but also on the acting and gestures of the spectators who had the opportunity to trigger specific sounds,

when they chose to interact with some of the artefacts. An example of this is when the spectator interacted with one of the fruits of the life and death tree by moving the joystick in order to touch it by means of the virtual hand, he got the illusion to touch and catch this fruit. The fruit fell of the tree into his virtual hand with a specific sound, a noise connected with this particular fruit and not with any another. A painter pointed out:

Den frukten kom ju fram, den kom nära inpå, den kunde man nästan ta i och så kompletterades det av ljud. Det var som att klämma i någon persika eller någonting.
[This fruit appeared, it came close to you, it was almost possible to grasp it and this was combined with sounds. It was like squeezing a peach or something like that.]

So it was the spectator's gesture that triggered a specific fruit to fall off the tree or not, suddenly revealing its mild, humouristic or evil, hidden character through cosmic-seraphic sounds, short foolish sounds, or roaring sounds. What then does this tell us? It tells us that interactivity combined with the synchronisation between visual and musical impact even enables us to trigger tactile impacts. It is a powerful artistic tool that I have deliberately used in this VR project.

The sound worlds of the labyrinth are another example of interactivity. Here the sound and tracking system made it possible to express the artistic content of the work in a manner that many spectators perceived as unique. Since the tracking system determined the position of the spectator inside the VR environments, the sound and musical environments became very closely linked to the physical progression of the spectator inside the labyrinth. This enabled me, as an artistic leader, to connect some of the gestures and movements of the spectator with the dramatic progression of my VR arts play. When the spectator moved from one room to another, stepping across invisible thresholds, he/she triggered a sound scenery of whispering, fire, thunder and water, combined with voices that reached a climax in the middle of the labyrinth. Thus, using the sound and tracking system, I tried to integrate my audience into the dramaturgy in a new way so that they became participators in the VR arts play, and not merely spectators "looking at" the artwork.

THE PARTICIPATIVE ROLE OF THE AUDIENCE

Going back once again to the question "What makes such an experience unique and most worthwhile for you?" let us examine what the two charts (fig. 28: *Chart 3, Characteristics of the audience experience* and fig. 29: *Chart 4, Unique and most worthwhile aspects of the experience*) tell us about the role of the audience. The grouping of columns on the right (five columns in Chart 3 and four in Chart 4) underlines what the audience's answers regarding the participative role of the audience have in common. As

we have seen in the previous paragraph, even if the heading of the column “coordination sound-images” does not indicate the participative role of the audience in a direct way, this column actually partly belongs to the same grouping. It is, in fact, interactivity through visual and musical impacts, and not merely the coordination between sound and images, that explains why as many as 40% of the spectators rank the coordination between sound and images as unique and most worthwhile for them.

80% of the respondents identified the opportunity of discovering objects from within as characteristic of their experience and a third of them even appreciated this feature as unique. Those who thought that it was unique were the ones who actively experimented by navigating through the VR worlds and inside artefacts by means of the joystick and the leader glasses. To increase or decrease the size of artefacts is a consequence of being able to choose one’s own way. The size of an artefact increases when one enters this artefact and observes it from the inside, the opposite happens when one chooses to take one’s distance from an artefact and withdraw with help of the joystick. Then this artefact becomes smaller and smaller. Only a few of the respondents (14%) identified this opportunity to increase or decrease the size of objects as a characteristic of their VR experience, but those who did all considered that it was something unique.

ACTOR/PARTICIPANT IN THE CAVE

By taking a look at the way the audience experiences its role in the VR-Cube when the distance between stage and auditorium is abolished, we now enter the most interesting part of the survey, with regard to the research question. A major result is that, when confronted with this VR work, only one spectator in five felt that they were merely spectators, whereas as many as 62% of the audience felt that they were both actors/participants (*aktör* in Swedish) and spectators (*åskådare*). Here the translation into English of the Swedish word *aktör* used in the survey is intricate as far as an exact translation of the term into English does not exist. “Actor” in English is stronger than the idea of somebody being active within the framework of a VR work because the word “actor” also signifies a professional person acting on stage in a play or in a film (*skådespelare* in Swedish). The term “participant” does not really correspond to the Swedish term *aktör* either. Participant is more neutral and usually implies a lower level of engagement. Therefore *aktör* is something in between actor and participant, which I choose to translate as “actor/participant”.

It is important to stress the fact that although 62% i.e. the great majority, felt like actors/participants and spectators, this does not automatically mean that the remaining 38% automatically felt like spectators only. As previous results have shown, some of the respondents felt, for example, like travellers, navigators or like something else and the manifoldness of the answers reveals several modes of identification. If we

PART IV

first focus on those who felt like actors/participants, what the last chart (fig. 29/Chart 4) shows is that a great part of the audience, at least a third of it, greatly appreciated to have the opportunity to choose their own way within the VR artwork and more than a fourth found the opportunity of being an actor/participant in the work unique. The following are characteristic comments written by the audience:

Helt annan känsla när man själv får bestämma vart man vill gå.
[Completely different feeling when one can decide where one wants to go.]

Barnslig glädje att vara den som styr.
[Childish joy of being the one who steers.]

Roligt att inte bara kolla på men få styra.
[Enjoyable not only to look at, but to get the opportunity to steer.]

Givande att styra, man blir så nyfiken och vill känna på allt.
[Rewarding to steer, one becomes so curious and wants to try and touch everything.]

Härligt att själv få styra, 3D upplevelsen blev starkare.
[Wonderful to have the opportunity to steer, the 3D-experience became stronger.]

Vid de flesta konstnärliga aktiviteter är man bara åskådare. I kuben får man vara med och påverka.
[In most artistic activities, one is only a spectator. In the VR-Cube, one gets the opportunity to participate and influence the action.]

Möjligheten att själv påverka vägen genom upplevelsen, ”ögonblickliga” byten av intryck (ljud, bild, atmosfär, sätt att färdas).
[Opportunity to influence the way through the experience oneself, “instantaneous” shifts of impressions (sound, picture/representation, atmosphere, means by which one navigates)]

Det är givande att styra, det är då känslan är bäst.
[It is rewarding to steer, that is when the feeling is best.]

The above comments show that the opportunity to steer with the joystick and the leader glasses in order to find one's way in this VR arts play was one of the reasons why the majority of the audience identified with the role of actor/participant. Nevertheless, some spectators did not consider the opportunity to find their own way as the most interesting aspect of their experience. Thus, feeling like an actor/participant – even if it was for a majority of the audience a unique way to experience this VR artwork – was not the only way to experience this artistic journey and not necessarily the

most rewarding role to identify with. Among the few who only felt like spectators within the VR artwork, a majority considered their experience as unique, too. In fact, several spectators said to me that they enjoyed the feeling of being guided, of just “gliding along” through the work and letting me or other group members decide for them where to go next. They enjoyed to “lean back” within the little group who had entered the VR-cube with them, and not take an active role, letting others take the responsibility of finding out how to interact and navigate within the work. One could probably say that they wanted to share the others’ experiences without “creating” the experience themselves, and without having to be in the front line. What these reactions brought to the fore was the relational aspect of the experience, which I had not been aware of during the shaping process of this VR artwork, and which – to a certain extent – influences the feeling of being or not actor/participant.

SOCIAL INTERACTION AS A BENEFIT OR AN OBSTACLE

Social interaction within the audience is an interesting parameter to consider for an artistic leader, as far as it more or less influences the whole VR experience. In fact, survey results prove that social interaction can either enrich or be detrimental to the VR experience. This is one aspect of the experience, and is, as such, an indispensable piece of the research results as a whole, as we will discover by and by. One spectator wrote:

Lilla gruppen ger delaktighet i upplevelsen, möjligheten att reagera/prata.

[The little group allows participation in the experience, the opportunity to react/speak.]

Another wrote:

Nyfiken när man ser andra styra, vill prova själv.

[Curious when one sees other people steer, wanting to try by myself.]

However, the survey revealed that some spectators did not feel comfortable with the others in the VR-Cube and that the behaviour of some group members could occasionally spoil the others’ experience, by disturbing them in different ways. Here are two comments which illustrate the problem (written by a young woman):

Irriterad på det äldre paret som tog över kommandot.

[Irritated by the elderly couple who took command.]

För många åskådare.

[Too many spectators.]

PART IV

In this case, the young woman entered the VR-Cube with another young woman, a friend of hers, and with an elderly couple that I first thought were their parents. I observed how the couple and the man, in particular, monopolised the leader glasses and the joystick, not giving the younger women the opportunity to steer a single time, but I did not feel comfortable to interfere in family matters. While he steered, the man kept on asking me what was coming next and what was to happen, questions that disturbed and irritated the two young women most. Afterwards, when they had explained to me that they did not belong to the same family and how frustrated they were, I gave them the opportunity to experience the VR arts play once more, but this time alone with me. They were grateful and said that the experience changed character completely, when they got the chance to see this VR artwork on their own without being disturbed by others. This incident, which was also confirmed by others, was very useful for understanding what the quality of the experience depends on. From now on, I knew that I had to pay attention to the composition of the group, trying, if possible, to let people who knew each other, enter the VR-Cube at the same time.

Hence, disturbances caused by other spectators were due to psychological and sociological aspects of group interaction. Hierarchical structures between younger and older group members could play a part here, but there were other reasons, as well. There were people who felt performance anxiety and who were afraid of not being able to steer properly in front of others, as well as people feeling group pressure. There were also cases where authoritarian people could make others feel uneasy; some people disliked having other spectators so close or simply preferred to be alone and have their own private experience, as the following survey comments show:

Tid för att vänja sig, prestationsångest: orolig förstöra för andra, velat vara själv.

[Takes time to get used to the situation, performance anxiety: anxious to spoil the experience for others, wished to be alone.]

De andra ville styra, de kände varandra och inte mig.

[The others wanted to steer, they knew each other and did not know me.]

Lät de andra styra för att de verkade vilja det.

[Let the others steer because they seemed to want to.]

För många personer i vägen.

[Too many people standing in my way.]

I discussed the issue of the disturbance that was caused by some spectators and what it depended on with Elsa Rosenblad, one of my supervisors. She came up with an interesting comparison. She was of the opinion that, in a concert situation, when musicians

perform classical music on stage, one can sometimes be irritated by disturbing noises, caused by a person in the audience rustling in her handbag. Yet, as a spectator, it is still possible not to lose one's concentration by trying to focus on what is happening on stage, and let disturbing noises be background noises. In the VR-Cube however, that is not possible. The disturbing noises occur on stage, as far as the audience is on stage, too. If we compare this to a concert situation, it would be as if a musician on stage suddenly began to rustle in her handbag, thereby disturbing the whole performance. Consequently, if we abolish the distance between stage and auditorium, this results in social interaction taking place within the audience, an aspect that is to be taken into account within the whole experience since it challenges the traditional role of the audience as spectator. If the audience is immersed in the performance, as was the case in this VR arts play, the audience becomes a part of the performance and is given the opportunity to play a double role: the role of spectator and actor.

ACTOR-SPECTATOR WITHIN A VR ARTS PLAY

In order to express the feeling of being both an actor/a participant and a spectator in this VR arts play, I intend to use the combination "actor-spectator". The combination conveys the dynamics between various levels of participation; it also conveys the idea of the audience oscillating between various forms of engagement during their immersive journey. The audience took on the role of spectator with a feeling of "looking at", even if it was from inside the VR arts play while, at the same time, the same audience identified with a more active role within the VR arts play when they interacted with its content. Actor-spectator refers to these different kinds of engagement and simultaneous or successive phases of participation experienced by the audience during the same VR journey. Illustrating successive phases of engagement, one spectator, for example wrote:

Det började som åskådare men så småningom blev jag mer aktiv.

[It began with me being a spectator but I became more and more active.]

A second person who felt she was only a spectator but who participated, at the same time, on a higher level wrote:

Enbart åskådare men delaktig.

[Merely spectator but participant.]

Another person's comment describes her feeling of being both a spectator and actor/participant at the same time:

PART IV

Upplevde mig själv som en del av världen, ville leta efter den gråtande flickan men å andra sidan vet man ändå att man bara såg på.

[Experienced myself as a part of this world, wanted to look for the weeping girl but, on the other hand, one knew that one was only observing.]

Reintroducing Gadamer's concept of play, the above audience's comments become particularly indicative of the nature of play and of the fact that artistic illusion only operates if the actor-spectator is taking his role seriously. Gadamer wrote:

Someone who does not take the game seriously is a spoilsport. The mode of being of play does not allow the player to behave toward play as if toward an object. The player knows very well what play is, and that what he is doing is "only a game"; but he does not know what exactly he "knows" in doing that.¹⁷³

Eventually, I would like to quote a final comment that illustrates an even higher level of involvement:

Man går in i skådespeleri, man deltar rent fysiskt.

[One is taking part in the play, one participates physically.]

The above comments are highly interesting because they really comprise the core of the research question. Each of them represents one nuance in the rich palette of answers to the question of what is happening to the artistic experience when the distance between stage and auditorium is abolished in such a VR work. To remain neutral and not anticipate by proposing definitions not grounded on the experience of the audience, I have, in this chapter, most often used the term "VR artwork" and sometimes simply "VR work", in order to qualify *Le Beau, le Laid, le Bon et le Mauvais*. When examining the survey results above and after having introduced the term "actor-spectator" in order to qualify the audience's changing roles during their VR experiences, the term "virtual reality arts play" or "VR arts play", launched in the introduction, appears as the more appropriate and specific term since it represents the essence of such a VR work in relation to this double role of actor-spectator.

Now that we have analysed the major results of the audience surveys, let us continue by analysing the results of in-depth interviews with a targeted audience of representatives from the performing arts, the visual arts and computer games. Those interviews were designed so as to bring the specificity of such a VR arts play to the fore, and position it in relation to computer games, the visual arts and the performing arts and particularly film, painting and theatre. In order to do so, I chose to show my VR

¹⁷³ Gadamer, 2004. p103

arts play to a computer game programmer, an interaction designer, a film sociologist, a painter and a play director. Each member of the experts group experienced the VR arts play together with me and answered the audience survey. Afterwards, I conducted in-depth interviews with each of them.

IN-DEPTH INTERVIEWS WITH EXPERTS

COMPUTER GAME SPECIALISTS

As previously acknowledged in the chapter summing up the audience's survey results, as many as three fourths of the audience thought that my VR arts play had features in common with computer games. For this reason, I decided to show my VR work to two computer game specialists, ask them to answer the survey and then discuss with them what kind of differences or parallels they could draw between the VR arts play and computer games.

In order to get a broader perspective, I chose to ask two persons with different backgrounds and to conduct in-depth interviews in the form of a discussion with both of them at the same time. One of them, Henrik Mörck, was an interaction designer with a Master's in Entertainment, Design and Technology working at Chalmers University of Technology, whereas the other interviewee, Jonathan Jansson, was a computer game programmer working with racing games for SimBin Development Team AB in Gothenburg, a Swedish company who creates and programmes computer games. Jansson experienced my VR arts play with a colleague, a younger woman who was also computer game specialist. She had not the possibility to participate in the in-depth interview but I had a short discussion with her. Both men were younger men, between the age of twenty-five and thirty. The two of them had once been totally fascinated by computer games and had played a lot when they were younger. Mörck explained how he could get so absorbed in a computer game that he played for hours on end, completely losing the notion of time. Meanwhile, Jansson remembered how he once mixed illusion and reality, when he suddenly began to move sideways in real life, adopting the jagged motion patterns of a computer game's avatar.

Using Gadamer's terminology, one could say that both interviewees had been players, who had been present (*Dabeisein*), fully participating in the play and identifying themselves completely with the avatars in the game or actors in the play, so much – and this was probably not the intention of the game but side effects – that they could, at times, mix illusion and reality. Nevertheless, their playing zeal had cooled down somewhat and, at the present time, it was very seldom that a computer game caught their interest as much as when they were children or teenagers. Both were of the

opinion that they were now far more critical about how a computer game is conceived, what the graphics look like and how the whole game works out. What game programmer Jansson found most stimulating was not to design environments close to reality but to build alternative fantasy worlds, which do not exist in reality.

With regard to my VR arts play, interviewees with such a background were of two-fold interest: First of all, their professional skills gave them a critical approach to technical matters such as computer graphics, the way an application runs i.e. they were, if not representatives for, in the sense of adepts of, at least aware of the aesthetics of computer-games. Secondly, they even represented an interesting audience, since they were able to “lose themselves” in the play. After game programmer Jonathan Jansson (JJ) had seen my VR arts play and was asked what his first reaction was and if this experience had something in common with computer games or not, he could not answer my question right away. The first comment was that he did not know. By doing so, he reacted in the same way as several other spectators, who told me that this experience was so new to them that it was difficult to put words to their experience directly afterwards, and that they needed time for reflection. Nevertheless, his first comment pinpointed a central characteristic of the experience which both interviewees later apprehended as a major difference to computer games, i.e. the immersive character of the experience. In the following dialogue, MLC stands for Magali Ljungar-Chapelon:

JJ Spännande att komma in där, det är kul.
 [Exciting to go in there, it is fun.]

MLC Att vara innesluten?
 [Being immersed?]

JJ Ja, djupet, det går inte på samma sätt i dataspel.
 [Yes, the depth, it is not possible in the same way in a computer game.]

Interaction designer Henrik Mörck (HM) immediately drew a parallel with a computer game with similar kinds of textures. At the same time however, he underlined a major difference with computer games, a difference related to motion’s speed:

Jag tycker att det känns exakt som Quake 1, ett dataspel med samma slags texturer. Det som skiljer sig mest från spel är att Du rör dig mycket, mycket sakta. Man rör sig blixnabbt i spel, här tar man sig den tid det tar för att komma dit man ska. Om man hade haft det så i ett spel, hade man fått panik, för det skall hända saker, det skall ösa på.

[I think it feels exactly as Quake 1, a computer game with the same kind of textures. What differentiates it most from a computer game is that you move very, very slowly.

One moves extremely fast in a computer game, here, you take the time it takes to get to where you are going. If it had been like this in a game, one had panicked because things have to happen; there has to be action.]

Both agreed about the fact that VR-Cube technology, in the version we used in this application, could not compete with computer game technology, when it is a question of increasing or decreasing the speed of motion. There were not many buttons to push for various motion patterns either, the joystick inside the Chalmers VR-Cube enabled only three kinds of moves: moving forward, moving backward and clicking on a virtual artefact by means of a virtual hand, in order to interact with it, whereas the leader glasses, as a steering wheel, permitted the player to choose his way in the virtual environment. Yet, as both interviewees pertinently noticed, the slow tempo was not merely due to technical obstacles but had to do with the content of the work, which was not conceived by me as a computer game.

We discussed the reaction of the other computer game specialist, who was a female colleague of the programmer. These two experienced my VR arts play at the same time. Stepping into the VR-Cube, she said right away that she did not want to look for the gate to any other world. She just wanted to be in the virtual garden, to be present and look around, not doing anything special. Her reaction proved how she directly approached this experience as something different to a computer game or at least deliberately chose her own rules of play, by refusing a too well-defined goal. By doing so, she was in line with my artistic intentions and the meditative trip I had wanted to create. In Gadamer's terms, her being present there, engaged in the back and forth movement of play, she became a player in this to and fro movement, not tied to any goal that would bring it to an end:

It is part of play that the movement is not only without goal or purpose but also without effort. It happens, as it were, by itself. The ease of play – which naturally does not mean that there is any real absence of effort but refers phenomenologically only to the absence of strain – is experienced subjectively as relaxation. The structure of play absorbs the player into itself, and thus frees him from the burden of taking the initiative, which constitutes the actual strain of existence.¹⁷⁴

Both interviewees agreed that when they stepped into the VR-Cube, it was not obvious that they had to perform something that led to a specific aim. The interaction designer made a comparison with a specific category of computer games, not action

¹⁷⁴ Gadamer, 2004. p. 105

PART IV

games but a kind of artistic adventure games which are not limited in time, but continue over and over again:

Det spelet som detta ligger närmast till är äventyrsspelet "Shadow of the colossus",¹⁷⁵ Fumito Ueda's interaktiva konstverk. Varena frame i filmen skulle Du kunna ta och sätta upp på vägen, det är byggd så att det skall vara vackert. Det kan ta hur många timmar som helst att bara gå omkring i den här världen. Det är ett konststycke i spel-form. Det räknas som ett spel. Den har en intern ekonomi. Han skaffar sig ett litet svärd och ett större svärd för att slå ner något monster...

[The game this lies closest to is the adventure-game "Shadow of the Colossus", Fumito Ueda's interactive artwork. You could take each single frame in the film and put it up on the wall, it is built so that each frame is conveyed in a really beautiful way. It can take ages just to go around in this world. It is an artwork in the form of a game. It is classified as a computer game. It has an internal economy. He gets hold of a little sword and a longer sword in order to beat some monster...]

In order to try and figure out differences between my VR arts play and the above adventure game, we discussed my artistic aims. Even if the archetypical idea of combating monsters was similar: Colossus in the computer game and the mythological beast Minotaur in my VR arts play, the structure of the storylines differed a lot as far as there was no concrete action to be taken by the player in an attempt to rescue the woman in the labyrinth, neither could the player identify with an hero. There was, indeed, a main thread that structured the work but, as the artistic leader, I definitely did not want this storyline to be too concrete for the player. On the contrary, as the game programmer pinpointed very justly, it was, for instance, not obvious from the beginning that there were gates to several worlds to discover, and when he decided to look for the weeping woman in the labyrinth, he could never find her. I expected the player to try to rescue the weeping woman but nobody should be able to find and save her. On a symbolic level, I wanted the player to perceive her as an abandoned human being, lost in her own labyrinth or the labyrinth of the world and whom nobody but herself could ever help out.

¹⁷⁵ Ueda Fumito, 2006, *Shadow of the Colossus* (Play station 2), Review in *Aftonbladet*, Tors. 15 juni 2006 p. 42: Bästa äventyrsspel: Någonstans i skarven mellan klarvaken dröm och en tavla av surrealisten Giorgio de Chirico bor det 16 jättelika kolosser i en arkitektoniskt magnifik, men ödslig värld. En flicka måste räddas, kolosserna måste dräpas men det är varken kärlek eller skuld som dominerar i Fumeto Uedas interaktiva konstverk. Utan känslan av att var totalt övergiven. [Somewhere in between wide awake dreaming and a painting of surrealist Giorgio de Chirico, these 16 huge colossi live in an architectonically magnificent but desolated world. A girl has to be rescued, the colossi have to be slain. Yet neither love nor guilt dominates in Fumeto Ueda's interactive artwork. It is the feeling of being totally abandoned.]

Interaction designer HM thought that my willingness to open the work to diverse interpretations and not to trace the storyline as clearly as in a computer game with a distinct start, an end and a well-defined goal to achieve between the beginning and the end, was one main difference:

Det finns ingen klar definierad storyline i konstverket. Det blir vad observatören gör det till. Ett spel (dataspel) definieras tycker jag av att antingen det finns en start och ett slut eller att det finns något som man kontinuerligt gör för att skaffa sig någonting bättre, så att det är en ekonomi liksom.

[There is no clearly-defined storyline in this artwork. It becomes what the observer makes of it. A computer game is defined by the fact that it has either a beginning and an end or something that one does continuously in order to get something better, so that there is an economy, so to say.]

Game programmer JJ agreed with him but specified that even if they are not so common, there is indeed a category of computer games that have several possible storylines and not only one but several endings and that these kinds of games demand much more content than what is usually the case. Still, even if he admitted the point, HM thought that there was indeed a major difference between such a VR arts play and a computer game, when it comes to who builds up the storyline and the player's identity, which does not have to be the role of an avatar:

Du går in som dig själv i kuben, Du representerar inte någon annan... Du representeras inte av någonting annat. Här har Du bara dina egna erfarenheter baserade på... så det blir alltid en unik uppgift.

[You go in as your own self in the VR-Cube, you do not represent anybody else... You are not represented by something else. In there, you only have your own experience to relate to... So, it is always a unique task.]

Thus, both interviewees stressed the open narrativity of my VR arts play and, additionally, they underlined that there is no mediator in the VR-Cube, whereas in a computer game, players have to be represented by means of a mediator: an avatar. What HM noticed here with regard to the unique character of the task is corroborated by what Gadamer writes about the spectator's attitude in an experience of art and the nature of play within the performing arts. According to Gadamer, a play is presented and becomes recreated each time the spectator, with his own experience and horizon of knowledge, engages in it as a player through the mediation of the actors on stage. In Gadamer's own terms:

PART IV

The spectator does not hold himself aloof at the distance characteristic of an aesthetic consciousness enjoying the art with which something is represented, but rather participates in the communion of being present.¹⁷⁶

For this reason, each performance within the performing arts becomes unique as “re-creation” of the play:

The performing arts have this special quality: that the works they deal with are explicitly left open to such re-creation and thus visibly hold the identity and continuity of the work of art open towards its future.¹⁷⁷

For my part, I agreed with both interviewees about the character of the open narrativity of my VR arts play, even if there was actually a beginning and an end, with a kind of initiation trip in between. One could say that this VR arts play had no economy in the sense of acquiring virtual objects, or succeeding in doing an assigned task, but that it had an artistic message. Following the logical path of this message, the spectator was led towards successive stages symbolised by the opening of the gates towards various inner worlds.

Discussing differences with computer games and possible scenarios for future immersive computer games, the idea both interviewees had was that, with another type of user interface, more people could be given the opportunity to enter such an immersive space at the same time. One element of the user interface that could be changed was that there could be a much larger room than the VR-Cube, where many spectators could simultaneously attend the same virtual journey. However the computer programmer thought that there would be a risk that the spectators who were not closest to the attendant would not be able to perceive the representation of the atmosphere and the surroundings properly. The interaction designer thought that it did not necessarily need to be in a physical room. Such an immersive computer game would imply finding means so that not only the attendant with the leader glasses, but even other players, could get the opportunity to interact with the environment by means of a joystick or another tool with a similar function. We did not discuss this technically complex scenario in great depth but, afterwards, inspired by our conversation, I tried to figure out which type of technological barriers such a scenario would have to overcome in order to be artistically meaningful.

In my VR arts play, with its particular type of user interface, all the spectators stepping into the VR-Cube at the same time had to embark on the same virtual journey as

¹⁷⁶ Gadamer, 2004. p. 128

¹⁷⁷ *Ibid.* p. 117

the attendant, if they did not pass the leader glasses and the joystick to each other, which they often did. However, to find solutions so that more than one attendant at a time could lead his/her virtual journey, appeared to me the major technical issue for those who would like to develop similar kinds of immersive experiences and computer games, in the future, no matter if it was conceived for a physical room or not. While reflecting on the possibility of producing future immersive computer games or VR arts play for many actor-spectators physically present in a much larger room, I speculated about what a large room that could be divided into several smaller physical rooms, each of them functioning like a separate but not fully-closed VR-Cube could look like. If several rooms were linked together, this might allow for larger numbers of spectators to participate in future immersive VR experiences, where more than one attendant at a time would be able to lead the virtual journey. One could imagine creating parallel storylines, articulating several VR arts plays with each other during the same time-frame and within a much larger physical space than the VR-Cube, a room in which several parallel journeys could be experienced simultaneously. Practically speaking, it would mean having a different concept for groups continuously making new constellations with one or another actor-spectator entering or leaving the group, moving from one more or less enclosed physical space to another and participating into successive virtual journeys alone or within several groups.

Summarising the content of above in-depth interview with an interaction designer and a computer game programmer, I would say that besides pointing towards some creative futuristic scenarios, it enabled me to identify the major similarities and differences between my VR arts play and computer games. The similarities comprised principally computer graphics, textures and the use of a joystick which enabled the actor-spectator in the VR-Cube to carry out similar kinds of activities in the VR-Cube that the use of the computer-mouse does for a computer game player. More generally, the structure of my VR arts play with its manuscript, i.e. its narrative structure and artistic content induced parallels with a specific genre of computer games, namely artistic adventure games with several possible storylines. What both interviewees underlined as a major difference between computer games and the VR arts play was the physical dimension of the experience through full body immersion, which enabled the participant to be physically immersed into the play and not only to play in front of a computer screen. What was perceived as another main difference, also due to full body immersion in a virtual three-dimensional world, was that the player did not, as in a computer game, have to be represented through a mediator, a human avatar. Full body immersion confers another form of identity to the player, that of an actor-spectator, a character experiencing his own story as a navigator in imaginary three-dimensional virtual worlds.

A FILM SOCIOLOGIST

In order to reflect on what my VR arts play had or did not have in common with film as a medium, I chose to interview Lena Israel, Senior Lecturer in Film Theory at the School of Film Directing at the University of Gothenburg. She saw my VR artwork and answered the audience survey. Then she shared her reflections in an in-depth interview. Israel's first spontaneous comment after having experienced my VR arts play was not related to film but to music. She thought that it was more like a musical experience than a theatre experience, since the distance between stage and auditorium was abolished:

Det är ett eget universum som musiken skapar och som man följer med i ungefär som det var att följa med här.

[Music creates its own universe that one follows the same way as one does here.]

Even if she found similarities between this VR artwork and a musical experience, she found it difficult to define her experience and put words to it. She qualified it as being:

obestämbär upplevelse, något annorlunda i förhållande till vardagen och till annan konstupplevelse.

[an indefinable experience with regard to everyday life and to other kinds of artistic experiences.]

Several times during the interview, she repeated that this experience was so new and that she would need more time to adapt to this new kind of artistic experience and to reflect:

Det var så nytt, man hade svårt att orientera sig... Man orkade inte ta in berättelsen

[It was so new, it was difficult to orientate oneself... I couldn't really take in the story.]

Saying this, Israel reacted in a similar way to some other spectators, who were so stricken by the new character of such an immersive artistic experience that they felt that they did not have energy left to concentrate on the content of the work. They felt that they would have needed to re-experience this VR artwork several times, in order to adapt to it and be able to focus on its content, in order to then be able to depict their experience in a more precise way. In the survey, Israel wrote:

Vad handlade föreställningen om för mig? Att upplösas kroppsligt att jag inte visste var gränserna gick för min kropp och omvärlden - Finns det någon "materia" över huvud taget? det var en intressant och häftig upplevelse...

[What did I think the performance was about? It was about being dissolved, physically, so that I didn't know where the borders for my body went, and where the borders of the surrounding environment went - Is there any "materia" at all? It was an interesting and catching experience...]

By saying this, she did not mean that she could not feel her own body but that the usual perception of her own body was not the same in the VR-Cube as, in everyday life, or when she was looking at a film on a cinema screen. She explained that she could even tell that a specific part of her body, the part that she referred to as first chakra or Root chakra reacted more strongly than usual.¹⁷⁸ Israel said, "Man är väldigt mycket kropp" (one is very much one's body) and meant that her body could perceive various feelings, experiences, but in another way in this VR arts play than in usual life. Thus, as a film sociologist, trained to keep distance to a film, i.e. to the object of her analysis, she was familiar with a situation that demands a physical distance between a spectator (a subject) and the object of analysis. In the VR-Cube, the situation was no longer what she was used to: the distance between spectator and VR artwork did not exist and she could not position herself as a "subject" anymore. She said, "Man var inte kvar som tänkande subject" (One was no longer a subject who could reflect). In the survey, she wrote:

Man försvann som subjekt. Det fanns ingen fast referenspunkt kvar! (därför ingen kunskapsform) eftersom det man såg inte heller var objekt – var det svårt att ha en relation till det man mötte.

[One disappeared as a subject. There were no stable points of reference left! (therefore was no form of knowledge). Since what one saw was not an object either, it was difficult to establish a relation with what one met.]

Israel's above analysis was particularly interesting for me in two ways. With regard to my specific artistic aims, I was pleased that she was not able to behave as a film sociologist when she experienced my VR arts play. Artistically speaking, I did not wish the audience to perceive themselves as subjects in relation to my VR artwork as the object. The reason for me working with the VR-Cube as an artistic medium was to invent other modes of relationships than the relations subject-object, audience-stage or audience-screen. In that sense, the indefinable character of her experience and the difficulty of positioning herself as a subject in relation to the VR arts play, which could not be seen as an object, was positive for me.

¹⁷⁸ The Root chakra, in Sanskrit *Muladhara* is the first of five chakras in the Kundalini – yoga system, and refers to an energetic center of the human body which is particularly about connecting to the ground.

PART IV

The contrast between Israel's failing attempt to look for a form of knowledge in such a VR artwork by not being able to position herself as a subject, and my own artistic approach clarified my own hermeneutical perspective. It is in the dynamics of play in which the spectator is fully participatory that the VR arts play creates itself. Therefore, the essence and meaning of the play is not to be apprehended through the relation subject-object. It is to be understood through the character of the artistic experience during the course of the play, by looking at the way by which the artistic experience transforms the one who experiences it. In accordance with Gadamer's perspective, the spectator is to be considered as a player engaged in an art play and the essence of the play is not based on a subject-object relation but on the transformation occurring through the artistic experience, in Gadamer's own words:

Our question concerning the nature of play itself cannot, therefore, find an answer if we look for it in the player's subjective reflection. Instead, we are inquiring into the mode of being of play as such. We have seen that it is not aesthetic consciousness but the experience (Erfahrung) of art and thus the question of the mode of being of the work of art that must be the object of our examination. But this was precisely the experience of the work of art that I maintained in opposition to the levelling process of aesthetic consciousness: namely that the work of art is not an object that stands over against a subject for itself. Instead the work of art has its true being in the fact that it becomes an experience that changes the person who experiences it. The "subject" of the experience of art, that which remains and endures, is not the subjectivity of the person who experiences it but the work itself.¹⁷⁹

Even if she did not use the Swedish term *förvandling* (transformation) herself, Lena Israel was able to express the essence of the idea of transformation in a detailed and analytical way. She considered herself as neither spectator nor actor/participant within the VR artwork. In my view, the transformation that occurred here depended on the fact her usual way of developing knowledge in relation to a work of art was challenged. This was a challenge for both body and mind. She expressed this in the following way:

Man kan inte längre lita på sina sinnen... Att jag var utsatt för något. Att min kropp blev "bara känslor" utan fysisk gräns.
[One can no longer longer trust one's senses... That I was exposed to something, that my body became "just feelings" without physical boundaries.]

Israel's experience revealed the strength of the emotional impact that such an artistic experience in the VR-Cube can have on some spectators. When asked what she

¹⁷⁹ Gadamer, 2004. p.103

considered were the disadvantages of the VR-Cube, when used as an artistic medium, she expressed her fear of the fact that immersive VR technology could be exploited in order to manipulate spectators. She wrote:

Risken för manipulation och jagets upplösning (intellektuellt och fysiskt) – Den fysiska upplösningen är spännande: faran i dess enorma kraft och påverkan.

[Risk of manipulation and dissolving of the self (intellectually and physically) – being physically dissolved is interesting: the danger of its enormous power and impact.]

Another spectator explained this challenge in just as strong terms as Israel's description of being "dissolved" both intellectually and physically. When she was in the VR-Cube, this other spectator suddenly exclaimed that this was risky because one could become addicted to such a VR experience. She said she could have stayed for hours in this VR environment or even all day long. She even thought that some people could develop a dependency, similar to drug addiction.

Only two spectators expressed their spontaneous fear of the manipulative potential of the VR-Cube used as an artistic medium, which seems to indicate that their reactions were not representative of the majority of the audience. Even so, such comments are interesting because they highlight a general characteristic of such an immersive artistic experience, which is also confirmed by the results of the audience survey: the strong impact and challenging character of such a VR experience as regards the audience's role and identity.

Israel found some parallels between her experience in the VR-Cube and meditation, even if she did not feel free in the VR-Cube. Play director Wiveka Warenfalk had also experienced this VR artwork as a kind of "art meditation", but she, contrary to Israel, felt completely free. According to Israel, the lack of freedom she felt was related to the abstract character of the VR worlds and to the fact that her perceptions inside the VR-Cube were not working as they usually did outside the VR-Cube. She thought that she had difficulty interpreting those worlds, although the associations she mentioned most often matched the artistic content of the work and my artistic intentions astonishingly well. For example, she associated *The Pavilion* with its pillars of wood – thought up by me as being a luminous and peaceful place, close to nature, a place to seek harmony within oneself – with Chekov's birch forests. She said:

Jag kände mig hemma, där kom jag närmast mig själv. Jag upplevde den naturen och det är något man kan relatera till, jag såg det som trädstammar. Då blev jag en person och kunde ha andra typer av känslor...

[I felt at home. There, I came closest to myself. I experienced this natural setting and it is something you can relate to, I saw it as tree trunks. At that moment, I became a person and could have other types of feelings...]

PART IV

When she was asked about possible similarities between this kind of VR artwork and other art forms, Israel, who first drew parallels to musical experiences, also found some similarities with a specific film genre. She thought that this VR artwork revealed parallels to a film category that is not based on linear story telling, but on lyrical and poetical narrativity and added:

Kanske det liknar riktiga berättelser som görs under tiden man är i kuben. Eftersom jaget är upplöst kan man ersätta det med vad som helst, ersätta det man lever i med något annat.

[Perhaps this is like real stories that produce themselves during the time one is inside the VR-Cube. As far as one's self is dissolved, it is possible to replace the self with anything at all, replace what one is living in with something else.]

In that sense, in accordance with Israel's idea, one could say that the spectator that is immersed in the VR arts play is not a spectator anymore. The spectator has changed identity and become part of the story narrative during the course of the VR experience. Moreover, the fact that this poetical story is articulated through an open form of dramaturgy makes each spectator's experience unique.

When I asked Israel what she could imagine as possibilities for further development of the VR-Cube used as an artistic medium, she answered that she saw the potential of such an artistic medium in the combination between art and psychoanalysis. Referring to Jean Paul Sartre's play, *Huis Clos* and imagining a parallel to this, she thought that spectators in the VR-Cube could act as characters, and have the opportunity to rewrite their lives by choosing other "if-alternatives" than those chosen during their real lives. (Adult psycho-analysis patients could, for instance visit some environment of their childhood and recreate it in the VR-Cube, in order to recall lost childhood memories). Israel also saw the potential of the VR-Cube for dance-experiences. She would have liked to have a larger space at her disposal than the limited nine-metre square inside the VR-Cube. Then, she would have enjoyed being able to dance with others within such a VR artwork. So, as other spectators before her, she imagined ways of adding her own artistic and social dimensions to such a VR arts play. Israel's idea was totally in line with my intentions as an artistic leader, i.e. to stimulate the spectators to add their own creative dimension to my VR artwork. When I told Israel that a photographer, inspired by the famous impressionist painting *Le Déjeuner sur l'herbe* (Lunch on the grass)¹⁸⁰ by Edouard Manet, had chosen *The Pavilion*, which Israel, herself, had associated with Chekov's birch forest, and had organised a picnic scene with her friends in this virtual environment, she became enthusiastic.

¹⁸⁰ DVD, Title 1: 05'27" - 07'08"

Israel actually thought that the strongest artistic potential of immersive VR art may lie in the combination between art and social interaction. I told her that the audience survey had shown that the social interaction that had taken place within a small group of spectators was an important parameter with a strong impact on the artistic experience, the breadth of which I was not aware of when I created this VR artwork. Like Israel, I believe that, if technical improvements make it possible for many spectators to experience VR artworks in a much larger space, it will enable artists, choreographers and film or play directors to create new kinds of VR artworks that combine social interaction as artistic means.

A PLAY DIRECTOR

When I asked play director Wiveka Warenfalk (later on abbreviated by WW) how she would define this kind of artwork, she thought for a long time before she answered:

Jag kanske tänker... något slags art meditation kanske. Den är också aktiv. Ja, på sätt och vis... en resa i det inre fastän det finns någonting att fästa sig vid här. Här finns det ju bilder som kommer till en men det blir ändå... det både inne och ute på något sätt...

[I maybe think... some kind of art meditation perhaps. It is active too. Yes, in a way... an inner journey despite the fact that there is something to pay attention to here. Here, there are images coming to you but it becomes anyway... both something inner and outer in a way...]

The play director's first reaction was not to define the artwork she had just experienced by comparing it to theatrical or other art forms and media, but to what she called "a kind of art meditation". In the questionnaire, where she was asked to mark in a multiple choice list, which artistic forms and media this VR experience may have things in common with, she did not put a single cross signifying similarities to other art forms. Instead, she wrote, "Dröm, fantasi" (dream, fantasy) and "resa i det inre" (a journey within oneself) and she underlined the last expression. She spoke about the virtual aquatic garden as "a kind of vision that does not exist" (som en slags vision som inte finns).

At the same time, she clearly stressed the active character of the experience by talking, not only about an inner journey, but about something happening outside oneself in interaction with the virtual environment. When asked about how she would qualify her experience as a whole, she did not use the term "play" straight away. She used the term later on in the interview, in order to describe one of the virtual worlds: *The Twin Room* with the tree of life and death with its surprising fruits. She compared this environment to a gigantic playground and got associations of painter and sculptor Joan

PART IV

Miro. Hence, her written and spoken comments contained the very idea of play, of the joyfulness experienced in the activity of play, of engaging in a play. She wrote: “Barnslig glädje att vara den som styr” (Childish joyfulness to be the one who steers). Along with boundlessness and weightlessness, it was the opportunity to experience fantasy worlds, forms and figures, which cannot be experienced in other media than VR-based ones WW considered as most unique. In the following dialogue, the play director expressed in a very lively and spontaneous way, why this was, in her opinion, such a joyful experience, which I, in turn, interpret as the nature of a rewarding experience of play, according to Gadamer:

WW Ah, Det är roligt att flyga, eller roligt att ”Ahhh!!... det öppnar sig”; det är roligt ”Ahhh, att det kommer nära eller ah...”

[Ah, it is enjoyable to fly, or ”Ahhh!!, It opens up”, it is enjoyable ”Ahhh, that it comes so close or ah...”]

MLC Det är det oväntade på något sätt?
[Is it the unexpected in a sense?]

WW Och det gränslösa är roligt.
[And boundlessness is enjoyable.]

MLC Det gränslösa är roligt?
[Is boundlessness enjoyable?]

WW Tycker jag! ...Ja, när man inte vet vart man skall... Och kommer det att sluta någon gång? Man vet inte om det slutar eller om det bara fortsätter. Det tycker jag är roligt! Så det blir lite sådär, äventyrsländ på något sätt...

[I think so!... Yes, when one does not know where one is going... And will it come to a stop at some point? One does not know if it will stop or if it just goes on and on. I think this is enjoyable!... This way it becomes a little like, a kind of adventure land...]

Going deeper into the conversation, I tried to narrow down what the very core of the joyfulness expressed by the play director may depend on. Since I could recall her mentioning Stanislavsky and the idea of presence on stage, when she stepped out of the VR-Cube, I asked her to specify what she thought. She thought for a while and replied:

WW När man står där och är med om den här resan så blir man väldigt närvarande.
[When you stand there, participating in this journey, you feel extremely present.]

MLC Ja, det var det med närvaro...
[Yes, it was this idea of presence...]

WW Att det är det jag tror att jag tycker om, för alla längtar ju egentligen efter att få vara närvarande och därför är väl konsten så viktig för att den, om det är bra konst, då får man vara närvarande i ett ögonblick tillsammans med den, med konstverket. Det kan öppna en värld för en där man är precis bara nu, tänker inte på någonting annat framåt eller bakåt eller någonting utan precis bara nu och det tycker jag är kul. Den här resan, den blir väldigt tydlig så på något sätt. Man är verkligen bara nu, jag tänker inte på något annat, jag är bara i färgerna eller i mina associationer till mina minnen eller känslor...

[That is it what I actually think I enjoy, because all of us long to be present and this is the reason why art is so important. If it is good art, then one gets the chance of being present for a moment together with it, with the artwork. This might open up a world where one is just here and now, without having to reflect about anything, forward or backward in time, but right now, and that, I think, is fun. This journey is just what this is. One is really present right now, I do not think about anything else, I am in the colours only or in the associations to my memories and feelings...]

Thus, the opportunity to be totally present with/within an artwork is, according to the play director, what gives meaning to art. And it was this opportunity, offered to her through my VR arts play and even due, naturally, to her own personality that gave her the ability to be present in the moment while participating in this artistic journey. Being totally present within the VR arts play, she could fully enjoy boundlessness, weightlessness as well as the opportunity of meeting, interacting and exploring, from the inside, colourful artefacts and figures during her virtual adventure, i.e. all the aspects which she personally acknowledged as unique.

With this in mind, I would argue that both the particularities of the medium, the artistic content of my VR arts play and the play director's open attitude contributed to her feelings of being present. Furthermore, what the play director's comments seem to indicate is that the feeling of being present, as something essential for a meaningful experience of art, in general, and not for VR art in particular, becomes reinforced by the particularities of the VR-Cube as an immersive VR medium, on condition of course, that the artistic content is of high enough quality. The above reply did not end here, but she went on to pursue her point by making a comparison to actors' performances during a theatre play:

Det tycker jag är häftigt! för det är det man vill uppnå,... det, med konst alltså, som med teater: Först och främst måste skådespelarna vara exakt närvarande i sin berättelse, i sin kontakt för att publiken skall kunna tro på det eller vara närvarande i den historien... Ja, så tänker jag.

PART IV

[I think this is great! Because it is what one wants to achieve... with art I mean, as with theatre: Actors have, above all, to be really present in their story, in their contact with the audience, so that the audience can believe it or become present in this story... Yes, that is the way I see it.]

So, even if the play director did not, of course, compare my VR arts play with a theatre play, as a play performed on stage, in front of an audience, she made many references to the theatre and its performing mechanisms in general. The above responses are, in my opinion, particularly interesting because, even if they do not expressively contain the term “play”, they illustrate, I think, the very idea of the truthfulness of play in Gadamer’s meaning of the word. Revelation as truth is, in fact, tightly linked to the idea of being really present in the story, in the work of art. As WW stresses that, in a theatre play, the actor has to be really present in the story in order to communicate this truthfulness of play and succeed in engaging the audience. If the story is not truthfully performed by the actor, the spectator cannot become present and become engaged as a player within the actor’s story. In the questionnaire, WW wrote that she felt as though she were both an actor/participant and a spectator. If we combine these ideas, I would think that if the audience is not mentally present in a VR arts play, i.e. in a situation where the spectators’ and the actors’ roles on stage become intertwined, truthfulness of play may not be achieved, either. When she commented on her childish joyfulness of being present within the VR arts play, WW could specify the rules of play by describing the way, she as an actor-spectator, dealt with artistic illusion inside the VR-Cube:

WW Och det barnsliga... man är så öppen också, man vet ju också att inte något farligt kommer att hända därför kan jag ju vara så öppen. Det kommer inte att hända något farligt. Jag är trygg.

[And the childishness... one is so open too, one knows that nothing dangerous will happen. That is why I can be so open. Nothing dangerous will happen, I feel safe.]

MLC På något sätt är man medveten att: ”Detta är inte verklighet”

[In one way or another, one is conscious of the fact that, “This is not reality”.]

WW Ja, just det! Man leker bara... Det värsta som kan hända är att jag stöter i väggen någonstans men något värre kan inte hända och ändå kan det kännas väldigt hisnande eller väldigt farligt att åka upp för ett stup eller någonting. Då är det roligt för att jag är trygg då i det. Ja, det är väldigt spännande för det är så som man vill med konst egentligen att en betraktare eller en upplevare skall känna sig trygg men ändå vara med om en helt ny erfarenhet.

[Yes, exactly! One is playing a game only... The worst thing that can happen is that I

bump against a wall but nothing worse than that can happen. Still it can sometimes feel extremely thrilling or very dangerous to walk up a precipice or something else. Then it is enjoyable because I feel secure about this. Yes, it is very interesting because it is what one wants to achieve with art after all, that an observer or a person experiencing it feels safe, but still, engaged in a radically new experience.]

In this last comment WW explicitly uses the expression “playing a game” in order to characterise her experience. She calls the person experiencing a VR arts play both an observer (*betraktare*) and an experiencer (*upplevare*). Those are two expressive nouns in that they indicate different shades of an active physical or contemplative and reflective experience of play. What WW’s comment clarifies particularly well is a point already made by members of the production team and other spectators i.e. that the audience’s behaviour inside the VR-Cube builds upon a tacit agreement concerning the VR arts play: Here in the VR-Cube, the rules of play imply that even if something looks threatening, it cannot harm one physically. It is only a game, an illusion. Even if I feel that I fall down a black hole, I cannot be injured as if I was falling into a real hole. This underlying agreement procures security. Feeling safe is, according to WW, a condition for being open to such a new experience and, at the same time, a general rule concerning what play directors, artistic leaders and other artists seek to achieve with a work of art. Without explicitly using the term “catharsis”, she depicted its general mechanism and effect on the audience and how spectators can witness terrible experiences without being affected by them:

WW Precis, jag kommer inte att bli dödad själv men jag kan se någon annan bli dödad och gå igenom hela det händelseförloppet och känna med det men jag vet ju samtidigt att jag inte blir dödad, jag blir inte övergiven eller vad det är för någonting utan jag är trygg där.

[Exactly, I will not be killed myself, but I will see somebody else killed and go through the whole course of events and feel compassion, but, at the same time, I know that I am not the one who will get killed, abandoned or whatever it is about, I am safe where I am.]

MLC Så kan man förstå sin egen berättelse, sitt eget liv.

[This way one is able to understand one’s own story, one’s own life.]

WW Ja, då blir jag ju liksom uppkopplad med den som är framför mig eller den känslan.

[Yes, then I become connected to the one who is in front of me or the feeling.]

MLC den här medkänslan, man är verkligen med.

[This feeling of compassion, that one is really present, together with.]

PART IV

WW Ja, precis, med... och då blir man ju inte ensam utan då kan jag känna att: "Aah, den känslan finns, på något annat sätt" och då kan jag förhålla mig kanske till den, kanske.

[Yes, exactly, together with... and then, one is definitely not alone, but I can still feel that "Aah, this feeling exists in another way" and then maybe I manage to cope with it, perhaps.]

The play director's reference to the catharsis mechanism was precious to me because it confirmed the artistic intention I had for this particular VR arts play as well as my theoretical conception of certain parallels that could be drawn, with regard to its dramaturgical structure, with the Aristotelian conception of drama and its catharsis effect. Then WW insisted once again to comment on the fundamental importance of the feeling of presence through works of art or other striking experiences in life:

WW Jag tycker nästan det är det absolut viktigaste ordet som jag vet: "närvaro", för det gör ju människan fri, om man ser närvaron för att, i annat fall, måste jag alltid skynda mig till bussen eller skynda mig innan jag dör eller någonting... för man är ju i det där spannet mellan att man har föds och att man dör och det vet vi hela tiden på något sätt, mer eller mindre; men i konsten eller i en stor upplevelse, då kan jag plötsligt få glömma bort det och liksom bara få vara. Och det blir en ro då. Det är därför jag menar att det är meditation i en viss mening för meditation är att vara närvarande men samtidigt kunna se på sig själv. Jag sitter här, jag hör de här ljuden men jag drabbas inte, jag låter mig inte springa iväg efter det och jag kan bara låta det vara genom mig.

[I think the word "presence" is the most important word I know because it makes man free, if one understands presence, because, otherwise, I always have to rush for the bus or rush before I die or something else because one is actually in the lapse of time between our birth and our death, what we, in a way, know more or less all the time; yet through art or through a striking experience, I get the chance to forget this and I am just allowed to be. And this then gives a feeling of rest. This is the reason why I think that this is meditation in a sense, as far as mediation is about being present, but at the same time being able to look at oneself. I am sitting here, I hear these sounds but nothing can touch me, I do not let myself run on following them and I can just let it be inside me.]

Thus, for WW, the feeling of presence she experienced during the VR arts play was primordial, because it procured a feeling of freedom and rest, which, according to her, is very rarely achieved in the roundabout of life. It explained the first comparison she drew on, at the very beginning of the interview, about meditation, when she proposed the word "art meditation" in order to characterise her VR experience. Later on, during

the interview about what was specific to this medium and which, therefore, could not have been achieved in the same way, had I created another performance/installation on the same artistic theme, with real actors and dancers interacting with an audience moving into a non-virtual artistic environment stimulating different senses, she said:

WW Kanske är det så faktiskt, jag vet inte, men det är det Du håller på att undersöka; jag tror att man blir väldigt ifred där i rummet i kuben, med VR. Man får verkligen vara i fred och mina egna världar får vara ifred för det är ingen som kommer och petar på mig eller säger någonting eller, jag skall inte lukta någonting, jag skall inte göra... jag skall bara ta in det här som är ganska abstrakt... det är ingen som påstår någonting åt mig. Det är väldigt skönt! Det är så speciellt att gå in i ett sådant rum som är så artificiellt. Du går inte in i ett rum som har massor med saker och funktioner och så... utan Du går in i ett rum som bara är till för det här. Jag vet att jag kommer att stå här i tjugo minuter eller en kvart eller någonting och då skall jag bara göra det.
[Maybe this is what it is, in fact, I am not sure but this is what you are examining, I think that one is very much at peace, in the Cube, with VR. One is really at peace and my own worlds are left in peace because nobody comes and touches me or says anything to me, I do not have to smell anything, I do not need to do...I just have to take in that which is quite abstract... there is no one claiming anything to me. This is really nice! This is so special, to go inside such a room which is so artificial. You do not step into a room with lots of functions or anything, instead, you step into a room which is only intended for this. I know that I am going to stand here for twenty minutes or quarter of an hour and then I am only going to do this.]

Saying this, the play director underlined one key aspect concerning the specificity of immersive VR art experience in general, i.e. the feeling of being immersed, resting in an enclosed space, separated in a way from the buzz of the outside world. Like the play director, I apprehend this aspect as medium-specific, an aspect which, in this particular case, was reinforced by the artistic theme I had chosen to work with, i.e. that of a dreamlike journey in between illusion and reality.

What the play director added was that she had preferred to be left totally alone in the VR-Cube without me (or any other attendant or spectator). This had been my original intention, had we managed to remove all of the technical barriers. So, like some of the other spectators before her, she longed to be left alone, completely free with her experience, without bothering about anybody else. Much later, when I reflected on her reaction, it struck me that she expressed her feelings in very similar terms to two divers that I had met. They explained to me that their fascination with diving depended on their longing to rest and be in peace in the water. By diving into a fluid element, and being immersed in the sea, they really enjoyed the feeling of being

“present” and alive in another element, “separated” for a while from the constraints of the ordinary world, a similar experience to an actor-spectator’s experience, when plunging and floating in the oceans of imaginary virtual worlds. After my conversation with the divers, the adjective “immersive” seemed even more accurate in order to qualify VR art experiences in the VR-Cube.

During the course of the interview, WW and I also discussed the dramatic articulation of my VR arts play and the improvements I intended to realise in a later version so as to strengthen its dramaturgical structure by means of, for instance, stronger climax and visual duplications.¹⁸¹ Our conversation, based on a dramaturgical approach, underscored the fact that some of the performing mechanisms used in the theatre are comparable to the performing mechanisms of an immersive VR art experience.

To conclude my analysis of the play director’s experience, I would say that what this interview, in the light of other audience voices, disclosed particularly well was the impact of the immersive aspect of the experience, as a medium-specific aspect. More generally, I believe that this constructive and inspiring discussion illustrated the acuity of a dramaturgical approach in order to create, experience and analyse such a VR arts play. Hence, since the very idea of play was so vividly exposed, both directly and indirectly, in WW’s comments, through expressions and words such as: playing a game, amusement park and/or adventure land, presence, joyfulness, rest, freedom and art meditation, it felt befitting to choose Gadamer’s concept of play as a theoretical key concept, in order to exemplify the very essence of such a virtual artistic experience.

A PAINTER

I chose to interview the Swedish artist Anders Sköld, who is a painter and a traveller whose oil paintings¹⁸² mirror the play of light and shadow and the play of colours in landscapes from the northern and southern hemispheres. I found his artistic approach particularly inspiring and was curious to know how he would react as discoverer of a contrasting type of journey, within the colours, lights and shadows of virtual imaginary worlds and landscapes.

Unlike the play director it was the first time the painter had ever been in a VR-Cube. His very first observation was to acknowledge the fact that his expectation of immersive virtual reality as a particular experience worth being discovered had been fulfilled. Without speaking categorically about dramaturgy, Anders Sköld (AS) first spontaneous comments were about the dramaturgical characteristics of such a medium,

¹⁸¹ See Part II, and the chapter “Artistic results towards artistic aims”, where I broached this issue.

¹⁸² Anders Sköld’s homepage: <http://www.andersskold.se/>

as a result of the combination between visual and musical impacts. Specifying that his way of apprehending such an experience was rather related to what he saw as a producer of artworks than as a consumer, he wondered, what he, as an artist, could have created with such a medium. What he found particularly exciting were the interactive events that were combined with sound effects, which in turn, triggered sensations of fear and fun. He loved to be scared and said:

Det var ju häftigt med den stora klon, det skrämmande just med det här vrålet och komiken när man håller på med den här frukten.

[The big claw was exciting with the threatening quality of the roaring sound and the comical effect, when one handles this fruit.]

When reflecting on the creative process of painting, he said that he had developed as a painter by “stepping out of the canvas”, i.e. by taking distance in order to see his paintings in their entirety, whereas in the VR-Cube, he felt as though he was in the canvas (mitt i bilden), in a way. Without the opportunity of being able to step back in the VR-Cube, instead, he had to look up and down and walk around, in order to apprehend the room. In that sense, both the film sociologist and the painter reacted in a similar manner. They both noticed that the physical distance between a film screen or a canvas and their own body, i.e. a mode of distancing they both used to rely upon in order to analyse a film or create a painting, was not a premise in the VR-Cube. Both of them noticed that such a VR experience challenged their usual way of perceiving an artwork. Comparing his VR experience with painting, AS pinpointed an interesting difference concerning a surface function and a depth function:

Inom bildkonsten pratar man om att man skall ha samtidigt löpande funktioner i bilden: en ytfunktion och en djupfunktion, färgens närvaro på ytan kontra en djupfunktion, en associerande djup. Det var det associerande djupet åt alla håll i detta också hela tiden.

[Within painting, one speaks about the need to have two simultaneous working functions in a canvas: a surface function and a depth function, the colour's presence on the surface in contrast to a depth function, an associating depth. It was the associating depth from all directions, here as well, all the time.]

Thus, according to AS, immersion added a depth function to the VR arts play, but this depth function did not work in the same way as in painting as far as it was experienced from within. Concerning both the depth and the surface functions, he was of the opinion that the appreciation of distance was triggered as far as VR illusion gave the feeling of not being close to the wall of the VR-Cube even if one actually, i.e. physically speaking, stood close to the wall.

When he thought about how he related to an everyday environment contra the VR illusion, he made the following comment with regard to the way illusion works in the VR-Cube, what presence in illusion means for a spectator in this particular situation:

Det blir en annan sorts närvaro, som inom mat, det finns olika sorters smak, man kan inte sätta fingret på olika upplevelser av olika smaker...

[It becomes another kind of presence, as with food, there are different kinds of food, one cannot put one's finger on the experience of various tastes...]

Even if this VR experience with its floating and flying character differed, according to AS from the experience of matter¹⁸³ in painting, he thought that immersive VR art procured another kind of presence, not radically different from an experience of matter. He took the example of the fruits of the life- and death tree, compared the tree to a sculptural mobile floating in space and observed that one could penetrate inside a fruit and that it felt as though one could get hold of it. So, like both the play director and the film sociologist, the painter emphasised the fact that such an immersive experience opens up another form of presence.

Presence in VR illusion is a presence that engages our senses in another way than we are used to. Referring once again to Michael Heim's definition of virtual reality that "Virtual Reality is an event or entity that is real in effect but not in fact",¹⁸⁴ one could say that the virtual fruit AS commented on was an immaterial entity. As such, the fruit was not "real" in the Latin sense of *realis* coming from *res* which means thing, matter, and material. However, this illusionary fruit was experienced as almost real by the painter (like squeezing a peach). Thus, what the painter called "another kind of presence" meant presence within illusions, which is reality through effect and not through physical material entities, a reality of virtual things almost as real as the reality of palpable things.

What was particularly interesting for me was the reflection AS made on a comparison with other artists/creator's roles as painters, composers, writers, play directors and conductors. He thought that an artist of immersive VR art, like a painter, a composer or a writer shapes new realities, but that a VR artist entering the VR-Cube with its audience at the same time takes on other roles, similar to the roles of a play director or a conductor when he/she physically participates in the same immersive experience as the audience and when he/she integrates the audience into the play. AS even used the term "acting", saying that one goes into the acting by participating physically:

¹⁸³ In Swedish, the painter used the word *stofflighet*.

¹⁸⁴ Heim, 1993. p. 108 (see previous comments in the introduction of my dissertation)

Man går in i skådespeleri... Man deltar mer fysiskt.

[One goes into the acting... One participates in a more physical manner (than what is the case in other art forms).]

Saying this, he recognised himself not only as a spectator but also as an actor within the VR arts play. What he also said about the participative role of the audience within such a VR arts play, is that in the VR-Cube, being inside the picture increases the level of participation.

Jag arbetar med färg, andra blir inte delaktiga på det viset... Man kan gå in och fascineras om hur ljuset faller i ett virtuellt rum och delta själv.

[I work with colours, others are not participating in the same manner... One can step inside a virtual room and become fascinated over the way light falls in a virtual room and participate oneself.]

When enthusiastically reflecting on the artistic means that could be used to create VR artworks from a painter's perspective, he had the idea of using the virtual hand as a virtual paintbrush in order to give the actor-spectator the opportunity to model own artefacts or remodel parts of the virtual environments or transform them by means of various painting styles, such as, for instance, the pointillist style of Camille Pissarro and Edgar Degas or the particular styles of other impressionists such as Claude Monet, Edouard Manet, Paul Gauguin or Vincent Van Gogh, or maybe to add more relief.

So, on the one hand, he would have liked to use this medium himself, as an artist from the visual arts, in order to further investigate its interactive potential. Yet, on the other hand, and during this particular VR arts play, he stressed the fact that he also really enjoyed not being forced to lead, as an artist and a creator usually has to. For this reason, he greatly appreciated having an attendant guiding him into the artwork. He expressed this in the following way:

bekvämare att inte leda själv, kunde bara slappna av och titta. Skönt att åka med, inte behöva styra själv.

[More comfortable not being the one who leads, I could just relax and look. Pleasant just to go along, not having to steer the joystick and lead.]

These reactions mirrored my own conception of a double role for the audience as both actor and spectator, corresponding to the choice of successive roles that alternated between the contemplative phases when one was a spectator and a co-traveller following an attendant and the more interactive phases when one was more physically active as a player, actor and navigator.

Reflecting once more on the differences between painting and such a VR artwork, he believed that the aim of painting is to shape an association, not an illusion.¹⁸⁵ One does not get the same illusion of being able to get hold of a fruit piece from out of a canvas that one does, when standing in front of a three-dimensional virtual tree in the VR-Cube. Following AS ideas, one could say that it is the abolition of the physical distance that is responsible for the difference between association and illusion that he argued for. In painting, the stage i.e. the room and the place where the acting takes place is on a canvas, in front of the viewer, and not all around him. The painter expressed this in a poetical way saying:

En bild bär tid och rum i sitt eget sköte, det är scenen på bilden.

[A picture/painting holds time and room in its bosom; this is the picture's stage.]

As an artistic researcher, I was of course particularly interested in the above observations related to similarities and differences between painting and immersive VR art. That does not mean that the first reactions and main references made by the painter in order to express his VR experience primarily dealt with painting. As far as similarities with other art forms were concerned, he spontaneously thought more about film than about painting; he thought about an animated film experienced from within and in the form of a revue/cabaret. Like many other spectators, he even saw similarities with computer games and he even brought up comparisons with other types of three dimensional techniques and images, referring to a hologram used as a canvas and moving images in gas, which he once experienced in the fountains in front of the royal castle in Stockholm, during the millennium festivities. During his virtual journey, he thought about himself gliding along in a kayak with the feeling of being able to touch the water with his finger tips or being able to stroke a tree branch while leaning over the smooth surface and, on another occasion, he imagined himself entering a dripstone cave. Recalling the waves of light in the golden virtual foliage of *The Pavilion*, he was reminded of one of his own paintings that depicted a sensuous experience. Entitled *Doften då katten kommer in* (The scent when the cat comes in) his large canvas depicted the sensuous associations to shadows and light in foliage and the scents of soil and bark that the animal brings with him when it comes inside.

In an attempt to sum up the characteristics of the painter's many-sided experience of this VR arts play, I would say that, besides several references that border on art and media forms such as film, painting, sculpture, computer games, hologram, the other parallels AS drew on were all related to physical experiences of nature and its main elements: earth, water and air, as well as to various experiences in between nature and culture,

¹⁸⁵ AS said: "Med bildkonst vill man skapa en association inte en illusion".

nature and art (such as moving gas-images or artistic representations of space). What the painter's associations and references denoted, I think, particularly well, and what I consider a most interesting result of this interview, is how the combination of visual and auditory stimuli may engender, for a sensitive actor-spectator of immersive VR art, other types of sensuous associations, such as tactile or even olfactory impressions.

At the end of the interview, I asked AS if the thought the qualifying term "VR arts play" as I had intended to define it, in accordance with Gadamer's concept of play and the idea of artistic crossover, seemed accurate. He replied in the affirmative and specified that it had many things in common with several art forms, among them art installation, as long as the actor-spectator, surrounded by the five sides of the VR-Cube, is immersed into the artwork. Once again, the painter emphasised the importance of the artwork's interactive character as well as the strong effect of visual and musical impacts as an expressive means to create this artistic crossover:

Ja, dels har Du 1, 2, 3, 4, 5 sidor i kuben; det är ju rörelse; det är musik. Så fort Du trycker på den här pilen (dvs. knappen markerad med en pil på själva joysticket) så rör Du dig; det är interaktion i och med att Du kan gripa saker; det är en installation på så vis att man är med i verket så att säga, det i alla högsta grad. Det går ju genom många konstformer, tycker jag. Det kommer så många olika uttryck för ljud också. Det är ju en ganska djup klangbotten både när det gäller musik och det som man tar in genom ögat. Det är en upplevelse, jag fick det bekräftad.

[Yes, you have 1,2,3,4, 5, sides in the Cube; there is movement, there is music, too. As soon as you press this arrow (a button marked with an arrow on the joystick), you move on; there is interaction as far as you can get hold of things; there is an installation in the sense that you are a part of and inside the artwork, so to speak, to the highest degree. It definitely goes through many art forms, I think. It contains so many different expressions for sounds too. It really has quite a deep resonance board as regards both music and what one takes in through the eyes. It is definitely an experience; this has been confirmed.]

MEDIA RECEPTION

NEW ROOMS, DESIGN TV SHOW

My VR arts play was also used in a very different and for me unexpected context. It was used as an artistic tool, but also a reference tool in order to stimulate the creativity of an audience in a completely different context in an interior design television programme on Swedish television (TV2). Extracts of the VR arts play, in 2D film sequences, were

presented in 2006 by programme animator Ernst Kirchsteiger in his TV series *Nya Rum* (New Rooms), as a source of inspiration to his TV audience. The theme of the day's programme, "The scenographic room"¹⁸⁶ was described on text TV as follows:

Ernst Kirchsteiger inreder ett rum som innehåller mer känsla än funktion.

[Ernst Kirchsteiger fits up a room which contains more feeling than function.]

The film sequences showed how the programme leader stepped into the VR-Cube, discovered and moved into some of the imaginary worlds of the VR arts play. By doing so, he wanted to inspire his TV audience to look for new creative ways of furnishing a room. Doing so, he suggested how immersive VR art could be used as source of inspiration in order to furnish rooms with not only material but immaterial furniture and artefacts. Inspired by immersive VR art, interior designers, as well as architects and VR specialists, may indeed take up the challenge and produce specific projection systems applied to various types of spaces, surfaces, textures and materials in order to design imaginary environments for public and private rooms in public buildings and private homes.

THE LAND OF SCIENCE, SCIENCE TV SHOW

On May 24th 2006, my research project was presented on the Swedish television channel "Kunskapskanalen" (The Knowledge Channel), in a programme entitled *Vetenskapslandet* (The Land of Science) a programme about research results at Swedish universities. The television team, with reporter Konrad Cronsioe,¹⁸⁷ chose to bring up the subject of what happens when an audience gets the opportunity to physically experience a work of art from within. Not surprisingly, the wording chosen by the host, in order to introduce and present my research to a broad television audience was a hermeneutical question:

Blir det en skillnad om hur vi uppfattar konst när vi kan gå in i det? Alla vi upfattar och tolkar konst på olika sätt men vad händer när vi kan gå in i konstverket och själva påverka det i stället för passivt betrakta det?

¹⁸⁶ In Swedish: *Det scenografiska rummet*. Program's text: "Tionde programmet – det om känslor": Kan man börja med att skapa en känsla i ett rum och sedan fylla på med de saker man behöver, utan att i första hand tänka på funktionalitet? Ja, det är veckans uppdrag för programledaren Ernst Kirchsteiger. Och för att få mer kunskap och inspiration träffar han en scenograf vid teatern, en arkitekt som jobbar med ljus och studenter vid ljus- och designutbildningen på KTH. Sedan inreder Ernst ett rum som innehåller mer känsla än funktion.

¹⁸⁷ Cronsioe, Konrad, 24 May 2006. *Vetenskapslandet* (The Land of Science), Swedish television Programme on TV channel "Kunskapskanalen" (The Knowledge Channel). <http://hdl.handle.net/2077/6213>

[Does it make a difference to our way of interpreting art when we get the opportunity to go inside it? All of us understand and interpret art in various ways, but what happens when we get the opportunity to enter a work of art and influence it ourselves instead of passively looking at it?]

The selection of film sequences chosen by the television team were all sequences that showed the audience, adults as well as children, experiencing my VR arts play and actively choosing their way within the artwork. As such, the television team's choices of film sequences and the questions dealt with during the interview mirrored, I thought particularly well, the essence of a VR arts play experience. At the very end of the programme and in order to summarise the content of my research, The TV team chose to conclude with a comment of mine about what kind of experiences VR artists can give to their audiences:

Vi ger ett konstverk som åskådare skall bebo på sitt eget sätt för att skapa egna metaforer över livet.

[We give a work of art that the audience has to inhabit in its own way, in order to create their own metaphors of life.]

A JOURNALIST'S METAPHORS

Anna Lennqvist, a journalism student, wrote an article about my VR arts play, with the striking title: "Titta – en ny verklighet" (Look – a new reality).¹⁸⁸ Beside the strictly journalistic account with explanations about the content of my research project as a whole and facts about VR-Cube technology and the production process, she managed to verbalise, in a very lively and poetical manner, her personal way to inhabit the artwork:

Jag slungas ut i världsrymden. Tomt och tyst. Runt omkring mig finns en oändligt blå evighet med stjärnor och planeter. Svävar som en av dem...

Blicken dras till en märkligt formad figur i olika färger. Jag vill dit och blicken räcker för att ge mig riktning. På vägen, möter jag en planet. Ett klot som jag skulle kunna omfamna, men mina armar känner inget motstånd när jag försöker trycka himlakroppen mot mig. Det finns inget att ta på, ingen yta.

[I get thrown into space. Empty and silent. Around me is an unlimited blue eternity with stars and planets. Floating like one of them...

My eyes are drawn to a strangely shaped figure in different colours. I want to get there

¹⁸⁸ Lennqvist, Anna, May 2003. "Titta – en ny verklighet", *GLIMT* pp. 42-46, Appendix 7

PART IV

and a glance is enough to give me the direction. On the way, I meet a planet. A globe that I could embrace, but my arms do not feel any resistance when I try to press the celestial body against me. There is nothing to touch, no material surface.]

In the rest of the article, she continues shifting between the journalist's account and the private person's perception, factual information and personal poetical reflections, through two contrasting writing styles in order to depict her virtual journey. What came to my mind, when I had read her article, is that her experience seemed to have strong similarities to that of the verbal nine-year-old girl I refer to in a previous chapter.¹⁸⁹ That both of them seemed to share the same kind of sensibility in relation to my VR arts play is actually not surprising at all. Nevertheless, I consider it an interesting observation, because it indicates that, in the way to perceive and inhabit virtual spaces, there is no automatic age-limit to be drawn between a nine-year-old girl and a woman, between children and adults.

Concluding this fourth part, I assume that what all these voices from in and outside the Cave tell us is: that what gives such a unique character and specificity to a VR experience is strongly linked to the artistic sensibility, personality and expectations of each actor-spectator, no matter if it is a child or an adult, an expert within bordering artistic fields and media or a layman.

¹⁸⁹ At the beginning of the chapter "Immersion into imaginary worlds", Part IV

PART V

Towards new realities

La métaphore, en dernier ressort, est pouvoir de redécrire la réalité, mais selon une pluralité de modes de discours qui vont de la poésie à la philosophie.

[The metaphor is, as a last resort, a power to redescribe reality but within a plurality of discourses modes, ranging from poetry to philosophy.]¹⁹⁰ (own translation)

In regard to the core of the research question, which was to try to uncover the specificity of such an immersive VR experience, where distance between stage and auditorium is abolished, the empirical material brought major results in relation to the various actors involved: the production team, experts from several art fields and computer games, the overall audience, nine-year-old children and myself as an artistic leader and artistic researcher. Looking at those different groups, let us first summarise the major results in regard to the audience's experience.

NEW KINDS OF ARTISTIC EXPERIENCES

My principal working hypothesis, presented in the introduction, in relation to the main audience results was that an immersive VR medium as the VR-Cube, if used as an artistic medium, would open for new kinds of artistic experiences for an audience. Therefore, a major result of the case study I conducted by my creating a VR arts play and then undertaking subsequent audience surveys and in depth-interviews, was that the qualitative and quantitative empiric results entirely confirmed my hypothesis. Actually, as many as 96% of the respondents, considered that the VR-Cube opened up for new kinds of artistic experiences, i.e. new ways for an audience to communicate with an artwork from within, something they had not experienced with other art forms.

¹⁹⁰ Ricoeur, 1975. *La métaphore vive*, Paris: Editions du Seuil, back cover

ACTOR-SPECTATOR IN FICTIVE WORLDS

As many as two in three considered that one of the most unique aspects of all was the opportunity to experience fictive, imaginary worlds, fruits of illusion, artefacts, forms and characters/*Gestalten* that cannot be represented by other means than through an immersive virtual reality medium, i.e. within a physical space where the distance between stage and auditorium is abolished, so that the audience becomes physically totally immersed “on stage”.

In order to establish how the use of an immersive VR medium as the VR-Cube could endow an audience with new kinds of artistic experiences, I experimented with and tracked different audience identities: merely spectator, spectator as well as actor or something else? The overwhelming majority considered themselves as both spectators and actors/participants and some even referred to adjoining types of identities such as travellers, navigators, dreamers all of which implied an observing and participative role as well. Corroborating this result, it was not surprising to acknowledge that the large majority enjoyed getting the opportunity to steer their virtual journey themselves and not only to follow a guide.

During their immersive journey, what the audience prioritised as the most unique aspects of the experience, along with the opportunity to be actors/participants choosing their own paths within the work and before the feeling of weightlessness, were, above all, the coordination between sound, music and visual impacts, feelings of boundlessness and of floating and sailing through virtual surfaces and artefacts. Artists and children and members of the production team, particularly stressed the importance of the meticulous timing between visual and musical effects for the whole experience, an aspect that is to be considered as work-specific, i.e. particular to this specific VR arts play. As regards feelings of floating and sailing through the surface of objects, my own results corroborate the results of Harold Thwaites’s survey on the immersant experience of Char Davies’s work *Osmose*.¹⁹¹ When asked about which part of the work they enjoyed the most and why, a third of *Osmose*’s audience wrote about moving/floating/passing through things. I would argue that feelings of floating and sailing, considered by a great part of Davies’ and my own audiences as enjoyable and unique aspects of their immersive experience are media-specific rather than work-specific. These are characteristics of an immersive VR experience and artistic tools that VR artists have to integrate and handle carefully in order to achieve their artistic aims.

¹⁹¹ Thwaites, 2005. p. 151

IN BETWEEN VISUAL ARTS, PERFORMING ARTS AND COMPUTER GAMES

Another major result is that the audience found common denominators between this artistic VR experience and not merely one, but several artistic forms within both the visual arts and the performing arts. Those reactions confirmed my own understanding of such a VR medium and were in line with my artistic intention to create a VR artwork that would be a crossover between several art forms.

Among visual arts, 3D film, i.e. another immersive art form based on virtual reality, was identified by the audience as the closest experience of the kind, but also art exhibitions and installations were considered as having things in common with a VR arts play. Not surprisingly, what the audience identified as close art forms among other visual art experiences were all immersive experiences as well, in the sense that the spectator who enters an exhibition or an installation, physically walks into it, as he does inside the VR-Cube and is surrounded by the works of art as he is surrounded by three dimensional virtual artefacts inside the VR-Cube. I would therefore assess that there is a similarity between the spectator's positioning himself in a virtual surrounding during a VR arts play and his positioning in the setting of a real (in the sense of physical) art exhibition or installation.

As to the question of the relationship and contrast between such a VR arts play and the performing arts, audience results were particularly significant, too. They showed that even if the VR-Cube is above all a visual medium, more than one in four drew parallels to performing arts in the form of performances, one in five, to a theatre play and a few to concerts and opera performances, as well, even if there were no other real actor-performers than the spectators themselves and a guide inside the VR-Cube. So the reason for these parallels does not proceed from visual impacts only, but from the audience's positioning in relation to the work and from what the audience considered as the most unique feature of their experience: the fact that they were not solely spectators, but also actors/participants with other actor-spectators within immersive imaginary worlds.

A major result too, and for me a rather unexpected one, is the parallel drawn by three fourth of the audience between this VR arts play and a specific category of computer games: adventure-games. Even if similarities to user interface, computer graphics, textures and the way upon which the storyline is built up partly explained this parallel, as disclosed in the discussions with computer games experts, a non-targeted audience and a children's audience, the main reason for this parallel depends, in my view, once again on the audience's positioning in the VR arts play. As an actor-spectator, a member of the audience was given the opportunity to partly choose his way and determine the course of his virtual journey into the imaginary worlds of the VR arts play, interacting with some of its artefacts. Without this key feature, without the opportunity of being actor/participant, no parallel could ever have been drawn with a computer game except those concerning computer graphics.

KEY FEATURES OF A VR ARTS PLAY

In the contextual part of this thesis (Part I), I established that immersion and interactivity are the two intertwined aspects that are discussed the most in the literature about VR. The results of the audiences' surveys confirmed, that full immersion into imaginary worlds was considered as unique, i.e. that full body immersion was a major parameter with impact on the whole experience within those imaginary worlds. As mentioned in the introduction, the concept of interactivity was too narrow and technical-related, to provide the best starting point for a study of the interplay between my VR arts play and its audience, from a performing arts perspective. Therefore I chose to concentrate on the identity and role(s) of the audience within the VR arts play instead, which permitted a wider approach where interactive aspects of the experience could be integrated into a broader range of aspects: mental, social, psychological, physiological, space and time-related, as well as more technical and media-related ones. This approach revealed the double role of spectator and actor and the dynamics created in between as a unique aspect of the experience. From those two major features – immersive experience into imaginary worlds and experience for an actor-spectator – it was possible to narrow down the subject and, gradually, unveil less conspicuous components of these major features so as to define them. Summarising the essence of such an immersive experience into imaginary worlds, seen through the audience's lense, I will define it as: "immersive artistic crossover experience between illusion and reality" and also an "experience for an actor-spectator", and describe its components as follows:

Immersive crossover in between illusion and reality

- Immersive,
because there is full body immersion, when physical distance between the stage and the audience is abolished and the spectator who enters the enclosed space of the VR-Cube, simultaneously enters the setting of the play.
- Artistic crossover experience,
as a play at the crossover between the visual and the performing arts and several media: painting, photography, sculpture, music and theatre, computer games and IMAX film.
- In between illusion and reality,
as far as the spectator becomes immersed in a world of illusions triggered by simulations, interactivity and "non-existing" virtual artefacts created by morphing. It is a journey for a spectator enveloped into imaginary worlds that cannot be constructed by non VR-based artistic means and that cannot possibly be experienced in the physical/material world.

- Multisensual, challenging body and mind,
because it is a new physical and mental environment where one's body and senses (sight and hearing) are deceived and stimulated in another way than they usually are. Human perception is challenged, for instance, when "real" visual and musical impacts stimulate tactile feelings by the power of metaphor or when the spectator thinks he/she is flying.
- Challenging notions of time and space,
as far as some spectators lose their notion of time and/or discover other ways to apprehend and move in space.

A metaphorical personal and/or collective journey

- Metaphorical,
because it is a play driven by the power of metaphor, a play engaging the actor-spectator in a virtual journey, by stimulating his imagination in the dynamics, in between several roles and identities. The immersant most often perceives himself as both a spectator/observer and an actor/participant, but even as a traveller, a voyageur discovering new inner and outer worlds, outside or within the self.
- Interactive/narrative,
since the actor-spectator has the opportunity to interact with three-dimensional virtual objects and characters moving around in the VR-Cube, building up a storyline of his own and becoming the narrator of his own journey within the work.
- Open experience, choice/hazard-related,
when choices made by the actor-spectator in his way to travel into the work and interact with virtual artefacts partly determine his experience in the VR-Cube. The hazard factor of the experience is linked to interactivity and the open character of the work.
- Personal and/or collective,
personal and private, when the spectator is alone in the VR-Cube, but social interaction-related and collective, when he shares his experience with other spectators entering the VR-Cube at the same time, and influencing the experience by their presence within the play.
- Ephemeral and unique,
because each journey within the VR arts play, no matter whether there is one or several actor-spectators experiencing it, is unique and cannot be reproduced and re-experienced twice in the same way.

INHABITING VIRTUAL SPACES WITH VARIOUS ARTISTIC LENSES

The other part of my working hypotheses, i.e. my expectation that the use of a medium for immersive virtual reality could open up new modes of artistic expression for artists and artistic researchers was confirmed by the production team's and my own experience of the production process as well as by the qualitative results of in-depth interviews with experts and representatives from visual arts and performing arts, more specifically film, photography, theatre and painting.

PERSPECTIVES OF VISUAL ARTS, PERFORMING ARTS AND COMPUTER GAMES

What made a strong impression on me was the common reaction of the play director and the film sociologist, two women of approximately the same age (over 50 years), both personalities with a strong creative integrity grounded in a long working experience in their respective artistic field, the first one, a practitioner working with actors, for spectators, and the second, working also towards actors and spectators, but in a more abstract, analytical way. Despite the fact that they, in a sense, reacted in a diametrically opposite way – the play director, joyfully expressing her eagerness to act in some of the environments, comparing some of them with an amusement park, whereas the film sociologist expressed her fears not to be able to distance herself from the illusion of these virtual worlds – their respective reflections expressed a common participative feature with one and the same word and revealed two sides of the same coin. Both of them spoke and wrote about meditation or “art meditation”, the play director feeling completely free within the enclosed virtual space of the VR-Cube whereas the film sociologist expressed fears of losing herself.

Their reactions corresponded to my artistic intention of engaging the spectators in a kind of inner journey, an artistic vision which was, at the same time, an intuitive vision for me. Using immersive VR, I was looking for artistic means to explore and express, my own thoughts, hopes, existential fears and feelings but I could not relate myself to meditation that I had never practised when I did the in-depth interviews. I had thought about starting meditation for a longer period of time and these two women's reactions made me more eager. I wanted to better understand what they thought, when they referred to meditation in relation to my VR arts play and I started with Zen meditation. Still a beginner in the field, I experience meditation as a way of apprehending oneself in relation to life and the world beyond all dualistic perspective, as a catharsis process beyond all thoughts, and above all, distinctions between body and mind, good and bad, ugly and beautiful. Therefore, meditation has, for me, much

in common with the life-world perspective and the very content of my VR arts play. It explains why I intuitively considered the reactions of the play director and film sociologist as precious, not only on a personal level, but in regard to the artistic results. Considering this VR arts play as art meditation is not merely interesting for this particular VR artwork, it is also interesting as a more general research result concerning the possible impact of immersive VR art as a way to reach another level of awareness, as we will discuss more in-depth further on.

Involving such a targeted expert group, I was able to witness how representatives from the visual and performing arts inhabited and acted within the VR-space and how they imagined further artistic potential from the point of view of their artistic practise and personal background, as I had done from my dance and theatre experience and my personal interests. The painter imagined how a user interface with a kind of virtual paintbrush could enable him to interact with the virtual worlds transforming some of them into an impressionistic surrounding by adding a pointillist style for example. With the play director, I could discuss the dramaturgy of the VR arts play, its rhythm, the way it engaged the actor-spectator, made her participative in the play and the improvements I wanted to add in order to strengthen the climax of the play. The film sociologist drew parallels to a special kind of film category that is not based on linear story telling but on lyrical and poetical narrativity, whereas the computer games specialists identified parallels with adventure-games and could discuss scenarios for the possible development of immersive artistic computer games. One idea expressed by the computer games specialists and the film sociologist was that, with another type of user interface, more people could be given the opportunity to enter the immersive space at the same time. These experts from the performing arts, visual arts and computer games expressed two different options concerning the artistic potential of immersive VR experiences for the future:

- an intimate experience corresponding to the artistic content of my VR arts play, where the dramaturgy, written and designed for full body immersion, addressed one actor-spectator at the time or a little group of two to four persons, friends, lovers, relatives or colleagues eager to share the same experience together in an enclosed limited space like the VR-Cube.
- a social and collective experience, where the dramaturgy is built upon social interaction (through dancing for example) with many other actor-spectators physically immersed in the same virtual journey in a room, if a room, much larger than the VR-Cube or in another immaterial virtual space.

Thus, Experts' voices from the Cave revealed to me how each of them had their own ideas about how to inhabit immersive virtual spaces. For this reason, I decided to

conduct an experiment, asking one representative of the experts' voices, the one who had witnessed the production process of my VR arts play and who was also as interested as me in the question of the borderlines between illusion and reality, to inhabit one virtual world of my VR arts play. By adding new empirical material to the last part of my thesis and interweaving it with the theoretical framework, I want to illustrate my research results through an artistic representation that furnishes a response to the research question in an artistic and hermeneutical concentrate.

A PICNIC UNDER A VIRTUAL GOLDEN TREE THROUGH A PHOTOGRAPHIC 2D-LENS

I asked photographer Sandra Andersson to choose the virtual world that inspired her most and to show me how she could inhabit this world, using her own artistic creativity and create something of her own out of my artwork. I wanted her to look at my work with her eyes and use her own artistic medium, photography. Why? Beyond witnessing the actor-spectators' reactions by accompanying them in their virtual journey inside the VR-Cube and seeing and hearing how they expressed themselves through exclamations, comments, movements and gestures, about metaphorical places they discovered, I wished to take the experience a step further. I wanted more than merely witnessing "invisible" metaphors (in the sense of non-visual) that the audience could make alive through verbal and gestural language, more than acknowledging the power of metaphor when listening to the actor-spectators' description of their roles, identities and feelings within metaphorical places they had in mind: traveller in another world, on another planet floating in space, in front of a pyramid, into a crystal crown, player on a gigantic playground etc. What a photographer could do was not just to describe for me the metaphorical place she had in mind by means of words and gestures but to fulfil the metaphor in a concrete and visual way by representing it by a stage setting in the VR-Cube and then photographing it.

What Andersson had in mind when she, as actor-spectator, discovered and rested in the virtual pavilion of the VR arts play (*The Pavilion*), was the French impressionist's Edouard Manet's *Le Déjeuner sur l'herbe* (Lunch on the grass) from 1862-63, the famous painting which was refused at the "Salon de Paris" the same year, provoking a veritable scandal in the art world. Ever since, this work of art has remained an inexhaustible source of inspiration for other artists, such as Claude Monet for example, who painted his own version of a picnic in a park some years later. Even today Manet's canvas has retained its full power of attraction for new generations of artists.



Figure 30. Edouard Manet's *Le Déjeuner sur l'herbe*¹⁹²

The above painting combines real and unreal, and gives the impression of being staged and painted in a studio with artificial light, even though it depicts a lunch outside, a nature scene. As the photographer explains for us in the DVD,¹⁹³ what she wanted was “to bring the real into the unreal”, by inviting some friends to share a real/unreal experience with her, and to photograph them during a real picnic scene with real fruits, real glasses and real wine in the unreal green nature of the pavilion under the foliage of its virtual golden tree.

¹⁹² Manet's "Lunch on the grass"
http://fr.wikipedia.org/wiki/Image:%C3%89douard_Manet_-_Le_D%C3%A9jeuner_sur_l%27herbe.jpg

¹⁹³ DVD, Title 3: The staging of the picnic scene



Figure 31. Picnic under the Golden Tree

I decided to film this picnic scene with the photographer and her friends so as to integrate the sequence into the film *Om Le Beau, le Laid, le Bon et le Mauvais* as hermeneutical representation of my research results. This particular scene, *Picknick under Guldträdet* (Picnic under the Golden Tree)¹⁹⁴ i.e. the staging of a picnic scene in a virtual world, is to be considered as a research experiment conducted by the photographer and me, representing her hermeneutical representation of *The Pavilion*, one of the principal virtual worlds of the VR arts play. It exemplifies and represents, I think, beautifully the essence of such a VR artwork and embodies perhaps most explicitly my own understanding of immersive VR art.

Using an immersive VR medium, artists are suddenly able to bridge the gap between illusion and reality, engaging actor-spectators physically at the boundaries between the real and the unreal in order to imagine new forms of artworks within new social contexts. Accordingly, what this sequence shows is the way the dynamics created by the interplay between an open VR artwork and an audience considered as actor-spectator may look like. At the same time, the picnic scene in both its photographic and filmic versions becomes a representation of my vision for the future of immersive VR art, showing how such experiences might develop through artistic collaborative works within several artistic fields, here the field of photography. Therefore it is to be considered as a major research result “re-formulated” and transcribed into visual (i.e. non-written) language through photography and film. Moreover, the photographic series and the film sequence exemplify how theory meets practice i.e. the power of metaphor and its working mechanism within immersive VR environments.

¹⁹⁴ DVD, Title 1: 5'27"-7'08" and see front cover as well

METAPHOR AS KEY OF THE EXPERIENCE

In the theoretical Part of this dissertation (Part III) I used the experiment of *La Dame au Lévrier* (Lady with the Saluki) in order to exemplify how the metaphoric chains of meaning may function, when an artistic leader departs from the own artistic material and restructures it by combining it with external, added material in order to build other creative works. However, the example of *La Dame au Lévrier* was never fulfilled in the shape of a new artistic work. Neither was it an example of how actor-spectators experiencing my VR arts play could build their own metaphoric chains of meaning. I had to wait until my VR work had met its audience before I could construct such an experiment and fully exemplify my theoretical ideas. That is what I did, when I asked the photographer, an actor-spectator in relation to my VR arts play, to create and photograph the visual representation of the metaphorical place she had in mind.

ACTOR-SPECTATORS PERFORMING METAPHORS WITHIN A PLAY

By staging, acting within, and finally photographing the picnic scene, the photographer enabled me to unfold and exemplify the mechanism of metaphor as outlined in the theoretical part of this dissertation. How? In this specific experiment and in relation to my VR arts play, the photographer is to be considered as an actor-spectator taking my own work as point of departure in order to build own metaphors. What she did was to use former knowledge, see similarities and differences between an artwork she had in mind and the virtual world of the VR arts play, which inspired her most. Then, using what Ricoeur calls *voir comme*, the “seeing as” function, she departed from her own mental representation, traced the identities and differences between those two other artists’ artworks (*Le Déjeuner sur l’herbe* of Manet and my *Pavilion*). She then disassembled and reassembled the material, adding own artistic material and imagined a specific social context by inviting friends of hers to participate in a real picnic under a virtual tree in the VR-Cube, in order to finally create something new, a photographic artwork. I would now like to reintroduce the figure that I designed to explain my theoretical framework for artistic and scientific knowledge shaping from Part III (fig. 24), in order to propose how artistic knowledge shaping may work in the particular case of the picnic scene.

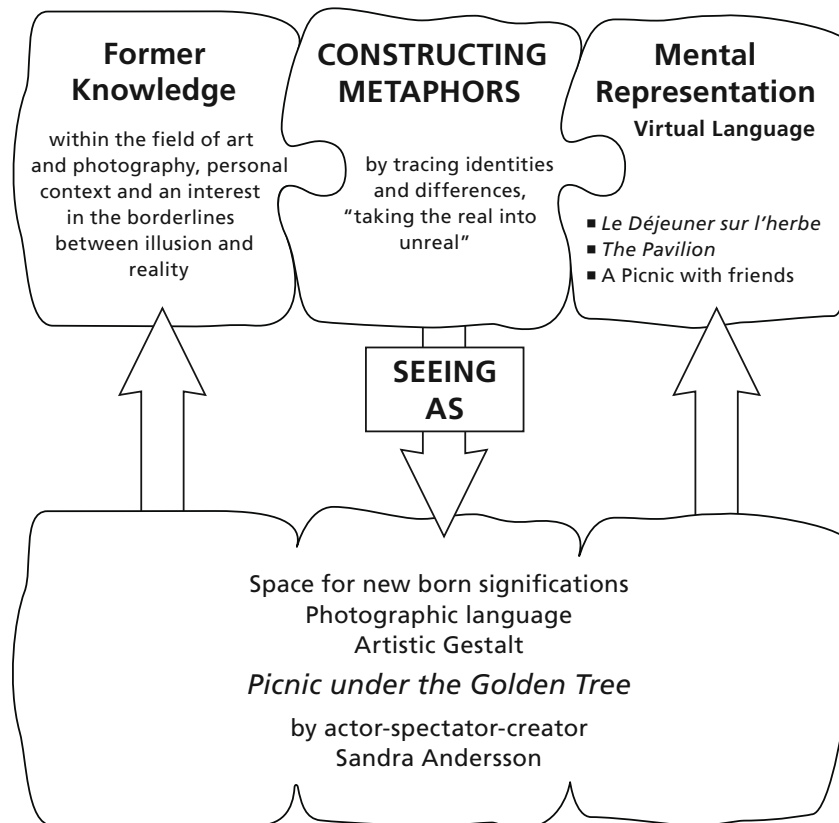


Figure 32. Shaping process of an artwork and a visual metaphor:
Picnic under The Golden Tree

In the Space for new born significations, I wrote that the artistic Gestalt is created by Sandra Andersson in her role as "actor-spectator-creator". By adding "creator" to the actor-spectator's role of the audience, my intention is to underline the fact that, being an artist herself, the photographer combined the audience's role of actor-spectator with her artistic identity, which enabled her to use photographic language in order to create a new artistic Gestalt. What is then the difference – if there is one – between an actor-spectator as the photographer and the overall audience of my VR arts play?

Within the framework of this experiment, the photographer was given the opportunity to inhabit the virtual space of my artistic work by adding material and artistic ideas of her own. Therefore she was not only an actor-spectator but also an actor-spectator-interpreter and creator. However, considering the audience reactions during

the VR arts play and the verbal explanations about the worlds the actor-spectators said they entered into and their respective roles within those worlds (such as traveller in a new world, on a space station or navigator on another planet, into a meditative trip, etc.), I would argue that the process of “seeing as” operates in a similar way for other actor-spectators participating in an artistic immersive VR experience, even if it does not result in new artistic representations. If the audience had been given the opportunity to inhabit my VR arts play by choosing and adding own material, as the photographer did, the result would also be Gestalten, artistic or not, attempting to embody mental representations they had in mind but the VR arts play did not need any added artistic Gestalt: The play was already truly played and my artistic aims were already achieved, when I could notice that the VR arts play stimulated actor-spectators to the stage of own metaphoric mental representations in phase with the artistic content of the work. That one of them enjoyed to push the experiment even further, for creating an artwork of her own was not indispensable for the VR arts play to be accomplished as artwork but this experiment was rewarding because the fact that my work could stimulate another artist to shape an artwork of her own meant a greater level of achievement for me, as artistic leader. Moreover, this experiment was most valuable in order to communicate theoretical constructs in a concrete way to the reader, as far as a concrete visual Gestalt like a photography is an obvious result, easy to witness, whereas the mental representations of the overall audience, no matter how strong, differentiated and interesting they appeared to me, were not as obvious, apparent results, to be communicated to the readers.

OPEN PLAY FOR PROTEAN TRANSFORMATIONS

By reintroducing Gadamer’s theory of an experience of art explained in part III in connection with the picnic scene, I propose that when a scene of the VR arts play partly escapes its author and reveals itself through the rules of metaphor within the imagination of an actor-spectator-creator in the form of a photographic work or another Gestalt, the process of transformation we witness is what the philosopher explained by the German expression *Verwandlung ins Gebilde*. The picnic scene is one example of an accomplished interpretation, when an experience of art becomes transformation and revelation as truth when it permits an actor-spectator-creator to stage and reveal something about herself in her relation to the world that was partly “hidden” before, in the sense that it was not performed and as such not visible before. Another example of transformation, of something stepping forward as truth through the experience of art, would be that of the young girl who, suddenly, by experiencing my VR arts play, became pleasantly aware of an unknown facet of her personality: curiosity.

A PLAY IN BETWEEN, THROUGH THE POWER OF METAPHOR

Thus, in artistic VR-immersive environments, making a virtual journey, the actor-spectator unveils and creates something in between the virtual world and her own self through the power of metaphor. We are back to Merleau Ponty's idea of in between presented in Part III, back to his idea of something in between the subject and the world. In that sense, I think that one can speak about a play in between, leading towards other forms of awareness. The power of metaphor becomes the key, the motor of the play. Without the "rule of metaphor" creating a dynamics in the to and fro movement in between the actor-spectator's imagination and the artistic material, the play cannot be truly played. There is, I would argue, no sharp distinction between the outer and the inner world, but a virtual and a non-virtual world in between, where the actor-spectator's artistic journey is linked with her perceptions and behaviour in the VR-space. For an actor-spectator, artistic immersive VR worlds open for a physical and metaphoric experience in between the physico-chemical body (Merleau Ponty's *corps vivant/objective body*) and the seeing, hearing and acting body (*corps propre/phenomenal body*). We have already seen that it is not, according to Merleau-Ponty, possible to study reality by making an abstraction from *corps vivant* and *corps propre*, and that he considers the body as man's means of belonging to and acting in the world. In his book, *Descartes' Error, Emotion, Reason and the Human Brain*, neurologist Antonio R. Damasio writes:

It is not only the separation between the mind and brain that is mythical: the separation between mind and body is probably just as fictional. The mind is embodied, in the full sense of the term, not just embrained.¹⁹⁵

During an immersive VR experience, where the body acts as a physical and mental borderline between the stage and the auditorium, this becomes particularly true. In my view, Merleau Ponty's idea of in between with his concepts of *corps vivant* and *corps propre* proceeds from the same line of thought as Damasio's and corresponds to the idea of emotional intelligence outlined in the introduction. The idea of "play in between" corresponds to the essence of a VR arts play. It represents the unified whole that comprises all components of an immersive, artistic crossover experience for actor-spectators engaged in play. Finally, I will define a VR arts play as a play driven by the power of metaphor, a play in between:

- Artistic leader, production team, artistic and technical material, audience
- Self and the VR artwork

¹⁹⁵ Damasio, 2006. *Descartes' error: emotion, reason and the human brain*, London: Vintage, p. 118

- *corps vivant* and *corps propre*
- Real and unreal
- VR technology and visual arts, performing arts, computer games
- Several senses: sight, hearing, touch
- Space and time, i.e. a new relation towards space and time when one's senses are challenged
- Several roles, identities: player, immersant in between spectator, viewer, observer and actor/performer, traveller, wanderer
- Stage and auditorium with widening and tightening of distance in relation to several phases of audience commitment to the play
- Actor-spectators entering the VR-Cube at the same time (social interaction)
- Several possible choices/paths for an actor-spectator

RULES FOR A VR ARTS PLAY – SYNTHESIS

Time has come for me to reconsider the central ideas of the theoretical part of the thesis in the light of the empirical results and to outline a synthesis, in order to encircle the essence of such an immersive artistic experience. I choose to entitle this synthesis “Rules for a VR arts play” since there are certain conditions and rules for such a play to become a rewarding experience for an actor-spectator. In relation to the actor-spectator’s experience, I have identified three phases, which should not be understood as strictly chronological, consecutive phases. These successive phases are intimately linked with each other and are, in some respects, parallel phases as well. We have already acknowledged the dynamics created within the play by its open character and the idea of in between. Consequently, this explanation concerns the dynamics of the artistic experience, where each phase of widening or tightening of distance between the spectator and the VR arts play, leads to another phase. My attempt to a synthesis corresponds to the very idea of the hermeneutical circle explained in part III, a circle developing in various phases, in a constant oscillation between part and totality towards higher and higher levels of understanding.

It is difficult to summarise these successive phases in just a few conceptual keywords. However, what can be said is that the first phase mostly concerns the state of mind of the spectator entering the VR-Cube, whereas the second phase deals with the experience of play itself inside the VR-Cube and the third with what is happening afterwards, i.e. with reflections and thoughts on the impact of the immersive experience in the VR-Cube. Let us examine each of those three phases:

FIRST PHASE: INTENTIONALITY AND FORGETFULNESS OF CONSCIOUSNESS

The rule of play during this first phase, when spectators enter the VR-Cube, requires an audience agreement with the way an immersive VR medium works. The dramaturgical effect depends partly (but not only) on the expectations the audience has of this new medium. Illusion will only work if the spectator enters the VR-Cube open-minded and is willing to participate in the VR arts play and it will not work if the spectator mostly concentrates on technical barriers, such as for instance the visible edges of the VR-Cube. Without a certain suspension of disbelief, if the spectator cannot disregard the physical space of the Cube he enters into, there will be no illusion.

Looking again at the life-world perspective, I would argue that this first stage corresponds to the Husserlian notion of intentionality and “forgetfulness of consciousness” referred to in the theoretical chapter. We have seen that if intentionality is to accept the loss of one’s pre-understanding of the world in order to be able to gain a greater understanding of the world, losing one’s pre-understanding is to be considered as a gift. In the specific case of a new artistic experience, an open attitude means we have to accept that learned attitudes, physical and mental habits connected to our perceptive system and our notion of space and time outside the VR-Cube may be challenged, when we enter an immersive VR-space.

The research results indicate that the spectator tends to forget for a while and leave behind, the everyday life, and this forgetfulness of the everyday life-consciousness engenders distanciation for at least part of the audience. According to Ricoeur, we have seen that distanciation is not only what understanding can overcome but what conditions understanding.¹⁹⁶ That gives those spectators the opportunity to be fully open for something radically new. Therefore I would argue that becoming physically immersed in an artistic imaginary world, ruled by previously unknown premises, opens up opportunities for other kinds of understanding of oneself in one’s relation to the world.

SECOND PHASE: METAPHORICAL JOURNEY AS MIMËSIS

The second phase takes place during the VR arts play. If we now go back to Aristotle’s categorisation of the tragic play presented through a Ricoeurian lense in the theoretical part of the thesis, we saw that the part called *Muthos/fable* (plot) had a very important function. It referred to the construction of myth or *mimêsis*, and gave coherence to the play. We saw that *mimêsis* of nature should not to be understood as a merely imitation

¹⁹⁶ Ricoeur, 1996. p. 112

or copy of nature and that through *mimêsis*, the audience was given the chance to recognise something more than what they saw/understood about nature, something about the essence of nature. I would claim that the process of shaping metaphors that an actor-spectator immersed in a VR arts play participates to is the construction of myth itself or *mimêsis* through the “seeing as” function (Ricoeur’s *voir comme*). In order to exist, the VR arts play has to meet its audience and even if the artistic leader draws up the major lines of the plot, it is the actor-spectator who, finally and through the power of metaphor, achieves the construction of myth through his own artistic journey within imaginary worlds.

Thus, for an artistic leader working with VR art, immersive media are not primarily interesting to reproduce and simulate nature but to mirror nature, using his/her own imagination and that of the actor-spectator in order to construct the myth of new artistic worlds in tight collaboration with the audience. The picnic scene is a good example of a metaphorical experience as *mimêsis*. Therefore, I can now confirm the hypothesis I launched in the theoretical chapter, that the main function of metaphor in my VR arts play was probably not to be found in the triad: rhetorics-proof-persuasion but rather in the triad: poiêsis-mimêsis-catharsis influencing the artistic experience as a whole.

In the second phase, what happens during the construction of myth is the transgression of conceptual borders. When the play manages to engage the audience, there is a suspension of disbelief and the spectator gets the opportunity to become an actor/participant in the play. It is a physical and mental challenge for man’s senses. In my VR arts play, this physical and mental immersence worked through the dynamics of the play, i.e. in the tightening and widening of distance between the actor-spectator and the artistic material during the play. Research results show how spectators sometimes took on a more passive role physically. They became observers, co-wanderers,¹⁹⁷ viewers, and, other times, became more physically active and participative as actor/performers, explorers, guides and leaders, travellers and players. “Art meditation”, the state of mind some experts from other artistic fields referred to, was an enlightening result since the very idea of art meditation constitutes a concentration of all the dynamical variations of the play, as far as it means being entirely present, in the moment, here and now, in relation to the artistic content and, simultaneously, being an observer of one’s own feelings. Art meditation ascertains presence and distance to oneself and the world, all at the same time. Going back to Ricoeur, one could probably state that art meditation, the state of mind some spectators referred to, was a state of mind “which conditions understanding and which understanding can overcome”.

¹⁹⁷ In Swedish: *medresenär*

The notion of play in between an inner and an outer world, previously outlined in relation to Merleau Ponty's idea of *corps vivant* and *corps propre* (objective and phenomenal bodies) and the challenging of our senses, is part of this second phase. It seems that along with the feelings of floating and sailing through three-dimensional artefacts and imaginary worlds, the traditional way of apprehending the physical world outside the VR-Cube in our relation to space and time is put to the test during such an immersive experience. Several spectators, among them even architects, noticed that they lost their ability to orientate themselves, whereas others expressed feelings of losing their notion of time. In her book *Char Davies' Immersive Virtual Art and the Essence of Spatiality*, Laurie McRobert, who discusses the notion of space and time in relation to the audience of Char Davies' immersive works, observed similar audience reactions.

These feelings of transcending mundane space and time are more often than not reported by immersants and a rather surprising dividend for the artist and her team, who were not expecting such a response at all; hence these feelings cannot be ignored in assessing the overall impact of Davies' immersive works of art.¹⁹⁸

Accordingly, I would argue that what Gadamer explains as transformation (*Verwandlung ins Gebilde*) during an experience of art in general, is a transformation which – in an immersive experience of art – applies to our seeing, hearing and acting body as well as our physico-chemical body. It has the character of immediacy which precedes all interpretation, defined in the theoretical chapter as *Erlebnisse*. At the same time, it is an ongoing process integrating new knowledge with former knowledge, what the philosopher defined as *Erfahrung*. Some spectators, when stepping out of the VR-Cube after their first VR experience had difficulty in sorting out their impressions and in giving more than mere comments of joyful admiration and a few people even expressed their need to have time to think about what they had experienced. Bearing this in mind, I believe that the newness of the impressions and the challenging character of the experience made it physically and mentally demanding. Thus, I do not think that the ongoing, integrative process at stake in the immersive artistic experience ends, when the spectator exits the VR-Cube, but that it continues, and flows into another phase.

¹⁹⁸ McRobert, 2007. p. 9

THIRD PHASE: TOWARDS OTHER FORMS OF AWARENESS

The last phase corresponds to what is brought to light when the spectators analyse their VR experiences. In the first phase, I referred to the idea of “forgetfulness of consciousness” and to an open attitude as tacit components of the audience agreement, so as not to allow one’s pre-understanding or fallacious expectations of a VR immersive medium to impede the experience. In the last reflective phase, which can be seen as a reflective review of the VR experience in its totality, after having experienced it in detail inside the VR-Cube, audience reactions revealed the other side of the coin. Some spectators expressed feelings of transcending space and time or feelings related to other forms of awareness about themselves. In these cases, I would say that through the forgetfulness of consciousness, a new level of awareness could be achieved and new knowledge and understanding could be gained. In that sense, this experience of art became revelation as truth for those spectators. Reflecting over audience’s reflections, I believe that spectators use their emotional intelligence in order to become engaged players in a VR arts play since the character of the experience seems to be related to factors such as emotional self awareness, emotional expression, social awareness and social interaction with other actor-spectators. In such a VR arts play, I would guess that emotional expression is a factor highly involved in the ability of “seeing as”, i.e. when an actor-spectator creates metaphors, such as in the picnic scene. That some spectators were able to gain some new knowledge and understanding about themselves indicates that such an immersive VR experience had a strong impact on them. Furthermore, I think that the strong impact of the “seeing as” function contributes to erasing mundane references to illusion and reality.

Referring to two principal characters in Gustave Flaubert novels, Bourdieu describes reality as *le référent universellement garanti d’une illusion collective*, i.e. the universally guaranteed referent of a collective illusion, whereas the literary fiction created by Flaubert in his novels becomes more real than the real for him and for his characters because they take the fiction more seriously than the real:

L’entrée dans la vie comme entrée dans l’illusion de réel garantie par tout le groupe ne va pas de soi. Et les adolescences romanesques, comme celles de Frédéric ou d’Emma, qui, tel Flaubert lui-même, prennent la fiction au sérieux parce qu’ils ne parviennent pas à prendre au sérieux le réel, rappellent que la réalité à laquelle nous mesurons toutes les fictions n’est que le référent universellement garanti d’une illusion collective.¹⁹⁹

¹⁹⁹ Bourdieu, 1992. p.33

[The entry into life as entry into illusion of the real guaranteed by the whole group is not self-evident. And novelistic adolescences, such as those of Frédéric or Emma, who, like Flaubert himself, take fiction seriously because they do not manage to take the real seriously, remind us that the 'reality' against which we measure all fictions is only the universally guaranteed referent of a collective illusion.]²⁰⁰

In the VR-Cube, actor-spectators become engaged in the illusion of the play so that they become, like Emma and Frédéric in Flaubert's novel, characters within the fiction of a VR arts play. Therefore, when the illusion operates on the borderline between the actor-spectators' physical body and the fictive environment, reality and fiction blend together. What happens in the VR-Cube is that reality as "the universally guaranteed referent", which Bourdieu writes about, seems to lose its relevance. What is real in an immersive VR experience may no longer be this collective referent. The real may instead be what the actor-spectator takes seriously.

Therefore, I would argue that VR illusionism through immersive artistic experiences challenges what we usually mean by illusion and reality and opens up opportunities to reach more knowledge and a higher level of awareness about ourselves, in that it widens our horizon of knowledge of "the real". By awareness, I think about man's way of being in, and relating to the world, in his/her relation to time, space, nature, artefacts, human beings, other living creatures and Gestalten, no matter if what he/she apprehends as reality is real, "in fact" or proceeds from a VR-based illusion.

OPEN DYNAMICS OF PLAY AS THE AESTHETICS OF IMMERSIVE VR ART

What do the aforementioned research results and theoretical constructs indicate regarding the potential aesthetics of immersive VR art? The results indicate that the discussion about the aesthetics of VR art has just started and that it may develop along various paths depending on the ontological background of whoever is writing and the background of the artists using immersive VR. Nevertheless, what can be said is that the aesthetics of an immersive work of art can be established through an analysis of its shaping process and its relation to the audience. This means looking at the dynamics engendered by the coordination of image and sound environments as employed in the dramaturgical work and the construction of myth (*mimêsis*) involving the actor-spectator. The aesthetics can also be found through a reflection about stimulating or impeding technical, physiological, social and psychological mechanisms as they are experienced by the audience within the VR artwork. Factors characterising the aesthetics of an immersive VR artwork will always be ultimately linked to the artistic aims of

²⁰⁰ Bourdieu, 1996. p.13

this specific artwork and will be dependent on its particular “rules of play”. Therefore it is legitimate to speak about open dynamics as the aesthetics of immersive VR art and for artists to develop these open qualities further. Like VR theoretician Grau, I think that the procedural and open character of a VR art work shall be stressed. He writes:

The ontological character of a work of art as defined by Heidegger and others no longer obtains in the aesthetics of computer-aided virtual reality. For this reason, such works are defined increasingly in terms of their processual nature, which stresses their unfinished or open quality and locates art within a framework of communicative social relations.²⁰¹

“Unfinished” is not a word I would use in connection with works such as my VR arts play, where the artistic intention is not to produce an unfinished work but rather to open for several ways for the audience to accomplish it. Anyhow, the consequence of the open quality of VR art is that its practice by VR artists and the audience, the dynamics of this interplay – what Grau calls the framework of communicative social relations – is what I believe will ultimately define the aesthetics of immersive virtual reality art.

CONCLUDING DISCUSSION

SPECIFICITY OF AN IMMERSIVE ARTISTIC EXPERIENCE

Recapitulating now the main results of the fifth and final part of the thesis in order to reconsider and answer the research question, this is what can be said about the specificity of the artistic experience, when the VR-Cube is used, from a performing arts perspective, in order to create a work that abolishes the distance between stage and auditorium.

This study has shown that all the respondents but one, children as well as adults, thought that such a VR arts play enabled them to discover new kinds of artistic experiences, i.e. new ways for an audience to meet, communicate and “play a work of art from within” that they had not enjoyed before, when they experienced visual arts, performing arts and computer games produced by non immersive VR-based technology. The creative team of my VR arts play, experts and researchers from the visual arts, performing arts and computer-games, media specialists and myself, in my double role of artistic leader and artistic researcher, all acknowledged that immersive VR definitely

²⁰¹ Grau, 2003. p 207

offers new, impressive means for an artist to give shape/Gestalt to an artistic vision. What this chorus of voices from in and outside the Cave, expressed is that it is absolutely worth to continue with artistic research in order to further develop immersive artistic VR experiences. These research results show that there is a considerable unexploited potential of immersive VR technology, in terms of further technical and dramaturgical explorations for artistic purposes within the visual arts, performing arts and computer-games or/and at the crossover between several artistic fields.

The specificity of the experience relied on several parameters, the major ones being immersivity and interactivity, two intertwined means to serve the audio-visual and motion-related dramaturgical concept of the VR arts play. Other medium-specific parameters, intimately linked to the dramaturgical concept, were its crossover character between several art forms and computer games. Full body immersion in three-dimensional imaginary worlds and the synchronisation of visual and musical stimuli following the audience's progression, gestures and interaction within the virtual environments were acknowledged by the majority of the respondents as unique features of the experience compared to other art forms within the visual arts, the performing arts and computer games. This is what may happen, when an artistic leader chooses, as I did, instead of reproducing and simulating realistic environments, to put focus on shaping virtual artefacts and programming animations as imaginary Gestalten and events which have no direct correspondance in the "real" physical world and which could not possibly be experienced through a non-immersive VR-based dramaturgy. The thoroughly planned audio-visual and motion-related synchronisation²⁰² proved to have the potential of strengthening the identification process between the audience and the VR artwork. The strength of the identification process explained its impact on several spectators as experience of truth, in the sense of *aletheia*, i.e. something new stepping forward and revealing itself in the experience of art, something that was previously unknown to the person in her relation between self and the world.

Intimately linked to immersion and the audio-visual-motion synchronisation, the most unique character of the experience, in the audience eyes, proved to be the imaginary character of three dimensional virtual reality based environments challenging the senses and usual notions of space. At times, audience's reactions and comments showed that the usual notion of time also got challenged. They also revealed how the experience could activate a sensitisation of other senses than the sight and the hearing, the only two senses that are "objectively" and directly activated in the VR-Cube. On

²⁰² See Appendix 5.2: Time table for interaction in musical and visual environments

several occasions, the sense of touch happened to be stimulated by the audio-visual and motion-related stimuli of the interactive environments.

When the stage and the auditorium melt together into one and the same immersive VR environment and the artistic illusion operates at the borderline between the spectator's physical body and its surrounding virtual environment, the question of what illusion and reality are, is brought to a head. The journey made by a real person, whose whole body is physically engaged in an experience into imaginary worlds, becomes an experience in between illusion and reality. Given the above characteristics, I have come to define the artistic experience of my VR arts play as a multisensual, "artistic crossover experience in between illusion and reality".

The essence of such an experience is to be found in the notion of "play in between", for an audience apprehended as spectators and actor/participants within a virtual reality artwork. I have defined the nature of play in relation to Gadamer's concept of play (*Spiel*, in German) as a play in between several actors involved: the artistic leader with her production team, the actor-spectator, the artistic material and the medium itself. The idea of play in between has been enlightened in regard to several roles and identities for an audience that perceived itself almost always as both spectator and actor/participant but also as observer, player, traveller and explorer in a collective or personal imaginary journey within outside and inner worlds. I have also discussed how the notion of play in between is to be extended to the to and fro movement in between various senses, in between several possible choices made by an actor-spectator and the hazard factor. I have explained how the artistic researcher took on successive *in between* roles and identities as well, being successively or simultaneously artistic leader, actor-spectator within the audience of her own VR artwork but also fylgia, audience's guide and/or audience observer. Taking Gadamer's concept of play and Aristotle's classification system of drama as points of departure, and given the crossover character of such a play in between the visual arts, the performing arts and computer games, I have coined my own term of this particular form of artistic experience: a **virtual reality arts play** or **VR arts play**, i.e. a play based upon virtual reality and a crossover between several art forms and media.

Metaphor, as defined by Paul Ricoeur in *La métaphore vive*, has been identified as the motor of such a VR arts play that makes the play truly played in between an actor-spectator and the artistic material he/she evolves within and participates in. I have argued that a condition for a rewarding experience and for a VR arts play to become a revelation as truth (*aletheia*) is the audience commitment to the immersive experience through intentionality and the forgetfulness of consciousness. The rule of metaphor has been explained as the ability for actor-spectators of tracing identity and differences in relation to previous knowledge, choosing, disassembling and reassembling the

artistic material in order to construct something new with their own imagination. Audience surveys and in-depth interviews have shown how metaphorical thinking was stimulated within the VR arts play and how actor-spectators engaged themselves in a personal and/or collective metaphorical journey in between their own inner worlds, their physical bodies and the artistic content of the VR arts play. Within a virtual journey during which the distinction between illusion and reality seems to lose its relevance, what really matters is the seriousness of play, i.e. its capacity to engage the audience through Ricoeur's definition of the "seeing as" function (*le voir comme*) in order for it to be genuinely and meaningfully played and experienced. Therefore, I have expressed my belief in the potential of illusionism within immersive VR art as a means to develop emotional intelligence and redeem our awareness of reality.

I have referred to the idea of hermeneutical circle, mirroring my research project as a whole as an ongoing oscillation between part and totality, between intuition and analysis towards higher levels of understanding during a given time-frame. By doing so, I have attempted to describe and locate my particular research project within a broader hermeneutical collective process towards the establishment of the new field of immersive VR art, in Bourdieu's sense of the term *champ artistique*, i.e. an artistic field, which emergence is tightly related to a given social-time space (*l'espace temps-social*). I have described this emerging artistic field as a new field of meaning, where discussions concerning potential aesthetics take place and definitions are launched, and coined the expression "artistic knowledge shaping" in order to explain how my particular research process, as play in between artistic material and theoretical and empirical interweaving functions in a chorus of voices representing various horizons of knowledge, becomes part of a larger collective process in the production of meaning, within immersive VR art in particular and artistic research as a whole.

VISION FOR THE FUTURE

A political wager for art, entertainment and technology

As immersive medium the VR-Cube is still unknown to the broad audience, few artists and artistic researchers in the world use it and there is no established cultural context for these artworks to be presented within. Better technical and financial solutions will automatically increase the level of accessibility, the interest from several partners and open new opportunities to develop the VR-Cube or other immersive VR-based media for broader audiences. However, discussions concerning the future of immersive VR art technology reach far beyond technical, financial and access-related issues. The VR-Cube is by no means "the" Medium, but only one among several immersive VR media, which further research, might be based upon. It is the

artistic potential of immersive VR experiences in general, and not the specific medium per se, which is the interesting field of discovery.

The development of immersive VR and immersive VR art in particular mostly depends on powerful actors in society, political and financial decision makers within the media industry and research funding. Today, immersive VR most often leads a promising but hazardous life. Who will take the leadership? The entertainment industry, the design or building industry, medical care institutions or research centres for new media, art or information technology or several actors together? In Gothenburg, for instance, where Chalmers VR-Cube has been taken apart 2006, and research and experimentation with this particular immersive medium has stopped, there is a new visualisation centre that possibly could take up the immersive VR gauntlet.

We are back to the political arena and the discussions presented in the contextual part of the thesis. I do not mean political in the sense of politician Politics but in the original sense of the term “Politics”, i.e. the life of the Greek city and the values carried by the society. In this acceptance of the word, I would argue that the future of immersive VR art technology depends on economical, technical and cultural choices and on several actors in society, who have the power to influence the media debate in general and the VR-debate in particular and to implement those choices. Those actors’ visions could frame further multidisciplinary research within the field of new media, art and technology and contribute to determine the future of immersive VR technology in general and immersive VR arts in particular. Here I deliberately write “arts” in plural because, as shown by my research results, immersive VR has a potential of discovery for both the visual arts, the performing arts and computer games, since it woke the interests of professionals within several fields: film, painting, theatre, dance, sculpture, computer games and even music video. Having seen the DVD film *Om Le Beau, le Laid, le Bon et le Mauvais*, a musician contacted me about performing a music video in the imaginary worlds of my VR arts play. I could not consider a proposal that collided completely with the artistic and musical content of my VR artwork. Even though I turned it down, this request constituted an interesting research result, showing that among artistic directors interested in the potential of immersive VR-art, musical artists could be interested in using the scenery of immersive artistic environments for music videos.

As artistic researchers, we have a responsibility to open the eyes of potential interested actors and decision makers for possible choices but we cannot determine the implications of these choices. The entertainment industry has not yet discovered or chosen to develop artistic immersive VR media in large scale projects. That such a powerful actor in society would make investments in immersive VR art technology in order to make it available to a broad audience, would be a promising scenario. There

are of course many ways the entertainment industry could put such powerful media to an improper, instrumental and purely commercial use, in order to manipulate the audience, especially within the uttermost lucrative industry of computer games. Nevertheless more optimistic scenarios, where artistic visions would not only serve commercialism but go hand in hand with it or even guide entertainment are not to be ruled out either. There are in fact signs that point in that direction.

One example is the strategy used by Lucasfilm when the digital-art company established itself in Asia in 2006. In an article from *Time* magazine entitled “Fantasy League. How Lucasfilm is turning Asia’s young artists into next generation of digital-animation pioneers”, journalist Kathleen Kingsbury explains how the company conducts an experiment implementing a new recruiting strategy applied to any medium from feature films to TV animation to video games. Instead of privileging excellent technical skills and years of experience as prerequisites for joining the creative team, as they usually do in the US, the company opted for different recruitment criteria, when opening its first overseas studio in Singapore. They chose artistic visions and artistic skills in the first place and gave their new team members the necessary technical know-how afterwards:

[...] the developers and animators in Singapore were hired less for their résumés than for their artistic eye [...] “Our experiment is to take the most talented, passionate artists we can find and give them the necessary technical know-how”, says Gail Currey, vice president and general manager of Lucasfilm animation [...] Lucasfilm didn’t open its office in Singapore just to fulfil the dreams of a few dozen lucky young sci-fi fans. The company’s desire to develop these workers into cross-disciplinary, creative thinkers will be crucial to its effort to turn every Lucasfilm project into a multiplatform, multimedia event.²⁰³

And in the same article, Michel Chau, Lucasfilm’s president and ceo goes even further claiming that crossovers between several disciplines is “the new world order of entertainment”:

Being able to create content across several disciplines, Chau adds, is “the new world order in entertainment”.

Even if there is reason to feel cautious about such a main-stream economic wording as “new world order” concerning crossovers between several disciplines, I can only acknowledge the crucial importance of such interdisciplinary work for the development

²⁰³ Kingsbury, Kathleen, 18 Feb. 2008. “Global business, Top Business Teams. Fantasy League. How Lucasfilm is turning Asia’s young artists into the next generation of digital -animation pioneers”, *Time*, pp. 43-44

of digital art in general and immersive VR art in particular. Not only power houses from the entertainment industry should, in my view, be given ways of participating to and designing such a new “world order”.

Therefore, and it is my personal hope, if key actors in the entertainment industry, politicians and decision makers from the fields of arts and computer-science manage to create forums engaging multitasking “cross-disciplinary creative thinkers”, and launch collaborative projects between artistic researchers, free lance artists, institutions for art and computer science and the entertainment industry, this could contribute to the development of immersive VR art in order not only to serve commercialism but to give this art form a natural place within other art forms by developing new kinds of immersive experiences.

Art and entertainment in between illusion and reality

Research results confirmed my intuitive understanding of immersive VR media as media, whose primarily artistic potential does not reside in exact simulations of realistic surroundings but rather in the creation of fantasy worlds within open experiences at the borderline between art and entertainment and engaging the audience as actor-spectators in the play. What highly surpassed my expectations was how a VR arts play could be played in various social settings stimulating some spectators to become not only actor-spectators but also stage setters, play directors, performers and creators of their own metaphors and artworks such as the picnic scene. Neither was I fully aware of how strong the physical and mental impact of such an immersive VR artwork would be on some spectators and that it might challenge mundane notions of space and time and stimulate emotional intelligence to other levels of awareness.

With this in mind, my personal vision of various development paths for immersive VR art relies upon the dynamics created by the open qualities of a VR arts play in its meeting with actor-spectators towards several possible achievements for various audiences within various constellations of play: a play that offers an intimate experience addressing one or a little group of spectators or a play conceived more as a social and collective experience engaging a greater number of actor-spectators. One could imagine VR arts plays within the fields of computer games, visual arts and performing arts but also within other fields related to our awareness of reality, such as, for instance, meditation, medical research. In my view, the most challenging development path is to be found within new social and collective activities combining art, leisure and entertainment to be imagined and developed in the future.

Therefore, I was thrilled by the Opening Ceremony of the Beijing 2008 Olympic Games²⁰⁴ masterminded by Chinese film director Zhang Yimou. Even if the spectators were not physically active during the ceremony (i.e. not interacting with virtual artefacts), all the other artistic and dramaturgical elements, enhanced by the most advanced technical achievements, harmonized with my vision of the future of immersive VR art experiences. At the very end of my writing process, I could not easily find a better example in order to communicate this vision to the readers. What this Opening Ceremony confirmed is the tremendous potential of artistic crossovers between illusion and reality for broader audiences:

Through lighting, fireworks, acoustic design and large-scale engineering projects, the Opening Ceremony transformed the National Stadium, a Chinese architectural symbol for the Bird's Nest (The Phoenix Nest), into a screen of huge dimensions. The artistic idea and main thread running through the entire ceremony, was that of a Chinese scroll, on which performers expressively showed the development of Chinese culture through time in an artistic crossover between performing arts, visual arts and martial arts. This was accomplished by means of a highly sophisticated digital multimedia technology. One of the most touching part of the programme, for me, was a performance in which dancers simultaneously performed choreography and calligraphy by painting landscapes with their own body on the "real" surface of the scroll,²⁰⁵ whereas three dimensional virtual artefacts representing elements of nature as parts of the calligraphy as a whole, floated around them. This way, the Opening Ceremony majestically demonstrated how arts and technology can meet in new social settings, creating immersive experiences in between art, leisure and entertainment for broader audiences and engaging, spectators and performers from various horizon of knowledge (the overall audience in the stadium and telespectators all over the world, heads of states and other VIP, Olympic athletes, volunteers, actors, dancers, musicians, visual arts and martial arts artists, adults as well as children) in cultural adventures in between illusion and reality. I can imagine how similar experiences could be developed in the future if real actors and dancers would perform and interact with actor-spectators and virtual avatars in real and unreal settings integrating immersive VR-technology into a traditional scenography. Future audiences could for example be invited to real picnics in virtual environments or to virtual immersive journeys and dancing soirees within imaginary worlds.

²⁰⁴ Opening Ceremony for the Olympic Games, 8 Aug. 2008. Beijing, China

²⁰⁵ Dancers perform on a scroll during the Opening Ceremony for Beijing 2008 Olympic Games at the National Stadium on August 8, 2008 in Beijing, China. Choreographer: Shen Wei
<http://en.beijing2008.cn/ceremonies/photos/openingceremony/performances/n214517060.shtml>

PART V

During a workshop hold by Bruno Latour in June 1999 at the department of Art, Culture and Communication at Malmö University, the sociologist spoke about the primary qualities of life, i.e. the essential part of human life in relation to the secondary qualities of life. He said that the current focus was on the secondary qualities, which he called “the furniture of the world”,²⁰⁶ i.e. scientific and materialistic achievements in form of products, things etc. Art instead belonged, according to Latour, to the primary qualities of life, i.e. other qualities with an existential value and he thought that it would be more and more difficult to keep art inside the notion of *supplément d'âme* (soul supplement), and that human beings would have to go back to the primary qualities of life. I personally want to believe that artistic research will be part of such a gigantic enterprise, acting Trojan horse in various multidisciplinary research fields, not to entice the audience but, the Bad and the Good being two sides of the same coin, towards *aletheia*, in order to orientate the public debate towards less furniture of the world and more meaning. I am firmly convinced that immersive VR art is such an arena of meaning where artistic research could act as a Trojan horse.

²⁰⁶ Latour, Bruno, 7 June 1999. Workshop for the research students at Malmö University, Department of Art and Communication

References

1. Literature and articles

- Alberge, Dalaya, 12/9/2005. "Laptop illusions add a startling extra dimension to live theatre" *The Times*
- Andersson, Sven, 2000. "Methodology" *Changing Photography, Photographic vision and the Digital evolution*, Gothenburg: School of Photography and Film, Göteborg University, Chalmers Medialab, Chalmers University of Technology: 35-40
- Andersson, Åke E., Wichmann Matthiessen, Christian, 1993. *Øresundsregionen, Kreativitet. Integration. Vaekst*, Copenhagen: Munksgaard/Rosinante
- anomalie digital_arts*, International Magazine in several language, Paris
http://www.editions-hyx.com/boutique_us/liste_produits.cfm?code_lg=lg_us&type=7
- Aristotle, 350 BC. *Poetics* transl. by S.H. Butcher, online version:
<http://libertyonline.hypermall.com/Aristotle/Poetics-Body.html>
1996. *Poetics*, transl. by Malcolm Heath, London: Penguin Classics
Rhetoric, Online version based on the 1954 translation of classicist W. Rhys Roberts. Compiled by Lee Honeycutt of Indiana State University:
<http://www.public.iastate.edu/~honeyl/Rhetoric/>
- Baril, Jacques, 1984. *La Danse Moderne (d'Isadora Duncan à Twyla Tharp)*, Paris: éditions Vigot
- Bechara, Antoine, Damasio, Antonio R., Reuven Bar-On, 2007. "The Anatomy of Emotional Intelligence and Implications for Educating People to Be Emotionally Intelligent" (Reuven Bar-On, J.G. Maree, and Maurice Jesse Elias, eds.) *Educating People to be Emotionally Intelligent*, Praeger, Westport, CT, chap 19.
- Bengtsson, Jan, 1988. *Sammanfätningar. Fenomenologi från Husserl till Merleau-Ponty*, Göteborg: Daidalos.
- Bergson, Henri, 1903. "Introduction à la métaphysique" *Revue de Métaphysique et de Morale*, XI: 19
- Bergson, Henri, 1923. *Intuition och intelligens*, Stockholm: Wahlström & Widstrand
- Broadhurst, Susan, 1999. *Liminal Acts: A Critical Overview of Contemporary Performance and Theory*, London: Cassell

REFERENCES

- Bourdieu, Pierre, 1992. *Les règles de l'art, Genèse et structure du champ littéraire*, Paris: Seuil
- Bourdieu, Pierre, 1996. *The Rules of Art, Genesis and Structure of the Literary Field*, transl. by Susan Emanuel, Stanford: Stanford University press
- Comment, Bernard, 1993. *Le XIXe siècle des panoramas*, Paris: Société Nouvelle Adam Biro
- Damasio, Antonio R., 1999. *The feeling of what happens: body and emotion in the making of consciousness*, New York: Harcourt Brace
- Damasio, Antonio R., 2006. *Descartes' error: emotion, reason and the human brain*, London: Vintage
- Davies, Char, Website of the painter: <http://www.immersence.com>
- Davies, Char, 2003. "Landscape, Earth, Body, Being, Space and Time in the Immersive Virtual Environments Osmose and Ephémère" *Woman, Art and Technology*, ed. by Judy Malloy, London: The MIT Press: 322-337
- Davies, Char, 2003. "Rethinking VR: Key Concepts and Concerns" *Hybrid Reality: Art, Technology and the Human Factor*, ed. by Hal Thwaites, Montreal, Canada: International Society on Virtual Systems and Multimedia: 253-262
- Davies, Char, 2004 "Virtual Space" *Space: In Science, Art and Society*, Francois Penz, Gregory Radick and Robert Howell eds., England: Cambridge University Press: 69-104
- Davies, Char, 2005 *Landscapes of ephemeral Embrace: A painter's explanation of immersive virtual space as a medium for transforming perception*, Doctoral dissertation: Plymouth University
- Delahaye, Guy & De Gubernatis, Raphael & Bentivoglio, Leonetta, 1986. *Pina Bausch, Photographies de Delahaye, Textes de Raphael De Gubernatis et Leonetta Bentivoglio*, Malakoff: Les éditions Solins
- Eco, Umberto, 1979. *A theory of semiotics*, Bloomington: Indiana University Press
- Eco, Umberto, 1988. *Le Signe*, Bruxelles: Editions labor (reed. of 1973. *Segno*, Milan)
- Ehn, Pelle, 1998. "Manifesto for a Digital Bauhaus" *Digital Creativity*, Vol.9, N° 4: 207-216
- Fischer, Jennifer, 1999. "Char Davies" *Parachute*, #94 (April, May, June 1999): 53-54
<http://www.immersence.com/publications/1999-JFisher-N.html>

- Gadamer, Hans-Georg, 1990. (first ed. 1960) *Hermeneutik I, Wahrheit und Methode, Grundzüge einer philosophischen Hermeneutik*, Tübingen: Mohr
- Gadamer, Hans-Georg, 1985. *Truth and method*, translation of *Wahrheit und Methode*, New York: The Crossroad Publishing Company
- Gadamer, Hans-Georg, 1997. *Sanning och metod i urval*, Urval, inledning och översättning av Arne Melberg, Göteborg: Daidalos
- Gadamer, Hans-Georg, 2004. *Truth and method*, Second, revised translation of *Wahrheit und Methode* by Joel Weinsheimer and Donald G. Marshall, New York and London: Continuum
- Giannachi, Gabriella, 2004. *Virtual theatres, an introduction*, London and New York: Routledge
- Grau, Oliver, 2003. *Virtual Art: from illusion to immersion*, Cambridge, Mass.: MIT
- Heim, Michael, 1993. *The metaphysics of virtual reality*, New York: Oxford University Press
- Holme, Idar Magne and Solvang, Bernt Krohn, 2000. *Forskningmetodik, Om kvalitativa och kvantitativa metoder*, Översättning Björn Nilsson, (first ed. 1986, original title: *Metvalg og metodebruk*) Lund: Studentlitteratur
- Jensen, Gunilla, 23 Aug. 1998. "Humour och svärta i klar koreografi" *Svenska Dagbladet KULTUR*: 19
- Kisselgoff, Anna, 30 July 2008. "DANCE, An Intellectual Who Follows Eros" *The New York Times* (first published April 22, 2001)
- Lilja, Efva, 2004. *Danskonst i nöd och lust*, Stockholm: ELD
- Lister, Martin & Dovey, John & Giddings, Seth & Grant, Iain & Kelly, Kieran, 2003. *New Media: A Critical Introduction*, New-York: Routledge
- Ljungar-Chapelon, Magali, 1997. *Culture in the European Arena between Romanticism and Economic Growth, A new challenge for the cultural sector in Scania?* Master thesis, University of Lund: Department of Political Science.
- Ljungar-Chapelon, Magali, 1999. *Skiften, Rapport Del 1 and Skiften Rapport Del 2*, Malmö högskola: Konst och Kommunikation. (Evaluation of the Shift project) Malmö University: Departement of Art and Communication

REFERENCES

- Ljungar-Chapelon, Magali, 2004. "Om Le Beau, le Laid le Bon et le Mauvais, A film about a Virtual Reality arts play in the VR-Cube" *Realitat Virtual a l'arquitectura i la Construcció, Virtual Reality in Architecture and Construction, Actes del III Congrés Internacional ARQUITECTURA 3000: Arquitectura de la in-diferència. The architecture of in-difference, Barcelona Juliol 2004, KHÏRA II, 7*, ed. by Escuela Técnica Superior de Arquitectura de Barcelona in the publications for the third international congress of architecture in Barcelona: 115-117
- Ljungar-Chapelon, Magali, 2008. "Metaphor as key for artistic knowledge shaping, Creating a VR arts play by tracing identities and differences" *Artistiek Onderzoek, Master of Education in Arts (Dancel/Music) 2007-2008, Codarts, Hogeschool voor de Kunsten Rotterdam* (written 2004 and ed. 2008 by Dr. F. G. Evelein in the compendium for their master's programme, Rotterdam: Hogeschool voor de Kunsten
- Maison de la Danse, 1988. *III e BIENNALE INTERNATIONALE DE LA DANSE LYON/FRANCE, 13 sept - 6 oct 1988. 4 Siècles de danse*, Programme book from the international dance festival, published in Lyon by La Maison de la Danse.
- Manovich, Lev 2001. *The language of new Media*, London: The MIT Press
- McRobert, Laurie, 2007. *Char Davies' Immersive Virtual Art and the Essence of Spatiality*, Toronto: University of Toronto press
- Merleau-Ponty, Maurice. 2000 (first ed. 1962) *Phenomenology of Perception*, transl. by Colin Smith, London: Routledge
- Moser, Mary Anne & MacLeod, Douglas & Banff Centre for the Arts, 1996. *Immersed in technology: art and virtual environments*, Cambridge, Mass.: MIT Press
- Peter, Frank-Manuel, 1998. *Birgit Åkesson, Postmoderner Tanz aus Schweden, Postmodern Dance from Sweden, Postmoderna Dans från Sweden*, Deutsches Tanzarchiv Köln: Wienand Verlag
- Quinz, Emanuele, 2002. *Digital Performance, anomalie digital_arts n. 2*, Rom: Press ATI s.r.l.
- Ricoeur, Paul, 1950. *Edmond Husserl: Idées Directrices pour une Phénoménologie, Traduction, Introduction et Notes, Thèse complémentaire présentée à la faculté des lettres de l'Université de Paris par Paul Ricoeur, agrégé de philosophie*, Paris: Gallimard

- Ricoeur, Paul, 1996. *A key to Husserl's ideas I*, transl. and with a preface by Bond Harris & Jacqueline Bouchard Spurlock, edited, translation revised, and with an introduction by Pol Vandavelde, Milwaukee: Marquette University Press
- Ricoeur, Paul, 1975. *La métaphore vive*, Paris: Editions du Seuil
- Ricoeur, Paul, 1997. *The Rule of Metaphor, Multi-disciplinary studies of the creation of meaning in language*, translation by Robert Czerny, London: Routledge
- Ricoeur, Paul, 2003. *The Rule of Metaphor, The creation of meaning in language*, transl. by Robert Czerny with Kathleen McLaughlin and John Costello, SJ, London and New York: Routledge Classics
- Ricoeur, Paul, 1986. *Du texte à l'action. Essais d'herméneutique II*, Paris: Édition du seuil
- Ricoeur, Paul, 1991. *From text to action*, transl. by K. Blamey and J. Thompson, Evanston: Northwestern University Press
- Ritter, Peter, 22 Oct. 2007. "Movies, Infernal Affair. In Ang Lee's latest elegy – a sultry World War II spy thriller – the bedroom is the battleground" *Time* (Magazine): 54
- Rivenburg, Roy, 6 Sept. 2001. "Inside the Headset, Virtual World Meets Reality; The gadgetry is being used to cure phobias, end flashbacks and enhance teaching", *Los Angeles Times*
- Silvermann, Hugh. J. 1997. *Cultural semiosis: tracing the signifier/edited with an introduction by Hugh. J Silverman*, New York: Routledge
- Snow, C.P., 1959. *The Two Cultures and the Scientific Revolution*, Cambridge: Cambridge University press
- Thwaites, Harold, 2005. "The Immersant Experience of Osmose and Ephémère" [PDF File] *Proceedings of the 2005 International Conference on Augmented tele-existence ICAT '05. Christchurch, New Zealand*: 148–155
- Waltenberg Lilith, 25 Feb. 2004. "Det är bara vi..." *Sydsvenska Dagbladet*
- Wennberg, Teresa, 2002. *Into the brain, Electronic works since 1978, a selection*, Ödeshög: Almlöfs edition
- Ångström, Anna, 21 Aug. 1998. "Pina Bausch talar känslornas språk" *Svenska Dagbladet, KULTUR*
- Ångström, Anna, 29 Apr. 2003. "Dansen tar plats på internationell dag" *Svenska Dagbladet, KULTUR*

REFERENCES

2. Lectures, seminars and workshops

Bengtsson, Jan, 21 Apr. 2004. *Subjektivitet och objektivitet i konst och vetenskap sett ur ett livsvärldsperspektiv*, lecture at the Faculty of Fine, Applied and Performing Arts, the University of Gothenburg

Delholm, Kirsten & Krogh, Signe & Kongshaug, Jesper & Qvortrup, Lars, 26 Nov. 1998. Introduction to the artistic work of *Hotel Proforma*: Seminar at Malmö högskola: Konst och Kommunikation. Malmö University: Departement of Art and Communication

Latour, Bruno, 7 June 1999. Workshop for the research students at Malmö University, Department of Art and communication

Latour, Bruno, 7 June 1999. *Shiflecture 13: Paris, Invisible City (Paris, Ville Invisible)*, Malmö University. <http://www.mah.se> (look for: Skiften)

Muchin, Sergei. 22 Oct. 2003. *Digital Media som redskap för lärande*, Lecture at the Centre for New Media and Higher Education, Chalmers University of Technology

Scali, François, 5 Oct. 1998. *Shiflecture 5: SCALES*, city library in Malmö (Stadsbiblioteket i Malmö), in collaboration with BO-01 City of Tomorrow.

3. Works of art, installations and exhibitions within visual and performing arts, digital art and VR art

Dehlholm, Kirsten with *Hotel Proforma*, 1998. *Operation: Orfeo*, Malmö Stadsteater

Escher, M.C., 1953. *Relativity*, a lithograph,
<http://www.moescher.com/Gallery/back-bmp/LW389.jpg>

Ljungar-Chapelon, Magali, 1987. *Tour de spectacle, Kanalfärd mellan dröm och verklighet* (Canaltrip between Dream and Reality), Dance and Theatre Performance for the Malmö festival.

Ljungar-Chapelon, Magali, 1993. *Norr om Söder* (North of South), Dance and Theatre Performance for the Malmö Festival

Ljungar-Chapelon, Magali, 2002-2003. *Le Beau, le Laid, le Bon et le Mauvais*, VR arts play in the VR-Cube presented during the "Open Cube" days 10-12 of December 2002 at Chalmers University of Technology and during the International Festival of Science of Gothenburg in May 2003.

- Ljungar-Chapelon, Magali and Andersson, Sandra (coprod.), 2004.
Om Le Beau, le Laid, le Bon et le Mauvais, film about my VR arts play produced at the Centre for Digital Media and Higher Technology, Chalmers University of Technology in collaboration with The School of Photography and Film, University of Gothenburg.
- Ljungar-Chapelon, Magali, 2006. *Om Le Beau, le Laid, le Bon et le Mauvais*, (Det vackra, det Fula, det Goda och det Onda), *Virtual Reality Arts Play av Magali Ljungar-Chapelon, Konstnärlig forskning i VR-kuben*: DVD produced by Chalmers University of Technology and the the Faculty of Fine, Applied and Performing Arts, University of Gothenburg.
- Marin, Maguy, 1988. *Eden*, Biennale de la Danse, (Dance Biennial) Auditorium de Lyon
- Marin, Maguy, 1998. *Les sept péchés capitaux*, Opera de Lyon
- Musée des Beaux Arts de Caen, *PANORAMA-Exhibition*, 9 July - 17 October 2005.
Jean-Charles Langlois (1789-1870) Le Spectacle de l'Histoire, Art Museum of Caen
- Nikolaïs, Alwin (1912-1993), choreographer
http://www.pbs.org/wnet/americanmasters/database/nikolaïs_a.html
- Preljocaj, Angelin and *Ballet Preljocaj*, 2000. *Portaits in Corpore* and 2001. *MC/22 (This is my body)* and *Helikopter* (Dance performances)
<http://www.preljocaj.org/angelin.preljocaj-1-0-en.html>
- Unander-Scharin, Åsa, 22-25 Apr. 2004. *Navigation, publikreaktivt laboratorium*, interactive installation at the Malmö Art Gallery (Malmö Konsthall) during the Dance Biennial in Malmö, <http://www.danstidningen.se/index.php?pageld=11&subld=44>
- Wayne, Mc Gregor and *The Random Dance Company*, April 2002. *Nemesis*, Dansens hus in Stockholm
http://www.ballet.co.uk/magazines/yr_02/nov02/kn_rev_random_0902.htm
- Wennberg, Teresa, 2001. *Brainsongs - Welcome to my brain*. VR artwork in the VR-Cube, Stockholm: The Royal University of Technology
- Yimou, Zhang, 8 August 2008. *Opening Ceremony for the Olympic Games*, China: Beijing

REFERENCES

4. Media Reception of my VR arts play and Research Project

- Cronsioe, Konrad, 24 May 2006. *Vetenskapslandet* (The Land of Science), Swedish television Programme on TV channel "Kunskapskanalen" (The Knowledge Channel). <http://hdl.handle.net/2077/6213>
- Fahle, Jorun, 12 Dec. 2002. "En resa i fantasin i 3-D kuben" (An Imaginary Journey in the 3-D Cube) *Chalmers Nyheter*, *Chalmers University of Technology's Website*
- Fredriksson, Andreas, 2005. "Framtidens konstforskning formas i Göteborg" (Artistic research for the future takes shape in Gothenburg) *METOD & PRAKTIK, Texter om forskning och utvecklingsarbete inom det konstnärliga området, Metod och Praktik – Årsbok 2005 om Konstnärligt FoU Vetenskapsrådet*, Journalistgruppen AB, Reptil Tryckeri: Arkpressen, 64-68
- Kirchsteiger, Ernst, 17 and 21 Januari 2006. Swedish television, programme number 10: SVT 2, "Rum med känsla, Tionde programmet-det om känslor" (Room with Feelings) Ruminredningsprogrammet *Nya rum*
- Lennqvist, Anna, May 2003. "Titta – en ny verklighet" (Look – a new reality) *GLIMT*: 42-46
- Nystås, Michael, 30 April 2003. "Virtual Advent Calendar and digital performance at the International Science Festival", IT University and Chalmers University of Technology's Website, this webpage and the following Nystås' articles visited 1 Sept. 2008
http://www.ituniv.se/index.php?option=com_content&task=view&id=2098&Itemid=93
- Nystås, Michael, 14 May 2003. "Many watched digital art during the International Science Festival"
http://www.ituniv.se/index.php?option=com_content&task=archivecategory&year=2003&month=05&module=1&Itemid=93
- Nystås, Michael, 15 May 2003. "Virtual Calendar popular adventure in the VR-Cube"
http://www.ituniv.se/index.php?option=com_content&task=view&id=2100&Itemid=93
- Nystås, Michael, 26 Nov. 2003. "New software and new projectors for the 'new' VR-Cube"
http://www.ituniv.se/index.php?option=com_content&task=archivecategory&year=2003&month=11&module=1&Itemid=93
- Nystås, Michael, 27 May 2004. "Big Conference on Applied Virtual Reality opened at Chalmers"
http://www.ituniv.se/index.php?option=com_content&task=archivecategory&year=2004&month=05&module=1&Itemid=93

Nystås, Michael, 18 Jan. 2006. "CKK:s Josef Wideström i SVT:s 'Nya rum' " (Josef Wideström in national TV Design Show)

https://www.ituniv.se/index.php?option=com_content&task=view&id=1303&Itemid=86

Nystås, Michael, 10 Mar. 2006. "TV reportage om Magalis digitala Konst i vår" (Magali's research on national tv on May 24)

https://www.ituniv.se/index.php?option=com_content&task=view&id=1100&Itemid=86

Nystås, Michael, 17 May 2006. "TV-intervju med Magali Ljungar-Chapelon i Kunskapskanalen" (Interview with Magali Ljungar-Chapelon on Swedish television, on "The Knowledge Channel")

https://www.ituniv.se/index.php?option=com_content&task=view&id=1251&Itemid=86

Nystås, Michael, 8 June 2006. "Experience the VR Arts Play on Magali's Seminar"

https://www.ituniv.se/index.php?option=com_content&task=view&id=1303&Itemid=86

Vetenskapslandet (The Land of Science), 2005. "Om Le Beau, le Laid, le Bon et le Mauvais" *Vetenskapslandets Film Festival*, Gothenburg. First public presentation of Sandra Andersson and Magali Ljungar-Chapelon's film

5. Non-cited works: Literature, lectures, artworks and other sources of inspiration

Barthes, Roland, 1981. *La chambre claire*, Paris: Gallimard

Bavelier, Ariane, 9 Aug. 2002. "Merce Cunningham: Le Hasard a des possibilités infinies" *LE FIGARO*

E.A.T. 1970. "Pepsi Pavilion for the Expo '70" *Experiments in Art and Technology*

<http://www.medienkunstnetz.de/works/pepsi-pavillon/images/6/>

Eber, Dena Elisabeth, 1999. "Virtual Imaginations Require Real Bodies" *ACM SIGGRAPH ONLINE TechnOasis 1999*

<http://ftp.siggraph.org/artdesign/gallery/S99/essays/denafull.html>

Fuchs, Philippe & Moreau, Guillaume, 2003. *Le traité de la réalité virtuelle*, 2e edition Volume 1: Fondements et interfaces comportementales
2e edition Volume 2: Création des environnements virtuels et applications, Paris: ed. by Ecole des Mines

Gislén, Ylva, 2003. *Rum för handling: Kollaborativt berättande i digitala medier*, Blekinge Institute of Technology Dissertation Series No 2003: 04,

<http://hdl.handle.net/2043/1191>.

REFERENCES

- KONSTEN – Nättidskrift om samtidskonst*, Swedish website about contemporary art
<http://www.konsten.net>
- Lacayo, Richard, 22 Oct. 2007. "Exhibit, Meet your Maker. Olafur Eliasson works with light, mist and mirrors. But above all, he works with you" *Time* (Magazine): 56
- Lagerström, Cecilia, 2005. *Det här är bara jag!* Seminar, Artisten, Faculty of Fine, Applied and Performing Arts, University of Gothenburg
- Manovich, 3 June 2000. A Lecture on art and new media, at the Victoria theatre in Malmö within the frame of the Shift project, org. by Malmö University: Departement of Art and Communication
- Mori, Mariko, May 2003. *The Dream Temple*, a walk-in piece/ work of art, at Roseum, Malmö (Centre for contemporary and modern art)
- Randall Packer, 2003. "The Pepsi Pavilion: Laboratory for Social Experimentation" *Future Cinema. The cinematic Imaginary after Film*, exhib. cat., Jeffrey Shaw/Peter Weibel (eds), Cambridge (Mass.), London: The MIT Press: 145
- Slater, Mel, 1 July 2004. "Interaction with virtual people", lecture within the third international congress of architecture in Barcelona: *The architecture of in-difference (Realitat Virtual a l'arquitectura i la Construcció, Virtual Reality in Architecture and Construction, III Congres Internacional ARQUITECTURA 3000: Arquitectura de la in-diferència)*.
- Södergran Edith, 1987. *Samlade Dikter*, England: Co & Wyman Lad.
- Wagner, Karin, 2003. *Fotografi som digital bild, Narration och navigation i fyra nordiska konstverk*, ed. by Lena Johanesson, Gothenburg Studies in Art and Architecture, nr 17, Göteborg: Intellecta DocusSys AB
- Wallin, Magnus, 2002. *Solo/Physical Sightseeing, Malmö Konsthall*, Malmö Art Gallery's catalogue nr 192
- Wallin, Magnus. 14 September -10 November 2002. *Solo/Physical sightseeing*, Exhibition/ installation at the Malmö Art Gallery (Malmö Konsthall)
- Wennberg, Teresa, 2003. *Tanken flyger* (installation) Stockholms kulturhus
- Öberg, Johan, 5 May 2004. *Bakhtin och subjektet*, lecture at the Faculty of Fine, Applied and Performing Arts in Gothenburg

Appendix

1. The VR-Cube at Chalmers University of Technology

The VR-Cube at Chalmers University of Technology had five projectors only and no ceiling.

VR-Cube technology

TAN/Barco was the company that produced Chalmers VR-Cube. Since then, VR-technology has evolved. The web-information on the latest technical improvements, provided by the company in August 2008, was the following:

The TAN VR-Cube™ is a cubic room with a base size of up to 10ft in which 3D images are projected on its side walls (2, 3 or 4) as well as on the floor and on the ceiling. This creates a complete spatial representation of the model and it provides a totally immersed room coverage.

The stereo images are rendered in real time by high performance computer systems. The user can move around or even enter the object or the scene using an electromagnetical tracking system by which the image is calculated in real time for each individual perspective. The considerable improvements of the TAN VR-Cube™ in comparison with known similar systems are:

- optimization of the seamless corner overlaps without metal wires
- better screen material for optimized color and contrast without hot spot effects
- high convergence stability by modified TAN projectors
- no metal elements in the screen skeleton

<http://www.barcocom/VirtualReality/en/products/product.asp?Element=1237>

For technical information about the VR-Cube at The Royal University of Technology in Stockholm (Kungliga Tekniska Högskola i Stockholm), see:

<http://www.pdc.kth.se/projects/vr-cube/>



2. Production team and folder of the VR Arts Play

2.1 Production Team – VR arts play

Le Beau, le Laid, le Bon et le Mauvais

Concept and Artistic leader

Manuscript, setting, music

Magali Ljungar-Chapelon

PhD student, Digital Representation

Research advisors

Sven Andersson

Research leader, Digital Representation

Lena Selander

Associate Professor, Stage Setting

Project leader

Digital settings

Josef Wideström

VR & Visualisation project leader

Design and 3D-modelling

The Garden

The Staircase and Portals

The Twin Room for Life and Death

Mattias Gunnarsson

Niklas Björnberg

Mia Olsson, HDK student

Niklas Björnberg,

Lotta Persson,

Erik Rask,

Tobias Torstensson, Chalmers students

Josef Wideström

Kasper Lennqvist

Björn Gross

The Labyrinth

The Pavilion

System manager VR

Interaction's programming

Johan Kihlström

Music producer

Digital sound design

Karl McFaul

Music of

Claude Debussy, Anders Ljungar & Torsten Nilsson

Auralisation

Sound programming

Pierre Olsson

PhD student Construction Engineering

Open VR version

Mathias Jäderholm

Mathias Hansson

Photography & Film

Documentation

Sandra Andersson

School of Photography and Film

Information

Carina O'Rourke

2.2 Folder

Swedish version of the folder's text

Vad är illusion, vad är verklighet när man – med hjälp av 3D-kuben – skapar en virtuell värld där salong och teaterscen flyter ihop? Vad är det som händer när man luckrar upp distansen mellan aktör och åskådare i ett digitalt verk där Du som publik får chansen att – med eller utan hjälp av en följeslagare – välja din egen resa? Jag är doktorand i digital gestaltning på CKK och knyten till den konstnärliga fakulteteten i Göteborg. "Le Beau, le Laid, le Bon et le Mauvais" är ett digitalt verk och en del i min avhandling med arbets-titeln: "Actor and spectator in the Cave, Artistic crossover between illusion and reality".

Att utforska dualismen mellan det goda och det onda, det vackra och det fula, dessa kontrastpar som sedan urminnes tider härskar i vår begreppsvärld och präglar våra myter, är den konstnärliga idén som ligger till grund för verket. Finns odjuret Minotaurus, vem är det och hur farligt är det? Är det vackra inom räckhåll för mig? I den tredimensionella kuben kan vi spegla världen genom virtuella miljöer där händelser är illusioner av varelser och människoskuggor. Vid det tjugoförsta århundradets gryning är vi tillbaka till den antike filosofen Platons metafor om grottan. Den tredimensionella kuben kan vara vår tidsgrotta för att fånga det onåbara. För mig innebär nya medier inte bara nya möjligheter att konstnärligt gestalta och kommunicera ett budskap till en publik. De kan ge – inte bara konstnären men även åskådaren – chansen att själv påverka gestaltningen för att besjåla tidsgrottan.

Vad tycker Du? Svara gärna på det i publikenkäten på:

http://www.medialab.chalmers.se/scientific/digital_representation/PhD/

Tack på förhand och lycka till på färden!

Magali Ljungar-Chapelon

English version

What is illusion? What is reality in a virtual space where stage and auditorium are intimately linked together?

What happens when the distance between the performer and the audience loosens up in a digital performance where you as a spectator – with or without an attendant – can choose different entrances into the play? I am a Ph.D. student in digital representation at Chalmers Centre for Digital Media and Higher Education and I am attached to the Faculty of Arts at University of Gothenburg. "Le Beau, le Laid, le Bon et le Mauvais" (The Beautiful, the Ugly, the Good and the Bad), is a digital performance and part of my thesis: "Actor and spectator in the Cave, Artistic crossover between illusion and reality".

To explore the dualism between good and bad, beautiful and ugly, these contrasting pairs dominating our way of thinking and from time immemorial imprinted on our myths is

the artistic idea that this digital performance is based upon. Does the Minotaurus beast exist? How dangerous is it? Is the beautiful within my reach?

In the three-dimensional Cube we can mirror the world through a virtual environment where what we perceive are illusions of figures and human shadows. At the dawn of the twenty-first century we are back to the ancient philosopher Plato's metaphor of the cave. The three-dimensional cube can be our time-cave in order to catch a glimpse of the unreachable. For me, new media not only represent new alternatives that can shape and communicate an artistic message to an audience. New media may give – not only the artist but also the spectator – an opportunity to influence the shaping process in order to draw own shadows into the time-cave.

What do you think? You are welcome to express your opinion in an audience enquiry on: http://www.medialab.chalmers.se/scientific/digital_representation/PhD/magali/index.html
Thank you for your collaboration and good luck on your journey!

Magali Ljungar-Chapelon

Digital Representation is a newly formed research area that has been developed in cooperation between Chalmers University of Technology and University of Gothenburg. There are at present three doctoral students in the programme and their research concern the artistic and conceptual possibilities that arise from the use of digital media in the artistic process. Assistant Professor Sven Andersson is the research director and the work is carried through at the Centre for Digital Media and Higher Education at Chalmers.

3. Manuscripts for the VR arts play

3.1 The Labyrinth

Manus till Labyrinten (i olika versioner)

Min första version

Minotaurus Labyrint: Här träder Åskådaren/Vandraren in genom en spegelport där han/hon ser sin egen spegelbild. Odjuret Minotaurus kan ses som symbolen för rovdjuret i människans psyke, en plats för rädsla, blindhet och förstörelse mot bättre vetande. Innan man träder in i själva labyrintens hjärta rör man sig i en expressionistisk kall, steril och klaustrofobisk miljö där väggarna och marken är sneda, vilket ger en yrselkänsla. Här kan man tänka sig en scenbild i stil med vissa 3D miljöer skapade som "Amorpha konstruktioner" av konstnären och ingenjören Horst Kiechle. Ju längre man kommer in i labyrinten desto mörkare och kyligare blir det, vilket ger en känsla av instängdhet. Minotaurus syns aldrig i sin helhet, man hör enbart några förtvylade människoskrik och det dova ljudet av hamrande hovar. Vid ett tillfälle ser man mycket hastigt huvudet av en tjur

skymta i bakgrunden. Bortom det fasansfullt djuriska skall man förnimma mänskliga ansiktsdrag. Där kan Cocteus fantastiska djurmask gjort för Jean Marais i filmen "La Belle et la Bête" vara en bra inspirationskälla. Längst inne i labyrintens mörker finns det en liten, magisk, vacker men svåröppnad dörr omringad av en ljusspringa. Dörren alstrar inte bara ljus men också värme. Det är dörren till odjurets hemliga paviljong.

Manus 2002-09-17

Åskådaren/Vandraren träder in genom en spegel/glasport där han/hon ser en blek och otydlig form som liknar skuggan av en människogestalt klädd i rustning (som symbol för rovdjuret i människans psyke: den, i sig själv, låsta människan). Rustningen behöver inte se ut som en riktig rustning, men skall uppfattas som något hårt, kantigt, ett hotfullt skal som skyddar men samtidigt låser in gestalten inuti. Man behöver inte alls modellera denna gestalt; det räcker att man anar något. Det kan lika bra – om inte bättre – uppnås med ljuseffekter (några punkter i rustningen som lyser t.ex.).

Vandraren träder in i en stor och ödlig miljö. Det kan vara vad som helst: torg i en öde-stad, hall i en tunnelbana, ett surrealistisk/science-fiction landskap. Det som är avgörande är att det känns ödligt, mycket ensamt, tryckande som om allt levande hade flytt från platsen efter en katastrof. Ett förslag för att få fram den känslan vore att visa vandraren – under blott en eller en halvsekund, som i en hallucination – samma plats med en annan ljussättning eller andra färger eller detaljer som omvandlar platsen till en levande miljö, för att sedan återvända till den ödliga versionen.

Ifrån den ödliga platsen finns det ett antal utgångar i form av t.ex. stigar, portar, trösklar, transportmedel eller annat som vandraren skall få lust att använda för att fly ifrån ödeplatsen. Alla "utgångar" utom en skall obönhörligt föra vandraren tillbaka till ödeplatsen. Den enda ingången som skall ge möjlighet att lämna ödeplatsen är ingången till "Labyrinten" som leder till det stora vattenfallet. Under vattenfallet gömmer sig dörren till den *Hemliga Paviljongen*. Ödeplatsen skall vara platsen där vandraren ständigt kommer tillbaka efter sina försök att söka en utväg, och efter att ha vid varje misslyckad försök stött emot en gräns i form av en slags stålvägg med samma textur som Odjurets skal/rustning.

Genom att pröva olika sätt att ta sig ut går vandraren igenom snabba, intensiva eller mer utdragna obehagliga erfarenheter i klaustrofobiska miljöer.

Exempel på detta kan vara (ej bindande):

Trappor som går i bitar. Trappor där vandraren får intrycket att vandra upp och ner vänd, och där han/hon tappar fullständigt orienteringen och får yrsel.

Fordon, volym som stänger in vandraren och tvingar till för hög eller för låg hastighet

Dörrar eller klippblock som faller ned bredvid, dörrar som stängs bakom ryggen och hindrar vandraren att komma tillbaka.

Den känsla som är viktig att skapa för vandraren är att han/hon inte har kontroll över situationen. Stämningen skall byggas upp progressivt (från enbart ödsliga till mörka, klaustrofobiska och hotfulla miljöer). Man skall först tappa orienteringen, sedan känna sig förföljd (i t.ex. en tunnel, i trappuppgångar, hiss eller annat konstigt fordon) och, till slut, (före vattenfallet) känna sig riktigt hotad utan att förstå av vad/vem och varför.

En enda gång (under en halv sekund) skall Vandraren förnimma den hotande gestalten med "rustningen" (odjur, vakt i labyrinten?) som påminner om gestalten bakom spegeldörren och skall, vid varje misslyckad försök att hitta en utväg, stå framför en slags stålvägg som verkar vara något levande. Strukturen från stålväggen skall kännas igen, och det skall vara rustningens textur. Stålväggen skall uppfattas som en återvändsgräns, ett hinder som gör att man inte kan ta sig ur denna miljö. Stålväggen är inte helt stilla, den verkar andas, viker sig lite och ger ut metalliska ljud. I själva verket är stålväggen och rustningen en och samma sak. vandraren är det inlåsta Odjuret som desperat försöker bryta sig ur den egna hårda rustningen. Samtidigt är vandraren vakten i labyrinten som skyddas av stålrustningen och stålväggen.

Den mest ångestfyllda stämningen skall byggas precis innan vandraren når vattenfallet med en besvärjelse dans (i *motion capture*) där vandraren ser sig själv omringad – som i en eldring – av aggressiva gestalter. Den hotfulla miljön skall skapas med hjälp av suggestiva ljud: t.ex. hovljud, tung andning av ett stort djur (tjur eller dinosaurie!), ett kort förtvivlat människoskrik. Vandraren konfronteras med stålväggen igen men denna gång forsar vattnet ifrån väggen. Vattenfallet har ett dånande ljud och verkar hotfullt, men det finns en liten ljuskälla i vattnet. Om vandraren väljer att närma sig ljuskällan tillräckligt nära ersätts ljudet av "ögatsljud" (hjärtljud från ett foster) och upptäcker att hon/han närmar sig "ögat" (samma öga som i tvillingrummet symboliserar själen/den oförstörbara kärnan i varje människa). Ögat är porten till den hemliga paviljongen. Om vandraren vänder om innan den har närmat sig ljuskällan kommer han/hon tillbaka till den ödsliga platsen, som i en mardröm som aldrig tar slut.

På väg till Paviljongens öga skall vandraren se bitar av den av vattnet och ljuset söndersprängda stålrustningen (*comme une poupée désarticulée*): ett söndrigt gammalt skal som man har kunnat växa ifrån. Det är bra om rustningen och stålväggen - som förr var ståtliga och stora - plötsligt krymper till små sköra bitar, obetydelsefulla smulor som blåser bort. Att spränga sitt gamla skal och våga se gör ont, men det är enbart så man kan växa och hitta vägen till ljuskällan och den hemliga paviljongen.

3.2 The Pavilion

Manus till Paviljongen

Min första version

Längst inne i labyrintens mörker finns det en liten, magisk, vacker men svåröppnad dörr omringad av en ljusspringa. Dörren alstrar inte *enbart* ljus, men också värme. Det är dörren till Odjurets hemliga paviljong: *Barndomens trädgård* som symboliserar det vitala och oförstörda. En svåråtkomlig plats för stillhet och eftertanke, där man förnimmar olika sinnesintryck som återknyter till naturen och livet: Solvärme, fågelsång och en bäck som porlar i bakgrunden. På paviljongens vägg hänger en tavla som föreställer Odjurets mänskliga och samtidigt barnsliga ansikte.

Nästa version

I den mest hotfulla och klaustrofobiska delen av labyrinten, bakom det dånande och till synes skrämmande vattenfallet (utan vatten, inget liv men vattnets kraft kan ödelägga liv) ser åskådaren/vandraren som vågar titta i mitten av vattenfallet en ljuskälla som verkar likna ögat i "tvillingrummet". Hon/han upptäcker att det går att smyga sig in under vattenfallet från sidan och att det verkligen är ögat – den pulserande själen/hjärtat i tvillingrummet – som står framför henne/honom. Ögat bildar taket på en liten exotisk paviljong. Taket vilar på levande pelare som pulserar av liv och liknar korall, anemoner, vattenkärll, nerver. Det underliga är att kolumnerna är mycket höga. För att komma in i paviljongen måste vandraren sväva lugnt, uppåt, längst pelarna. Inne i pelarna är det guldpartiklar som svävar uppåt som vattenbubblor. För att få en enhet, en röd tråd i vandringsen som ger vandraren chansen att ana/förstå sammanhanget mellan de olika miljöerna under vandringsen, är det nödvändigt att återanvända element ifrån tvillingrummet som vandraren kommer att känna igen: till exempel flytande guldpartiklar som dock kan ha andra färgschatteringar och strukturer från liv- och dödsträdet.

När vandraren har kommit tillräckligt långt upp, upptäcker han/hon ögats centrum: *Ljuskammaren*. Ljuskammaren symboliserar platsen där människan hittar sig själv, upplever frid och utvecklar sig själv, genom att andas lugnt, betrakta, lyssna, tänka och ladda upp glädje och livsbejakande energi. I Ljuskammaren är Vandraren trygg och skyddad från all intrång. Här vore det fint, om man – med kaleidoskopiska ljus och färg effekter på kolumnerna (se Josefs förslag) – kunde uppnå känslan av att man sitter mitt i en belyst ädelsten/opalsten.

I en spegel mellan kolumnerna ser vandraren den ljusa bilden av sig själv: negativbilden av den mörka gestalten (Odjuret/Minotaurus/den förstörande kraften i människans psyke) som härjade i labyrinten förut. Där kan han/hon vila efter alla strapatser och samtidigt få överblick över den egna vandringsen (metafor för människans väg genom livet) genom

tre öppningar: en öppning mot vattenfallet och labyrinten, en öppning mot det blå jordklotet i tvillingrummets träd (som ständigt föder nya världar), och en öppning mot solen och flammarna i trädet.

Ifrån *Ljuskammaren* kan Vandraren beundra Paviljongens tak och ljuskällan underifrån, som ser ut som en spiralmussla, som spiraltrappan i ett fyr. Ljuset strålar från takets spets (ögats iris). När vandraren har vilat ett tag måste han/hon bli lockad till att stiga upp för spiraltrappan till ljusets källa för att få utsikt över världen. (Det går inte att stanna evigt i paviljongen). När han/hon når ögats spets kommer han/hon tillbaka till *Trädgården* eller *Huvudtrappan*. Människan kan enbart föreställa sig världen, men kan inte få överblick över hela världen genom att se och förstå allt. Ögats ljus är för starkt för människan. Det gör dock inget, det är inte så dumt att upptäcka delar av världen, vandra i *Trädgården*, i *Tvillingrummet*, för att då och då få chansen att uppleva *Paviljongen*.

4. Survey for the production team

4.1 Survey material

Kvalitativ enkät Artistic Crossover, 2002-08-28

(net enkät för produktionsgruppen)

Hur upplever Du första fasen i projektet?

1. Samarbete tekniker – konstnärer.

- a) Vad innebär det för dig som är
 - specialist inom teknisk kommunikation att arbeta med konstnärer?
 - konstnär att arbeta med specialister inom teknisk kommunikation ?
 - både specialist inom teknisk kommunikation och konstnär att arbeta i en grupp där somliga är specialister inom teknisk kommunikation och andra konstnärer?
- b) Upplever Du särskilda möjligheter och svårigheter? Om ja, vilka?, Hur upplevs de? (stora, små, frustrerande, stimulerande, utvecklande, annat...)
- c) Har du intrycket att Du förändras under projektets gång, hur i så fall? (ökad eller minskad förståelse för den konstnärliga/ respektive den tekniska processen).
- d) Tycker Du att man kan prata om utvecklingen av ett gemensamt språk mellan tekniker och konstnärer eller inte?
- e) Vilka egenskaper hos de medverkande tycker Du gagnar eller försvårar ett sådant samarbete? (kreativitet, improvisation, noggrann planering, kalkyl, intuition, tålmod, (o)säkerhet, (o)tydlighet, chansning, logik, annan...)

- f) Vilka faktorer gagnar eller försvårar samarbetet? (tid, tekniska förutsättningar osv.)
- g) Finns det specifika skeden där dessa egenskaper och faktorer gagnar eller försvårar samarbetet avsevärt, i så fall varför?

2. Möte konst – teknik

- a) Tycker Du att 3D-kuben är ett medium som lämpar sig till konstnärliga experiment eller inte?
- b) Vad är enligt Dig de starka och svaga sidorna av kuben när det gäller konstnärlig gestaltning?
- c) Hur upplever Du det visuella, det musikaliska i kuben?
- d) Är det något som Du blivit speciellt berörd av när Du tittade på ”tvillingrummet för liv- och dödskrafterna i kuben”?, varför?
- e) Är det något som Du har upplevt mycket starkt när Du har tittat på andra konstnärliga experiment i kuben?

3. Relation konstnärligt resultat – publik

- a) Vilka reaktioner har Du observerat bland studenterna eller andra personer som tittat på tvillingrummet?
- b) Fanns det markanta skillnader i reaktionerna eller inte? (nyfikenhet, glädje, förundran, trötthet, obehag, likgiltighet, annat...)
- c) Vilka frågor har dykt upp bl. åskådarna?
- d) Var det åskådare som ville ”köra själva”? som inte ville köra själva?
- e) Har det tagit lång tid för de åskådarna som ville köra själva att lyckas med det?
- f) Hur länge stannade de i kuben för att titta på tvillingrummet (tid för att lära sig + tid för att köra)?

4.2 A Chalmers student answers the survey

Exempel på svar på enkät inom produktionsgruppen: Lotta Persson var TK-student och arbetade med designen av liv- och dödsträdet i *Tvillingrummet*:

Mina (Lottas) slutsatser av Artistic Crossover projektet

När det gällde att arbeta i team med både konstnärer och tekniker fann jag det mycket stimulerande. Jag är själv intresserad av gränsområdet mellan konst/estetik och teknik och det var detta som från början var huvudorsaken till att jag ville arbeta med detta projektet. Dock ska man inte frångå att det finns problem. Som tekniker är man vad vid gränsdragningar och att det finns mycket som inte är realiserbart (eller i alla fall svårt att realisera), att överföra detta till det konstnärliga planet visade sig inte alltid vara helt lätt. Jag tror att man som tekniker måste vara utrustad med ett kreativt sinne och ett visst mått tålmod för att kunna ta till sig ett samarbete över gränsen konst/teknik. Likaså tycker jag det är viktigt att de konstnärer som tar del i projektet har förståelse för att teknisk gestaltning och konstruktion i de flesta fall måste följa en del ramar och kräver en (hel) del planering om man ska nå resultat utan att tillämpa ”trial and error” i allt för stor utsträckning. Inte för att ”trial and error” är en dålig metod, för den här typen av samarbete kan den vara väl så lämpad, men den är tidskrävande och bygger i stort sett på att teknikerna och konstnärerna kontinuerligt arbetar sida vid sida så att de kan följa varandras utveckling, något som vi i det första skedet inte hade direkt möjlighet till.

Att kunna bryta mina ”tekniska” studier emellanåt och gå ner till Medialab och sätta mig och arbeta med färg och form kändes för mig otroligt belönande och utvecklande. Att få tillgång till den konstnärliga, friare världen gjorde att jag återfann den kreativa delen av mig som i stort sett legat i dvala sedan jag började på Chalmers. Även om arbetet var frustrerande vid tillfällen då det kändes som om man inte kom någonstans, eller att ingenting fungerade som det var tänkt (teknikens under) lärde jag mig på nytt att söka efter de inte alltid så uppenbara lösningarna. Detta har jag haft bra nytta av nu i arbetet med mitt examensarbete.

Jag tycker det finns stora möjligheter i samarbetet mellan tekniker-konstnärer. Det är ett intressant, lite dimmigt område som tål att utforskas mer, det viktiga är att deltagarna går in med öppna sinnen och erbjuder förståelse för respektive arbetsform.

Vad gäller 3D kuben tror jag mediet har stora möjligheter. Dessvärre var en projektor trasig under vårens arbete vilket markant sänkte betyget på upplevelsen, att ha en helt stängt kub med även en projektor i taket vore det bästa eftersom design problem rörande höjder (titta upp) då skulle försvinna. Ett bättre verktyg för navigering hade också i mitt tycke varit att föredra. Att använda kuben för konstnärlig gestaltning är en bra ide så länge man är väl medveten om att kubens starka sida är att gestalta icke realistiska aspekter. Är man intresserad av att gestalta träd som böljar för vinden i 3D bör man nog hellre överväga att använda sig av ett 3D filmformat i stället (IMAX?). Eftersom kuben på ett sätt tar med sig vandraren på en resa, likt en karusell/berg-och-dal-bana borde upplevelserna på ett sätt bli starkare i kuben än i verkligheten. Tex tyckte jag att vi lyckades bra med att realisera känslan av ett fall, något som torde vara mycket svårt att realisera med en publik som betraktar en teaterscen. Det som är svårt att framhäva i kuben är nyanser, fina skillnader i färg och ljus, eftersom upplösningen är ganska dålig. Nyanser måste i stället speglas i musiken.

Hur andra människor hankas med kuben är mycket varierande. Min mamma, som är mer eller mindre livrädd för allt som har med karuseller att göra, var mycket tveksam till att följa med in och vägrade absolut att köra. Även om hon fann upplevelsen lite skrämmande och obehaglig (det var framför allt fallet som vi kunde testa när hon var där) märkte jag ändå att hon var nyfiken eftersom hon bad mig "titta" på flera objekt ("spaceball" etc). Pappa, som kanske inte är den mest konstintresserade av personer, var mer intresserad av de tekniska aspekterna och hur det hela fungerade. Generellt sätt har det tagit ett tag för de flesta jag har sett att lära sig navigera i kuben. Därav min åsikt att det borde finnas ett enklare sätt för navigering, annars tar detta problem nog lätt överhanden. Den mest uppskattade delen av föreställningen har nog varit fallet. För väldigt tekniskt lagda personer kan nog tvillingrummet bli lite av en chock, och de kan få svårt att ta till sig vad de ser, och förklara sina tankar och känslor.

Lotta

5. Visual and musical environments and interaction

5.1 Musical environments in the VR arts play

Musik, VR arts play

Tvillingrummet: Valsång

Trädgård: Anders Ljungar, flöjtimprovisation

Trappa: Flöjtimprovisation

Labyrint:

1. Dämpade skrik, stöningar, snyftningar, (dova ljud, otydliga, avlägsna) i alternans med åskljud och inget ljud alls. (Skrämmande därför att man inte kan se vad som händer).
2. Hovljud, flämtningar och ett enda kort gällt förtvivlat skrik. Man inbillar sig att människor/djur flyr med fasa inför en stor fara, kanske ett monster som försöker fånga dem. Bara en gång får man se ett skymt av monstret. Kort därefter hör man skriket. Sedan blir det tyst några sekunder.
3. Inspelad ”dikt”: Några enstaka ord, om och om igen, som en besvärjelse Blind, blind i rustningen, blind, vilse, blind, Minotaurus, Minotaurus, Minotaurus min, Blind, vilse, blind, fast i rustningen. Mörkret, det stora mörkret inom mig.
4. Vattenfall. Dånande ljud. Vatten ljud blir starkare och starkare. Den inspelade rösten dör ut.
5. Fostrets hjärtljud (som i tvillingrummet) när vandraren kommer ca två meter ifrån ögat som syns bakom vattenfallet. Vattenfallets ljud tonas ner.

Paviljongen

1. Pellarskog:
Claude Debussy: quartet in G, Op.10, sats 3.
Andantino doucement expressif (0-2.40, cello och violin liknar den mänskliga rösten
2.40-5.00, cello ensam, de plus en plus animé vers la fin du mouvement)
2. På väg till kristalkronan/guldkammaren:
– Fåglar vatten som porlar, hjärtljud
– Inspelad ”dikt” med fåglar, hjärt ljud som bakgrund
Cathédrale engloutie, Ma forêt d'étoiles
Kristalkronan min, Croisées éternelles, ...
– vattenljud enbart
– helt stilla under några sekunder
3. Torsten Nilsson: änglaröst (samma sekvens som i tvillingrummet) när man suggs upp i ögat och svävar i rymden utanför ögat och pellarskog
4. (tillbaka till) Tvillingrummet: Valsång med hjärtljud kring ögat för Liv- och dödsträdet

5.2 Time table for interaction within musical and visual environments

Musik	Ljudbakgrunder	Musik och ljud	Ljud
Miljöer		kopplad till åskådarens inträde i ett avgränsat område	kopplade till att åskådaren klickar på ett objekt
Trädgården	<i>Flute.wav 1.60</i>	<i>transi.wav 1.76</i> när kubens dörr stängs bakom åskådarna	
Trappan	<i>Flute.wav 1.60</i>	<i>transi.wav 1.76</i> när åskådaren sätter foten på 1sta trappsteg	
Porten (den högsta i trappan)			- ögat (vänstra dörrhandtaget) <i>kristall.wav 1.61</i> - klon (högra dörrhandtaget) inspelat <i>klo.wav 1.62</i>
Tvillingrummet	<i>Whales.wav 1.63</i> <i>Little.world.wav 3.60</i> ljud kopplad till mini planet med miniträd som kretsar runt trädet i oregelbundna banor	- En kvadratmeter kring ögat : <i>Puls.cresc.wav 1.64</i> - mellan den högsta leopardklo : <i>klo.wav 1.62</i> - När åskådaren kommer framför ögat efter färden genom paviljongen : 4 sek. <i>1.65</i> och <i>sedan 1.76</i> (Åskådaren landar i trappan vid paviljongens port)	- ögat : <i>Puls.wav 1.65</i> - grön boll : <i>crazy.wav 2.62</i> - röd boll : <i>transi.wav 1.76</i> och direkt efter <i>falling.wav 2.61</i> - blå boll : <i>1.76</i> , och direkt efter <i>rising.wav 2.63</i> - jordklotet som lossnar: <i>planet.wav 2.64</i>
Labyrinten	- Rum 1: <i>inget ljud</i> - <i>Rum2.wav 1.66</i> - <i>Rum3.wav 1.67</i> - <i>Rum4.wav 1.68</i> - <i>Rum5.wav 1.69</i> - <i>Rum6.wav 1.70</i> - <i>Rum7.wav 1.71</i> - Rum 8: <i>inget ljud</i> - <i>Rum9-10.wav 1.72</i> - <i>Rum11.wav 1.73</i> - <i>Rum12.wav 1.74</i> samtidigt: <i>puls.wav 1.65</i> (obs: även om man inte klickar på ögat!)	- Minotaurus mårrende : <i>beast.wav 2.60</i> till skuggan/gestalten som snurrar runt genom väggarna <u>fr. o m rum 4 t o m rum 9</u> (obs ej i rummen, 1-3 och,10-12) - <i>Transi.wav 1.76</i> När åskådaren går igenom vattenfallet och därmed lämnar labyrinten	- Klo på labyrintens port : <i>klo.wav 1.62</i> - När åskådaren som <u>efter ca 5 min</u> i labyrinten inte har hittat vägen ut (genom paviljongen) kommer ut i trappan igen framför labyrintens port . Då hörs <i>klo.wav 1.62</i> igen som en dörr som stänger sig bakom honom/henne. Om åskådaren går uppför trappan igen skall trädgården bli osynlig igen (dvs. från trappavsats 1)
Paviljongen	- <i>inget ljud i 3 s</i> - <i>Paviljong.wav 1.75</i>	- När åskådaren kommer in i första "kretsen" av spiraltrappan/insidan av ögat för att sedan se paviljongen uppifrån: <i>Transi.wav 1.76</i> sedan <i>rising.wav 2.63</i> När uppstigningsmusiken slutar kommer åskådaren tillbaka mitt framför ögat i tvillingrummet och hör återigen: <i>Puls.wav 1.65</i>	- När åskådaren klickar på hängträdets guldgrenar <i>kristall.wav 1.61</i> - När åskådaren rör vid paviljongens port i trappan <i>kristall.wav 1.61</i> Paviljongens port syns i trappan enbart för de som själva har hittat vägen ut ur labyrinten genom paviljongens tak/ögat, inte för de andra. De kan om de vill gå in i paviljongen igen och landar på samma plats som första gången bakom vattenfallet.

* Miljöer/platser/objekt – i rakstil
Musik och ljud står i – kursiv stil

Efter 20 minuter, oavsett vad som har hänt tidigare, återvänder man till trädgården i 4 sekunder *Flute.wav 1.60*
Sedan släcks kuben med en sista *kristall.wav 1.61* : slut på färden, slut på drömmen!

6. Audience survey

Publikenkät ”Le Beau, le Laid, le Bon et le Mauvais”

Kära publik!

Denna performance/föreställning utgör en del av min avhandling i digital gestaltning inom ramen för Chalmers Centrum för kunskapsbildning och kommunikation och den konstnärliga fakulteten i Göteborg. Målet med avhandlingen är att studera vad nya medier kan eller inte kan tillföra för att utveckla nya konstnärliga uttrycksformer. Går det att – i ”VR-Kuben” – tänja ut gränser och skapa upplevelser i virtuella miljöer som inte går att skapa med mer traditionella medel i reella miljöer? Vad är det som sker när man luckrar upp distansen mellan scenen och åskådaren och skapar en miljö där åskådaren får chansen att välja sin egen väg genom ett virtuellt konstverk?

Skulle virtuella upplevelser på sikt kunna få en plats – vid sidan om eller på korsvägen – mellan andra konstformer som film, bildkonst, skulptur, teater, opera, dans osv.?

Det är dessa frågeställningar som Du kan hjälpa mig att belysa genom att besvara denna enkät.

Symbolen ♣ står för flervalfrågor och finns vid upprepade tillfällen i enkäten. Där kan Du kryssa fler än ett alternativ.

Tack på förhand och vänliga hälsningar

Magali Ljungar-Chapelon
Konstnärlig ledare/doktorand i digital gestaltning
Magali@cck.chalmers.se

Se även hemsidan:

http://www.medialab.chalmers.se/scientific/digital_representation/PhD/magali/index.html

Några frågor om din bakgrund

1. Man 50%
Kvinna 50%
2. Ålder under 20 12%
mellan 20 och 30 36%
mellan 31 och 40 22%
mellan 41 och 50 8%
över 50 22%
3. Kommer Du ifrån Chalmers?
Ja (Precisera gärna sektionen, om Du är student eller anställd och vad Du arbetar med) 44%
Nej (Precisera gärna vad Du arbetar med/studerar eller har arbetat med) 56%
4. ♣ Vilka av följande aktiviteter besöker/ägnar Du dig åt?
teaterföreställning 50%
dansföreställning 22%
operaföreställning 12%
pop/rockkonsert 34%
klassisk konsert 30%
konstutställning, installation 52%
performance (t.ex. dans- eller "bodyart" performance) 6%
film (på vanlig biograf) 80%
dataspel 38%
rollspel 8%
simulatorer 14%
5. ♣ Kryss de aktiviteter som Du har varit med om
IMAX/OMNIMAX tvådimensionell film på en mycket stor hemisferisk biografskärm (som t.ex. på Maxxima vid Universeum, eller La Geode i Paris) 50%
IMAX tredimensionell film (t.ex. på Maxxima) 32%
VR-Cuben (obs. gäller ej den visningen som Du just nu har varit med om) 34%
installation med interaktiva system 14%
digital performance med interaktiva system (dans, bodyart osv.) 10%

Dina upplevelser i Kuben

6. ♣ Du som styrde med handtaget, vilka av de följande alternativ tyckte Du stämde överens med din upplevelse?

det är lätt att styra med handtaget	42%
det är krångligt att styra	32%
det är givande att som åskådare få styra (precisera gärna varför)	64%
det är obehagligt att som åskådare få styra (precisera gärna varför)	6%
annan kommentar	

7. ♣ Du som ej styrde med handtaget, Varför gjorde Du inte det?

brist på tid	4%
jag föredrog att ha en vägvisare/förare	8%
annat (precisera gärna)	16%

8. Hur upplevde Du dig själv i kuben?

som enbart åskådare	22%
som enbart aktör	0%
som både aktör och åskådare	62%
som varken aktör eller åskådare	2%
som någon/något annat (precisera gärna)	10%

9. ♣ Har Du i kuben upptäckt följande miljöer och varit med om följande händelser?

Trappan och porten (den högsta porten längst upp för trappan)

"Tvillingrummet" dvs. rummet som finns bakom den högsta porten

Uppstigningen bland guldpartiklar (när man tar med handsken i den blåa bollen/frukten)

Fallet i det svarta nätet (när man i samma rum tar i den röda bollen/frukten)

Globen/jordklotet som lossnar, försvinner och alltid återföds på nytt

Den vilda lilla gröna frukten/bollen som lossnar och studsar omkring

Porten till "Labyrinten" (den svart-röda porten vid trappans första avsats)

"Labyrinten"

"Paviljongen" med det guldiga hängträdet och guldpelarna

Pellarskogen/katedralen

Uppstigningen genom spiraltrappan/ögat med utsikt över paviljongen och pellareskog

Porten till "Paviljongen" (den vackra guldporten med små röda solar som syns i trappan för den som har upptäckt paviljongen)

10. Har Du vandrat igenom eller sett insidan av olika gestalter och objekt?

Ja 94%

Nej 4%

11. ♣ Kryssa de aktiviteter som Du tycker din upplevelse i kuben har gemensamma

nämnare med

teaterföreställning 20%

operaföreställning 6%

pop/rockkonsert 8%

klassisk konsert 8%

konstutställning 36%

installation 46%

performance 26%

2D-film på biograf 12%

dataspel 74%

rollspel 10%

film på cirkulär skärm (ex: Geode, ...) 26%

3D-film 60%

andra aktiviteter (precisera gärna vilka) 20%

12. ♣ Vilka av följande upplevelser fick Du under föreställningen i kuben?

känslan att vara en "aktör" i verket 38%

känslan att själv kunna välja sin väg i verket när man styr 60%

känslan att kunna påverka verkets innehåll genom egna val 38%

tyngdlöshet 48%

gränslöshet 48%

känslan av att sväva igenom ytor/objekt/gestalter 80%

svårigheter att orientera sig 54%

känslan av att få vissa gestalter/objekt i ansiktet 70%

friheten att kunna upptäcka/undersöka objekt inifrån 40%

friheten att avsevärt kunna förstora eller förminska vissa objekt 28%

andra alternativ (precisera gärna)

13. Tycker Du att kuban öppnar möjligheter för nya konstnärliga upplevelser?

Ja (precisera gärna varför) 96%

Nej (precisera gärna varför) 2%

APPENDIX

14. Vad är det som gör kuben unik och är mest givande för Dig?

Att kunna vara "aktör" i verket	26%
Att som åskådare kunna välja sin egen väg i verket	34%
Tyngdlöshet	30%
Gränslöshet	42%
Att sväva igenom ytor/objekt/gestalter	44%
Att kunna upptäcka/undersöka objekt inifrån	22%
Att avsevärt kunna förstora eller förminska objekt/gestalter	14%
Att uppleva fantasivärldar, former och gestalter som inte går att gestaltas annars än virtuellt	68%
Samverkan mellan bild och musik/ljud andra alternativ (precisera gärna)	40%

15. ♣ Vilka är enligt Dig de största nackdelarna med ett medium som kuben?

yrselkänsla, illamående	18%
trötthet, instängdhet att vistas i en sådan lokal	14%
bökigt med så många sladdar	18%
för svårt att styra för åskådaren	20%
för dålig upplösning på bilderna	42%
för få åskådare åt gången	10%
inget tak i kuben	58%
För konstgjorda/ sterila datamiljöer	32%
andra alternativ (precisera gärna)	18%

16. Övriga kommentarer

(gärna om själva innehållet och om det som föreställningen handlade om för Dig)

7. A journalist's metaphors

“Titta – en ny verklighet” (Look – a new reality), May 2003.

Manuscript of Anna Lennqvist's article for *GLIMT*, pp. 42-45

Jag slungas ut i världsrymden. Tomt och tyst. Runt omkring mig finns en oändligt blå evighet med stjärnor och planeter. Jag svävar som en av dem...

Scenen för föreställningen är ett kubiskt rum med tre meter långa sidor. Och i det virtuella konstverket *Le Beau, le Laid, le Bon et le Mauvais* (det Vackra, det Fula, det Goda och det Onda) är åskådaren också aktör.

På golvet och väggarna projiceras stereobilder. Genom ett par särskilda glasögon uppfattas bilderna som tredimensionella, och med hjälp av en joystick väljer åskådaren sin väg genom den virtuella världen. En virtuell hand kan öppna dörrar och ta tag i föremål. ”Kuben” som rummet kallas finns på Chalmers tekniska högskola i Göteborg.

Blicken dras till en märkligt formad figur i olika färger. Jag vill dit och blicken räcker för att ge mig riktning. På vägen möter jag en planet. Ett klot som jag skulle kunna omfamna, men mina armar känner inget motstånd när jag försöker trycka himlakroppen mot mig. Det finns inget att ta på, ingen yta.

Kvinnan bakom konstverket heter Magali Ljungar-Chapelon. Hon är doktorand i digital gestaltning. Ett helt nytt forskningsfält som utvecklats i samarbete mellan den konstnärliga fakulteten vid Göteborgs Universitet och Centrum för kunskapsbildning och kommunikation på Chalmers.

– Det här är en kombinationen av konst och vetenskap som inte finns någon annanstans i Sverige, säger Magali Ljungar-Chapelon.

I sin forskning vill hon undersöka hur nya medier och ny teknik kan användas inom konsten.

– I den virtuella miljön kan man få en helt annan upplevelse än med andra medier, säger hon.

Det finns många skillnader från en traditionell scen. Gränsen mellan scen och publik är borta och åskådaren är snarare upptäcksresande.

– Men det är inte så enkelt som att säga att åskådaren automatiskt blir mer aktiv och delaktig i kuben än när den sitter i teatersalong. Det finns olika värden i de båda. Det här ersätter inte någon annan konstform, utan det är ett komplement, säger Magali.

Färgerna är bleka. Formerna är rena. De påminner mig om saker jag vet namnet på, men orden passar inte riktigt. Allt är rent och det blåser inte. Känslan är öppen och nyfiken. Här finns ingen annan, men jag är inte rädd.

Magali drar en parallell till Platons filosofiska teori om grottan. Platon tänker sig att människorna sitter i en grotta med ryggen mot öppningen. På så sätt kan de inte se den verkliga världen, utan bara skuggbilder av den på grottans vägg.

Den virtuella miljön i kuben är på samma sätt en slags återspeglning av verkligheten. I kuben är det dessutom möjligt att gå utanför naturlagarna och utmana det verkliga.

Jag svävar närmare en märklig figur. Något som är vitt och rött med ett öga och slingriga utskott. I utskotten hänger färgade klot. Ett är rött och stort som en medicinboll. Jag tar tag i det och plötsligt störtar jag ner i en brunn. Jag faller länge. På botten av brunnen undrar jag hur jag ska komma tillbaka. En sekund står jag så och ögonblicket senare är jag tillbaka vid det röda klotet.

Titeln "Det Vackra, det Fula, det Goda och det Onda" syftar på människans personlighet.

– Jag kallar det för människans inre resa genom livets gåtor. En resa bland livets trädgårdar, labyrinter, lekplatser och höjdpunkter, säger Magali.

Kontrasterna mellan gott och ont, fult och vackert har sedan urminnes tider funnits i vår begreppsvärld och skildrats i myterna.

– Men allt är inte svart eller vitt. Man är inte god eller elak, ful eller vacker. Vi är alla lite som Gollum i Tolkiens *Sagan om ringen*.

Magalis virtuella värld är uppbyggd av olika rum som är förbundna med varandra. Varje rum representerar något som finns i människans natur. Det finns det som är vackert och det som är fult. Det som är gott och det som är skrämmande.

Jag står i ett litet rum som är kallt och vitt. Jag hör förtvivlad gråt men det finns ingen där. Jag ser ut genom fönstret. Därute glider dimman förbi. Väggarna är tjocka. Jag vill bort. Vad kan jag göra åt gråten när rummet är så tomt? Det finns en väg in i ett annat rum. Där blandas gråten med ett sprakande ljud. Det brinner.

Magali har en tvärvetenskaplig bakgrund med utbildningar inom dans, musik, ekonomi och språk. Hon kommer från Frankrike och har varit konstnärlig ledare i olika sammanhang i Malmö, Paris och Köln.

Inom fältet digital gestaltning tycker hon att hon får utlopp för både konstnärligt skapande och reflekterande.

Ungefär 150 personer har sett "Le Beau, le Laid, le Bon et le Mauvais" sedan föreställningen blev visningsklar i december. Av dem är ett trettiotal barn. Men föreställningen ska passa alla som fyllt nio år.

– Det kom en gammal kvinna som inte kunde gå. Hon fick sitta på en stol i kuben. Det är väldigt fint att man kan få känslan av att sväva eller flyga fast inte kroppen orkar, säger Magali.

Helst bör det inte vara mer än fem personer i kuben samtidigt, och den bästa upplevelsen får man om man är ensam och kan gå precis dit man vill. Bara en person kan styra åt gången.

Jag svävar in mellan dimmor i lila och grönt. Dimmorna liknar alltmer lövverk och snart ser jag träd som hänger helt fritt i luften.

"Allting är ju suddigt, ska det vara så här?" Damen bredvid väcker mig ur för trollningen. Glasögonen testas. Inget fel på dem. Magali förklarar att vissa objekt ska se suddiga ut. Så står vi på det vita golvet och betraktar allt det suddiga genom glasögonen. Känslan dröjer.

Magali säger att hon inte väntat sig att det sociala skulle spela så stor roll i kuben.

– Jag blev förvånad över att jag kunde uppleva vissa åskådare som så otroligt jobbiga. Jag frågade mig själv varför jag reagerade så starkt.

Hon jämför med att gå på konsert eller teater. Om personen bredvid börjar prassla med godispapper eller kommenterar så kan man ganska lätt skärma av det.

– Men i kuben är scen och salong inte skilda. Det blir mer som om någon i orkestern skulle börja störa de andra musikerna. Någon gör intrång i scen-bilden.

Magali står för den konstnärliga ledningen och idéerna i projektet. Men själva modelleringen i datorn har hon fått hjälp med.

Totalt har ungefär femton personer medverkat och på sitt eget sätt tolkat och överfört Magalis idéer till den virtuella miljön.

Mycket har hänt från idé till färdig datormodell och det har varit en viktig del i den skapande processen.

– Man ändrar sig efter dem man jobbar ihop med. Jag tror absolut att resultatet har påverkats av att det varit många män. Men det är intressant! Det är mer raka linjer och skarpa kontraster än jag hade tänkt mig från början.

Platsen som Magali kallar för paviljongen är ett exempel. Den var från början orientalistisk med mycket guld och kurviga former. Nu har den blivit mer skandinavisk. Som en park om våren.

Jag kommer ut i ett stort blå. Där nere finns en park. Jag svävar dit. Över gräsmattorna jagar ett skimrande ljus. Träden har inga kronor utan försvinner bland molnen. Det spelas ljuvlig musik. Över mitt huvud finns en plåtå. När jag kommit dit vill jag stanna där en stund. Jag omges av hängande grenar med trekantiga löv. Över mig vakar ett blått öga.

Upplevelsen i kuben är ett samspel mellan bild och ljud. Det finns ljud som illustrerar något som händer och andra som skapar stämning.

– Jag ville ha flöjtljud, säger Magali. Flöjt påminner om andetag, vind, fågellåt och det är lite hemlighetsfullt. Inför Paviljongen lyssnade jag på många stycken och bestämde mig för ett av Debussy.

Nästa steg i projektet är att bygga upp verkliga rum på samma tema som kubens. Där kommer åskådaren att få möta skådespelare och dansare. En viktig skillnad mot kuben är att man kan använda känslan. Det tillför en dimension.

Magali har kontakt med en textilkonstnär och funderar över hur tyger kan ge olika upplevelser.

– Genom att vandra genom hängande tyger kan man uppleva att något känns fint, som sidentyg, eller kanske kladdigt.

Även här kommer det att finnas möjligheter för åskådaren att vara aktiv.

– Man får en roll genom att välja en kostym och en mask. På så sätt väljer man sin egen ingång i föreställningen.

Jag tittar på de andra kloten. Tar tag i ett blått. Plötsligt faller bitar av något över mig som ett regn. Flöjter spelar. Det klirrar av bitarna som faller. Jag kan inte se den märkliga figuren eller bollarna längre. Har allt gått sönder? Nej, snart står jag där igen med det blå klotet i handen. Rymden är oförändrad. Det är tyst igen.

Ett spektakulärt dataspel

Rolf Ekdahl och Monica William passade på att se en föreställning i kuben under vetenskapsfestivalen.

– Det var ju ganska spektakulärt. Särskilt som man inte varit med om det förut, säger Rolf Ekdahl.

Han berättar att han tidigare varit på 3D-biografen Cosmonova i Stockholm och var förberedd på en liknande upplevelse. För Monica William var det också första gången. Hon tyckte bäst om att vara i paviljongen.

– Jag tyckte ju om där det var löv och grönt. Ungefär som det är ute nu. Det är ju lite banalt kanske... Men sedan var det ju väldigt spännande där det brann och skrek. Man visste ju inte vad som skulle dyka upp, säger Monica William.

Men om det verkligen är konst de upplevt är de tveksamma till.

– Jag måste säga att det är väldigt snarligt ett dataspel. Nu spelar jag ju inte själv, men jag har ju sett barnen göra det. Det är ju sådär att man går in genom portar och så, säger Rolf Ekdahl.

8. Production team for the DVD

About Le Beau, le Laid, le Bon et le Mauvais

Concept

Artistic Leader

Magali Ljungar-Chapelon

Digital Representation

Film and Slide show

Technical processing

DVD - layout

Sandra Andersson

Arne Kjell Vikhagen

Magnus Axelsson

Music

Claude Debussy

Quartet in G, Op. 10

Andantino doucement expressif

Performed by Cleveland Quartet

Courtesy of Telarc International Corporation

Anders Ljungar

Voices for flute

Performed by Anders Ljungar

Torsten Nilsson

Nox Angustiae

Lamento for Soprano and Organ

Performed by Marianne Mellnäs and

Karl-Erik Welin

Courtesy of Bis Records AB

9. List of interviews

Israel, Lena: Film sociologist, 22 June 2005. Gothenburg: in-depth interview

Mörck, Henrik: Interaction designer and Jansson Jonathan: Computer game programmer, 14 June 2006. Gothenburg: in-depth interview

Sköld, Anders: Painter, 29 June 2005. Gothenburg: in-depth interview

Warenfalk, Wiveka: Play director, 14 October 2004. Gothenburg: in-depth interview

Wennberg, Teresa: VR- and videoartist, 17 April 2002. Stockholm: discussion

10. List of pictures

	page
Figure 1. The VR-Cube at Chalmers University of Technology in Gothenburg	3
Figure 2. Spectator with the joystick and the stereoscopic glasses	4
Figure 3. Nikolais Dance Theatre: <i>Noumenon</i>	30
Figure 4. Elevation and section-view of the Panorama from Champs Elysées, 1840, by Jacques-Ignace Hittorff, plate after a drawing of Hittorff, Bibliothèque Nationale, Paris	35
Figure 5. Into <i>The Garden</i>	50
Figure 6. Portal to <i>The Twin Room for Life and Death</i>	51
Figure 7. The life side of <i>The Twin Room's</i> portal with its blue eye	52
Figure 8. Two women on their journey inside the trunk of the life and death tree	53
Figure 9. Attempting to tame the snake-branches	53
Figure 10. The black claw and the golden eye on the portal to <i>The Twin Room for Life and Death</i>	54
Figure 11. Into <i>The Dark Hole</i>	55
Figure 12. <i>Woman in Blue</i>	56
Figure 13. Wild eyes on the wall inside <i>The Labyrinth</i>	57
Figure 14. Resting in <i>The Pavilion</i>	58
Figure 19. The Minotaur in <i>The Labyrinth</i>	93
Figure 21. View of <i>The Labyrinth</i>	109
Figure 22. Two loving pigeons	110
Figure 23. The skull of The Minotaur – Woman in the sky – The Minotaur and his victim Angel or Witch?	111
Figure 30. Edouard Manet's <i>Le Déjeuner sur l'herbe</i>	187
Figure 31. <i>Picnic under the Golden Tree</i>	188

11. List of models and charts	page
Figure 15. DVD Structure: main menu, root menus and titles	75
Figure 16. DVD Structure: Artistic and technical research process	77
Figure 17. Transmission of an artistic message in the received view	90
Figure 18. Peirce's Genuine Triad	91
Figure 20. Minotaur in my VR arts play apprehended through Peirce's model	94
Figure 24. Artistic and scientific knowledge shaping through metaphor	114
Figure 25. Space for new-born significations	119
Figure 26. Cultural habits of the audience (Chart 1)	125
Figure 27. Common features with other art forms and media (Chart 2)	129
Figure 28. Characteristics of the audience experience (Chart 3)	139
Figure 29. Unique and most worthwhile aspects of the experience (Chart 4)	140
Figure 32. Shaping process of an artwork and a visual metaphor: Picnic under The Golden Tree	191

ArtMonitor

ArtMonitor is a publication series from the Board of Artistic Research (NKU) of the Faculty of Fine, Applied and Performing Arts, University of Gothenburg.
Distribution: www.konst.gu.se/artmonitor

Mika Hannula, Juha Suoranta, Tere Vadén
Artistic Research – Theories, Methods and Practices
ArtMonitor, Göteborg, 2005
ISBN: 951-53-2743-1

Mika Hannula
Allt eller inget – Kritisk teori, samtidskonst och visuell kultur
ArtMonitor, Göteborg, 2005
ISBN: 91-975911-0-6

Monica Lindgren
Att skapa ordning för det estetiska i skolan. Diskursiva positioneringar i samtal med lärare och skolledare
ArtMonitor, diss. Göteborg, 2006
ISBN: 91-975911-1-4

Jeoung-Ah Kim
Paper-Composite Porcelain. Characterisation of Material Properties and Workability from a Ceramic Art Design Perspective
ArtMonitor, diss. Göteborg, 2006
ISBN: 91-975911-2-2

RAIME – Research Alliance of Institutions for Music Education
Proceedings of the Eight International Symposium
Bengt Olsson (ed.)
ArtMonitor, Göteborg, 2006
ISBN: 91-975911-3-0

ArtMonitor – En tidskrift om konstnärlig forskning från konstnärliga fakulteten vid Göteborgs universitet. No 1, 2007

Johan Öberg (ed.)

ArtMonitor, Göteborg, 2007

ISSN: 1653-9958

ISBN: 978-91-975911-4-0

Kaja Tooming

Toward a Poetics of Fibre Art and Design. Aesthetic and Acoustic Qualities of Hand-tufted Materials in Interior Spatial Design

ArtMonitor, diss. Göteborg, 2007

ISBN: 978-91-975911-5-7

Vidar Vikören

Studier omkring artikulasjon i tysk romantisk orgelmusikk, 1800–1850.

Med et tillegg om registreringspraksis

ArtMonitor, diss. Göteborg, 2008

ISBN: 978-91-975911-6-4

Maria Bania

“Sweetenings” and “Babylonish Gabble”: Flute Vibrato and Articulation of Fast Passages in the 18th and 19th centuries

ArtMonitor, diss. Göteborg, 2008

ISBN: 978-91-975911-7-1

Konstens plats / The Place of Art

ArtMonitor – En tidskrift om konstnärlig forskning från konstnärliga fakulteten vid Göteborgs universitet. No 2, 2008

Johan Öberg (ed.)

ArtMonitor, Göteborg, 2008

ISSN: 1653-9958

ISBN: 978-91-975911-4-0

Mike Bode and Staffan Schmidt

Off the Grid

ArtMonitor, diss. Göteborg, 2008

ISBN: 978-91-977757-0-0

Frictions

ArtMonitor – En tidskrift om konstnärlig forskning från konstnärliga fakulteten vid Göteborgs universitet. No 3, 2008

Johan Öberg (ed.)

ArtMonitor, Göteborg, 2008

ISBN: 1653-9958

ISBN: 978-91-975911-9-5

Talkin' Loud and Sayin' Something – Four perspectives on artistic research

ArtMonitor – En tidskrift om konstnärlig forskning från konstnärliga fakulteten vid Göteborgs universitet. No 4, 2008

Johan Öberg (ed.)

Guest editor: Mika Hannula

Art Monitor, Göteborg, 2008

ISBN: 1653-9958

ISBN: 978-91-977757-3-1

The Politics of Magma – A research report on artistic interventions in post political society

ArtMonitor – En tidskrift om konstnärlig forskning från konstnärliga fakulteten vid Göteborgs universitet. No 5, 2008

Johan Öberg (ed.)

Guest editor: Mats Rosengren

ArtMonitor, Göteborg, 2008

ISBN: 1653-9958

ISBN: 978-91-977757-4-8

Otto von Busch

Fashion-Able: Hacktivism and Engaged Fashion Design

ArtMonitor, diss. Göteborg, 2008

ISBN: 978-91-977757-2-4